# Riding the waves of quality improvement

## Sustainability and Spread in a Dutch quality improvement program for long-term care

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Riding The Waves Of Quality Improvement
Sustainability and spread in a Dutch quality improvement program for long-term care

Balanceren op de golven van kwaliteitsverbetering
Borging en verspreiding in een verbeterprogramma voor de langdurige zorg

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## Introduction

Increasingly attention is being paid to sustainability which is used as part of the organizational strategy in care organizations. Upon making an analysis of health systems, this concept is relevant for several reasons. For one, at the system level in healthcare several persistent problems have been identified (Donelan, Blendon, Schoen, Davis, & Binns, 1999; Saltman, Figueras, & Sakellarides, 1998; Schuitmaker, 2013; Travis et al., 2004) and these have led to strong pleas for quality improvement of the health system as a whole. In response to these, governments in the United States, the United Kingdom, The Netherlands, and many European countries have organized initiatives to facilitate improvement in the field, as well as adjust health law and policies, and regulatory systems (Etheridge, Jones, & Lewin, 1996; Ham & Brommels, 1994; Harrison, 2004; I.O.M, 2001; Kohn, Corrigan, & Donaldson, 2000; Rechel & McKee, 2009; Ziglio, Hagard, & Griffiths, 2000). Sustainable change in healthcare is needed to balance the demands for quality in connection with cost containment objectives (Ashworth, Boyne, & Entwhistle, 2010; Buchanan, Fitzgerald, & Ketley, 2007). Another reason why attention is being paid to sustainability is that the effects of improvement efforts are often questioned. In particular, there are concerns about their duration on the long-term, as observed in many evaluation studies. This lack of long-term effectiveness not only is seen terms of maintaining changes in practices, but also in terms of the spread of improvements, technologies, best practices, guidelines and evidence, within organizations and across the health sector (Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004; Wiltsey Stirman, 2012). It is important to note that in this context, sustainable change mainly concerns social and economic aspects rather than sustainability in terms of ecological values.

Particularly in the long-term care sector, the pleas for sustainability have gained importance, since this sector is under great pressure to provide care services to an increasing number of clients due to the graying population with a shrinking labor market of health professionals (Christensen, Doblhammer, Rau, & Vaupel, 2009). In this context, sustainable change also refers to the balancing of multiple interests held by the large number of stakeholders involved, such as nursing homes, hospitals, primary care practices, local government, insurance companies, national governments, patients and formal quality organizations. There is a desire to change the ways in which healthcare is organized and particularly in the long-term care sector there is a need to create a sustainable health system (Hurst, 1991; Leichsenring, 2004; Pavolini & Ranci, 2008; Saltman et al., 1998). Sustainable change at the system level requires sustainability and spread of quality improvements at the organizational level. However, it appears that insight in the quality improvement processes with regard to these two areas is lacking.

Therefore this dissertation explores the following areas: 1) the sustainability of changes in healthcare organizations at the local level and 2) how improvements spread within organizations. To this end, we have studied quality improvement processes in

projects and their aftermath from the Dutch Care for Better program for long-term care, which ran from 2005-2012.

The remainder of this chapter has been divided in in three sections. In Section 1.1 we review the literature and derive the problem statement and research objectives. In Section 1.2 the setting of research, the Care for Better program and the improvement projects are described. In Section 1.3 we provide an overview of the developments that have taken place in the long-term care sector.

## 1.1 THEORETICAL PERSPECTIVES ON QUALITY IMPROVEMENT, SUSTAINABILITY AND SPREAD

This dissertation focuses on sustainability and spread of quality improvements at the local level. But how can we approach these themes as part of quality improvement processes that aim to change care practices? In this section we review some basic aspects of quality improvement processes, sustainability and spread in view of current literature to determine the theoretical scope.

At the local level quality improvement efforts aim to change work practices in nursing home wards or locations. This could involve various changes: introducing novel treatments, new roles or tasks, rules and protocols or guidelines, technologies, new organizational structures, such as task committees, and so on. Some changes may concern the ´primary process´, which points to the operational care processes at the level of the clients. Others may be directed at organizational, distribution, or logistic processes that are more remotely connected with the client level processes. Greenhalgh et al. (2004) define innovation in health service delivery and organization as:

> (…) a novel set of behaviors, routines, and ways of working that are directed at improving health outcomes, administrative efficiency, cost effectiveness, or users' experience that are implemented by planned and coordinated actions. (p. 582)

Even simple changes in practices are likely to cause a rippling effect, in the sense that they could affect multiple actors and related processes in both intended as well as unintended ways (Chia, 1999; Clegg, Kornberger, & Rhodes, 2005) For this reason, Buchanan and colleagues argue that quality improvement needs to be understood as a form of "operational innovation" (Hammer 2004 in: Buchanan et al., 2007), which means that improvements entail multifaceted, and often complementary, organizational changes in structures, systems and procedures. In other words, operational innovation can be conceived as the creation of new or adjusted "fluid organizational arrangements" (ibid., p. 233). Operational innovation cannot be studied or theorized in the same way as product innovation. Moreover, it cannot be understood as a single step

process; rather it requires straddling a number of stages in which some ideas may be adapted or developed further, and others might be abandoned.

Improvements are often invented in specific quality improvement projects. We consider an improvement effort a *project* when it targets a certain quality theme and consists of a bundle of changes in care practices. A project is a temporary organizational structure with a limited number of actors, who collaborate and cooperate on developing and implementing interventions for the quality theme during a period of time: a couple of months, a year or even longer. In project based improvement it is common to use formalized improvement methods, some form of monitoring, intensified documentation of actions and results, and using designated steps and roles in the project team[1].

In quality improvement literature, improvement efforts are often referred to as implementation projects. Implementation can be defined as the "active and planned efforts to mainstream an innovation within an organization" (Greenhalgh et al., 2004). The concept of implementation is also used to describe the early usage activities of a new practice (Meyers, Sivukumar and Nakata 1999 in: Greenhalgh et al. 2004, p. 610). A special form of implementation is assimilation, when the whole organization starts to use an innovation. That obviously requires activities with an extended scope, such as: formal decision making process, evaluation phase(s), and planned and sustained efforts at implementation. In their seminal review, Greenhalgh et al. (2004) observed that the evidence regarding implementation is "particularly complex and relatively sparse" (Greenhalgh et al., 2004 p. 611). Moreover, they noted that implementation is often treated from a managerial perspective, derived from change management and organizational development. Wiltsey Stirman and colleagues (2012) report similar observations in their systematic review. In short, while the term implementation has become quite popular in healthcare, it's conceptualization is contested and seems to require more study.

In relationship with this, we point out that current research methodologies in evaluation studies seem inadequate to solve some of the theoretical questions that have been raised. Various scholars have expressed the need for more in-depth, theory based evaluation of quality improvement collaborative programs (QIC) (Berwick, 1998; Ferlie & Shortell, 2001; Kilo, 1998; Øvretveit, 2002) as well as to enhance evaluation of quality improvement work in general (Alexander & Hearld, 2009; Alexander & Hearld, 2011; Buchanan et al., 2005; Greenhalgh et al., 2004; Wiltsey Stirman, 2012). Some of the methodological challenges that have been -repeatedly- identified, are: 1) lack of conceptual frameworks, 2) narrow focus in research designs, 3) designs are not suited to

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1. Note the contrast with more informal forms of quality improvement that are already part of everyday organizational life; these might be better understood as "tinkering" (Mol, Moser, & Pols, 2010) or endogenous change in organizational routines (Feldman & Pentland, 2003).

research the interplay[2] between factors, 4) lack of longitudinal designs, and 5) problems in data due to nonresponse (participants dropping out and general difficulties with data collection procedures) (Alexander & Hearld, 2009; Øvretveit & Gustafson, 2002; Wiltsey Stirman et al., 2012). These challenges have specific consequences for the study of sustainability.

With regard to spread, we cannot observe a lack of studies, but the discussion of spread seems to be contaminated. In part, this appears to be caused by the ambiguous meaning of concepts for quality improvement, such as implementation, assimilation and others in different settings. We will return to these issues later in this introduction (see Section 1.3 and 1.4) as well as in the following chapters. Suffice it for now to say that methodological shortcomings limit our current understanding of the long-term effects of quality improvement. In particular, advances in measure development are instrumental in order to take the next step since adequate theory-based measures are simply lacking (Fixsen, Blase, Naoom, & Wallace, 2009; Kaplan, Froehle, Cassedy, Provost, & Margolis, 2012; Øvretveit, 2011).

To summarize, the amount of scientific attention paid to improving quality in healthcare has grown and as a result, there is a lot of knowledge available on quality improvement methods and processes. What we can learn from the quality improvement literature is that these improvements typically involve operational innovations with the aim to enhance services rather than product innovations. Such more complex innovations are affected by various factors. Quality improvement efforts are often organized in projects with the purpose of implementing a novel best practice. Last, there are some profound methodological challenges related to the study of improvement process, in particular with regard to long-term effectiveness. Where possible, we will take these into account in the research designs in this dissertation.

In the next section, we provide a review of the literature on sustainability in healthcare.

### 1.1.1 Sustainability – what do we know?

In healthcare, the term sustainability is typically associated with the end phase of improvement processes. Unfortunately, scholars in healthcare have been predominantly concerned with the question "how can we improve healthcare and what are best practices?" and little concerned with the question "what happens after an improvement project?" (Buchanan et al., 2007; Greenhalgh et al., 2004). However, this has been changing in the past decade and some studies are leading the way (Fixsen et al., 2009;

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2. Here I draw from Swedberg and Hedström (1996) who signaled that it has become common in social research to analyze relationships between factors or variables without being clear on the underlying social mechanisms. They argue that researchers need to describe more explicitly and concretely how they view interplays and mechanisms to enable the assessment and/or comparison of theoretical frames.

Kaplan et al., 2010; May, 2009). Several reviews have noted this gap in literature (Buchanan et al., 2007; Wiltsey Stirman et al., 2012). To illustrate, Greenhalgh et al. mentioned that studies on service innovation in healthcare were too incidental and sparse to be useful for their review (2004, p. 582). For this reason they decided to center on innovations in general. However, they were aware of the downside of this broad scope and warn us not to "over generalize to complex, process-based innovations, for which the unit of adoption (at this level, more often called *assimilation*) is the team, department or organization in which various changes in structures or ways of working will be required." (ibid., p. 600 emphasis in the original).

In the context of quality improvement efforts the term sustainability is increasingly used to express the aim to make lasting changes in care practices; sustainability is used to denote a long-term effect of quality improvement (Ashworth et al., 2010; Buchanan et al., 2007). At the same time it is unclear what time period is reasonable. According to Fixsen and colleagues, implementation takes about two to four years (Fixsen, Naoom, Blase, & Friedman, 2005). Dale et al. (1997) speak of eight to ten years in the context of total quality management. This all assumes ongoing efforts on the targeted theme. Indeed, as Pluye et al. (2004) argue: the time elapsed after a quality improvement effort is neither necessary related nor a predictor of sustainability. To put it simple, sustainability is "making an innovation routine until it reaches obsolescence." (Macfarlane, Greenhalgh, Schofield, & Desombre, 2004). But that is not all: sustainability also refers to the capacity to maintain and further develop changed care practices at a certain site. It is:

> *(…) the process through which new working methods, performance enhancements, and continuous improvements are maintained for a period appropriate to a given context. The opposite of sustainability, where change is not maintained and benefits are lost, is decay.* (Buchanan et al., 2007, p. xxii)

A common concept to denote sustainability is "anchoring", a form of institutionalization that serves to maintain performance of a new practice (Kotter, 2004). For Kotter, anchoring involves not only "demonstrating the links between behavior and improvements in performance but also ensuring that the next generation of management personifies with the new approach as well" (Kotter 2004 in: Buchanan 2007). It is "not only the survival of project-related changes but also the continued effectiveness and capacity to adapt or replace interventions or programs within contexts that continuously change" (Fixsen et al., 2005 in: Sobo et al. 2008, p.1). In other words, sustainability also includes resilience and the capacity to deal with setbacks and backsliding (Bray, Cummings, Wolf, Massing, & Reaves, 2009; Sobo, Bowman, & Gifford, 2008). Moreover, it includes both the daily functioning as well as monitoring and continuous improvement of a care practice. Similarly, a research report on the Dutch Faster Better quality improvement

for hospitals, described sustainability as "the ongoing utilization of the interventions developed in the innovation project. Aside from this frequently monitoring of quality in outcome indicators and analysis of these by the organization in view of organization goals are considered signs that the improvements were sustained" (Dückers & Wagner, 2007, p. 4). These approaches show that sustainability is also considered part and parcel of increased quality management with regard to the changed practice. Likewise, Dale et al. (1999) denote sustainability as maintaining a process of quality improvement. In these views, sustainability is more than maintenance of a certain practice: it also concerns ongoing improvements.

This emphasis on continuous improvement and monitoring. seems to be in contrast with the metaphorical meaning of anchoring which is "to secure" in a static sense: anchors serve to keep a ship from drifting. It comes as no surprise that the term anchoring tends to neglect continuous quality improvement. To sustain means more than to guarantee the ʹlower boundsʹ of performance. For this reason, a theoretical definition of sustainability should also explain the dynamics and ongoing development of a practice. The ongoing development can also be conceived as second-order problem solving, because the capacity to improve is strengthened and routines that serve quality management are cultivated (Øvretveit, 2008a; Øvretveit, 2008b). Moreover, related to this, improvement teams also learn from the experience in a project, participants have familiarized and extended their knowledge and skills for creating and carrying out improvement plans, and they have gained insight in how the organization 'works' in this domain (Fixsen et al., 2009). That is, a quality improvement project may result in deep level learning (double and even triple loop learning) of improvement practices at the organizational level.

Tucker, Nembhard and Edmonson (2007) have described this learning as *learning how activities* and contrasted it with understanding the content of a care practice, i.e. *learning what activities*. Other scholars have stated that doing quality improvement serves to develop enhanced *literacy* on work practices (Hovlid, Bukve, Haug, Aslaksen, & von Plessen, 2012). The analogy with language learning is obvious—comprehension of the grammar of phrases contributes to understanding on a meta-level how complex expressions are and can be construed. Similarly, literacy of a care practice may yield deeper level understanding of how care practices are and can be construed. These remarks feed forward to our theoretical framework in which we shall describe how routines can serve as grammar for action using routine theory (Pentland & Rueter, 1994).

*Early conceptualizations of sustainability*
Some fruitful early conceptualizations of sustainability can be found in health promotion literature (Goodman & Steckler, 1989b; Goodman, McLeroy, Steckler, & Hoyle, 1993; Schreirer, 2005; Shediac-Rizkallah & Bone, 1998). These were the first scholars who

noted problems with regard to sustainability. Probably, a reason for this is that health promotion programs, like many policy instruments, are prone to discontinuation (Goodman & Steckler, 1989a; Goodman & Steckler, 1989b; Schreirer, 2005; Shediac-Rizkallah & Bone, 1998). Shediak-Riskallah and Bone (1998) commented:

> *Our experience (in the community-based projects for breast and cervical cancer) is consistent with Goodman and Steckler's observation that sustainability is often a "latent" concern in may health promotion programs, i.e. various constituencies may well wish the program to continue but, in the absence of early and active planning, the condition which would most enhance the prospects for sustainability in the long term are not created and sustainability does not occur*. (p. 89)

Health promotion programs usually serve behavioral change in individuals to improve health or prevent health problems in a given region; for example smoking cessation or weight loss. These programs are often organized by municipalities to implement national policies and typically rely on (temporary) funding. What is striking in the early conceptualizations, is that they were directed at understanding *organizational processes* in relation to sustainability. Various scholars in the field of health promotion, like Goodman and Steckler, and later Schreirer, departed from the institutionalist framework from Yin and colleagues (Yin, Quick, Bateman, & Marks, 1978). Yin et al. had studied innovations in the public sector in the United States.

In this founding work from Yin et al., sustainability is conceived in terms of organizational events and cycles: " *the innovation eventually loses its separate identity and becomes part of the organizations' regular activities, a process that has been referred to as "routinization/institutionalization"* (Shediac-Rizkallah & Bone, 1998, p. 94). Moreover, they argued that both the innovation and the organization had to be adjusted to each other. In Yin's view, institutionalization entailed that the innovation could only be maintained by becoming part of regular budgeting, adjusted job prescriptions and providing the material resources (changes in material inventories). Goodman and Steckler (1989) revised this framework. They underscore the need to sustain a certain production/operational process, as well as to pay attention to the maintenance, the support and management of the production system. Pluye and colleagues built on this perspective and pointed out that the process of institutionalization may lead to the creation and adjustment of organizational routines (Pluye et al., 2004).

These studies are among the few that offer theoretical definitions of the term institutionalization in relationship with quality improvement in healthcare. Moreover, the concept of organizational routines seems in particular suited to study sustainability in healthcare, because many healthcare practices are strongly routinized (Strauss & Corbin, 1998): routines are concrete and may help us understand why certain outcomes are achieved.

*Some remarks on how sustainability appears to be theorized*

So far, we have identified some perspectives on improvement and sustainability. In connection to these, we note that several authors call for a process perspective on change, cf. Greenhalgh et al. (2004) and Buchanan et al. (2005). Similarly, the early and more recent work work on health promotion programs suggests a process, but still tends to depict sustainability as an ultimate *end-state* or aspect of a quality improvement process (Dixon-Woods, McNicol, & Martin, 2012; Kotter, 2004; Olsson, Øvretveit, & Kammerlind, 2003). In line with this, some models include sustainability *as a stage* in the quality improvement process (cf. Alexander & Hearld, 2011; Fixsen et al., 2009). Even theories on institutionalization process appear to have a sort of teleological scope (Schreirer, 2005; Yin, 1981). These conceptualizations all seem to echo the "unfreeze–change–refreeze" model on organizational change formulated by Lewin (1951). Lewin concentrated on the role of forces and posited that changes could only occur if there were substantial forces; in his view a force may stem from the organization's environment for example. This perspective assumes organizational stability as the 'normal' state of an organization and describes the organization as a singular, bounded set of static structures. While this notion of the organization as a static entity may have been suited to describe mass production facilities in the 1950s, this image does not seem to correspond well with a 21$^{st}$ century understanding of quality improvement in care organizations. For one, it seems hard to envision a care organization that exists in a force-free environment. Secondly, in this static view there is neither room for everyday dynamics as common in care, nor for something like continuous quality improvement. Some scholars have therefore rethought organizations as 'becoming' rather than as static entities (Clegg et al., 2005). There seems to be a tacit assumption of stability in our thinking about organizations and quality improvement (and hence in many evaluation studies on quality improvement). This all goes to say that a theory about sustainability of changed care practices in nursing home wards or locations should be geared to explain dynamics in the quality improvement process as well as the dynamics in care organizations.

Moreover, sustainability seems to be a concept at a theoretical junction between project, interventions and organization. This is for example visible in the fact that the few studies available on sustainability almost all refer to concepts like institutionalization and routinization (cf. Schreirer, 2005). It seems these concepts are used interchangeably and regrettably it appears that they have not been further theorized, making it impossible to verify or even compare their meaning in view of the question of sustainability. Still, these studies offer evidence of the importance of organizational events and processes for sustainability in healthcare. For these reasons, it is clear sustainability cannot be equated to 'mere' implementation. As May and Finch state "implementation is a purposive and highly directed set of activities, but how practices become routinely embedded needs

to be understood as a matter of more than external direction" (May & Finch, 2009, p. 537).

To summarize, literature on sustainability is sparse and growing only recently. Moreover, it is difficult to conceptualize: it appears that sustainability is understood as a phase or condition or state, as a capability, but also as a process. In the few studies available sustainability is described as institutionalization/routinization. In these views, sustainability is a concept that should comprise the interplay between the quality improvement process, the project, the interventions, and the organization. However, institutionalization and routinization currently lack further theorization in the context of quality improvement in healthcare. In addition, we observed that various studies underscore the dynamic quality of improvement processes in organizations affecting (subsequent) sustainability and express the need for a process perspective. In response to this, we decided to develop a theorization of sustainability that allows for such dynamics.

### 1.1.2 Spread of quality improvements in healthcare

Suppose nursing home ward A has improved its care practices in a pressure ulcer project. Having finished the project, the professionals want to share their new working methods, insights, and experience with other departments, such as nursing home ward B. Now how can they 'market and sell' their ideas so these are applied in another ward? Buchanan et al. (2007) offer an answer to this question and define spread as:

> *The process through which new working methods developed in one setting are adopted, perhaps with appropriate modifications, in other organizational contexts. The opposite of spread, where changes at one site are not adapted and adopted by others, is containment.* (Buchanan et al., 2007, p. xxii).

In contrast to sustainability, spread is well researched in healthcare. However, it is difficult to develop an integrated theorization because of the abundant variety of substances that can be spread. Here, the term 'substance' refers to *what* is spread. In healthcare, for example, not only technologies, medication, documents, records, and practical artefacts are spread, these are also often related to or part of (best) practices (see textbox in Figure 1–1), guidelines, products, services, treatments, innovations, and policies. In other words, the substance to be spread can be multifold and may concern material objects and/or 'mere' ideas. At this point, we would like to underscore the need to be aware of this ambiguity. In addition, it complicates the integration of literature, because differences in '-substance' of spread affect the research designs in scope, process and unit of analysis (in a group of users, in a project, in an organization, within a field of organizations, and so on).

Furthermore, in their review Greenhalgh et al. (2004) found that most of the research on the diffusion of innovations focused on simple, product-based innovations, for which

**Figure 1–1** Textbox on the idea of 'best practices'

The term "best practice" emerged in the 1960s in many different disciplines varying from agriculture to health and public policy, and in firm management (Bretschneider, Marc-Aurele, & Wu, 2004). In all these domains, people sought to apply (scientific) theory to design practices, and to use scientific methods to identify "best practices": the practices that have a proven added value and contribute to enhanced performance.

Perleth and colleagues (2001) described best practices in the context of healthcare and underline their regulatory value: best practices enable the identification of information or knowledge about care practices, help us to collect data on a practice and evaluate it. In this view, best practices serve decision making processes and monitoring of quality outcomes. They distinguished three types of best practices in health care: best practice related to Health Technology (identified with HTA), best practices that concern the diagnosis and treatment (as defined in Evidence-Based Medicine), and best practices that describe combinations of processes in Clinical Practice Guidelines (CPGs). All these practices require aggregation and integration of different kinds of knowledge: clinical research, clinical epidemiology, health economics and health services research.

the unit of adoption is the individual, and diffusion occurs by means of simple imitation (Rogers, 1995). Particularly in healthcare, spread concerns (best) practices by which treatments or the coordination of care practices can be optimized. What is lacking, in other words, is insight in the spread of more complex service or operational innovations (Ashworth et al., 2010; Buchanan et al., 2007). For the term "best practice", see Figure 1–1.

*Spread as a problem of knowledge transfer*

Many studies of spread are aimed at explaining the transfer of novel scientific insights in medical treatments into the health sector as part of the evidence-based medicine movement (Lomas, 1993; Lomas, 2000; Massoud et al., 2006; Nolan, Schall, Erb, & Nolan, 2005). Here, the study of spread is concerns the intersection of medical sciences and the health sector. There are many studies on the spread and implementation of guidelines (Cretin, Farley, Dolter, & Nicholas, 2001; Grol, 2000; Lomas, 1993). Alternatively, there are also studies centering on improvement of care practices with information and/ or communication technologies, like electronic patient records, eHealth applications, e-learning modules, and other software solutions (cf. Øvretveit, Scott, Rundall, Shortell, & Brommels, 2007; Torda, Han, & Scholle, 2010). Finally, in the realm of quality improvement, there are many studies reporting spread of improvements as part of a quality improvement program. Indeed, in the past decades some large-scale campaigns have been launched with the aim to spread best practices (see textbox). The United States and the United Kingdom are renowned for their large-scale quality improvement programs. In the United States, the Institute for Health Improvement executed a series of patient safety programs to prevent injuries due to errors during or after hospital treatment (McCannon, Schall, Calkins, & Nazem, 2006; McCannon, Hackbarth, & Griffin, 2007). In the United Kingdom, the National Health Service has defined a reform agenda

that also a targets patient safety as well as other domains of quality, such as client autonomy (Buchanan et al., 2007; Department, 2004) and the spread of best practices is an important goal in this reform agenda. The Dutch Care for Better program, that this dissertation centers on, resembles these large scale quality improvement programs. The Care for Better program was commissioned by the Dutch Ministry of Healthcare, Wellbeing & Sports (VWS) in 2005 and also served to implement best practices in the Dutch long-term care sector.

*Conceptual approaches for spread*

How is spread conceived in quality improvement literature? To answer this question, we elaborate on some important concepts for the process(-es) of spread: *diffusion*, *adoption*, and *dissemination*. We review the definitions offered by Greenhalgh et al. (2004, p. 600 and further). To start, *diffusion* is a process by which innovations spread in unplanned, informal ways. Diffusion occurs predominantly through decentralized and horizontal communication channels, i.e. across organizations or mediated by peers. Diffusion leads to adoption: a decision process by which an actor 'adopts' an innovation. In this process, knowledge is plays a key role and includes the innovation/intervention (initial information), as well as experience in early use and concerns in experienced users. *Assimilation* is often contrasted with adoption: where adoption usually refers to individual decision making, assimilation is conceived as a larger process of formal decision making in the organization followed by planned and sustained efforts at implementation.

Diffusion is regarded as a social process that can be amplified by *active dissemination*. The term active dissemination refers to forms of the spread of innovation that entail planned, formal, often centralized actions. In line with this, dissemination is expected to involve vertical hierarchies, rather than relationships between peers. The dominant mechanism for diffusion is interpersonal influence through social networks, which are defined as "the pattern of friendship, advice, communication and support which exists among members of a social system" (Valente 1996, p. 70 in: Greenhalgh et al., 2004). In this perspective, adopters are generally conceived as rather passive decision makers, while champions and boundary spanners and opinion leaders play the main roles through their work on active dissemination. Moreover, the main characteristics of an innovation are important determinants of diffusion: compatibility, complexity, trialability, observability of effectiveness, and reinvention (ibid.). Also, best practices should have "soft peripheries" that can be adapted to the local circumstances (Denis, Hebert, Langley, Lozeau, & Trottier, 2002), and a hard core. That is, the essential parts of a practice should not be alterable (Greenhalgh et al., 2004), in order to guarantee "high fidelity" of a care practice (Bowman, Sobo, Asch, Gifford, & and the HIV/Hepatitis Quality Enhancement Research Initiative, 2008). The term "high fidelity" refers to the *faithful replication* of a (best) practice across time and place *to ensure similar results* of a practice (ibid.).

In brief, in diffusion theory, best practices are disseminated through communication channels and are then adopted and implemented. If the whole organization has adopted and implemented a certain best practice, this is called assimilation (Sobo et al., 2008). It is the interaction between the innovation, the adopters, and the context that determines the 'adoption rate': how fast an innovation may spread in a certain social system.

The diffusionist perspective has evolved over the years and now includes 'post linear' models, which attend for example to marketing strategy aspects in relationship with spread with more active roles for adopters (Baskerville & Pries-heje, 1998; Lomas, 2000; Luck et al., 2009) and more attention to facilitate adoption of new scientific knowledge to practice (Stetler et al., 2006). Furthermore, a number of alternative theoretical concepts, somewhat related to diffusion, have been proposed to explain the transfer of knowledge, such as utilization (Dobbins, Ciliska, Cockerill, Barnsley, & DiCenso, 2002), translation and social networks (Dopson, 2005), dissemination and integration (Green, Ottoson, & Garcia, 2009). However, the downside of the focus on knowledge transfer is that many aspects of care practices and the way in which care is organized locally fall outside the scope of these studies. Furthermore, it is common in these studies to address questions of adoption and (initial) implementation--and as a result, data on spread over a longer period are rarely collected. Spread thus becomes defined in a rather narrow sense, assuming that adoption indicates effective spread. This view is thus in contrast with what we have already learned: after adoption a lot more happens and is —or rather needs to be— done. Finally, we add that the term diffusion is also used in other scholarly fields, such as institutional economics and, more related to this dissertation, in theories on institutional change in sociology (cf. Scott & Meyer, 1994; Strang & Meyer, 1993; Strang & Soule, 1998). While the general meaning is largely similar, the use of the terms diffusion and spread are integrated in a various different theoretical frames with different foundations.

*Some remarks on how spread appears to be theorized*
What is striking in the scholarly discussions on quality improvement is that sustainability and spread are often conflated. In line with this conflation, we find little use of the term sustainability in spread literature. At the same time, there seems to be a tacit assumption in quality improvement that implementation or assimilation more or less implies sustainability. Related to this it is also expected that: 1) an effective quality improvement project leads to sustainable (i.e sustained) results and that, 2) a project with good results should automatically lead to spread. In other words: sustainability as the ultimate end-stage of quality improvement seems to guarantee spread. This way of reasoning is for example visible in studies that apply concepts like implementation and/or assimilation (cf. Atun, Kyratsis, Jelic, Rados-Malicbegovic, & Gurol-Urganci, 2007). Alternatively,

some studies on spread formulate concepts that resemble sustainability yet confine themselves to the use of professional, formal knowledge. Some examples of concepts are "knowledge uptake" (Eccles, Grimshaw, Walker, Johnston, & Pitts, 2005; Gardner, 2010), "utilization" or "integration of knowledge" (Dobbins et al., 2002; Green et al., 2009) or "absorption" of knowledge in and by the organization (Cadiz, 2009; Godkin, 2008). The question is not *if* but *how and to what extent* does the spread of formal knowledge effectively evoke the eventual spread of a care practice.

Furthermore, we observed that there are two quite contrasting views on spread held by improvement scholars (and improvement practitioners likewise). On the one hand, many studies take a *worm's eye view*: most studies strongly center on one intervention or innovation, one guideline, and/or mostly study one project. Characteristic for the worm's eye view is the concentration on adoption and implementation, and in this view, spread generally denotes 'spread within the organization'. On the other hand, evaluation studies on quality improvement programs may have a *bird's eye view* and investigate the effectiveness of a program or a policy; these studies are likely to aggregate insights across specific projects in organizations. In studies using the birds' eye view dissemination is often the key concept, and spread is approached as 'spread across an organizational field or sector'. These two views also have consequences for our theorizing. We will differentiate two levels of spread and in this dissertation our focus is on the first level:

1. Spread at the organizational level–from pilot sites to other departments;
2. Spread to other organizations, across the organizational field.

We continue this theoretical discussion on spread by pointing out that the dominant use of Roger's diffusion theory (1995) in many evaluation studies is contestable from a theoretical perspective. To be specific, the concept of diffusion seems to be problematic in relationship with sustainability as well as with spread. The next section centers on the main conceptual problems in diffusion theory and explains in what ways this conceptualization shapes our views on quality improvement processes.

*Diffusion theory suffers from its problematic core metaphor and related assumptions*
To start, let us consider the meaning of the term "diffusion" a bit more in-depth. Diffusion as a scientific concept was first applied in the natural sciences and refers to the passive transport of particles (molecules) of a certain substance: typical is that they move randomly in any direction[3]. In Roger's theory, as outlined above, diffusion of in-

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3. There are various (related) concepts in use in the natural sciences. In biology diffusion is understood as *"the passive movement of molecules or particles along a concentration gradient, or from regions of higher to regions of lower concentration"* (Biology Online, 2015). For example, in biochemical science diffusion is used to describe how molecules enter cells. When a molecule is "carried by" another molecule (i.e. transport proteins), this is called "facilitated diffusion".

**Figure 1–2** Scientific image of Diffusion (Jaap Pol)
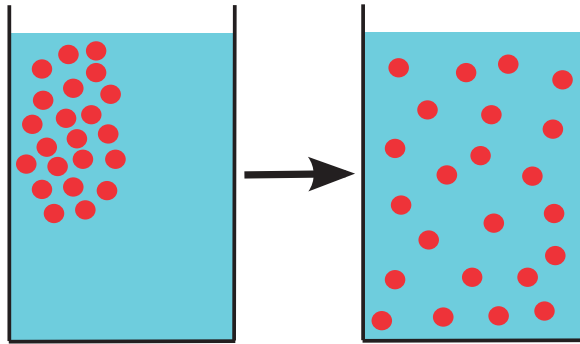
novation is understood as a social process that can be influenced by activities related to dissemination; i.e. enhancing communication about an innovation in different social networks. In other words, the passive innovations have to be set in motion through the processes of dissemination and once they are moving, the innovations are 'naturally' diffused across a field. Eventually this should lead to the adoption of an innovation by actors in the field, individuals or organizations. Diffusion of innovation thus tends to depict spread as an automatic process in which innovations are passive moving particles that are unchanged in the course of their travel. See Figure 1–2.

Why now is this metaphor problematic in the context of improvement processes in healthcare? One reason is that most of the research on diffusion has targeted the spread of (single) product-based innovations rather than the spread of service or operational innovations—which are generally more relevant in the context of quality improvement in healthcare organizations (Fitzgerald & Buchanan, 2007). Diffusion theory has limited value in this realm since it centers strongly on adoption as an individual decision, whereas in healthcare "the unit of adoption is (…) the team, the department or organization in which various changes in structures or ways of working will be required" (Greenhalgh et al., 2004, p. 600). Another problem is that diffusion theory tends to leave open what needs to be done after adoption. Many scholars have pointed out this problem and plea for the need to look further, to include the processes of implementation: "the active and planned efforts to mainstream an innovation within an organization" (Greenhalgh et al., 2004; Grol, Bosch, Hulscher, Eccles, & Wensing, 2007). As a result, newer versions of diffusion theory have been extended with implementation theories which predominantly center on the anchoring of an improved practice as the ultimate end-stage of the improvement process.

### 1.1.3 "Stability —not change— is the norm"[4]

Besides problematizing notions such as adoption and anchoring, a more profound critique on diffusion theory stems from constructionist scholars who argue that the innovation tends be *reified*, that is, treated as static, stable entity (Czarniawska, 2008; McMaster, Vidgen, & Wastell, 1997). In a similar vein, several studies on the Care for Better program by our research team have pointed out that the framing of quality problems often leads to reification of interventions, i.e. both the quality problem and the innovation-solution are taken for granted as fixed entities (cf. Broer, Nieboer, & Bal, 2010; Broer, Nieboer, Strating, Michon, & Bal, 2011; van Loon, Zuiderent-Jerak, & Bal, 2014; Zuiderent-Jerak, Strating, Nieboer, & Bal, 2009).

However, this reification can only in part be explained by diffusion theory. It is amplified by another strong frame of thought in the academic discourse on organizations and change: organizations are often viewed as "substances that are affected by processes yet essentially remain the same" (Tsoukas and Chia 2002, p.4). In other words, we are accustomed to consider organizations as stable entities, both in our everyday talk about organizations, as well as in scholarly discussions. This bias has become deeply rooted in social science at large according to several organization scholars, including Czarniawska (2008), Maitlis and Hernes et al. (2007); and Tsoukas and Chia (2002). The idea of stability in organizations also seems to be a tacit assumption in diffusion theory: there is a limited, given, set of communication channels that connect the innovation, the various actors and their organizations. Finally, the question has risen to what extent these assumptions of stability are in effect limiting our understanding of organizational processes:

> *"(…) because stability and order are such strong categories in our current frames of thought, we lack the words and the logic to describe change"* (Chia 1999, p. 210).

In a similar vein, the bias of stability also affects the way in which organizational change is described. We commonly view change as a 'transitory phase' after which stability will be restored. An influential example of a theory based on this logic is Lewin's "unfreeze-change-refreeze" model (1951), which also assumes stability of organizations at large. This "unfreeze-change-refreeze" view on organizational change is still visible in many linear process, phase or stage models for change. It is also visible in the discussions on sustainability. So far, research has primarily focused on sustainability in terms of a negative and rather static definition—to sustain means 'not going back' to the old way of working, and avoiding the downfall of performance to the previous level of outcomes (see definition in Buchanan et al. 2005 for example). These static images of change are hard to reconcile with the growing body of evidence that effective innovations require

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4. In the heading I draw from Czarniawska (1996).

dynamic processes and encompass substantial changes to the innovation at hand to adapt it to local circumstances (Greenhalgh et al., 2004). Moreover, to put an innovation to use in a certain context also requires adjustment of that same organizational context (Kirsh, Lawrence, & Aron, 2008; Shediac-Rizkallah & Bone, 1998).

As Van de Venn and Dooley (1999) argue, assimilation is not a linear process, rather it could be better described as a nonlinear, messy, iterative process, with unanticipated events, in which the organization alternates between problem analysis and solutions, between development and implementation. In their view, we should expect improvement processes to be "variously punctuated by shocks, setbacks and surprises". Not surprisingly, they strongly advocate a process perspective on organizational change, which resonates also in the work of some scholars in quality improvement literature (note: where the diffusionist paradigm prevails) (Buchanan et al., 2007; Greenhalgh et al., 2004). From the process perspective, both the flow of events in the local and wider organizational context need to be taken into account to understand sustainability of changed care practices as a process.

In spite of the call for a process perspective, most studies are confined to implementation as a set of singular events and largely neglect the aftermath of improvement efforts. One important recent exception is the work by May and Finch, who conceive the integration of practices in a certain context as "normalization", a concept that comprises both the production and the reproduction of a practice (May et al., 2007; May & Finch, 2009). They postulate four social mechanisms that explain the process of normalization: 1) coherence in understanding of a care practice by professionals (meaning through collective sense-making); 2) cognitive participation, the understanding by professionals leads to enrollment and commitment, which leads to actions and the production of materials for a practice; 3) collective action directed at making a practice workable in the given context; and 4) reflexive monitoring in relationship with the cognitive participation, combining informal and formal modes of evaluation (May & Finch, 2009). We will return to these elements in our theoretical framework.

In sum, diffusionist views lack the elbow room to explain endogenous change in organizations and practices, and ongoing improvement of a practice after improvement projects. This could be invited by its tacit assumptions of organizations as stable entities. Moreover, the strong emphasis on linear models to depict adoption of innovations and/or best practices, their implementation and anchoring leaves the aftermath of many improvement processes, sustainability and further spread, as well as the interplay with the organization largely outside its explanatory scope.

*A process perspective on change and organization?*
An alternative frame of thought is needed to further our understanding of improvement processes in organizations: a process perspective. A process perspective intends

to describe the dynamics in the construction and deconstruction of organizations and practices (Clegg et al., 2005). Such perspective was advocated by Karl Weick who coined the term "organizing" to underscore that all seemingly stable structures in organizations require continued efforts (1996 in: Czarniawska 2008). Following Heraclite, the process theorists argue the world is emergent in a continuous process of becoming (Chia 1999; Hernes & Maitlis et al. 2007). An organization can be conceived as:

> *(…) the repetitive activity of ordering and patterning itself. (…) Organization is an ongoing change-resisting and, hence, reality maintaining activity which stabilizes the "real" sufficiently for us to act purposefully in response to a deluge of competing and attention-seeking external stimuli. Simplification of the dynamically complex and the consequent economizing of effort in action are thus the ultimate aims of the impulse to organize. Through organization, the various facets of our experiences, including our experience of self, acquire immediate and unproblematic self-identity, and hence avail themselves to instrumental manipulation*. (Chia 1999, p. 224)

For Chia, any form of 'organization' (a workunit, a routine, a projectplan) serves to deal with the complexities of the ongoing ever-changing present (ibid.). This can be accomplished by creating stable ideas (representations/meanings) and acting according to those ideas. In this ongoing process of 'becoming', sense-making plays a vital role because people enact, give, and develop meaning in interactions. Experiences are fundamental for organizations because it is through experience that people develop more abstract as well as concrete understandings that help them to organize themselves and others. In other words, based on this view organizations are *instable* rather that stable entities: To summarize its essence, we could rephrase the Heraclites' saying: '*One cannot step into the same organization twice*'.

Barbara Czarniawska (2008) has developed the process perspective in organization studies. Her book "Theory of Organizing" builds on Scandinavian / neo-institutional theory, which combines sociology and science and technology studies(STS). This perspective offers some important starting points to theorize spread as a translation process (Latour, 1992), in which both the innovation and the organization are transformed through ongoing interactions between human and nonhuman actors (artefacts, devices, documented knowledge; all considered materialized ideas). Her work will be described more in detail in Chapter 2.

In the past sections, we have reviewed the literature on quality improvement, sustainability and spread. This dissertation responds to several gaps in literature. Firstly, in (long-term) healthcare there is a need to improve sustainably and to achieve system level sustainability. Secondly, we have noted that insight into long-term effects are lacking in most quality improvement evaluation studies. What we are looking for is a theoretical

understanding of the improvement processes in care practices in care organizations that offers insight in the questions of sustainability and spread. Such a theoretical perspective is currently not available for different reasons, the lack of attention being paid to these topics being one of them. Given the limitations of quality improvement literature, an interdisciplinary approach, extending the theoretical scope, is needed to move the discussion in new directions. One of the main functions of this dissertation is to integrate current scholarly insights in improvement processes to clarify the foundations in our theorizing of quality improvement.

One would expect to find vantage points for a theoretical account in organization studies which has a strong tradition with regard to investigating organizational change. Still, there seems to be a paradox in organization and management theory. On the one hand, there is a lot of attention for change, yet stability after changes also seems to be neglected, as Czarniawska (1996) for example argued. In effect, this means that the question of sustainability has not been addressed explicitly, although some useful theoretical perspectives have been formulated. In particular, the process organization perspective seems suited to meet our objectives. In this perspective, the organization is conceived as a dynamic set of interactions, connections between actors rather that a stabile entity built from certain structures. In brief, this perspective is suited because it enables the description and explanation of dynamics in organizing, and hence in quality improvement processes.

This dissertation can contribute to organization studies by trying to do what the process theorists call for: to acknowledge change and process in our theorization by developing new language and another logic, and to provide a dynamic perspective on the construction (and de-construction) of practice and organization; rather than taking them as stable structures. Linking organization theory to the current literature on quality improvement in healthcare could be a step forward to understand improvement processes from the perspective of social theory.

Next, we will refine the scope of research with regard to the level of analysis and the concept of sustainability in the next two sections. After that, we present the research question of this dissertation.

### 1.1.4 Theoretical scope: micro and meso level

Most evaluation research targets improvement projects in connection with the primary process and commonly report outcomes at the level of the primary process. While valuable for project evaluation, this focus on outcomes alone is not helpful to gain insight in the interplay between quality improvement and the wider organization, let alone organizational fields. Hence, this scope limits the explanation of the effects of quality improvement in terms of organizational change: how can we understand the ways in which quality improvement becomes embedded and spread? From the previous discus-

sion it is clear that we need to develop insight in the bigger picture, which includes the organization, the work practices at the operational level and the project. In this dissertation we center on the improvements at the organizational level. In essence we aim to understand the interplay between micro-level phenomena in the primary process of care in connection with meso-level phenomena in the organization as a whole.

In consequence of this demarcation, we can only pay little attention to the macro-level environment in the empirical studies of this research. However, it is important to recognize that the macro-level context is relevant in understanding sustainability. The state of the health system, financial arrangements, the attention in media for quality issues in long-term care, the development of new laws and regulations, the changing interaction between meso- and macro-level actors; all these aspects play a role in the context of quality improvements in the organizations (cf. Bovenkamp, de Mul, Quartz, Weggelaar-Jansen, & Bal, 2014). Nevertheless, we will focus predominantly on the micro- and meso-level interactions, since our research questions concern the interface between project and organization.

### 1.1.5 "Sustainability" versus "sustainability"

As indicated earlier, the conceptualization of the term "sustainability" differs in scope between scholarly fields. This section aims to clarify our use of this term vis-à-vis the use in other fields. In the past decades, the concept of sustainability has emerged in the strategies of many western organizations in the private as well as in the nonprofit sector (Benn & Dunphy, 2007). In short, the call for sustainability emphasizes the need to take into account not only economical, but also social and ecological values when designing an organizational process or practice. In practice, this entails taking into account interests of a variety of (potential) stake- and shareholders on a longer term. The idea is that adherence to these demands should yield more sustainable solutions that meet higher level needs of the social economic system. However, in several respects the current modes of governance are neither accustomed nor geared to support sustainable changes. According to Dunphy and Benn (2003), new modes of governance are needed to create interactions for sustainability that emphasize sharing responsibility, appropriate allocation of power and active collaboration.

Following this perspective, in business, administration, and political science, sustainability is commonly conceived as corporate sustainability and corporate responsibility (Benn & Dunphy, 2007; Dunphy et al., 2003) and can have a strong environmental aspect. The background of these concepts is that, for many reasons including incidents, awareness has grown that decisions and actions now are likely to be projected in the (near) future on other generations. In line with this awareness, notions of corporate or organizational responsibility are being expanded both in time and place. Hence, to attend to sustainability, organizations increasingly acknowledge and negotiate respon-

sibilities in their strategies that take into account long-term interests, conditions and circumstances beyond their immediate environment.

The emphasis on long-term aspects of current practices is part of modernization processes in which quality management increasingly is extended and combined with risk management (Andrews, Drennan, & Russell-Bennett, 2012; Dunphy et al., 2003; Power, 2010). These two seem to go hand in hand in an ever improving rationalized world: where quality is threatened, risk management serves to solve the problems and to arrange accountabilities at the same time. Moreover, this balancing of risk and quality is even more strenuous recognizing the various, often complex, interdependencies between (organizational) actors. In line with the values of modernization, sustainability is thus directly affiliated to questions with regard to risk and responsibility. In this larger context of modernization, sustainability first of all points to the need to invent new forms of governance that serve risk reduction and the anticipation of risk (Benn & Dunphy, 2007). Secondly, sustainability is related to questions regarding the equitable distribution and democratic management of (remaining) risk.

Now arguably, this expanded organizational responsibility aspect is also applicable to the changes and developments in the healthcare sector. It is certainly relevant to reflect on quality improvements in connection with the wish to balance risk and quality with an eye for future constraints and parameters of the health sector. However, this question is not the primary focus of this dissertation. We thus make a sharp distinction between *Sustainability* —with a capital henceforth, and including democratic and equitable change at the system level, and the term *sustainability*— not capitalized, which in this dissertation is specifically used in connection with changed work practices in organizations and the processes through which they become embedded in daily organizational life.

## 1.2 MAIN SCOPE: RESEARCH QUESTION AND OBJECTIVES

To summarize the main scope of this dissertation, the need for quality improvement in healthcare goes hand in hand with a need for knowledge and understanding of quality improvement processes in this field. In particular, to develop and evaluate health policy and related quality improvement efforts, more insight in sustainability and spread of quality improvements is required. Sustainability and spread will be considered in view of the interplay between project and care organization. Furthermore, several methodological challenges need to be addressed for the development of a rigorous theoretical account. In particular, the operationalization of concepts and the research design require further consideration.

*Research question*

The main research problem can be summarized as follows: How can we describe the interplay between improvement projects and organization, and the dynamics in the aftermath of improvement processes with regard to the long-term effects of quality improvements in healthcare organizations?

*Research objectives*

First of all, this dissertation reports a theoretical account of the interplay between organization and quality improvements, and the mechanisms involved in long-term effectiveness of quality improvements in healthcare. This objective shall be achieved by integrating quality improvement literature with organization theory perspectives and applying these theoretical notions in the analysis of quantitative data on the quality improvements in the long-term care sector.

Secondly, this dissertation explores and develops methodological approaches to study long-term effectiveness of quality improvement. In particular, we focus on the operationalization of aspects of long-term effectiveness to contribute and extend the evaluation research methods available to learn from quality improvement in healthcare.

Thirdly, this dissertation offers directions for future research and recommendations for policymakers and practitioners in health organizations to inspire future improvement work.

This dissertation presents the findings of our investigations of sustainability and spread in the 'Care for Better' program in five empirical research papers. Each paper is reported as a separate chapter and will be briefly described in the second chapter in Section 2.4.

Having introduced the research theme and scope of this dissertation, the remainder of this chapter will serve to introduce the setting of the research (Section 1.3), the developments in the sector (Section 1.4).

## 1.3 SETTING: THE 'CARE FOR BETTER' QUALITY IMPROVEMENT PROGRAM

This section introduces the setting of the research: the 'Care for Better' quality improvement program (Zorg voor Beter, CfB) and its projects. The first part describes the background of the program and its structure. The second part provides a historical overview of some important recent developments in the Dutch long-term care sector.

The setting of research is 'Care for Better', a program that was designed to enhance quality in the long-term care sector in the Netherlands. The 'Care for Better' program was started in 2005 as part of a large-scale government initiative, the National Action Program for Quality in the care sector (Nationaal Actieprogramma voor kwaliteit in de

zorgsector, NAQ-care). 'Care for Better' targeted the following kinds of care organizations in long-term care: nursing homes and hospices, convalescent homes, assisted living facilities, and home care.

The program was designed to support the implementation of best practices and thereby improve the care process at the micro level. The program consisted of two phases. Phase 1 predominantly concentrated on the implementation of best practices through improvement projects, whereas phase 2 supported large scale implementation, creation of infrastructures for knowledge on best practices and quality improvement in long-term care and strengthening the connections between care organization and care education.

### 1.3.1 Phase 1 of the 'Care for Better' program

At its start, the program consisted of four subprograms: 1) the improvement projects, targeting the implementation of best practices and strengthening the improvement capacity in the field, 2) innovation/ implementation projects which served the development and implementation of innovations for the long-term care sector, 3) projects in collaboration with professional associations and care organizations in which instruments were developed to support and train professionals, and 4) the National Dementia Program, which aimed to increase the inter-organizational coordination and integration of care and related services at the regional level to align daily living, wellbeing and medical care and enhance client centeredness for clients and voluntary caregivers (Stoopendaal, Nieboer, Zuiderent-Jerak, Strating, & Bal, 2009; ZonMw, 2010). The larger part of the program consisted of the improvement projects based on Breakthrough methodology[5] (Kilo, 1998).

In this dissertation, we center on the improvement projects in care for elderly in phase 1 of the program (see grey box in Figure 1–3). The improvement projects for elderly care included the following selection of themes: prevention and treatment of pressure ulcers, fall prevention, prevention of sexual abuse, medication safety, dealing with behavioral problems, eating and drinking, and client autonomy.

In 'Care for Better', a specific implementation strategy was chosen based on Breakthrough Methodology (Ross-van Dorp, 2004; ZonMw, 2010). This methodology had already been experimented with in a program called 'Better Faster', which had started in 2003. This program belonged to another part of the national quality program that centered on the curative sector. In addition, a pre-research review had been carried out to pilot the potential value of this strategy to address the issues in the long-term care sector. The Breakthrough improvement methodology is based on a program structure

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5. Breakthrough Methodology was initially designed by the Institute for Healthcare Improvements in the United Kingdom (www.ihi.org).

**Figure 1–3** Structure of the Care for Better program in phase 1: 2005 - 2008.[1,2]

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                            │        ZonMW         │
                            └──────────────────────┘
                                      │
        ┌──────────────────┐  ┌──────────────────┐  ┌──────────────────────┐
        │  Advisory Group  │──│  Steering Group  │  │ Steering Group National
        │                  │  │  Care for Better │  │   Dementia Program   │
        └──────────────────┘  └──────────────────┘  └──────────────────────┘

┌──────────────────────┐ ┌──────────────┐ ┌──────────────────┐ ┌──────────────────┐
│ Vilans (former NiZW)  │ │ TNO and others│ │ Sting NVVA and V&VN│ │ CBO and others   │
│   Main Executive Agency│ │              │ │                  │ │                  │
└──────────────────────┘ └──────────────┘ └──────────────────┘ └──────────────────┘
                                          ┌──────────────────────┐
                                          │ Instrument Development│
                                          │      Projects        │
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┌──────────────────────┐ ┌──────────────────┐           ┌──────────────────────────┐
│ Breakthrough Improvement│ │ Implementation & │           │ National Dementia Program│
│   Project Program     │ │ Innovation Projects│           │                          │
└──────────────────────┘ └──────────────────┘           └──────────────────────────┘

┌──────────────────────┐ ┌──────────────────┐ ┌──────────────────┐
│ Elderly/Long-term Care│ │  Mental Health   │ │ Care for Disabled│
└──────────────────────┘ └──────────────────┘ └──────────────────┘
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[1] *The asterisk indicates that there was a strong collaboration with Vilans. [2] This figure is based on a schedule from ZonMw (source: Zelfevaluatie, ZonMW, 2011, p. 9)

in which temporary improvement teams develop and implement interventions during one year (Kilo, 1998). For each quality theme a project structure is designed. During this year teams from different care organizations collaborate and meet with other teams targeting similar quality themes. In the course of the program, project meetings are organized in which teams are guided and trained by experts (experts in care as well as in change/innovation management). Moreover, the meetings serve for teams to exchange knowledge and experiences during the process. Hence, this improvement strategy emphasizes inter-organizational learning. This improvement strategy was preferred in light of the intention to spread best practices at a quick pace in the whole long-term care sector which at that time included approximately 2200 locations (Ross-van Dorp, 2004).

The Dutch ministry assigned ZonMw, the Netherlands Organization for Health Research and Development, the task to develop and implement the 'Care for Better' program. To this end, ZonMw formulated a plan of approach for phase 1 and defined several specific goals (ZonMw, 2010). The initial goals of the program were:

1. At least 350 care organizations in the long-term care sector (totaling approximately 2200 locations) have participated in the 'Care for Better' Breakthrough projects.
2. At least 70% of those participating organizations have been able to demonstrate actual and significant improvements.
3. Breakthrough methodology is applied in other domains by at least 70% of the participating organizations after the 'Care for Better' Breakthrough project.

4.  Managers and quality officers are acquainted with the 'Care for Better' program and its products (brand awareness).

To realize the 'Care for Better' program, a large scale inter-organizational collaboration was created between key organizations in the field who served as contractors: Vilans, the national knowledge institute for long-term care lead the improvement project program for elderly care; the TRIMBOS institute, a national knowledge institute for mental health, directed the program for mental health; also, several associations for the various professional groups were highly involved and contracted given their specific expertise, such as STING for caregivers, NVVA(now Verenso) for the geriatricians, V&VN for the nurses and LEVV for the medical caregivers. The Department of Health Policy and Management from Erasmus University Rotterdam (iBMG – EUR) was asked to evaluate the program.

As such, the program resembles other quality improvement programs for the curative sector both in structure and size, such as for example the Dutch 'Faster Better' program (Duckers, Wagner, & Groenewegen, 2008), the 'NHS collaborative' (Bate, Robert, & McLeod, 2002), the 'EQHIV' program (Landon et al., 2004) or the 'Michigan Health Foundation' program (Dixon-Woods, Bosk, Aveling, Goeschel, & Pronovost, 2011).

### 1.3.2 Phase 2 of the 'Care for Better' program

Phase 2 of the 'Care for Better' program (2009-2012) continued with implementation of best practices (ZonMw, 2010). However, the scope, content and methods were adjusted and new themes were added, such as new personal hygiene routines, the electronic medical record, smart work processes, reduction of restraint use, daily dental care, dealing with sexuality (aside from prevention of abuse), and reducing fear and depression in elderly (Klink & Bussemaker, 2009). For example, there was more attention for planning and working on sustainability and spread within organizations in projects called 'Improvement plus' ('Verbeterplus') where organizations worked on large scale-up within organizations. In phase 2 'Care for Better' also invested directly in the creation of various knowledge infrastructures, to make products from the program available via digital platforms and by arranging regional meetings. Aside from the emphasis on knowledge transfer/dissemination, leadership/managers roles and organizational development became more central themes. In addition, linkages were sought with the educational sector to align knowledge and competences for quality improvement in the professional education to what was happening in the field.

### 1.4 OVERVIEW OF DEVELOPMENTS IN THE DUTCH CARE SECTOR

'Care for Better' was designed against a background of increased emphasis on *quality* in long-term care. This emphasis was in part triggered by a series of incidents and

critical reports. In this section, we therefore review the history of the care sector from 2000 onwards, underlining certain developments and events in connection with quality problems. During this period, increasingly attention was paid to quality problems in the media as well as in the political arena. For example, in the Dutch Parliament formal questions were raised about quality with diverse topics such as: fall incidents, "pyjama days", level of education in staff, reanimation of elderly, calamity management, and lacking protocols for hot days[6]. These topics fired policy discussions about quality of care in very concrete terms, expressing deeply felt concerns. The term "attention time" (aandachtsminuten) was coined and the tensions between cultivating the softer side of care in connection with regulating the quantified, managed side of care practices were manifest.

Moreover, an policy evaluation study of the implementation of the Health Act revealed alarming results from which the government "learned" that, in spite of its recent call to the field to improve care practices, it appeared that quality was lacking in many care organizations and —even worse— that there was substantial variation between care organizations in quality (Ross-van Dorp, 2004):

> *Anno 2004 working on quality of care should be self-evident. Everyday practices show that there is still much to be desired. On the other hand, a part of the providers of long-term care is very successful: they deliver good quality care. At this moment, there are large differences in quality of care between providers. These differences must be reduced.* (p.3)

While the Dutch government had called for active quality management by health organizations referring to the 1996 Quality Act, this appeared to take a cumbersome development and good examples still seemed exceptional. Moreover, it was very hard to be sure about the extent of the quality problems, since valid and reliable information about the care organizations was actually rather limited. This was all the more problematic in light of the graying population; with the baby boomers retiring, both a rise in care needs and a shortage of health professionals was and is expected. It was clear that issues concerning the growing demand for care and the shrinking labor market would affect the functioning of care organizations in the near future.

In 2004, a taskforce was created by the Dutch Ministry for Healthcare, Wellbeing and Sports to explore the policy options for intervening in the care sector in response to the various, ongoing concerns. And in 2005, the department secretary Ross-van Dorp requested a research to review the situation in nursing home organizations. To this end, a CEO from Tulip Hotels, Hans Kennedie, investigated 26 homes for elderly applying

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6. This list is not complete. All examples are bases on sources available the website of the Dutch Ministery for Sports, Health and Wellbeing: www. vws.nl

an 'hospitality-hotel business perspective' to the care sector. In this perspective, care services are understood as a combination of hospitality services and medical care (Hospitality Care Committee, 2005). The report highlighted the strengths and weaknesses of organizational management in the care organizations and revealed how quality problems in care were intimately related to these. Application of the hospitality standards also vividly demonstrated the consequences of some of the management problems in the sector at client and operational level. At the same time, it was plain as a day that many of these problems were avoidable and solvable. The Kennedie-report not only exposed but showed the way forward as well: things could be improved by applying everyday insights from business management and entrepreneurship in the hotel sector.

In the years 2000 – 2005, awareness of the need to improve in the care sector grew rapidly. In response to the rising concerns, an armament of policy instruments was designed: the Dutch government started the National Action Program for health in the cure sector (comprising amongst other, the program Faster Better which was launched in 2003) and soon a program for the care sector followed with a program: 'Care for Better' in 2005.

### 1.4.1 The national action program for care: NAQ-care

The main questions that NAQ-care revolved around were: "What are the most important problems that clients experience and which aspects of care need substantial improvement and how can we enhance expenditure at the same time?" (Ross-van Dorp, 2004). Among other objectives, a main goal was to improve the care processes at the operational level--where it would affect clients' health and wellbeing. Moreover, an objective related to this was to strengthen the improvement capacity in the long-term care field as a whole. In NAQ-care, programs were provided for different sectors, such as care for elderly, care for disabled and mental health.

NAQ-care targeted two main quality themes: patient safety and client autonomy (Ross-van Dorp, 2004). For each theme an inventory was made of specific quality issues and well-documented best practices that were promising in terms of strong direct results (high fidelity practices). The patient safety theme included many aspects of care, varying from prevention of errors in medical care processes to aspects of safety in daily life and wellbeing, such as prevention of sexual abuse or fall prevention. The theme of client autonomy was elaborated in terms of increasing the client-centeredness in interactions, i.e. in allowing clients a more active role in decision making with regard to the care they receive:

*Since in many cases, clients in long-term care are dependent on care for a long period of time, they have a clear picture in their minds of what type of care they*

*would prefer. The client should be given room to speak up and if needed to be supported in this process*. (ZonMw, 2010, p. 5).

The National Action program consisted of three "pillars" which in combination should enhance the quality as well as the measurement and monitoring of quality. The first pillar involved enhancing the *transparency* about quality to ensure accountability and to facilitate client decision-making by providing information about the care products, services, hospitality, waiting times, quality, effectiveness and pricing. The second pillar concerned *supervision*: NAQ-care serves to improve the supervision of quality to enable monitoring and checking if the quality confirms to the Quality Act, in particular through the development and implementation of (process, structure and outcome) indicators for the specific sectors. The third pillar focused on *improving care processes on the operational level:* NAQ-care was designed to support the implementation of existing, readily available best practices that are likely to yield significant results in the short run for a limited set of quality issues in connection with client autonomy and patient safety.

The specific selection of themes and practices were made in close collaboration with the professional field. For this purpose, professional organizations and associations of health providers had developed so-called Norms of Responsible Care (Towards norms for responsible care - vision document 2005) that set out the main goals of quality improvement actions.

### 1.4.2 Other developments in the sector

Aside from the improvement programs in NAQ-care, several other changes were initiated in the field of long-term care (also see Figure 1–4). First of all, an important change in long-term care was made in the care plans for clients. The care plans were redesigned into so-called "Care Living Plans" (Zorgleefplan, CLP). The new version of the care plan was constructed in accord with the Norms for Responsible Care and more specifically it was designed to improve client centeredness and autonomy. The Care Living Plans describe care and agreements about care with clients covering many other topics than medical care only. The innovated care plans comprise four domains: mental wellbeing, physical wellbeing, daily (social) life and living conditions. The use of Care Living Plans is an established part of the Dutch laws for health. Since January 2008, it has been obligatory that every long-term care client is provided with an up-to-date personal Care Living Plan. Moreover, the Care Living Plans should correspond and serve as a practical record of the client-centered dialogue with clients. For example, the Care Living Plans contain results of individual fall risk analyses, notifications of fall incidents, listed interventions to reduce fear of falling, but also the Care Living Plans may register recent activities such as sports or the clients' desire to meet friends. The Care Living Plans are thus intended as instrument to co-construct the care together *with* clients as opposed to *for* clients

**Figure 1–4** Timeline of developments in the care sector



8 Jul, 2004
D.S. Ross van-Dorp presents NAQ-care:
National Action Program for Quality, Innovation
and Cost-Effectiveness
(Landelijk Actieprogramma Kwaliteit,
Innovatie en Doelmatigheid; LAK)

Jun 3, 2005
Publication of report "Value, Appreciation and Dignity"
- business analyses of 26 nursing homes centering on hospitality and care
- led by Hans Kennedie (Golden Tulip Hotels); commissioned by D.S. Ross-van Dorp

29 Jun, 2005
RIVM 3rd intermediate report on
complaints in elderly care
(Meldpunt Ouderenzorg)

2003 - 2005
Multiple parliamentary questions rise:
quality of nursing home care,
fall incidents, educational level in staff,
resuscitation, incident and calamities.

2008 - 2015
Policy development: transformation of the long-term care system;
Herstructurering langdurige zorg (HLZ)

2010 - 2014
New themes emerge for long term care:
client autonomy in terms of self-management;
wasting resources and lean processess; burden
of rules and regulations, overkill of registration;
and new forms of internal organisation,
such as self-steering autonomic teams

January 1, 2007
**Introduction
Care Living Plans Act
(Zorgleefplan)**

2005 - 2009
Reformulation of responsibilities
of quality monitoring organizations:
IGZ(Inspectorate)
and Nza (health authority)

Nov 2001
Evaluation of Quality in
Healthcare Organizations Act
(Kwaliteitswet Zorginstellingen)

Nov 5, 2005
**Introduction
for
Responsible Care**
(toetsingskader)

2006
**Introduction
Health Insurance Act
(Zorgverzekeringswet)**

Dec 2002 - May 2005
Taskforce Care for Better (Deltaplan)
prepares QI program for care sector

27 Apr, 2001
Parliamentary questions about
neglect and abuse of elderly clients
by overburdened care professionals

| Care for Better program phase 1 2005-2008 | Care for Better program phase 2 2005-2008 |

2005 - 2008
National Program
for Dementia; regional improvement
(Landelijk Dementie Programma)

2009 - 2015
In voor ZorgI program for care sector;
centering on managers and boards;
Focus on quality management,
organizational development

2009
Transition Program for sustainable healthcare
continued with new program:
"Peoplecare, A transition movement"
(Mensenzorg)

Pilot improvements in dementia care;
based on regional improvement

2007
Start of innovation program for sustainable healthcare
''Transition Program" (Transitie Programma)
supporting radical innovations in long-term care

1/1/2001

Nov 2003
Start of 'Faster Better"
improvement program for curative sector
(Sneller Beter Programma)

2002  2003  2004  2005  2006  2007  2008  2009  2010  2011  2012  2013  2014  1/1/2015

(van Loon & Zuiderent-Jerak, 2012).What is more, the documented care plans could serve to monitor quality, as such they were also intended to contribute directly to the (integrated) sustainability of multiple quality improvement efforts.

*Viva quality measures! To measure means to comprehend?*
Aside from the introduction of care living plans, a second important change in care involves the regulation of quality in the sector. In line with the first two pillars, the roles of the Healthcare Inspectorate (Inspectie voor de Gezondheidszorg) and the Health Authority (Nederlandse Zorgautoriteit) have been reformulated. In relation to this, measurement and monitoring practices of quality have been formalized and extended and organizations in the field were asked to identify the most important aspects to make the quality of the care visible. The program "Visible Quality of Care" (Zichtbare Zorg) developed quality-indicators for the different sectors. Next, more extensive measuring procedures were implemented. In the care sector since 2001 already the prevalence of pressure ulcers had been monitored across the whole country every year. This annual National Prevalence Measurement of Care Problems survey was soon extended with new care problems: in 2004 incontinence, malnutrition and body rashes (intertrigo) were included; and fall prevention and physical restraints were added in 2007 (Maastricht University, 2011).

*Macro- and micro-level interactions*
While the first rounds of the 'Care for Better' program ran, thus many developments took place in the macro-context of health organizations. These developments also affected the micro-level system since they required attention to implement the new Care Living Plans and to register data with regard to the new indicators. At the time of the start of the program, the field was in motion and there were some contingencies that may have facilitated but also may have obstructed the effectiveness of the improvement projects. Alongside the already mentions changes, a new system was installed for insurance of care services based on individual care weight packages given a certain diagnosis. In the packages, care is divided in modules that define precisely what care a client is entitled to (NZa, 2015). This new system required significant changes in the work processes as well as the administration (ibid)[7].

Moreover, a wave of mergers occurred. The Health Authority is required to review mergers of organizations with a joint turnover of more than € 30 billion. While in 2006 the Health Authority wrote only one review to this end, this number increased in 2007 and 2008 to respectively 16 and 24 reviews and the majority of these mergers concerned care organizations, not hospitals. In the following years, this number decreased dramatically to three reviews in 2009; six reviews in 2010; and seven reviews in 2011; and the

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7. The Dutch Health authority has devoted a large website with instructions and requirements (NZa, 2015).

requests were mostly from hospitals (www.nza.nl[8]). The steep increase in the number of mergers in 2007 led to a change in policy to include the monitoring of smaller mergers as well. We note that these mergers have direct effects on the operational level as mergers often involve moving staff to different departments or locations and the integration of the organizations requires sustained effort in general.

What is more, in many health organizations the new strategy also included building a new nursing home or moving to another location, resulting in moving whole wards. These circumstances are likely to hinder the development and implement of interventions *that fit the local situation*. For example think about fall prevention—why invest in a newly paved garden path, repainted indicator signs on the wards or ambient intelligence in private rooms if at the same time management considers moving?

*The 'Care for Better' program is 'here to stay': phase 2 of the program*
In 2007, the Ministry of Health decided that the 'Care for Better' program would be continued (Huijts, 2009), though the objectives in the program were somewhat adjusted and some new quality problems were added (f.e. projects on the use of restraints called 'Ban de Band'). Initially, the focus was on implementing best practices: the program strongly emphasized the methods and the collective efforts of the improvement team to develop and test interventions. With regard to this, the evaluation research expressed a concern that connections with managerial values seemed rather weak in many of the designed interventions (Strating, Zuiderent-Jerak, Nieboer, & Bal, 2008). In response to these concerns, several sub programs and larger projects, such as "Management for Quality" (Zorg voor Beter Verbeterplus) were designed specifically to evoke —and require— more involvement from high-level management (ZonMw, 2010). These sub programs foremost concentrated on scaling up care practices within the organization.

Two other main themes were also added to the program. One theme was embedding quality improvement in the educational system. This involved linking inter-organizational improvement projects with nursing courses in applied universities to co-develop learning modules about current quality improvement themes in the curricula and to train improvement skills in future nursing professionals. The other theme was sustainability and spread of the knowledge and skills built up in the phase 1 programs. To this end, on-line platforms were created in which professionals shared documents about best practices, their experiences, and tools for organizing quality improvement projects. An important function was to strengthen additional organizational learning in the field by making information available and connecting professionals so they could learn and re-use each other's materials.

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8. Accessed August 2014.

These were substantial investments in the care sector: the initial program was designed with a budget of approximately € 7 million but soon this budget was augmented to a total of € 14 million; and extension of the program with phase 2 required another € 15 million (ZonMw, 2005; ZonMw, 2010; ZonMw, 2011; ZonMw, 2012). The evaluation research by iBMG accounted for approximately 5% of the total budget and, at its peak, included 10 researchers and three student assistants.

*Another improvement program: 'Into Care'*
While 'Care for Better' phase 2 was underway, the Dutch Ministry for Health began another program for the health sector called 'Into Care' (In voor Zorg!). This program was launched in 2009 with the aim to push and engage high level management to become involved and take responsibility for quality improvement in their organizations (In voor Zorg!, 2014). The positioning of the two programs was said to be "sharply defined" to assure that they would not hinder each other's goals (ZonMw, 2010). The idea was that 'Care for Better' targeted the work processes in the organizations, whereas Into Care was aimed at supporting high level management in developing the organizational strategy with regard to quality problems. At this time, the different programs partially ran parallel and despite being sharply defined, they could be regarded as competing since on the operational level the difference might not have been felt as clearly.

In 2009, the Dutch Ministry for Health, Wellbeing and Sports reported about the progress in improving the quality of care (Klink & Bussemaker, 2009). The report states that 'Care for Better' has yielded valuable results in medication safety, reduction of pressure ulcers and improving nutrition, eating and drinking. With regard to governance, discussions about the role of high level managers and boards had risen in response to cases with both quality and financial problems. They explain:

> *(…) in many care providers there somehow appears to be no governance structure that targets quality and safety in a form similar to the structures that are common in financial management. For finance, one has a planning and control cycle, a controller, a financial member ("portefeuille houder") in the supervisory board (raad van toezicht), and a financial audit committee. For quality in contrast, often planning and control cycles are lacking, a quality officer is not embedded in the organization and does not have the status that a controller has, financial experts at board level are rare as are audit committees for quality.* (ibid., p. 18).

Moreover, they note that in general awareness of the urgency to act swiftly on the level of organizational governance seems to be low in the field. In light of these issues, a new governance code is developed by associations of care providers. Moreover, a "directing council" for quality of care is installed with the responsibility to govern the development and implementation of guidelines. At the same time, the Visible Care program is also

started and in 2009 94% of the care providers in long-term care is targeted to use so-called care-related indicators (Klink & Bussemaker, 2009). With these indicators, the Ministry wants to raise the standards for long-term care: in 2010, all organizations should have quality systems such as safe notification of incidents, registry of incidents, individual risk assessment as a basis for the care-living-plan and improvement processes to implement best practices should be largely done and sustained (ibid., p. 12). The Health Inspectorate also plans to take these aspects into account in its review of the sector. Transparency with regularly measured indicators, and the threat of exposure, are expected to increase the sense of urgency to act and to trigger more effective quality improvement in the field.

To summarize, the brief overview of the recent history of the Dutch care sector demonstrates that the long-term care organizations were under political pressure and policy changes accompanied a variety of demands, including the need to enhance client-centeredness as well as the quality and the transparency of care. At the policy level, the government implements various instruments to fire up quality improvement as well as to strengthen quality monitoring. Many actors are involved in various improvement efforts and the organizational environment seems to have become increasingly dynamic, demanding and complex. While initially in 2000 the long-term care sector may have been slumbering, now it is in the spotlights.

This concludes Chapter 1 in which we have sketched the background of this dissertation, the theoretical scope, research questions, objectives, and the setting of research, the 'Care for Better program. Next, Chapter 2 continue with the theoretical frame and the research methodologies used in this dissertation.

# A theoretical account of sustainability and spread in care organizations

In the previous chapter, we have reviewed the literature on quality improvement in healthcare and found some challenges at the theoretical level. We have also elaborated on the setting of research: the 'Care for Better' quality improvement program, and on the developments in the program's context of the long-term care sector. This chapter describes the theoretical perspectives that we draw from (Section 2.1) and proposes a framework and sub questions for this dissertation (Section 2.2). After the theoretical part, an outline of the various chapters (Section 2.3) is offered and an overview of the research methodology (Section 2.4).

## 2.1 THEORETICAL STARTING POINTS

To understand sustainability and spread, first of all we need to clarify *what* it is, that is sustained or spread. A starting point in our theoretical approach is that the focus should be on care practices and how these are organized. That is, our interest lies at the level of the clinical microsystem (Nelson et al., 2002). It follows that, for example, sustainability can be seen as a disposition of a changed care practice in view of a certain improvement process. This implies that the main focus shall be on changed practices within care organizations, rather than on the interventions that were developed in the improvement projects in the 'Care for Better' program. This is a specific choice that deviates from the quality improvement literature which is strongly centered on projects and their outcomes (Alexander & Hearld, 2009; Wiltsey Stirman, 2012). Instead, we want to gain insight into how changed practices evolve after an improvement project. With regard to the term sustainability we reiterate that in this dissertation we shall focus is on sustainable change at the micro-meso level; and we engage with the system level only in the final chapters. Also, please note that in our framework, the social aspects are key; and sustainability thus does not refer to environmental questions of care practices. Moreover, as explained in Chapter 1, we want to understand this development of practices in relationship with an improvement project as well as in relationship with the specific organizational context. So, we are interested in the mechanisms that shape practices and the interplay between practice, project and organization to understand sustainability and spread as organizational processes.

For this reason, the theoretical frame builds mainly on organizational sociology, since in this domain practices and organizations have been theorized in the most in-depth way. The downside of sociological organization theory for our purposes is, that the majority of the scholarly work is strongly centered on the private sector, whereas public sector organizations, including healthcare and long-term care, appear to be relatively understudied. We attempt to remedy this shortcoming by integrating and extending the organizational theoretical perspective with specific insights from quality improvement in healthcare.

Furthermore, we share that this theoretical framework was not defined at the start of this dissertation, but is the result of the iterative, emerging process of studying various strands of literature and the empirical work on data related to the 'Care for Better' improvement projects and teams. In this framework, we present our integrated perspective. The studies presented in Chapters 3 to 7 can be regarded as steps in the process of theory development--and we are aware that these studies may not always be consistent with this framework, since our insights have evolved from 2008 until the present year 2015. In the discussion/conclusion Chapter 9, the framework will be used to guide the reflection on the findings from the empirical Chapter.

To situate our framework, we highlight the main lines of our argument before we discuss its theoretical background. First of all, we contend that care practices can be best understood as organizational routines as defined in practice theory (Feldman & Pentland, 2003; Pentland & Feldman, 2005). Building on this assumption, we posit that, at the micro-level, sustainability of a changed work practice means cultivating (changed or newly developed) organizational routines. Moreover, sustainability requires organizational structures to provide in the main elements of organizational routines. These processes have been conceptualized as routinization and institutionalization respectively (Goodman & Steckler, 1989; Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004; Jacobs, 2002; Shediac-Rizkallah & Bone, 1998; Yin, Quick, Bateman, & Marks, 1978; Yin, 1981).

The concepts of routinization and institutionalization originated in organizational institutionalism which aims to explain how various forms of social order emerge, are maintained and may even disintegrate or disappear. Institutionalism comprises various streams of research. Particularly neo-institutional theory seems suited to our ends, since it articulates institutional change within organizations as well as across organizational fields. These two theoretical approaches, practice theory and neo-institutional theory, seem highly relevant to understand changes in care practices, which involve complex routines and, increasingly, formalized forms of organizing. Moreover, these two approaches can be aligned epistemologically since both are founded in structuration theory. Finally we also engage with Scandinavian institutionalism because it pays more attention to the dynamic quality of organizing and the social interactions that serve co-creation of agency and meaning; the translation and exchange (*travel*) of ideas (Czarniawska, 2008; Scheuer & Scheuer, 2008). The latter are particularly useful for gaining insight into the spread of changed work practices, both on a micro-level in terms of editing (Sahlin-Andersson, 1996) as well as on the field level in terms of fashion and imitation (Czarniawska-Joerges & Sevón, 1996; Røvik, 1996). Based on these approaches, we then derive a novel conceptualization of sustainability and spread in which we link the two approaches. To this end, we redefine the concepts routinization and institutionalization and propose a two-dimensional model that describes sustainability of changed

work practices at the local organizational level. Moreover, this two-dimensional model also serves as a vantage point to understand the spread of care practices, recognizing the nature of organizational routines.

Having drawn the contours of our framework, the remainder of this chapter comprises three sections. Firstly, we delve into practice theory to learn more about organizational routines. Secondly, we review the main tenets of neo-institutionalism to gain insight into institutionalization and institutional change. Thirdly, we develop our framework by integrating the insights from practice and neo-institutional theory. The one part of the framework describes sustainability of changed work practices in our two dimensional model. The second part of our theoretical framework extends the model to theorize the spread of improvements.

### 2.1.1 Understanding care practices as organizational routines

An important problem at the start of this dissertation was to clarify *what* is sustained. In our view, the 'what' concerns the (changed) operational processes in a care organization. While in health management these processes have been depicted as the clinical microsystem (Nelson et al., 2002), in organization theory, operational processes are often described as work or organization practices or organizational routines (Becker, 2004; Parmigiani & Howard-Grenville, 2011). Work practices can be described as patterns of actions of and interactions between actors as they perform their daily tasks and these patterns "are infused with broader meaning and provide tools for ordering social life and activity" (Lounsbury & Crumley, 2007, p. 995). More informally stated, work or care practices are, more or less, meaningful patterns of actions by professionals and clients, serving multiple purposes and interests.

Routines have not always attracted the interest of scholars, because they had a negative image for a number of reasons. Cohen (2009) asserts that this might have to do with some strong assumptions held about routines: it is often assumed that routines are mundane in content, that routines are mindless and devoid from thought and feelings, and that they are rigid in execution: they are merely routines! As a result, routines were seen as rigid operational forms of performance and they were associated with lacking of competitive advantage of 'the firm': strong routines handicap the power to respond to change in the environment and impede commercial strategic flexibility (Becker, 2004; Becker, 2008; Parmigiani & Howard-Grenville, 2011). In a similar vein, routines were considered contradictory with values of innovation that underscore flexibility. In recent years, routine theory has witnessed a cognitive turn which re-valued *organizational routines as mindful and effortful accomplishments* (D'Adderio, 2011; Feldman & Orlikowski, 2011; Parmigiani & Howard-Grenville, 2011).

However, in healthcare overall, the negative image of routines still dominates the discourse. In healthcare, one obviously needs strong routines to produce consistent services

and treatments but such routines also entail a tendency for rigidity and lack of reflection in professionals, who at times may tend to treat clients as objects in their routine, and may sometimes also be patronizing in their behavior. Moreover, in healthcare mistakes are sometimes clearly related to mindless rule-following behavior. To illustrate, in 2007 the Dutch association for nursing LEVV has identified 20 "useless care rituals"; including, for example, using sheep skins, hairdryers or ice cubes for pressure ulcer prevention. These were deemed unnecessary or ineffective care routines that organizations should strive to get rid of. These routines were selected in view of the lack of evidence for their effectiveness in medical literature; this also explains why the term 'ritual' was used here (Plas, van Engelshoven, & Mintjes- de Groot, 2007):

> Some tasks in healthcare have acquired a traditional place in everyday nursing. They have become rituals; habits that are executed without further thought. However, the client does not receive proper care when such tasks are performed and labor productivity is not optimally arranged. (p. 8)

Aside from the negative image, by now it is also acknowledged that routines, as standardized behavior sets, constitute important elements of care practices. Particularly, seeing some of the daily and recurrent complexities in coordination and collaboration between professionals (Greenhalgh, 2008) as well as 'between organizations', such as general physicians, nursing home care organizations, pharmacies, hospitals, and insurers. Greenhalgh illustrates the role of routines in an example of ward rounds:

> If everyone is repeatedly late for a ward round and delivers their allotted contribution half-heartedly, its starting time will slip, some people may not turn up at all, and quality of care will fall. If, on the other hand, people take it on themselves to be punctual and prepared for the ward round and suggest ways of making it work better, it sharpens as a collaborative activity and quality of care is likely to improve. (ibid., p. 1271)

Coordination and collaboration are increasingly recognized as the weak points of the healthcare systems, and extending this view, we argue that attending to routines in care practices is instrumental to understand the effectiveness of quality improvement efforts in healthcare.

*Theorizing routines*

There are two main lines of research in organization theory on organizational routines in work practices (Parmigiani & Howard-Grenville, 2011): routine theory, also called practice theory, and capability theory. The first specifically centers on the everyday activities in organizations; routine as well as improvised activities (Feldman & Orlikowski, 2011). It aims to understand how routines operate and are reproduced or changed

as people enact them and is thus oriented to the internal interactions between the 'parts' of routines. The core idea in routine theory is that routines can generate change as much as stability through their internal dynamics. The second line of research on routines is found in capability theory, an evolution economic perspective that was originally proposed in organization management theory (cf. Dosi, Faillo, & Marengo, 2008; Szulanski, 1996; Szulanski & Jensen, 2006; Teece, 2007). This approach seeks to understand how organizational routines impact aspects of organization performance in the responsiveness to market developments in the external environment. This perspective is predominantly advanced in studies on private sector firms.

Routine theory is more suited to meet the theoretical challenges outlined before than capability theory is. The main reason for this is that we want to gain insight in the ways in which changes in care practices—which consist of many routine, habitual operations—are maintained and further cultivated. While in capability theory the dynamic quality of routines is recognized, it tends to treat an organization routine as a stable entity, largely ignoring the routine as a source of change. Practices in care are typically rather dynamic, and routine theory is able to take this variation in practice into account because of its emphasis on agency. Moreover, variation in practice is to be expected seeing the internal dynamics in care situations, with different clients and professionals collaborating. Finally, anticipating on the characteristics of neo-institutionalism, another advantage of this perspective is that it can be aligned with institutional theory at the epistemological level, because both theoretical views stem from structuration theory as developed by Giddens (1984). What is more, recently, neo-institutional theories have shifted their attention more to micro-foundations of institutions (cf. Lounsbury & Crumley, 2007; Powell & Colyas, 2008) and alignment with practice theory (Feldman & Pentland, 2003; Feldman & Orlikowski, 2011). We agree that this avenue can be fruitful to further our understanding of organizational change and suits the need to give more room for dynamics in our theorizing of organizations.

To continue, in routine theory, work practices are understood in terms of organizational routines. An organizational routine can be defined as a "repetitive, recognizable pattern of interdependent actions, carried out by multiple actors" (Feldman & Pentland, 2003). Two assumptions in routine theory are important to note at this point. The first assumption regards the relationship between human agency and social structures. In the routine / practice theoretical perspective, human agency shapes our social reality and should be understood as situated, i.e. not as an object that can be detached from that very same social world. The second assumption returns to Giddens' claim that structure and agency mutually constitute each other (Giddens 1984 in: Feldman & Orlikowski, 2011). On the level of the organizational routine, this means that it is through performance that "members tend to reinforce and reproduce the underlying structures" (Feldman & Pentland, 2003, p.98). This dynamic makes that the performance of an

organizational routine may reinforce the pattern and yield stability as well as stimulate variations, that is: change. This is what the "carried out" in the definition points to: a routine can only exist *through being performed* (Feldman, 2000), because it is then, that we can see how the principles are related and translated into situated action, and vice versa, how the specific qualities of the situation shape the performance.

Feldman and Pentland (2003) thus pose that the dynamics between structure and agency can also be found in organizational routines. In their view, organizational routines essentially combine two related parts: 1) the ostentative aspect, i.e. abstract idea of the routine, which is denoted as the principles or the structure, and 2) the performative aspect, i.e. the actual performances of the routine, by specific people, at specific times, in specific places (agency) (ibid. 95). This they define as the dual nature, which implies that principles and the practices mutually form each other. On the one hand, the organizational routine is constituted in the form of a set of principles; principles that the actors know and use to guide and explain their actions in the routine. On the other hand, it is seen as it is performed in practice: through the performances, actors develop a shared formal understanding (and language) as well as tacit knowledge of what needs to be done in a specific situation (Feldman & Pentland, 2003; Miner, Ciuchta, & Gong, 2008; Parmigiani & Howard-Grenville, 2011). Furthermore, actors can adjust the principles in light of their experiences and the insights gained through practice. It is obvious that reflection, monitoring and feedback during performance are very important in this process. For all these reasons, Feldman and Pentland argue that organizational routines are "generative systems", with "internal structures and dynamics in which flexibility and adaption are equally important as stability" (Feldman, 2000; Feldman & Rafaeli, 2002). In short, organizational routines can also be a source of change and this is not confined to periods of innovation: routines also change in old, established organizations in stable environments (Feldman, 2000).

In this dissertation, we analyze care practices in terms of organization routines. The scope of the term "organizational routine" varies across studies. In this dissertation, we refer to those routines that are connected to the quality theme at hand. This means that we describe a care (work) practice in view of the quality theme. However, care practices consist of multiple routines that may serve and integrate other purposes as well. For example, eating and drinking are important aspects of everyday life in a nursing home. Routines associated with these themes can serve patient safety in the form of contributing to prevention of malnutrition, but also they contribute to client autonomy and wellbeing (Harbers in: Mol, Moser, & Pols, 2010). In relationship to this, we envision sustainability of a changed work practice as a process that serves the cultivation of organizational routines for a targeted care practice. In the next section, we engage with neo-institutional theory to gain insight into how organizations, institutions, and practices are constructed and transformed.

## 2.1.2 A micro-meso level perspective on institutions in organizations

Institutionalism is a theoretical strategy in which various institutional theories are developed and used to investigate different aspects and processes with regard to social order (Powell & DiMaggio, 1991). In organization studies, multiple institutional theories have been put forward. The theoretical framework in this dissertation is mainly based on neo- and Scandinavian institutionalism. We value the institutionalist perspective for three reasons. For one, it offers a strong theoretical foundation as a social theory and it provides the tools to describe the mechanisms that affect the interplay between practices and organizations. Secondly, it offers theoretical principles that have practical, empirical value to guide interpretation. Thirdly, institutional theories are elegant because of their economical quality while at the same time, they are applicable in a broad range of settings. In various streams of literature on improving, such as quality improvement studies, health management, innovation studies, and so on, we encounter all sorts of changes in practices and 'substances' that are spread: best practices, technologies, policies. The tenets of institutional theory seem applicable to many diverse phenomena that are associated with sustainability and spread. This is an important advantage compared with more specific theories, for example theories that center on dissemination of software systems, guidelines or evidence based practices (cf. Francke, Smit, de Veer, & Mistiaen, 2008; Lomas, 1993).

Institutionalism is an encompassing framework for the social world as a whole and in consequence, different studies have targeted different units of analysis: global and societal level, organization and organizational field level, and more micro level. Since this dissertation aims to understand the processes within organizations, we confine ourselves to the micro and meso level of practices in organizations when we discuss institutional theory. Since a more remote line of inquiry concerns sustainability on the macro level, we shall explore the value of institutional theory in connection with the interplay between organization and organizational field as well.

In institutionalism, a basic premise is that social order can be understood in terms of construction and deconstruction of institutions (Meyer & Rowan, 1977; Scheuer & Scheuer, 2008; Scott & Meyer, 1994). More specifically, the main objective is to understand the dependencies between institutions, in particular formal organizations, and their environments. Simply stated, institutionalization refers to the set of social reproductive processes through which institutions are developed (Jepperson, 1991). The adjective "neo" (or sometimes "new") refers to a fundamental shift in the main tenets of institutionalism to postulate a logic of appropriateness, that stresses the (social) construction of meaning in relationship with processes of institutionalization (Czarniawska-Joerges & Sevón, 1996; Powell & DiMaggio, 1991). The Logic of Appropriateness entails that actions are justified not because they are more efficient in an objective sense but because they are believed to be appropriate, i.e. in a subjective or cultural sense, as seen

through the eyes of the actors. Likewise, also the development of a certain organizational structure or form is explained by their perceived appropriateness.

An institution is a social order, pattern, or practice that has a conventional character, meaning that it consists of a standardized sequence of interactions (Jepperson, 1991). Some examples of institutions are: marriage, the handshake, voting, the corporation, formal organization, attending college (and we can add to that: writing a dissertation). Some examples of institutions in care organizations are: care plans, agism, coffee at 10.30 for everyone in the dining hall, health insurance refunding rules, the Healthcare Inspectorate, annual documentation in a care organization, the parking spot of medical professionals and managers, regular entertainment programs with games like bingo. The examples serve to illustrate that many phenomena can be regarded as an institution, varying from a symbolic gesture like a handshake, highly standardized work practices such as morning routines that include getting washed and dressed, putting on stockings, eating and drinking, and distributing medication, to larger structures such as formal organizations as insurers, or 'the Health Inspectorate'.

An important quality of an institution is that it seems to 'reproduce' itself: an institution includes procedures that serve to secure and reproduce the order, and deviations are counteracted in a regulatory fashion. In other words, no extra intervention is required for its survival unless something disrupts the reproductive process, then some action might be needed to reinstall (social) order. Institutions seem almost absolute categories but only as relatively fixed feature *in a certain environment*. Jepperson (1991) explains the example of voting which can be described as an institution in the United States because there are ample procedures securing its reproduction. In contrast, in Jepperson's example voting in Haiti is not an institution, because it is not *a taken-for-granted practice*: reproductive processes are lacking. It is this self-activating reproductive feature of institutions that is relevant to understand how quality improvements in healthcare can be sustained: by making sure that they are institutionalized!

Main characteristics of institutions are that they simultaneously *empower as well as control* interactions. They enable or invite certain avenues of action and constrain others: "(…) all institutions are frameworks of programs of rules establishing identities and activity scripts for such identities." And: "(…) institutions operate primarily by affecting persons' prospective bets about the collective environment and collective activity" (Jepperson, 1991, p. 146). Through reproduction of actions, a pattern, the interpretations and meanings associated with it become taken for granted, and will be regarded as exterior, seemingly objective restraints in a certain environment. Moreover, a legitimizing account is also taken for granted: "… *people may not very well comprehend an institution, but they typically have ready access to some functional or historical account of why the practice exists."* (ibid., p. 147) In other words, institutions are patterns with a certain level of "normative and cognitive fixity" (Clegg & Bailey, 2008).

What an institution is, is also relative to other institutions (Powell & DiMaggio, 1991). In systems with many layers of organization, one practice or pattern may function as an institution for another. For example, the Healthcare Inspectorate is an institution for home care organizations. And the home care organization has structures of rules and obligations that serve as institutions in connection to the care practices in which the clients and care workers together coordinate everyday care practices. Moreover, what counts as an institution, i.e. to what extent a practice has become a fixed and self-reproducing feature in a certain context for a certain actor, depends on the relationship between the actor and this environment including the particular practice or institution. For example, health insurance refunding protocols are institutions for clients in a nursing home, but less so for policy makers who collaborate with an insurer to design a protocol.

Institutionalism is based on a combination of constructivism and structuralism. In this perspective, "neither actor nor agency is primordial" (Jepperson, 1991, p. 156 and further). This means that we cannot claim that the one of these (actor or agency) is 'causing' the other. In consequence, in this view, institutions can be studied both as causes and as effects. As such, institutionalism always emphasizes, to some extent, multilevel causal connections and higher-order effects. At the same time, institutionalism presumes that social objects under investigation are complex and socially constructed in various interactions. This means that, despite the structure, there is room for interpretation, which also shapes how we interact.

Initially, neo-institutionalism set out to explain similarity across organizations. It was unclear how it was possible that many organizations seem to develop similar structures and forms, while their environments are substantially different. For this reason, the emphasis shifted from individual organizations to the organizational field. DiMaggio and Powell (1983) defined an organizational field as: "a community of disparate organizations, including producers, consumers, overseers, and advisors, that engage in common activities, subject to similar reputational and regulatory pressures." (DiMaggio & Powell, 1983). Following Giddens' theory of structuration, the development of an organizational field was not interpreted as a set of autonomous acts of individual organizations. Rather, the main idea was that structures in organizations were shaped through common mechanisms which drive organizations to become more alike. The resemblance of organizational forms was referred to as 'isomorphism'. DiMaggio and Powell posited three mechanisms to explain isomorphism as resulting from social factors: *coercive, normative,* and *mimetic isomorphism*. Coercive factors involve political pressures and force of the state. Normative factors refer to changing values, which mostly are fueled by the professions, via the educational system and by public opinion. The mimetic forces draw from habitual, taken-for-granted responses to circumstances of uncertainty: "When technologies are poorly understood, when goals are ambigu-

ous, or when the environment creates symbolic uncertainty, organizations may model themselves on other organizations." (ibid., p. 151).

The three mechanisms enable isomorphism and the emergence of new forms can be explained in terms of their logic of appropriateness; i.e. how new structures fit the current meaning system as well as how they are deliberately re-framed to fit the meaning system. Organizational imitation, i.e. modeling behavior, is thus explained as a response to uncertainty. We will return to this aspect of imitation later, when discussing field level processes and spread of quality improvements. In later work, Powell has also mentioned a fourth mechanism named "evangelic isomorphism" (Clegg & Bailey, 2008). This form of isomorphism is associated with "institutional entrepreneurs who champion the adoption or influence of specific practices" (ibid., p. 2).

Later conceptualizations in institutional theory increasingly emphasize the influence of cognitive framing aspects. As Scott and Meyer wrote "Social order can only exist through shared cognition of a situation and a determination of ones identity in it." (1994, p. 65) Related to this, they re-defined institutions as "(…) symbolic and behavioral systems containing representational, constitutive and normative rules together with regulating mechanisms that define a common meaning system and give rise to distinctive actors and action routines." (ibid., p. 68) They developed a model with three layers that describes how institutions are formed, see Figure 2–1.

On the one hand, there are influences from the first layer on the second layer (see Figure 2–1). The first layer combines three kinds of influences. First of all, meaning systems and related behavior patterns. These are related to cultural and cognitive factors; encompassing shared conceptions and frames. Secondly, symbolic elements, such as rules or codes, articulate norms and have constituting qualities (for example professional norms: "doctors never … "). Thirdly, regulatory processes serve to reinforce rule following through informal or formal regulatory processes and the mechanisms for monitoring actions, recognizing violation and determining severity of punishment.

In this model, the development of an institution should resonate in symbolic elements and be accompanied by specific regulative processes. Moreover, micro level interactions also affect the macro level (see lower part of Figure 2–1): actors also shape the institution by interpreting and innovation of institutions. However, these relations have not been attended to extensively in institutional theory (Feldman & Orlikowski, 2011). Existing structures and rules as well as interactions between actors, impose or direct how an institution evolves. The reproduction procedures for an institution in a given context entail a certain level of alignment, thereby ensuring that the institution empowers and controls actors and becomes taken for granted. An institution can only become taken for granted when it has a certain 'cognitive fit' in terms of the logic of appropriateness. The logic of appropriateness is influenced by the various isomorphic pressures from the (wider) environment.

**Figure 2–1** Model for institutionalization by Scott and Meyer (1994, p. 57)
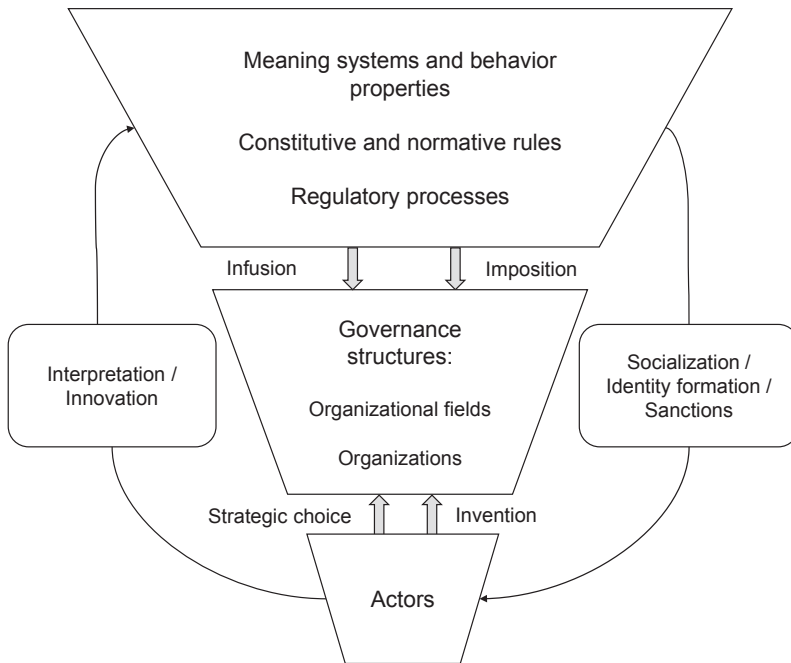


*Applying institutional theory to sustainability and spread*

What shapes the ability of an organization to sustain and spread changes in work practices implemented in an improvement project? We can already derive some answers to this question based on the basic tenets of institutional theory. Practices can be described as institutions and these emerge through mobilization and the development of reproductive procedures. Institutions are socially constructed systems that organize interactions in terms of meaning systems and behaviors, related rules/codes, and regulatory processes.

We can understand institutionalization as a process in which institutions are developed and reproduced in relationship with a variety of isomorphic pressures in the (wider) institutional environment of those very same institutions. This idea also implies that if the pressures change, sooner or later the institutions and organizations will follow. Regarding sustainability we can also presume that an organization operates as an institutional environment for a (changed) work practice, i.e. an ensemble of institutions that in a broader sense affects whether or not a new and improved practice is sustained, is eroded or is enhanced further in time. With regard to spread, the roles of isomorphic pressures in an organizational field need further consideration. To this end, we elaborate on the micro level processes of change viewed from the institutional perspective in the next section.

In institutional theory, various forms of institutional change have been distinguished. We describe four types that were identified by Jepperson (1991, p. 149 and further). The first is called *institutional formation*: the creation of novel institutions, a move from "mess" to new forms of order—or as Jepperson writes "an exit from social entropy". The second is *deinstitutionalization*: the process whereby a practice gradually loses its status. Change may mean that an organization puts an end to a certain practice (Røvik, 1996). Jepperson describes deinstitutionalization as "an exit from an institution with action, to: recurrent action (mobilization), or to non-reproductive patterns or entropy" (ibid.). The third is *practice development*: a change may be directed at changing an already existing institutional form. The fourth is *reinstitutionalization*: a change may entail an exit via action combined with entry into another form, organized around different principles or rules. This type concerns innovative change.

In relation with institutional change, Røvik (1996) posits that instituting a new practice also requires that an old one is discarded (deinstitutionalized). In institutional theory, however, there appears to be relatively little attention for deinstitutionalization of practices. Also, he notes that we tend to expect that institutions last forever: "when a prescription has first been institutionalized and has become a meaningful arrangement, it is permanent and can, almost by definition, not deteriorate and fade away." (Røvik, 1996, p. 142) In other words, this remark suggests that sustainability is often taken for granted: once a practice has been institutionalized, it is expected to stay forever. However, this might not even be what is called for. As Buchanan et al. included in their definition of sustainability that it should be viewed as temporal arrangement for an *appropriate* period of time—not forever (Buchanan et al., 2005).

### 2.1.3 Scandinavian institutional theory

Historically, institutionalist accounts have depicted both organizations and institutions as stabile structures (Czarniawska-Joerges & Sevón, 1996). In line with this, little attention has been paid to more dynamic qualities of organizing. In response to this lack, in the 1990s a new strand of research, called Scandinavian institutionalism emerged. It espouses the basic tenets of the new institutionalism but also draws on constructionist theory. According to leading scholar in Scandinavian institutionalism Czarniawska, constructionist theory offers a better "vocabulary" to describe change and dynamics in organizations (ibid.). In other words, this perspective solves some conceptual problems that are related to the neglect of dynamics. For example, Sahlin-Andersson (1996) argues that in many of the concepts to describe spread, such as diffusion, assimilation, contagion, fashion, normalization, it is assumed that nothing happens to these ideas during the processes. In other words, the object of spread is often depicted as static and reified. In relation to this, the concept of diffusion is also questioned. As explained before, in healthcare, the term diffusion is very commonly used and mainly refers to spread

of practices in relation with quality improvement efforts (Greenhalgh et al., 2004). In institutionalism, this term is also used to denote processes related to spread (cf. Scott & Meyer, 1994; Strang & Meyer, 1993; Strang & Soule, 1998; Weber, Davis, & Lounsbury, 2009). However, as pointed out before, several scholars have noted that our view of spread is influence by assumptions inherent to this concept . In addition, we underscore that there are not necessarily a *limited* number of practices available to begin any spread process. For these reasons, in our theoretical framework, we refrain from using the term diffusion. Rather, we follow Czarniawska and colleagues in emphasizing that these processes are best understood as translation (Czarniawska, 2008; Scheuer & Scheuer, 2008):

> *the spread in time and space of anything – claims, orders, artifacts, goods – is in the hands of people; each of these may act in different ways, letting the token drop, or modifying it, or deflecting it, or betraying it, or adding to it, or appropriating it.* (Latour 1986, p.267 in: Czarniawska-Joerges & Sevón, 1996)

Or, as Damm Scheuer stated, translation means that "an idea and the human and non-human elements associated with it are co-constructed in specific time-space contexts" (Scheuer & Scheuer, 2008 p. 15).

In our view, two scholars have brought forward some important building blocks to conceive the process of spread, both stem from Scandinavian institutionalism and combines translation theory with institutional theory. The first perspective is theorized by Sahlin-Anderson (1996) who posits that models or new organizational forms circulate through *imitation processes*. While in some institutional theories, spread, i.e. diffusion, is depicted as an automatic process, there are also institutional theories in which the "individual organization is not a passive adopter of trends" (Sahlin-Andersson, 1996). In her view, adoption is not a singular decision by one actor, instead it should be regarded as a complex social process:

> *(…) the ability to maintain and form local practices is not mainly found in the choice between institutions but rather in the editing of models and concepts. New meanings are ascribed to the imitated models so they can be combined with previous working models.* (p.92)

These imitation processes serve the translation of ideas and involve *editing* processes, through which 'successes' are formulated and reformulated following editing rules related to institutional pressures. In other words, in the process of imitation there is a lot of work done to 'make the shoe fit' and 'to get used to the shoe'. In the editing process "… problems and solutions tend to merge into each other. The problem is defined as the difference between organizations and the solution is to eliminate these differences" (Sahlin-Andersson, 1996 p. 93). This approach thus emphasizes the construction of

meaning about a practice along with the reinvention of a practice in concrete material and behavioral sense. According to Sahlin-Andersson, the gap between the prototyped, abstract idea and the supposed source, and the practice in the imitating organization forms a space for translation; i.e. for interpreting and redefining the meaning and use of a care practice.

Sahlin-Andersson (1996) uses the term *editing,* because talking about the new form in various situations, and re-telling the stories related to it, are key for the imitation of practices or forms. In relation to the concept of editing, she observes that spread is often directed at the *distribution* of written material: the practice is codified in books, journals, at seminars, in presentations, and so on (ibid.). Editing also has to be viewed as a process of social control, because, as we have seen before, the wider institutional environment and the isomorphic pressures are also influencing the editing processes. Actors circulate stories about practices, events, forms, et cetera, and reformulate the problem and the solution along the way. In her view, the editing/translation work entails the reconfiguration of organizational identity. In line with this view, organizational identity stems from the relationships expressed in the interactions with others: " (…) the identity represents an abstracted view of what is regarded as consistency and continuity in a person's, groups, or an organization's activities." (ibid., p.72)

To understand imitation and editing in an organizational field, we need to acknowledge that the relationships in the field are varied and that there is competition by mere presence—as Powell stated "social action is economic action" at the organizational level (in: Clegg & Bailey, 2008). In healthcare, the care sector can be viewed as an organizational field in which care organizations strive to provide good care, and compete with each other in defining what good care should entail and how this should be provided. As such, the field constitutes a reference system that influences the amount of attention that is paid to certain structures and identities. In other words, the attention for quality themes is guided by cognitive framing processes that are specific for that organizational field.

### 2.1.4 Spread, attention steering, imitation and fashion: field level processes

How to understand the role of attention in relationship to spread at the field level? The second approach offers valuable insights into this question using the concept of fashion; it is based in Scandinavian institutionalism (Czarniawska-Joerges & Sevón, 1996; Røvik, 1996). As said before, Scandinavian institutionalism integrates translation theory with neo-institutional theory. In Czarniawska's view, fashion is created *while it is followed*, as subsequent translations produce variations and reproduce it. In line with the previous theoretical perpective, we start from the premise is that ideas travel through social interactions. Ideas travel through processes related to fashion and institutionalization, and these are interconnected and interdependent processes. An idea is defined as

"communicated images, intersubjective creations" (Czarniawska-Joerges & Sevón, 1996). Because of this shared feature, ideas can be seen as pertaining to a community, rather than exclusively to individual actors; instead, they are internalized in actors. Aside from their shared, collective feature, ideas also have a material quality. Czarniawska poses that ideas can be – and are being -- translated into artifacts and stresses that, artifacts, meaning: ideas in materialized form, have strong potential power to spread, i.e. "to travel fast and far".

Similar to Sahlin-Andersson's argument, Czarniawska (1996) also emphasizes the role of attention: attention affects the evolvement of problem analysis and the development of solutions. Attention is possible when *an idea matches the purpose at hand* (ibid. p. 28). The wider institutional environment of an actor influences the attention for ideas and their "discovery" by an actor. Moreover, she notes: attention is limited in organizations. Aside from that, an organization also exerts control over the uptake of ideas, which means that leadership actively exposes ideas to others and filters what they wish (Latour, 1986 in: Czarniawska-Joerges & Sevón, 1996).

Extending this view, Røvik (1996) argues that that there are two main drivers for fashion: *imitation*, the desire to be like others, and *differentiation*, the desire to be unique. These desires produce tensions in modern organizations for two reasons. First of all, organizations are constrained by social norms that permeate in an organizational field and thus organizations always need to be like others to a certain extent, and need to signal a common identity. Secondly, fashion produces tensions for managers, because the norms of 'fashionableness' (being in line with the current fashion) dictate continuous need for change, whereas the norms of rationality prescribe to keep a practice as long as no better alternative method is available. In other words, institutionalization of a field constrains the possibilities and durability of a fashion in that field. In relationship to this field as a larger environment, master ideas play an important roles by connecting the fashion to the existing institutions and to steer attention (Czarniawska-Joerges & Sevón, 1996). *Master ideas* are emerging concepts developed through shared sense-making, they have an overarching, aggregating, unifying function in the discourse; they echo and organize collective thoughts and questions. A few examples of master ideas that have gained organizing power in the current healthcare discourse are 'patient safety', 'co-creation' and 'entrepreneurship' .

According to Czarniawska, fashion serves to revitalize the institutional order because it creates an activating tension between the need to conform and the need for creativity in the social system. Or as she remarked: "*The war on skirt-length presupposes the global practice of wearing skirts*" (Czarniawska-Joerges & Sevón, 1996, p.38). Through fashion, organization creates room for experiment to try out new practices—and perhaps to subvert part of the existing order—and then dispose of or institutionalize these.

In this way, fashion is a source of order (bear in mind though that a new order does not guarantee progress).

This point of view is shared by Røvik (1996) who also emphasizes that to follow a fashion, requires that an existing practice is dropped, and hence: "organizations 'forget', verbally dissociate themselves from, stop using, or try to get rid of, institutional standards [SSS: practices],…, that they had adopted some time ago." (p.139) When an organization adopts a fashion and drops an existing mode of working, the previous practices will be deinstitutionalized and 'fade'. However, most of the remains of a practice will be still stored in the organization, in jobs, routines, procedures, language and memories. According to Røvik, the storage of remains enables fashion mechanisms because remains may be reused and thereby make it possible to respond rapidly to a 'new' fashion.

## 2.2 FRAMEWORK FOR SUSTAINABILITY AND SPREAD

In the previous sections, we have provided an overview of the foundations of routine theory, neo and Scandinavian institutional theory. This has revealed a theorization of organizational routines as instilled with dynamics. Neo-institutional theory offers a view on the development of institutions through the mechanisms and interplays between actors and structures in the organization and in the organization field. We have introduced these perspectives to pave the way for an integrated theoretical understanding of sustainability and spread of practices, that takes into account some more specific aspects of quality improvement projects and their outcomes. What shapes the ability of an organization to sustain and spread changes in changed work practices?

Before we propose our theoretical framework for sustainability and spread, we present our main argument in a nutshell.

The first part of the framework describes sustainability of changed work practices in care organizations in Section 2.2.1, starting from the premise that work practices can be described in terms of organizational routines based on Routine theory. To continue, we draw from Scandinavian institutional theory[9] to conceptualize sustainability of changed work practice. To this end, we redefine the terms routiniziation and institutionalization by centering on changed work practices as built from organizational routines. In this view, routinization and institutionalization are dynamic processes that serve the continuous, ongoing evolvement of a changed practice in a given organization. A sustained

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9. The term neo institutional or new institutionalism is often used interchangeably. Likewise also the term Scandinavian institutionalism is in use. The latter typically refers to institutional theory that is combined with translation theory and studies institutions at the micro-level; mostly based on ethnographic methods. The former on the other hand traditionally have focused more on meso- and macro-level questions; using a variety of research strategies.

practice thus has a dynamical quality, that generates both endogenous and exogenous change: it is truly sustain*able; able to sustain itself.* And to avoid misunderstanding: in our current perspective on sustainability, we center on social construction of practices, and do not attend to environmental considerations, that are often associated with sustainability in the general discourse.

The second part of the framework theorizes spread within a care organization, building on the conceptualization of sustainability in Section 2.2.2. We propose that the spread of quality improvements within and between care organizations concerns ´packages´ of elements, that are directly related to the routinization and the institutionalization of the changed work practice. Drawing from Scandinavian institutionalism as presented by Czarniawska (1996) and Sahlin-Anderson (1996) spread is conceived as a form of imitation that entails an editing process to translate practices to and in other settings. When effective, spread engages both senders and receivers.

In our framework, we argue for a need to distinguish the processes in senders and receivers for analytical convenience: to articulate the diversity and complementarity of the translation processes. For senders in the one nursing home ward, the editing processes require that the actors mobilize to disseminate edited spread packages about the changed work practice to further its institutionalization. The role of receivers, on the other hand, is to edit and translate ideas about the changed practice to their local setting of the other, the imitating, nursing home ward. This then entails local quality improvement processes that, in the end, lead to sustainability of changed work practices in this nursing home ward. To end, we reiterate that the framework at hand centers on micro-meso level processes. These are related to sustainable change at the system level and we will extrapolate our framework in a later stage.

### 2.2.1 A two-dimensional model for sustainability of changed work practices

In our framework a new conceptualization of routinization was developed based on practice theory drawing from routine theory (Feldman & Pentland, 2003). We decided to complement it with a conceptualization of institutionalization at the organizational level drawing from Yin's work (1978; 1981). This resulted in a two-dimensional model for the sustainability of changed care practices. At this point, it is important to be explicit about the fact that this framework thus defines routinization and institutionalization *at the local level*, i.e. in more narrow terms than commonly used. However, this is more suitable in view of the object of research and the research methodology of this evaluation research. We will now delineate these two dimensions more in-depth. Figure 2–2 offers a visual scheme of the framework. In this figure, the targeted care practice and its routines are depicted as oval shapes, and the improvement processes are cylindrical shapes.

Like work practices, we can describe *changed* work practice also in terms of—changed or new—organizational routines. This approach may be particularly interesting

in the domain of healthcare, where work practices typically are dynamic and require improvisation as well as ´following the rules´. In the course of an improvement process, a given existing practice is redeveloped into new practice. This redevelopment entails various aspects, including problem analysis, intervention design and implementation. From the perspective of institutional theory, the improvement projects can be understood as a form of mobilization, i.e. temporary, non-recurrent action.

Sustainability can then be seen as a dynamic process in which actors in a targeted work practice develop and / or adapt the organizational routines to a new work method. This process can also be described as routinization: through the ongoing, dynamic development of organizational routines, a new work method becomes part of everyday activities (Schreirer, 2005; Yin et al., 1978; Yin, 1981). To sustain an organizational routine requires cultivating both principles (ostensive aspects) and practices (performative aspects) and this process also involves learning processes, since actors adjust their ways in view of their experience. Miner et al. (2008) studied these process extensively and posit that routines are developed through subtle combinations of variation, selection and retention of activity patterns.

The bidirectional relation between the principles of a routine (ostensive part) and way in which it is practiced (the performative aspect) might be useful to deepen our understanding of routinization as a dynamic, continuous process. In each performance, actors align their actions to both the principle and the situation, while at the same, they adjust the principles. In our framework, the concept of routinization primarily concerns those routines that were changed in the quality improvement project, i.e. those most directly related to the quality problem at hand. To give an example: to avoid falls, individual risk analyses are implemented to decide which fall preventive measures should be applied, such as physiotherapy or prescribing adjusted shoes for a client. In this case a set of routines is involved, including for example actions that serve the monitoring of fall risk and the decision making processes associated with providing fall preventive measures.

Feldman and Pentland (2003) maintain that organizational routines exist only in their enactment. It follows that an organizational routine cannot be sustained when one of its 'ingredients' is lacking or weakened. This means both aspects, the principles and the performance, need to be sufficiently practiced to sustain an organizational routine. Therefore, we argue that, apart from routinization, sustainability thus should always entail the provision of the organizational conditions, that support and enable the actual performance of the routines, in line with the intended principles. The development of these supporting conditions can be viewed as a specific form of institutionalization, that concerns the gradual adaptation of the organizational context, including structures and processes, to the new or changed care practice (Goodman & Steckler, 1989; Goodman, McLeroy, Steckler, & Hoyle, 1993; Jacobs, 2002; Yin et al., 1978; Yin, 1981). In this view, institutionalization entails the development of *the required supporting conditions*

**Figure 2–2** Basic model for sustainability
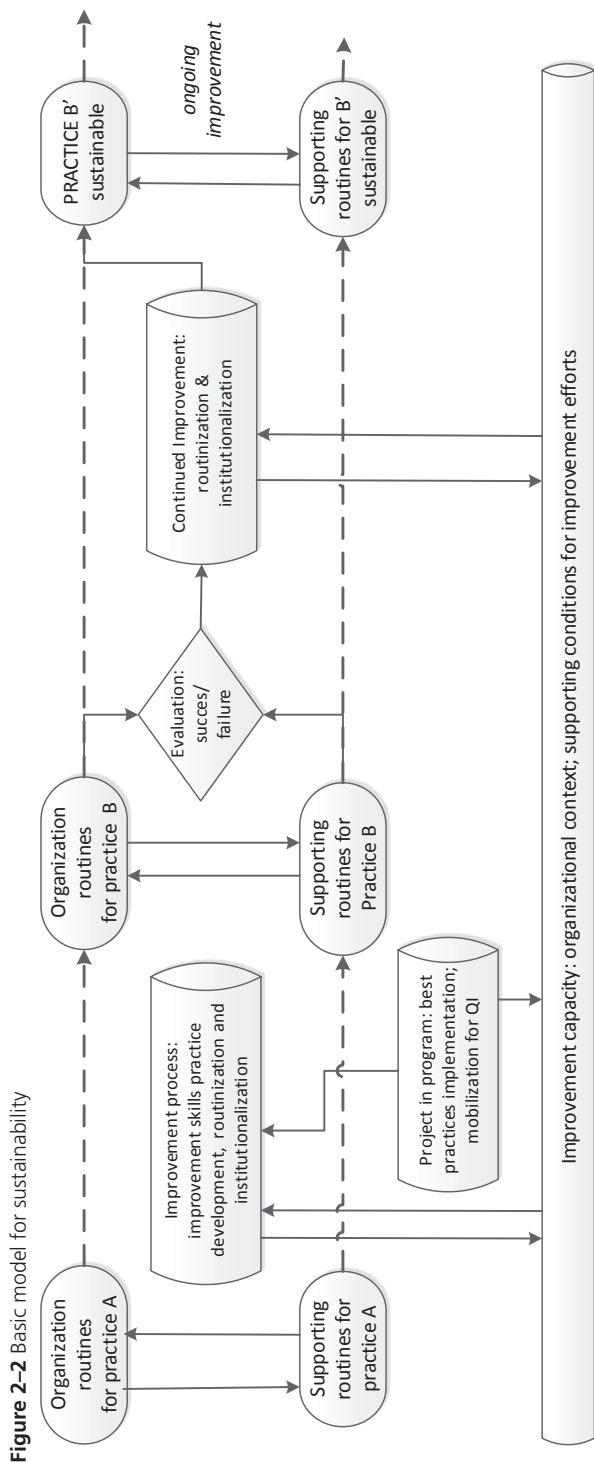


Comment on figure 2–2: this image is intended to give an overview the conceptual relationships at hand. However, it should not be understood to suggest a static beginning and end state, i.e. based on a kind of "replacement logic" (Ford & Ford, 1994). Instead, we aspire to develop a 'transformation logic'. We emphasize that it is actually hard to tell where a new practice begins and old one disappears. Moreover, the targeted practice is theorized as continuously evolving (becoming). The figure is designed for analytical convenience and does not preclude nonlinearity in QI processes nor in care practices.

*for the targeted organizational routines*. In the example of fall prevention discussed earlier, there might also be other routines more remotely involved, for example with regard to keeping up with state of the art of professional knowledge for fall prevention or training critical thinking skills to ensure accuracy of the individual fall risk analysis. These are described as part of institutionalization, as they occur at the organizational level (rather than at the level of the changed care practice in the clinical microsystem of care professionals and client).

We further our definition of institutionalization in relationship with sustainability of changed care practices building on Yin's work (Yin et al., 1978; Yin, 1981). In Yin's theory, implementation is followed by routinization/institutionalization[10]. The latter is identified by certain organizational events in which the organization adapts to the innovation and vice versa. This dynamic adaptation process consists of three stages: improvisation, expansion and disappearance. In terms of Jepperson (1991) these events are moments of mobilization, when reproductive procedures are developed and maintained. The defining organizational events are called *passages* and *cycles* (Yin et al., 1978, p. 46). Passages are "(…) when a formal transition from one organizational state to another has taken place; significant changes in organizational procedures or structure that increase support for an innovation". Cycles are events that occur regularly during the lifetime of an innovation: "(…) each time a cycle occurs, the use of an innovation may be questioned and threatened" (ibid.).

Yin's focus on organizational events is helpful to refine our understanding of the development of supporting conditions from a process perspective at the micro level. Following routine theory, to cultivate an organizational routine requires that it is performed, since performance itself serves the learning and reproduces the knowledge/memory. Complementary to this, we can harness a routine against decay by securing its main ostensive and performative elements. This can for example be done by providing actors with documentation or other written aids to support their memory, or by offering professional trainings to reflect on the principles in a practice.

To make sure that the main ingredients of an organization routine are actualized so the routine can be performed without problems, we believe that the organization can create certain secondary structures or routines by which the routines are supported.

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10. Initially, routinization was the main concept in use and later this emphasis disappeared, then both terms were explained as "incorporation" (Yin et al., 1978). Following work on institutional theory (including Yin's) centered on institutionalization, and routinization seemed to be implied more or less. We reason that it can be useful to maintain the two concepts to differentiate agency at different levels or distance: routinization refers to agency most close to the targeted practice, whereas institutionalization that entails agency more remotely connected (in terms of Clark (2005) it serves to underscore the roles of implicated actors). Moreover, there are some subtle semantic differences: routinization seems more directly related to routines, i.e. to what people do, while institutionalization is somewhat more related to the institutions: fixed, formal forms of social order, such as the structural design of the organization, and the conditions in which people act.

These concern the quality of the actions and the meaning system connected that are key for the routine. In healthcare, supporting conditions concern the equipment of the health professionals. Firstly, their knowledge and skills, and motivation, are very important for the quality of a routine. In line with these aspects for example human resources may select certain persons when new staff is hired. Secondly, as emphasized in translation theory, we should acknowledge that materials play equally important roles, because they have direct and performative effects on the ways in which a routine is enacted (D'Adderio, 2008; D'Adderio, 2011). To sustain a routine thus also calls for making sure that the 'right' materials are available. These are also part of the supporting conditions of a routine. Thirdly, there are important cognitive aspects in play in organizational routines (Parmigiani & Howard-Grenville, 2011). Routines are built from ideas that frame actions. The performance of a routine is shaped by the shared sense-making processes during performance, and afterwards. For example, actions in a performance reflect the intentions and attention of actors, and actors decide what to do based on their expectations of what the other actors are going to do. In relation to this, motivations and ideas about the main principles influence decisions about when to improvise and when to apply proven solutions. Fourthly, the organization as an environment articulates how the routine is part of the organizational identity. For this reason, reflection and monitoring of a routine are also vitally related to the sustainability of a routine. Routines as constructions require ongoing efforts to ensure that there is enough inter-professional reflection about the routine.

Finally, we emphasize that our framework concerns both formal and informal aspects of organization. While this conceptualization of institutionalization stresses modes of formal organization, it is not exclusively intended as such. Institutionalization also requires all sorts of informal modes of organizing. For this reason, we try to emphasize the importance of meaning and interpretation in the model. And although routinization and institutionalization are often taken to be almost synonymous, we propose that each concept has its distinct value in the discussion on sustainability. Where routinization covers the process in which the actions are shaped and steered, institutionalization extends to the embedding of a work practice in the organization, emphasizing the conditional aspects.

### 2.2.2 A theorization of the processes related to spread

Building on this framework for sustainability of changed work practices, we expound on the processes related to the spread of quality improvements. As stated before, we differentiate two levels of spread: 1) at the organizational level – from pilot sites to other departments and 2) spread to other organizations, across the organizational field.

To start, we revisit the concept of imitation to understand *the receiver side of spread* within an organization. According to Sahlin-Andersson (1996) receivers aim to imitate

another ward or department, because the prototyped practice has been edited to fit to their problems and vice versa. Drawing from Czarniawska's organizational fashion theory, we argue that a receiving ward may be inclined to experiment with a new fashion, such as a new practice from another ward, when the ideas in connection to the fashion are being materialized (Czarniawska-Joerges & Sevón, 1996; Røvik, 1996). Moreover, the materialized ideas have to be connected to meta-narratives in that receiving ward and the ideological control has to allow the 'adoption' of a new working method. What follows then is a local quality improvement process that includes routinization and institutionalization as described in the sustainability model presented earlier. See Figure 2–3.

The *sender side of spread* cannot be understood with the concept of imitation. We propose to describe the activities by a sending ward as dissemination, a term that is already in use to this end in quality improvement in healthcare literature (Lomas, 1993; Lomas, 2000). Refining the meaning of this concept in view of institutional theory, we argue that dissemination can be understood as the agency that purposefully contributes to the spread of an idea or practice. In Jepperson's terms, dissemination can be characterized as a kind of collective mobilization with the aim to reproduce the institution in other sites (Jepperson, 1991). Secondly, we propose that such mobilization can operate best by activating isomorphic mechanisms in actors in the other department as well as in the wider institutional environment. This activation should preferably encompass multiple mechanisms and at the same time not produce strong resistance.

In other words, spread as in the imitation and dissemination is the result of the isomorphic pressures but also should fit to these presssures. What do the dissemination activities amount to? They shall result in the strengthening—*amplification*—of certain isomorphic pressures in the organization, particularly in the receiving ward, which should lead to collective mobilization in connection with the propagated institution serving the imitation and editing process. In quality improvement studies, this process is usually denoted as implementation (Greenhalgh et al., 2004). We can thus redefine implementation as *a set of activities that aim to create collective mobilization for the editing of a new practice to imitate it*. Ultimately, when this fashion becomes institutionalized, reproductive procedures are generated. Alternatively, this mobilization process for implementation in a receiving ward or department or other organization can also be described as an organizational learning process. A useful framework for this is proposed by Crossan, Lane and White (1999) in their '4I framework'. The 4I framework starts with intuiting, and then followed by interpreting, and integrating. The final stage is institutionalization, which means that the new knowledge and skills and the new working method have become embedded. That is: they are routinized and the organizational routines are part of the organization's memory and capabilities. Related, similar notions
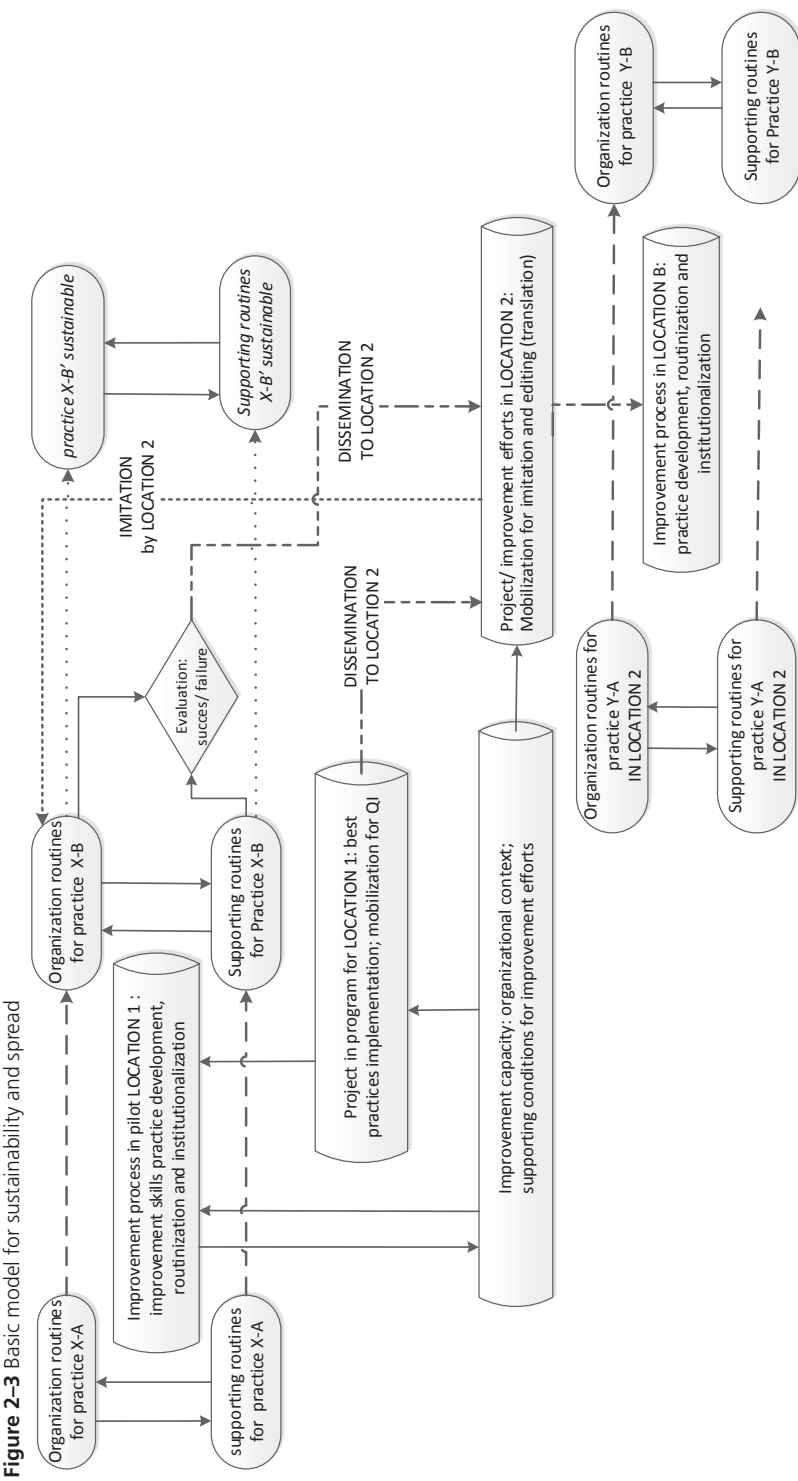
**Figure 2–3** Basic model for sustainability and spread

have been brought forward by May and Finch (2007; 2009) in normalization process theory.

With our framework, we can understand why it often takes such long and extensive processes to change practices. The 'implementation' process requires several forms of organizational learning and sense-making in which various mechanisms coincide. Things may go wrong when, for example, the interpretations do not converge. Or when integration is recurrently not followed by institutionalization and actors notice and regret that. In other words: implementation is not a process with one object but can be better understood as a kind of collective mobilization given institutional pressures in connection with an idea or practice; that in itself is not a stable entity.

*Process or activity?*

In the context of quality improvement literature, it seems various terms are used to denote processes and often these terms are also used to denote activities or interventions (i.e. certain targeted forms of agency; for example 'dissemination' often refers to activities as well as a process). Given the framework presented above, we can clarify some of these terms. In our view, dissemination and implementation can be understood in terms of mobilization activities accompanied by appropriate legitimation; that is, following one or more logic(-s) of appropriateness (Meyer & Rowan, 1977). The term assimilation, also used in quality improvement literature, refers to the process by which practices in an organization are made more similar to other practices in other parts of the organization (Atun, Kyratsis, Jelic, Rados-Malicbegovic, & Gurol-Urganci, 2007; Greenhalgh et al., 2004). In the context of best practices and spread of evidence-based medicine, assimilation refers to the changing of an existing care practice within an organization so it confirms to the best practice. In our view, this is a form of imitation with a high fidelity practice as a benchmark (as opposed to other organizations) (Bowman, Sobo, Asch, Gifford, & and the HIV/Hepatitis Quality Enhancement Research Initiative, 2008; Lomas, 1993). We suggest that spread is only achieved if there is some form of coherent mobilization for dissemination and implementation. Recognizing that spread, as in: the effectiveness of dissemination activities and implementation activities, is to a large extent influenced, directed, impeded as well as enabled by, isomorphic mechanisms may expose novel ways to enhance spread by investing in certain dissemination activities. One useful example where isomorphism is analyzed in relation to quality improvement is found in the work on the Michigan program for intensive care units by Dixon-Woods, Bosk and Aveling et al. (2011).

Finally, the current framework concerns macro-, meso- and micro-level processes, because routine theory and neo-institutional theory are based on structuration theory, which describes the social world —at large— as created through ongoing social interactions (Scheuer & Scheuer, 2008). Not only do both approaches postulate that institutions

and routines are building blocks of the social system, also these are intimately related to the larger social context. It logically follows, that this also applies to sustainability and spread of quality improvements. In the case of the 'Care for Better' improvement projects, the wider environment plays a significant role in two ways. First of all, participating organizations are likely to have been affected by the various developments in the long-term care sector, where substantial changes have taken place in the past decade. Secondly, the quality improvement program itself requires some consideration as a special kind of environment during the improvement projects as well as afterwards. This is why we have included an extensive description of the program and an overview of developments in the long-term care sector in Chapter 1. Though the scope of this dissertation foremost concerns meso-/micro-level processes, we will attempt to acknowledge the influence of the wider institutional environment where relevant. Moreover, we shall share some observations about the role of the environment in the Chapter 8 on the 'Care for Better' program, when we take stock of the value of the improvement projects in relationship with the theme of Sustainable change.

## 2.3 RESEARCH SUB QUESTIONS

Having elaborated on the theoretical research framework of this dissertation, we reiterate the main research question: *How can we describe the interplay between improvement projects and organization, and the dynamics in the aftermath of improvement processes with regard to the long-term effects of quality improvements in healthcare organizations?*

In relationship to this, the following sub questions will guide our analysis:

1. How can we theorize and operationalize long-term effectiveness, i.e. sustainability and spread, of quality improvements from an organization theoretical perspective?
2. To what extent are project effectiveness and subsequent sustainability of changed work practices related?
3. How do can we describe the interplay between processes and structures, outcomes of care practices and their development over time with regard to the sustainability?
4. To what extent is the interplay between team level context factors for improvement capacity associated with long-term effectiveness?
5. To what extent have the improvements in the 'Care for Better' program been sustained and spread and which factors and/or developments contributed to the dynamics in these processes?

In the last two sections of this chapter, we explain our main considerations in designing the research methodology (Section 2.4), and we offer an outline of the remaining chapters (Section 2.5)

## 2.4 METHODOLOGICAL SCOPE AND DESIGN

The research design consisted of quantitative studies of follow-up data collected in (former) improvement teams of the participating long-term care organizations in combination with questionnaire and outcome data collected during the improvement projects. This design was an extension of the larger evaluation research on the 'Care for Better' program (Strating, Zuiderent-Jerak, Nieboer, & Bal, 2008) and served to combine with previously collected data during the improvement projects. See Figure 2–4.

As explained in the introduction, several challenges have been identified in the study of sustainability and spread both on the theoretical level as well as on the level of research methodology. This dissertation will take into account some of these challenges in the designs of the empirical studies. In what follows, we outline some main characteristics of the research methodology.

*Unit of analysis*. The population of research consisted of Dutch long-term care organizations which participated in the Care for Program in an improvement project in phase 1 of the program. These included nursing homes and hospices, convalescent homes, assisted living facilities, and home care organizations. Participating organizations were located throughout the Netherlands. The sample for research concerned the members of improvement teams, who took part in the first phase of the program, which ran between 2005 and 2008.

*Time scope*. The time frames of the field research studies were confined to the duration of the first phase of the 'Care for Better' program and one year or more afterwards covering the period from 2005 to 2010. Timeframes differed depending on the nature of the study.

*Variables and concepts*. All the variables for research were related to the improvement projects, their effectiveness, the changed care practices or various organizational aspects related to later sustainability (see Figure 2–4 before and Table 2–1 on the next page for an overview of the variables studied in this dissertation).

*Designs*. A quantitative strategy was used to be able to cover a large sample of the participating organizations and to combine the data in the IBMG evaluation research at large. In light of the methodological challenges encountered in current literature, we decided to perform follow-up studies with multiple cross-sectional longitudinal designs, combining data collected during the projects and follow-up questionnaire data collected afterwards one year or more after the projects ended; the full questionnaire of the follow-up data collection is available in Dutch in Additional file 26.. Moreover, all

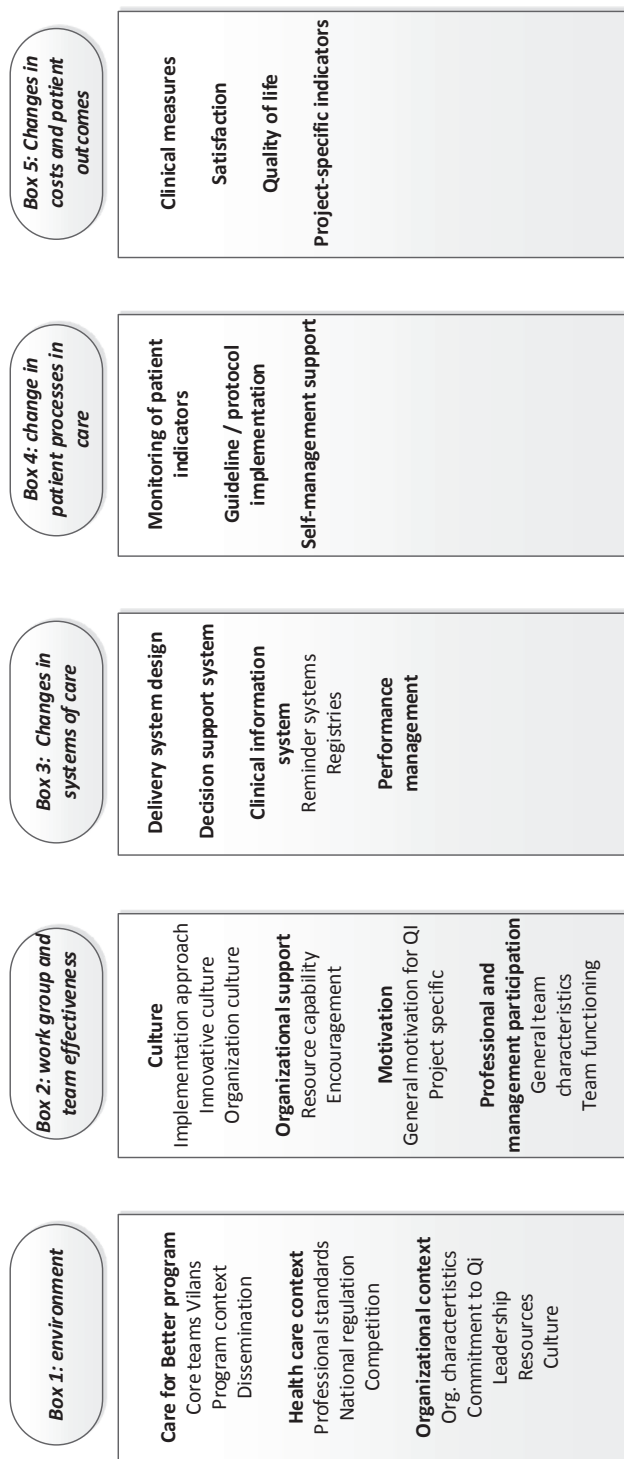**Figure 2–4** Concepts and relationships investigated in this dissertation

**Box 1: environment**

**Care for Better program**
Core teams Vilans
Program context
Dissemination

**Health care context**
Professional standards
National regulation
Competition

**Organizational context**
Org. charactertistics
Commitment to Qi
Leadership
Resources
Culture

**Box 2: work group and team effectiveness**

**Culture**
Implementation approach
Innovative culture
Organization culture

**Organizational support**
Resource capability
Encouragement

**Motivation**
General motivation for QI
Project specific

**Professional and management participation**
General team
characteristics
Team functioning

**Box 3: Changes in systems of care**

**Delivery system design**
**Decision support system**
**Clinical information system**
Reminder systems
Registries

**Performance management**

**Box 4: change in patient processes in care**

**Monitoring of patient indicators**
**Guideline / protocol implementation**
**Self-management support**

**Box 5: Changes in costs and patient outcomes**

**Clinical measures**
**Satisfaction**
**Quality of life**
**Project-specific indicators**

**Table 2-1** Overview of the different designs and data used in this study

| Design | T0: beginning of projects | T1: end of projects | T2: follow-up data collected one year or more after projects |
|---|---|---|---|
| Multiple cross-sectional and longitudinal designs | Outcome Indicator Data collected in the CfB~ program | Outcome Indicator Data collected in the CfB program | Sustainability follow-up questionnaire |
| | | Project variables team questionnaire | Spread follow-up questionnaire |
| | | Team level context variables team questionnaire | Continuous Improvement follow-up questionnaire |
| Multiple wave longitudinal design | NPS(LPZ) Fall indicator Data 2007 | NPS(LPZ) Fall indicator Data 2008 | NPS(LPZ) Fall indicator Data 2009 |
| Longitudinal case study | three organizations NPS(LPZ) Fall indicator Data* | three organizations NPS(LPZ) Fall indicator Data | Case study in three organizations with NPS(LPZ) Fall indicator Data |
| | | | Sustainability follow-up study in employees in three organizations |

*NPS = National Care Problem Survey (in Dutch: Landelijke Prevalentie meting voor de Zorg, LPZ) ~ CfB = 'Care for Better' program

concepts measured in the follow-study were assessed with theory based measurements developed specifically for this evaluation research where possible in combination with other sources of data such as project outcomes. Finally, given the challenges to come to terms with the interplay between factors, we explored some novel designs including a quantitative case study (Chapter 6); the use of latent class analysis (Chapter 7); and developing an extensive narrative to contextualize our findings on the program (Chapter 8).

Next, we will introduce the research strategy for each sub question. See Figure 2–5.

To investigate research question 1, we have set out to develop an initial framework and developed measurement instruments for the main concepts. These were validated in extensive psychometric analysis. These first two empirical studies were based on the analysis of follow-up questionnaire data on sustainability and spread (respectively Chapter 3 and 4).

To investigate research question 2, we designed a prospective longitudinal study that combined data about effectiveness collected at the beginning and end of the projects with data on subsequent sustainability collected in the follow-up questionnaire.

To investigate research question 3, we took the fall prevention program as a case. In this longitudinal study, fall indicator data were obtained from the National Care Prob-

**Figure 2–5** Heuristic model of the iBMG evaluation research
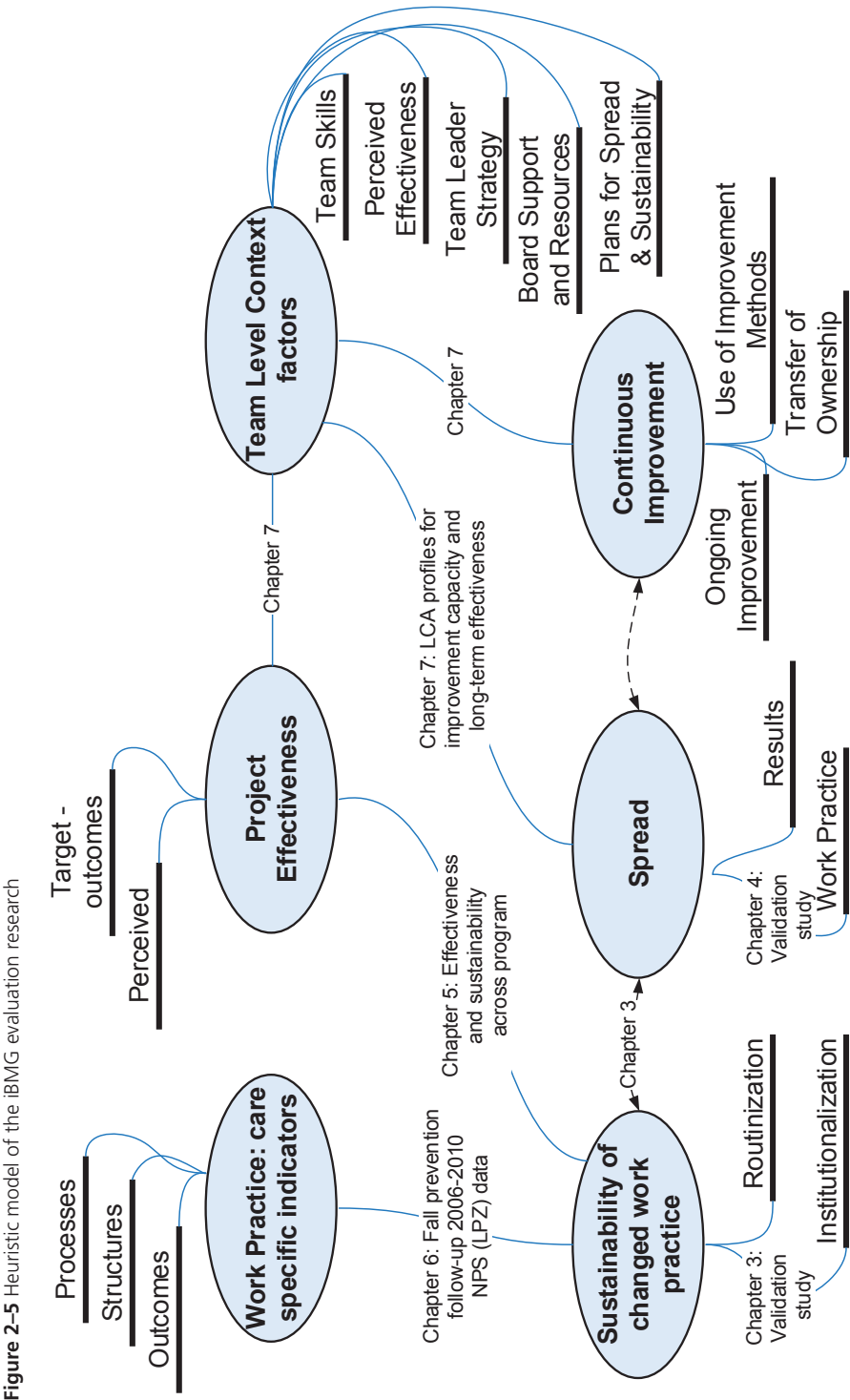
lems Survey (NPS; Landelijke Prevalentie Meting voor de Zorg) for three years: 2007, 2008 and 2009. The data were analyzed in two ways: at the level of the sector and the program, and at micro-level of the organizational units in three cases: three care organizations who had participated in the fall prevention program. For each case, fall indicator data were analyzed in combination with questionnaire data on sustainability of the changed care practices as assessed by the employees of the pilot wards in 2010 (Chapter 6).

To investigate research question 4, a novel research strategy was applied based on latent class analysis techniques. LCA modeling was used to develop team profiles improvement capacity. The next step was to determine to what extent the team profiles were associated with follow-up questionnaire data on sustainability, spread and continuous improvement.

Finally, to investigate research question 5, we set out to integrate the findings from the empirical studies with a focus on program specific elements. These findings were reviewed in relationship with program specific findings identified in the iBMG evaluation report for ZonMw as well as in documents, interviews and observations collected during the course of the IBMG evaluation research. The intention of this research strategy was to deepen understanding in the findings by extending the scope to include meso- and macro-level conditions and developments in the sector. To this end, developments in the context were mapped using secondary data from websites, reports and articles from ZonMw, the Dutch Ministry for Health, and other institutions. The resulting analysis broadens the scope of the analysis stepwise: from the level of project, practice and organization, to include the program and the influences from the wider institutional environment.

Each chapter includes an description of its research methodology.

## 2.5 OUTLINE OF THIS DISSERTATION

In the past two **Chapters 1 and 2,** we have introduced the research problem, its background, the setting of research: the 'Care for Better program', the theoretical framework and our methodological strategy. The next two Chapters 3 and 4 serve to further our conceptual approach and to develop a methodological operationalization in view of research question 1. In **Chapter 3**, we report on a study on the development and validation of the framework and measurement instrument for sustainability of changed work practices. In this chapter we explain how sustainability of changed work practices can be understood in terms of organizational routines and the institutionalization of a work practice. We will discover how these two dimensions are related. **Chapter 4** comprises a validation study of a measurement instrument to assess the spread of changed work

practices and their results. This chapter also explores the convergent validity of the instrument in connection with sustainability of changed work practices.

The next three chapters center on the quality improvement process in relation with different aspects of sustainability. In **Chapter 5**, we analyze the relationships between end of project effectiveness and subsequent sustainability of changed work practices in terms of routinization and institutionalization. In addition, this study reveals that measurement practices during the improvement process contribute to later sustainability of changed work practices. After that, we integrate two analyses of improvements with regard to fall prevention practices with data on outcomes, process and structure indicators for fall prevention in **Chapter 6**. The one part of this study scrutinizes how fall prevention practices evolve at the field level over a period of three years and compares organizations participating to the fall prevention project of 'Care for Better' program with others who did not take part in the program. The second part of this study zooms in on the development of fall prevention in three organizations and assesses how employees sustainability of the changed work practices in the employees of the pilot sites. In **Chapter 7**, we focus on the interplay between team level context factors for improvement capacity in connection with the long-term effects on sustainability of changed work practices, spread to other departments within the organization and on the continuous improvement of the changed practice. This chapter demonstrates that various factors at the end of a project affect later sustainability. In this study we apply latent class modeling techniques to develop team profiles to make sense of the interplay between team level context factors.

The final part of the dissertation serves to integrate the findings across the studies presented. In **Chapter 8**, we take stock of sustainability in the broader sense and reflect on the improvements developed in the 'Care for Better' program with an eye for the organizational context and developments in the wider environment. To this end, we revisit and extend specific findings with regard to sustainability of changed work practices, spread, and organizational conditions, in relation with our theoretical framework. In addition, we engage with the question of sustainability at the system level. In **Chapter 9** we collect the knowledge gained in the various studies and reflect on the level of understanding given the sub-questions. After this we elaborate on our theoretical findings vis-à-vis quality improvement literature. Also, we reflect on our research methods in light of the developing genre of quality improvement evaluation research. To conclude, we expound on some implications and recommendations, both for future research as well as for health policy and management.

## DEFINITIONS

**Micro level / micro system**: small groups of care professionals and other actors who work together on a regular basis to provide care. Microsystems are embedded in larger systems or organizations that exist within a broader community and society (e.g. environment) (Nelson et al., 2002). A microsystem comprises several care practices to serve certain organizational tasks.

**Quality improvement team or improvement team**: a temporary group of care professionals and other actors who work together as part of a quality improvement project or other initiative. quality improvement teams usually are rather heterogeneous to represent different (levels of) professional groups, within an organization.

**Quality improvement project**: refers to the activities that target a certain quality theme and to this end develop and / or implement changes in one or more care practices. A project may last from three months to a year or longer. A quality improvement project is usually organized by a quality improvement team. In many cases the quality improvement team uses prescribed methods for project management and design of improvements. The latter may include medical or care related professional knowledge or prototypes of 'best practices'.

**Sub program**: within the 'Care for Better' program several subprograms were created for specific quality themes. The subprograms studied in this dissertation concerned the following themes: Pressure Ulcers Prevention, Eating and Drinking, Prevention of Sexual Abuse, Medication Safety, Problem Behavior, Fall Prevention, and Client Autonomy.

# Chapter 3

# A framework and a measurement instrument for sustainability

## ABSTRACT

*Background.* In healthcare, many organizations are working on quality improvement and/ or innovation of their care practices. Although the effectiveness of improvement processes has been studied extensively, little attention has been given to sustainability of the changed work practices after implementation. The objective of this study is to develop a theoretical framework and measurement instrument for sustainability. To this end sustainability is conceptualized with two dimensions: routinization and institutionalization.

*Methods.* The exploratory methodological design consisted of three phases: a) framework development; b) instrument development; and c) field testing in former improvement teams in a quality improvement program for healthcare (n teams = 63, n individual =112). Data were collected not until at least one year had passed after implementation. Underlying constructs and their interrelations were explored using Structural Equation Modeling and Principal Component Analyses. Internal consistency was computed with Cronbach's alpha coefficient. A long and a short version of the instrument are proposed.

*Results.* The $X^2$-difference test of the -2 Log Likelihood estimates demonstrated that the hierarchical two factor model with routinization and institutionalization as separate constructs showed a better fit than the one factor model ($p<.01$). Secondly, construct validity of the instrument was strong as indicated by the high factor loadings of the items. Finally, the internal consistency of the subscales was good. Correlation analysis assessed convergent validity: as expected the scales for spread were partially associated with the scales for sustainability.

*Conclusions.* The theoretical framework offers a valuable starting point for the analysis of sustainability on the level of actual changed work practices. Even though the two dimensions routinization and institutionalization are related, they are clearly distinguishable and each has distinct value in the discussion of sustainability. Finally, the subscales conformed to psychometric properties defined in literature. The instrument can be used in the evaluation of improvement projects.

## 3.1 BACKGROUND

It is unclear how healthcare organizations can sustain changed work practices (Buchanan et al., 2005). Although studies on quality improvement and organizational change have yielded important insights in improvement processes, they also seem to have a strong focus on effectiveness of projects and outcome indicators. As a result of this, evidence on effectiveness of actual work practices often has not been obtained (Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004). Moreover, many studies analyze improvement processes within the boundaries of projects only (ibid.), without noting effectiveness afterwards. In sum, insight into sustainability of work practices appears to be lacking. In this Chapter, we develop a framework and measurement instrument for sustainability; after implementation.

The framework is centered on work practices, which can be defined as patterns of actions to perform multiple, often interrelated or even interdependent, tasks. The framework is founded on the idea that work practices can be described in terms of 'organizational routines' as theorized by Feldman and Pentland (2003). An organizational routine is defined as "(…) *repetitive, recognizable pattern of interdependent actions, carried out by multiple actors."* (ibid.) Like work practices, we can describe *changed* work practice also in terms of —changed or new— organizational routines. This approach may be particularly interesting in the domain of healthcare, where work practices typically are dynamic and require improvisation as well as 'following the rules'. Sustainability can then be seen as a dynamic process in which actors in a targeted work practice develop and/or adapt the organizational routines to a new work method. This process can also be described as routinization: through the development of organizational routines a new work method becomes part of everyday activities (Yin, Quick, Bateman, & Marks, 1978; Yin, 1981). This process also involves learning processes at different levels in the organization (Becker, 2004; Miner, Ciuchta, & Gong, 2008; Schulz, 2008) as there is more to the daily performance of a work practice than just routinization. Organizational routines cannot be sustained without providing the conditions that support and enable the performance. This is institutionalization, understood as the gradual adaptation of the organizational context, including structures and processes, to the new work practice (Goodman & Steckler, 1989; Goodman, McLeroy, Steckler, & Hoyle, 1993; Jacobs, 2002; Yin et al., 1978; Yin, 1981). Although routinization and institutionalization are often taken to be almost synonymous, we propose that each concept has its distinct value in the discussion on sustainability. Where routinization covers the process in which the actions are shaped and steered, institutionalization extends to the embedding of a work practice in the organization, emphasizing the conditional aspects.

These two concepts are understudied in the domain of quality improvement and organizational change in healthcare. The purpose of this study is to further the con-

ceptualization of sustainability with these concepts and to develop a measurement instrument, as can be seen in Figure 3–1. For each concept, several sub dimensions are defined, three for routinization and four for institutionalization (seven in total). We will elaborate on these first before presenting the methods.
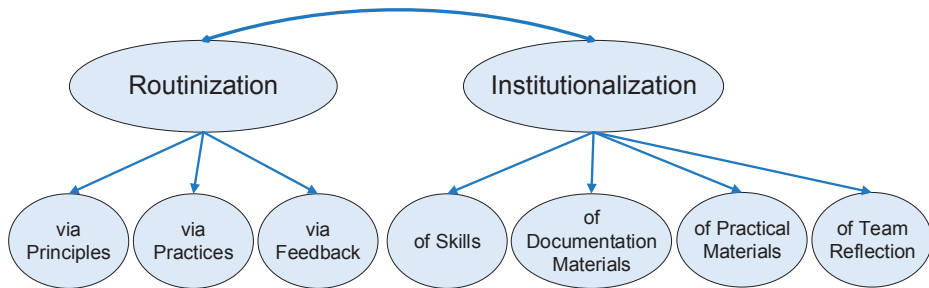


**Figure 3–1** Sustainability of changed work practices – a graphic representation

## Routinization

Although the term routinization is sometimes used in studies on sustainability it is hardly ever defined or operationalized. We propose to take routine theory as starting point for such a conceptualization. According to Feldman and Pentland, organizational routines have a dual nature, which implies that principles and the practices mutually form each other (Feldman & Pentland, 2003). On the one hand the organizational routine is constituted in the form of a set of principles; principles that the actors know and use to guide and explain their actions in the routine. On the other hand it is seen as it is performed in practice: through the performances, actors develop a shared 'formal' understanding (and language) as well as tacit knowledge of what needs to be done in a targeted situation (Feldman, 2000; Feldman & Rafaeli, 2002; Feldman & Pentland, 2003; Miner et al., 2008). Furthermore, actors can adjust the principles in light of their experiences and the insights gained through practice. It is obvious that reflection, monitoring and feedback during performance are very important in this process. For these reasons, Feldman and Pentland argue that organizational routines are "generative systems", with "internal structures and dynamics in which flexibility and adaption are equally important as stability." Consequential, organizational routines can also be a source of change.

We can now redefine routinization: this involves the sustenance of the organizational routine(s) for a work practice through the mutual reinforcement of principles and practices. In short, sustaining an organizational routine requires cultivating both principles and practices. The bidirectional relation might be useful to deepen our understanding of routinization as a dynamic, continuous process as in each performance actors align

their actions to both the principle and the situation, while at the same they adjust the principles.

In this perspective, three sub dimensions for routinization can be deduced. The first sub dimension involves how principles form practices, i.e. the ways in which the principles are used to guide, account for and refer to the practices pertaining to the organizational routine. The second sub dimension regards how practices form principles, i.e. the ways in which the practices serve to create, maintain and modify the principles. Last, the third sub dimension concerns the collective monitoring and, in particular, the exchange of feedback on performance in practice. Routinization thus involves a mix of learning processes, including double and triple loop learning (Argyris & Schön, 1978; Greenwood, 1998).

### Institutionalization

To reiterate, we define institutionalization as the gradual adaptation of the organizational context, including structures and processes, to the new work practice. In our framework we integrate the concept of institutionalization with the concept of routinization just presented (Schreirer, 2005; Yin et al., 1978; Yin, 1981). This integration is achieved by directing the most elementary description of institutionalization at *the required supporting conditions for the targeted organizational routines*. We therefore focus on four sub dimensions which directly facilitate the performance of an organizational routine: institutionalization of skills, documentation materials, practical materials, and reflection. Although we recognize that Yin's conceptualization also contains elements such as rewarding systems, financial management of resources, HRM, planning and control cycles, etc., in our framework these are considered prerequisite to the four dimensions, rather than indicators of institutionalization in their own right. What follows is a description of the four sub dimensions.

First, new *skills* may be required to perform a new work practice. To sustain performance these should be provided, monitored, cultivated, and if necessary updated. On an institutional level this involves several organizational structures and processes: offering feedback on the skills, offering training, setting demands in job advertisements, monitoring via performance interviews, and so on. Next, organizational routines require many different materials for the actual performance, especially care practices. Two types of materials can be distinguished in form and function. *Practical materials* serve a primary function for the work practice. Some examples are practical tools or medical instruments, but also patient records. In contrast, *documentation materials* serve a more secondary function by offering extended memory on the organizational routine and supporting learning processes. Examples are protocols, manuals, care plans, etc. These usually contain formal explicit information on work practice related professional knowledge and skills. The last sub dimension, *team reflection*, refers to formal, purposive

forms of reflection and monitoring of the quality of performance between professionals. Important for sustainability is a shared understanding of the main principles to monitor the actions during performance (Feldman & Rafaeli, 2002; Weick, Sutcliffe, & Obstfeld, 2005). This understanding can be developed through institutionalized attention for the work practice in the form of 'shared reflection practices' outside performance.

Having introduced the framework we can move on to the development of the measurement instrument and the field testing. The analyses will have a twofold focus:

1. We will investigate the sub dimensions and the validity of items in the respective subscales.
2. We will explore the underlying constructs and their interrelations for the two dimensions routinization and institutionalization.

## 3.2 METHODS

### Sample and data collection

Field testing has been done with a follow-up study on the work methods developed in a quality improvement program in the Netherlands entitled Care for Better. The program was based on Breakthrough Methodology. Participating organizations were nursing homes, elderly homes, home care and care for disabled. In the years 2006-2008 seven projects were performed: pressure ulcers, eating and drinking, prevention of sexual abuse, client autonomy, medication safety, fall prevention, and prevention of (social) behavioral problems. In each project, improvement teams developed small practical interventions for care practices.

This follow-up study is part of a larger evaluation study on the 'Care for Better' program (Strating, Nieboer, Zuiderent-Jerak, & Bal, 2011). At the end of April 2009 all former members of improvement teams who had finished the program more than a year ago were invited to participate in the follow-up study. Improvement teams usually consist of five members, a questionnaire for each member was offered. In the following weeks we telephoned the improvement teams to answer questions, map problems and encourage participation.

Of the 171 teams who received the questionnaires, 73 teams participated and 127 questionnaires were returned. The team response rate was 33% (73/171). This is comparable to the response rate in the data collection at the end of the projects (Strating & Nieboer, 2009; Strating et al., 2011). We compute the individual response rate for an expected maximal return of approximately 2.5 respondents per team (50% of the formal maximum). On the individual level, the response rate is 30% (127/428). Fifteen cases from ten teams were excluded because of missing data. The data for analysis included 112 respondents from 63 teams. The average number of respondents per team was 2.2 at the end of the projects, and 1.6 in the current sample. Reasons for not

participating in the study were mostly related to organizational dynamics in the field: high employee turnover and many team members now held other jobs. Others did not participate owing to lack of time, reorganization or other adverse organizational conditions.

## Instrument development

Tve developing on sustainability and spread. This larger framework was based on a literature review on a range of themes, including: sustainability in healthcare organizations, organizational change, spread, diffusion, and effectiveness of improvement processes. In addition, the framework has been discussed several times in our multidisciplinary evaluation research team.

For each sub dimension we designed a scale of 5-10 statements describing several practical aspects, to be evaluated on a five point Likert scale, ranging from '1: I don't agree at all' to '5: I agree very much', including the option 'I don't know'.

The content validity was assessed by the authors and 11 experts who all reviewed a draft version in relation to their specialism. The experts included 1) 6 members of our research team, 2) four other scholars in health policy and management, and 3) a former collaborative project leader.

The majority of the experts had actually worked in long-term care organizations, mostly as care professionals, such as nurse, occupational therapist, and a dietician, but also as quality staff or in a management position. About half of the experts also had practical professional experience in organizing quality improvement projects.

## Scales for routinization and institutionalization

*Routinization*. Three subscales were construed. The items are included in Table 3–2. Routinization I (10 items): Principle forming Practice, asks for the extent to which everybody knows how to perform the new work practice. Routinization II (8 items) asks if there are variations in practice and if the practices have led to new variations in the principles. Routinization III (5 items) represents the role of feedback on performance of the work practice and characterizes direct informal forms of such feedback.

*Institutionalization*. We construed a subscale for each of the proposed four sub dimensions of institutionalization; see Table 3–2. Institutionalization of Skills (8 items): this subscale centers on cultivating and evaluating required skills. Institutionalization of Documentation Materials (9 items); this subscale assesses availability and use of documentation materials for the work practice. Institutionalization of Practical Materials (7 items): this subscale assesses availability and use of materials such as medical instruments, diagnostic tests, as well as organizational instruments, like work timetables or information systems for individual care plans.

Institutionalization of Team Reflection (5 items): this subscale focuses on the formalized evaluation practices amongst practitioners in teams.

## Statistical analyses

We present the main statistical results in two phases: 1) analyses of the initial set of items and the construction of a long version and 2) the construction of a short version. All analyses were performed in SPSS 17.0 and LISREL 8.80.

The analyses were done in several steps. First, we studied the structure and content of the subscales and the individual items. Second, we assessed construct validity with structural equation modeling (SEM) and we explored to what extent the distinction between the two dimensions routinization and institutionalization is relevant (compared with a one-dimensional model). Aside from the analyses reported, several possible structures in the data were explored with principal component analyses (PCA). A selection of the PCA results is offered in Additional file 1 and 2. Third, the reliability of the subscales was assessed in terms of internal consistency with Cronbach's alpha. Finally, bivariate correlations were computed between the subscales and between the short and the long version of the instrument. We will now elaborate on the methodological decisions relevant for our analyses.

*Data preparation.* This study is based on individual level analyses of the data. We tested intra class coefficients to control for team level variance; for Routinization, *ICC=.05, F(62,38)=1.08*; and for Institutionalization, *ICC=.20, F(62,38)=1.41* (both n.s.; variables were based on the long version). This means no evidence is found for a significant team level effect. Secondly, for the initial modeling with 52 items, list wise deletion of cases with missing data resulted in a small sample, n = 33. To be able to analyze the instrument integrally, i.e. with 52 items, we decided to impute missing data with the Expectation Maximization-algorithm provided in LISREL (Allison, 2003; Kline, 2005; Vriens & Melton, 2002).

*Model testing*. All items were screened with descriptive statistics and missing values analysis. Then the structure of the measurement instrument was analyzed in a confirmatory factor analysis. For the SEM a measurement model was construed, which comprised the estimation of factor loadings of the items on intended first order factors: Routinization I, Routinization II, Routinization III, Institutionalization of Skills, Institutionalization of Documentation, Institutionalization of Materials and Institutionalization of Team Reflection. No correlations between first order factors were allowed in this analysis. The hierarchical model in SEM, then, regards the relations between the seven factors and the two second order factors, Routinization and Institutionalization, see also Figure 3–1. With the factor loadings of the items and modification indices we verify the latent constructs indicated by the items to validate the subscales.

We compared the proposed hierarchical second order structure (2Fmodel) with one second order factor 'Sustainability' (1Fmodel) versus a model with no second order factors (0Fmodel).

*SEM criteria.* All structural equation models were computed with covariance-variance matrices and ML-estimation methods. In these analyses no correlations between measurement errors of items were allowed within or across subscales. Though the error variances are likely to correlate, we had no conceptual argument for interpreting relations outside the model-implied relations. For this reason we refrained from estimating any extra relation to enhance model fit. All model comparisons were based on $X^2$-difference tests of the -2Log Likelihood ratios at a significance level $\alpha$ =0.05. For assessing goodness of fit, we reported commonly used indices (Diamantopoulos & Siguaw, 2000; Kline, 2005; Raykov & Marcoulides, 2006): the likelihood ratio $X^2$, Steiger - Lind's root mean square error of approximation (RMSEA) and its 90% confidence interval, comparative fit index (CFI), and the standardized root mean square residual (SRMR). The likelihood ratio $X^2$ is considered a badness-of-fit index related to the probability that the model has perfect fit in the population; the lower the value, the better the fit. The RMSEA is a population based fit index derived from the likelihood ratio that is adjusted for parsimony. For a good model fit the RMSEA values should be low and are recommended to range between .08 and .05. In the CFI the differences between the independence model and estimated model are quantified and naturally these should be small. The CFI values should therefore range between 0.90 and 1.0. In addition, since some readers may be more acquainted with the Tucker-Lewis index (NNFI), the results for this index were included in Additional file 3; this index resembles the CFI and refers to the difference with the independence model while adjusting for parsimony. Lastly the SRMR indicates the goodness-of-fit in terms of covariance residuals, which should approximate zero. Good fit is indicated by SRMR values lower than 0.08.

*Item selection*. Items were selected using the following criteria: 1) factor loadings, modification indices, and reliability (Cronbach's alpha), 2) content validity and conceptual arguments, and 3) comments by respondents and missing data. For each subscale item selection was bound to preserve reliability, with Cronbach's alpha above 0.70 (Field, 2009) and a minimum of four items per subscale.

## 3.3 RESULTS

### Sample characteristics

The sample (N=112) consisted of 45 former project leaders (42%) and 67 team members (58%). In Table 3–1 the main characteristics of the sample are listed. Most of the sample was female (77% versus 23% males). Most respondents had been employed in the organization for more than 6 years (81%). Half of the respondents (65%) work ap-

**Table 3–1** Descriptive statistics of the sample

| Age | Mean | SD |
|---|---|---|
| Age in years | 45.2 | 9.3 |
| | (min. 19 - max. 62) | |
| **Gender** | **Freq.** | **%** |
| Male | 24 | 23 |
| Female | 80 | 77 |
| **Average workweek** | **Freq.** | **%.** |
| 8-15 hours | 2 | 1.7 |
| 16-22 hours | 10 | 8.4 |
| 23-29 hours | 29 | 24.4 |
| 30-36 hours | 63 | 52.9 |
| 37 hours or more | 15 | 12.6 |
| **Number of years in the organization** | **Freq.** | **%** |
| <2 years | 1 | .8 |
| 2-3 years | 8 | 6.8 |
| 4-5 years | 13 | 11.0 |
| 6-10 years | 35 | 29.7 |
| 10< years | 61 | 51.7 |
| **Position** | **Freq.** | **%** |
| Medical assistants | 2 | 1.7 |
| Nurses | 27 | 23.1 |
| Social workers | 14 | 12.0 |
| Medical / social specialists | 3 | 2.6 |
| Management | 52 | 44.4 |
| Health policy and quality staff | 13 | 11.1 |
| Para-/perimedical professionals | 6 | 5.1 |
| Clients and representatives | 0 | 0 |
| **Role in improvement team** | **Freq.** | **%** |
| Project leader | 45 | 41.7 |
| Team member | 67 | 58.3 |
| **Number of respondents per sub program** | **Freq.** | **%** |
| Pressure Ulcer Care | 18 | 14.2 |
| Eating and Drinking | 19 | 15.0 |
| Prevention Sexual Abuse | 11 | 8.7 |
| Client Autonomy | 35 | 27.6 |
| Medication Safety | 17 | 13.4 |
| Fall Prevention | 14 | 11.0 |
| Prevention of (Social) Behavioral Problems | 13 | 10.2 |

proximately 30-full time hours per week and 34 % works less than 30 hours per week. As to job positions, the largest groups were management staff (44%) and nurses (23%), the smallest were medical assistants (2%) and medical / social specialists (3%). Please note that the category 'Management staff' included team leaders as well as other management positions. Further information on the improvement teams in the improvement program 'Care for Better' can be found elsewhere (Nieboer & Strating, 2011; Strating, Zuiderent-Jerak, Nieboer, & Bal, 2008; Strating et al., 2011). Our communication with the contact persons, who were mostly former project leaders, may have caused the predominance of managers. All improvement projects were represented in the sample. The majority were in the client autonomy subprogram (28%). Others were from: eating and drinking (15%), pressure ulcer care (14%), medication safety (13%). Only a few teams were from prevention of sexual abuse (9%).

### Data preparation and screening

All 52 items were included in the initial modeling phase of the analysis. For each item descriptive statistics were calculated to screen univariate and bivariate normality, and to detect outliers. Some items had more than 20% missing values- we will reflect on this in the discussion. Skewness and / or kurtosis were seen for some items, but no extreme values were found.

### Modeling phase 1: the initial version & selection for the long version

We start this section with the results of the measurement model for the items and the subscales. Table 3–2 lists the estimated item factor loadings based on the initial modelling. Table 3–3 reports the goodness of fit indices for each version of the instrument. Table 3–4 presents the descriptive statistics and reliability coefficients for each subscale for each version of the instrument. The first model tested was a confirmatory hierarchical two factor model with 52 items on the imputed data. On the whole, the factor loadings of the individual items exceeded commonly recommended critical values. (Field, 2009; Kline, 2005; Stevens, 2009). The average factor loadings of the items were high, (average $\lambda = 0.54$); for Routinization I, Institutionalization of Skills, Documentation Materials and Team Reflection subscales higher than 0.50, with the exception of Routinization III (average $\lambda = 0.46$), Institutionalization of Practical Materials (average $\lambda = 0.47$), and Routinization II (average $\lambda = 0.33$). Also, the structure coefficients were high (mean = 0.84, range: 0.68 – 1.0) indicating strong relatedness of the variables to the first order factors and thus indicating strong construct validity.

   As shown in Table 3–3, the RMSEA values are just below the critical value of 0.08; the CFI and the SRMR are also low with values around 0.90 and 0.10 for the SRMR. These results suggest that the fit of the initial three models needs improvement, both in relation to variance in the population as well as in relation to the independence model.

**Table 3–2** Descriptive statistics per item and factor loadings initial model1[a]

| No. | Scale | n | M | SD | λ[b,c] |
|---|---|---|---|---|---|
| | **Routinization I** | | | | |
| 1*[#] | The new practice is regarded as the standard way to work. | 100 | 3.5 | 0.9 | 0.74 |
| 2*[#] | The new work practice is easy to describe. | 102 | 3.8 | 0.7 | 0.46 |
| 3 | We have developed variations on the new work practice for different situations. | 96 | 3.2 | 1.0 | 0.29 |
| 4 | The new work practice is hard to pass on to others. | 100 | 3.8 | 0.7 | 0.20 |
| 5*[#] | All colleagues involved in the new work practice are knowledgeable about it. | 99 | 3.4 | 0.9 | 0.73 |
| 6* | Everybody has developed their own way to perform the new work practice properly. | 100 | 3.3 | 0.9 | 0.57 |
| 7*[#] | The work practice has replaced the old routine once and for all. | 99 | 3.3 | 1.0 | 0.76 |
| 8* | Everyone knows exactly for which tasks and responsibilities they are accountable. | 98 | 3.7 | 0.7 | 0.58 |
| 9* | Despite the usual exceptions in practice. it is not hard to perform the work practice as prescribed. | 96 | 3.3 | 0.8 | 0.43 |
| 10*[#] | Performing the new routine always goes swimmingly well. | 96 | 2.8 | 0.8 | 0.57 |
| | **Routinization II** | | | | |
| 11*[#] | There is little opportunity to adapt the work practice to specific situations. | 97 | 3.6 | 0.8 | 0.47 |
| 12 | The performance is robust even considering external influences outside our control. | 91 | 2.9 | 0.8 | -0.17 |
| 13*[#] | We are accustomed to the work practice. | 94 | 3.5 | 0.9 | 0.85 |
| 14 | By performing it, the work method continuously changes. | 99 | 3.0 | 0.9 | 0.02 |
| 15 | The exact manner of performing the work practice differs per care team. | 94 | 3.2 | 1.0 | -0.13 |
| 16*[#] | We automatically work according to the new work practice. | 96 | 3.3 | 0.9 | 0.71 |
| 17 | Depending on the situation. we adapt the way we perform the work practice. | 94 | 3.5 | 0.8 | 0.34 |
| 18*[#] | We have adjusted our old habits to the new work practice. | 96 | 3.4 | 0.9 | 0.54 |
| | **Routinization III: feedback** | | | | |
| 19*[#] | If my work is not up to standard, my colleagues will comment on this. | 95 | 3.4 | 0.8 | 0.47 |
| 20*[#] | We all keep an eye on potential flaws in the performance. | 96 | 3.8 | 0.6 | 0.50 |
| 21*[#] | Problems in performing the work practice are usually brought up by our team leader. | 94 | 3.4 | 0.8 | 0.58 |
| 22 | Practical ideas for improving the work practice are rarely exchanged among colleagues. | 95 | 3.4 | 0.9 | 0.24 |
| 23*[#] | We often jointly discuss how to handle comments. | 90 | 3.4 | 0.8 | 0.48 |
| | **Institutionalization of Skills** | | | | |
| 24* | Work practice knowledge and skills are listed in the job requirements in recruitment ads. | 88 | 3.1 | 1.0 | 0.56 |
| 25*[#] | Newly recruited staff is thoroughly introduced to the work practice. | 95 | 3.4 | 0.9 | 0.74 |
| 26 | Our organization expects that all staff can perform the work practice. | 98 | 3.6 | 0.8 | 0.32 |
| 27*[#] | We regularly train all staff in the required skills. | 102 | 3.2 | 0.9 | 0.73 |
| 28* | Occasionally we set up activities to refresh important skills and knowledge. | 97 | 3.1 | 1.0 | 0.59 |
| 29*[#] | Important knowledge and skills are addressed in performance interviews. | 87 | 3.1 | 0.9 | 0.83 |

**Table 3–2** Descriptive statistics per item and factor loadings initial model1[a] (*continued*)

| No. | Scale | n | M | SD | λ[b,c] |
|---|---|---|---|---|---|
| 30*[#] | Knowledge and skills for the work practice are listed in our job descriptions | 88 | 3.1 | 1.0 | 0.74 |
| 31*[#] | In performance interviews goals are set for work practice skill development. | 88 | 3.0 | 0.9 | 0.79 |
| | **Institutionalization of Documentation Materials** | | | | |
| 32* | All staff is informed that work practice documentation is available. | 97 | 2.9 | 1.0 | 0.49 |
| 33* | Documentation is accessible to everybody. | 100 | 3.9 | 0.7 | 0.40 |
| 34*[#] | Work practice documentation is always kept in a special place. | 99 | 3.8 | 0.8 | 0.59 |
| 35*[#] | Documentation is easily replaced when lost. | 89 | 3.6 | 0.9 | 0.64 |
| 36 | Documentation is always distributed to new colleagues. | 82 | 2.9 | 0.9 | 0.36 |
| 37 | Documentation is not always kept up to date. | 93 | 3.5 | 0.7 | 0.18 |
| 38*[#] | Documentation is used frequently. | 96 | 3.5 | 0.8 | 0.72 |
| 39*[#] | Work practice documentation is regularly updated following new developments in (long-term) care. | 96 | 3.6 | 0.8 | 0.69 |
| 40*[#] | Documentation is used for updating training. | 91 | 3.6 | 0.9 | 0.76 |
| | **Institutionalization of Practical Materials** | | | | |
| 41*[#] | Materials are almost always available. | 96 | 4.0 | 0.7 | 0.45 |
| 42*[#] | Materials are never in the same place. | 92 | 3.8 | 0.8 | 0.61 |
| 43*[#] | Materials are well-stocked when needed. | 91 | 3.8 | 0.7 | 0.67 |
| 44 | Our materials are often defective. | 90 | 3.9 | 0.6 | 0.24 |
| 45 | Usually materials are replaced when damaged or lost. | 86 | 3.7 | 0.7 | 0.27 |
| 46* | We always order materials too late. | 85 | 3.7 | 0.7 | 0.43 |
| 47*[#] | Responsibility for the materials is assigned to designated staff. | 90 | 3.7 | 0.8 | 0.61 |
| | **Institutionalization of Team Reflection** | | | | |
| 48*[#] | The new work practice is a regular topic in team meetings. | 98 | 2.9 | 1.0 | 0.68 |
| 49*[#] | In our team meetings we choose our improvement goals together. | 95 | 3.3 | 0.9 | 0.74 |
| 50*[#] | The performance of the work practice is evaluated every now and then (for example once per 3 or 6 months). | 96 | 3.3 | 1.0 | 0.83 |
| 51*[#] | In our team meetings we analyze if we have achieved our improvement goals. | 97 | 3.3 | 0.9 | 0.81 |
| 52* | Team decisions about the work practice are recorded and made available in minutes or otherwise. | 96 | 3.7 | 0.8 | 0.57 |

[a] For the hierarchical two factor model.

[b] λ = the estimated factor loading for the item.

[c] Results for the structural equations per item are available upon request.

* Items selected for the long version.

[#] Items selected for the short version (see additional file 4).

**Table 3–3** Goodness-of-fit indices for the hierarchical CFA[a]

| | Model[c] | likelihood ratio X² [b] | df | RMSEA (90% C.I.) | CFI | SRMR |
|---|---|---|---|---|---|---|
| INITIAL MODEL: 52 variables | 0F | 2382 | 1253 | 0.085 (0.079; 0.090) | 0.90 | 0.10 |
| | 1F | 2459 | 1267 | 0.086 (0.081; 0.092) | 0.89 | 0.11 |
| | 2F | 2436 | 1266 | 0.086 (0.080; 0.091) | 0.90 | 0.10 |
| Model phase 1: LONG selection | 0F | 1225 | 719 | 0.075 (0.068; 0.082) | 0.94 | 0.08 |
| | 1F | 1297 | 733 | 0.078 (0.071; 0.085) | 0.93 | 0.10 |
| | 2F | 1262 | 732 | 0.076 (0.069; 0.083) | 0.94 | 0.09 |
| Rerun with non-imputed data | 2F | 1059 | 732 | 0.096 (0.083; 0.11) | 0.87 | 0.12 |
| Model phase 2: SHORT selection | 0F | 642 | 384 | 0.073 (0.063; 0.083) | 0.95 | 0.07 |
| | 1F | 717 | 398 | 0.080 (0.070; 0.089) | 0.95 | 0.10 |
| | 2F | 681 | 397 | 0.075 (0.066; 0.085) | 0.95 | 0.08 |
| Rerun with non-imputed data | 2F | 537 | 397 | 0.084 (0.065; 0.10) | 0.93 | 0.11 |

[a] See methods section for the description of the model structures. 0F= basic model with seven factors; 1F= seven factors and one hierarchical latent factor; 2F= proposed structure of seven factors and two hierarchical latent factors, see also Figure 3–1.
[b] For all likelihood ratio X²: $p < 0.00001$

Comparing the hierarchical one factor model with the hierarchical two factor model, the latter yielded better goodness-of-fit in terms of the -2Log Likelihood ratio X² and the SRMR. For the RMSEA and the CFI no difference was seen between the one factor and the two factor model. As can be expected, a comparable pattern of factor loadings was found in all three models. In Table 3–2, we reported the factor loading for the hierarchical two factor model because of its better goodness-of-fit.

Next, the internal consistencies of the subscales were computed; see Table 3–4. All subscales had satisfactory internal consistency.

### Item selection for the long version

Seeing the results of the initial modeling and according to our theoretical model, we decided to base item selection on the estimations for the confirmatory hierarchical two factor model with seven first order factors. For all subscales but Routinization II, we only selected items with a factor loading higher than 0.40.

The following items were included for each subscale: for Routinization I (7 items): 1, 2, and 5-10; for Routinization II four items, 11, 13, 16 and 18; for Routinization III four items 19-21 and 23; for Institutionalization of Skills seven items 24, 25 and 27-31, for Institutionalization of Documentation seven items 32-35 and 38-40; for Institutionalization of Practical Materials five items 41-43 and 46, 47; and for Institutionalization of Team Reflection all five items were selected. By this method, all subscales could be created straightforward — with the exception of Routinization II.

The items of Routinization II related to each other in various, often inconsistent ways. This is why several explorative analyses were performed with items for other sub dimensions, in particular Routinization I and III. We selected four items with positive factor loadings higher than 0.30. Item 11 did not have the best psychometric properties. However for conceptual reasons it is important and therefore we recommend it should be included. The selected items are indicated with an asterisk in Table 3–2.

Next, to further assess validity in the form of the structure of the underlying constructs, the SEM analyses were repeated with the long version (see Table 3–3). As expected, the two factor model yielded better goodness of fit in terms of the -2 Log Likelihood ratio $X^2$, RMSEA, CFI and SRMR compared to the hierarchical one factor model. Also, the values for the fit indices clearly improved compared to the initial modeling. The -2 Log Likelihood ratio $X^2$ is significantly reduced. The RMSEA and the SRMR conform to the critical values. The CFI value is positive, indicating good fit compared to the independence model. In sum, the hierarchical two factor model prevailed and the model fit was improved but clearly still leaves room for improvement.

As can be seen in Table 3–4, reliability coefficients for the subscales with selected items ranged from 0.70 (for Routinization II) to 0.93 (for Institutionalization of Skills). This indicates good to excellent internal consistency.

### Modeling phase 2: construction of a short version

The descriptive statistics and item selection for the short version are included in Table 3–4. Basic criterion for inclusion is a factor loading higher than 0.40, other reasons for selection are stated when relevant (see also methods section for the criteria).

For the routinization subscales the following selections resulted: for Routinization I five items: 1, 2, 5, 7, and 10; for Routinization II three items: 13, 16 and 18; for Routinization III unchanged selection: 19-21, and 23 (since the internal consistency drops to 0.64 if we removed item 20). For the institutionalization subscales the following selections resulted. For Institutionalization of Skills five items: 25, 27, 29–31 (no item needed to be excluded). Only item 24 and 28 have somewhat lower factor loadings and were therefore found dismissible. For Institutionalization of Documentation five items: 34, 35, 38, 39 and 40. For Institutionalization of Practical Materials four items: 41-43 and 47 (no item needed to be excluded, only item 46 appeared to cross load and therefore was excluded). For Institutionalization of Team Reflection four items: 48, 49, 50 and 51. The selected items are indicated with a hash in Table 3–2. In Additional file 4 the items of the long and the short version are listed.

The analysis of the hierarchical two factor model repeated with the short version. As can be seen in Table 3–3, all fit indices improved compared to the long version. We note that for the one factor model the model fit did not improve, as the RMSEA increased and the SRMR remained stable. In consequence, the hierarchical two factor model again

**Table 3–4** Descriptive statistics of subscales[a,b]

| | Rout I | Rout II | Rout III | Skills | Docu | Mat | Refl |
|---|---|---|---|---|---|---|---|
| *Initial model (52 items)* | | | | | | | |
| # items | 10 | 8 | 5 | 8 | 9 | 7 | 5 |
| n | 85(24%) | 81(28%) | 88(21%) | 69(38%) | 71(37%) | 80(29%) | 91(19%) |
| Item mean[c] | 3.38 | 3.31 | 3.50 | 3.26 | 3.51 | 3.8 | 3.3 |
| Item variance | 0.73 | 0.71 | 0.63 | 0.83 | 0.74 | 0.49 | 0.82 |
| Scale mean | 33.8 | 26.4 | 17.5 | 26.1 | 31.6 | 26.5 | 16.6 |
| Scale SD | 5.4 | 3.4 | 2.6 | 5.7 | 5.2 | 3.3 | 3.7 |
| Theoretical range | 0 - 50 | 0 – 40 | 0 - 25 | 0 - 40 | 0 - 45 | 0 - 35 | 0 -25 |
| Average inter-item correlation (min.; max.) | 0.34 (-09;.71) | 0.15 (-21;.61) | 0.29 (-01;.48) | 0.56 (.18; 89) | 0.39 (-.22;.75) | 0.37 (.09; .66) | 0.58 (.38; .73) |
| Cronbach's alpha | 0.83 | 0.58 | 0.67 | 0.91 | 0.85 | 0.80 | 0.87 |
| *Long version (40 items)* | | | | | | | |
| n | 89 | 91 | 88 | 70 | 81 | 81 | 91 |
| Score range | 8-36 | 4-18 | 4-17 | 7-33 | 7-34 | 6-25 | 5-21 |
| Mean | 27.1 | 13.7 | 14 | 22.4 | 25.1 | 19 | 16.6 |
| SD | 4.9 | 2.5 | 2.3 | 5.6 | 4.5 | 2.8 | 3.7 |
| # items | 8 | 4 | 4 | 7 | 7 | 5 | 5 |
| Items included | 1,2,5-10 | 13,16, 18,11 | 19-21, 23 | 24,25, 27-31 | 32-35, 38-40 | 41-43, 46,47 | 48-52 |
| Cronbach's alpha | 0.86 | 0.70 | 0.71 | 0.93 | 0.87 | 0.82 | 0.87 |
| *Short version (30 items)* | | | | | | | |
| n | 90 | 91 | 88 | 74 | 83 | 86 | 92 |
| Score range | 5-23 | 3-14 | 4-17 | 5-23 | 5-25 | 4-20 | 4-17 |
| Mean | 16.9 | 10.2 | 14 | 16.2 | 18.2 | 15.4 | 12.9 |
| SD | 3.5 | 2.1 | 2.3 | 4.1 | 3.5 | 2.3 | 3.2 |
| # items | 5 | 3 | 4 | 5 | 5 | 4 | 4 |
| Items included | 1,2,5,7, 10 | 13,16, 18 (11) | 19-21, 23 | 25,27-31 | 34,35, 38-40 | 41-43, 47 | 48-51 |
| Cronbach's alpha | 0.85 | 0.75 | 0.71 | 0.92 | 0.89 | 0.81 | 0.87 |
| Correlation with long version[4] r | 0.95 | 0.96 | 0.93 | 0.98 | 0.96 | 0.98 | 0.98 |
| | n=115 | n=111 | n=107 | n=105 | n=105 | n=104 | n=111 |

[a] Rout I = Routinization I. Rout II = Routinization II. Rout III = Routinization III. Skills = Institutionalization of Skills. Docu = Institutionalization of Documentation Materials. Mat = Institutionalization of Practical Materials. Refl = Institutionalization of Team Reflection.

[b] For all r, p<0.01.

[c] is the average mean and average variance on the items of a given subscale.

performed better than the hierarchical one factor model. Seeing the CFI value for the hierarchical two factor model, i.e. comparing with the independence model, the model fit now is adequate. The RMSEA and SRMR are better than the long version, but also indicate only moderate model fit.

To verify the results with the imputation of data the three models were also computed with the proposed selection of items with non-imputed data for both the long and the short version. These results were similar to the estimations based on imputed data, see Table 3–3.

Finally, the bivariate correlations between the subscales, based on the short version, were analyzed; the results are fully listed in Additional file 5. Analysis revealed that the subscales correlate significantly (all p-values <0.05). Within the routinization dimension r ranged between 0.60 and 0.80. Within the institutionalization dimension r ranged between 0.49 and 0.70, with the exception of the correlation between Institutionalization of Practical Materials and Team Reflection, r=0.30. The subscales also correlated moderate - high between the two dimensions, r-coefficients ranged between 0.29 and 0.74. The bivariate correlation between total scores for Routinization (three subscales summated) and Institutionalization (four subscales summated) was also strong, r=0.79. Last, the bivariate correlations were computed between the short version and the long version, the results are included in Table 3–4. All correlation coefficients are high (range 0.93 – 0.98).

## 3.4 DISCUSSION

In this paper, we presented a framework and a measurement instrument for the sustainability of changed work practices. The measurement instrument was developed and tested in a follow up study of a quality collaborative program for long-term care. The results will now be discussed in three sections. In the first section, we reflect on the measurement modeling and the construction of the long and short version. The second part addresses the analyses of dimensionality and the theoretical implications of our study. Finally we take into consideration some methodological issues with regard to future use of the framework and the instrument.

### Measurement models
The construct validity of the subscales was supported by the overall positive and high estimates for both item factor loadings and structure coefficients. In addition, the reliability coefficients of the subscales well exceeded the criterion of 0.70. In other words, the evidence supports both the validity and reliability of the instrument. As a result, we were able to construe a long and a short version with good psychometric properties. Given the strong correlations between the long and the short version of each subscale

we recommend using the short version. In case one is interested in one or more specific sub dimensions, the long version is more appropriate.

The measurement model revealed some difficulties for the sub scale Routinization II. Several items cross loaded and for some items the factor loadings were very low. Routinization II centers on variations in practice and if the practices have led to new variations in the principles. It is possible that for some items, the interpretation of the items was problematic. For example, think of variation in practices — is it a good sign or a bad sign in terms of sustainability? For some respondents, a positive answer may have seemed risky given their professional norms. This may have been especially the case for respondents with managerial functions, who were overrepresented in our sample.

In the three subscales for routinization, we differentiated several aspects of the dynamic, bidirectional relations between principles and practices described by Feldman and Pentland (2003). Support for the distinctions between these sub dimensions is found in the bivariate correlations where we saw positive relationships but also some pronounced differences, especially in the relationships with the sub dimensions for Institutionalization. This can be taken as an indication of the importance of different forms of organizational learning for routinization, enabled by different aspects of the institutions created for the work practice.

### Sustainability and the analysis of the two dimensions

For lack of a theoretical conceptualization, we extended the work of Feldman and Pentland (2003) on organizational routines to the domain of quality improvement in healthcare. We have conceived sustainability as a dynamic process in which organizational routines are cultivated through routinization and institutionalization. These concepts were further elaborated in relation to Yin's work on sustainability (1978; 1981). Dimensionality was tested by comparing a hierarchical two factor model with a hierarchical one factor model. The two factor model yielded the best model fit. At the same time the subscales were found to relate positively to each other. These findings illustrate the internal validity of the instrument and substantiate that the dimensions — and their sub dimensions — reflect different yet related aspects of sustainability. They also underline the value of multidimensional constructs in this domain: the nature and influence of the dimensions may vary between work practices, quality problems, interventions, and organizational contexts. Second, these results show the usefulness of evaluating (changed) work practices in terms of organizational routines- an approach not often applied in healthcare. As most scholars approach sustainability as rather static, we hope the application of routine theory to this domain is beneficial not only in explaining everyday variations in practice, but also certain implementation problems, evaporation and decay of innovations (Buchanan et al., 2005; Øvretveit et al., 2002a; Øvretveit, 2008a; Øvretveit, 2008b).

The results illustrate that institutional theory has much to offer to the study of quality improvement in healthcare. Although the concept of institutionalization is not new to the study of sustainability of work practices, the strength of our work lies in the way we have operationalized it. In the four dimensions, we can recognize aspects of institutions, making the process of institutionalization tangible. We realize that institutional theory is deployed in many scholarly contexts to describe a multitude of processes, structures and practices, influencing each other at different levels (macro, meso, and micro levels) (Dacin, Goodstein, & Scott, 2002; Powell & DiMaggio, 1991). Our approach is centred on the micro level of a work practice and on what it takes to organize it locally, within healthcare organizations or even within their departments. Noting this is important to contextualize how we use the concept. Moreover, in our approach both concepts are dynamic. Thus, although the processes of institutionalization may yield temporarily stable structures and processes, we do not regard these as inherently static. However, within institutional theory, there are debates on the extent to which institutionalization may entail rigidity of structures and processes — as opposed to flexibility and change.

Last, the framework with its sub dimensions may not only be applicable to long-term care, but also to hospital care or even to service organizations outside healthcare. It could serve to make visible some of the results of quality improvements that now remain outside the scope of the often used performance or outcome indicators. This may be extra valuable because quality improvement is costly and evaluation has become more and more important given the scarcity of resources available for improvement of services.

**Limitations**

We now reflect on some methodological issues with regard to our study. First, the response rates, and consequently the sample size, were small. As mentioned before, many team members now held other jobs or had left the organization. Furthermore the context of the care organizations participating in the program was very dynamic many organizations were introducing new (compulsory) policies, reorganizing or even merging. In light of these processes attrition is expected and the resulting response can be considered adequate. A second limitation regards the use of imputed data. While the EM-algorithm has excellent statistical properties compared to other methods of imputation (Lin, 2010; Schafer & Olsen, 1998) and a rerun for the long and for the short version with non-imputed data yielded highly similar results, still replication with 'complete' data is advised to verify and strengthen the evidence base. Third, we note that the choice for improvement teams has some disadvantages. For example, it could entail certain biases in the instrument as well as in the evaluation research. Our motive for testing with improvement team members was that they are acquainted with the work practice both before and after intervening. A next step would be to include practitioners who have not taken part in the improvement project. In relation to this, we realize that

improvement teams are generally rather highly educated. It is likely that application of the measurement instrument in other professional groups, with lower vocational education, may require some adjustment of the wording of the items. Fourth, in our study, we have analyzed the data on the individual level, which is a common approach to assess validity of measurement instruments. But, we are aware that, in general the perceptions of employees on work practices are interrelated within organizations. Future research should address questions of validity of the instrument on the team or ward level. Fifth, we mention that although the values we found for internal consistency were sufficient, it still would be better to also assess test-retest reliability. Last, we reflect on the model fit. The modeling of the long and short version revealed improvement in the model fit but some problems remained, predominantly on the level of residuals (SRMR). This may be due to the choice to restrict cross loading of items.

## 3.5 CONCLUSIONS

In this chapter we presented a framework and a measurement instrument to assess sustainability of changed work practices after implementation of quality improvements. Sustainability is conceptualized with two dimensions routinization and institutionalization. These dimensions are intimately related, yet they each have distinct value in the discussion of sustainability. Distinguishing between routinization and institutionalization may be fruitful also in relation to other forms of sustainability, such as results, improvement practices/capacity, as well as aspects of improvement processes. The psychometric properties of the measurement instrument warrant application of the instrument in the evaluation of improvement projects.

# Chapter 4

# A measurement instrument for spread of quality improvement in healthcare

## ABSTRACT

*Background.* Against the need for a systematic measurement instrument for post-project spread of quality improvement interventions within organizations, we developed a measurement instrument that distinguishes: (i) spread of work practices and their results; and (ii) spread practices and effectiveness. Relations between spread and sustainability of changed work practices were also explored to assess convergent validity.

*Methods.* The design consisted of (i) instrument development and (ii) field testing using former improvement teams in a quality improvement program for long-term care (Nteams = 73, Nrespondents =127). Data on spread and sustainability were collected about one year post-pilot site improvement implementation using an 18-item questionnaire. Answers and underlying factors were explored with confirmatory factor analysis. Internal consistency was computed with Cronbach's alpha coefficient. Variables for spread were correlated with variables for sustainability.

*Results.* Psychometric analysis yielded positive results on the item level. The intended four-factor model yielded satisfactory fit. The internal consistency of each scale was fine (Cronbach's alpha 0.70 - 0.93). Bivariate correlations revealed that the spread variables were strongly related but distinct, and positively related to the sustainability variables.

*Conclusions.* The findings validated the proposed dimensions. Psychometric properties are in line with methodological standards. Convergent validity was confirmed with sustainability. The measurement instrument offers a good starting point for the analysis of spread.

## 4.1 BACKGROUND

Quality improvements in healthcare require substantial effort both during and after interventions have been implemented (Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004). Although spread is often an ultimate, key improvement project goal, we know little about the spread of changed work practices and any resulting quality improvement (Buchanan et al., 2005; Greenhalgh et al., 2004; Øvretveit, 2008a; Øvretveit, 2008b). Spread is generally measured by asking about intentions and plans (Øvretveit, 2008a; Øvretveit, 2008b); because no valid instrument is available to assess it (Dobbins, Ciliska, Cockerill, Barnsley, & DiCenso, 2002; Greenhalgh et al., 2004; Massoud et al., 2006; Nolan, Schall, Erb, & Nolan, 2005), empirical evidence on spread is lacking. We thus aim to develop a valid measurement instrument for spread of quality improvement in healthcare after interventions have been implemented.

Spread within an organization involves communication and learning for the exchange of knowledge and experience (Fitzgerald, Ferlie, Wood, & Hawkins, 2002; Greenhalgh et al., 2004; Korteland & Bekkers, 2008) on targeted work practices, expected results, improvement processes, and development of the intervention (Lomas, 1993). Greenhalgh et al. (2004) consider different complementary concepts to describe spread processes. *Diffusion* refers to the "unplanned, informal and decentralized" process of spread (p. 601). *Dissemination* (also known as appropriation) is spread of innovation that is "planned, formal, often centralized, and likely to occur more through vertical hierarchies" (ibid.). *Assimilation* describes more complex adoption processes that typically include "a formal decision making process, evaluation phase(s), and planned and sustained efforts at implementation" (ibid.). Last, *implementation* entails the "active and planned efforts to mainstream an innovation" (ibid., p.582) within an organization or (pilot) site. Spread within an organization requires all four processes (Dobbins et al., 2002; Lomas, 1993; Lomas, 2000).

### Developing the measurement instrument: two key distinctions

Two key distinctions are proposed for the measurement instrument. First, we distinguish spread of a changed work practice from spread of results (Buchanan et al., 2005; Greenhalgh et al., 2004; Øvretveit, 2008a; Øvretveit, 2008b). Given the many ways to obtain results (Buchanan et al., 2005), seeing results in one setting does not necessarily imply whether new or changed work methods are being used effectively in other settings. And because spread of a work practice's knowledge and experience is needed to implement improvement in other settings, spread of results appears to be instrumental to negotiating change (Berwick, 2003). Second, we distinguish spread practices and processes from their effects in terms of 'effective' spread. Spread practices comprise the work that needs to be done to change work practice and spread the results throughout

the organization. *Effective* spread is (i) the extent to which the knowledge, skills, and materials for a changed work practice are available and used beyond the pilot site, and (ii) the extent to which results are known and obtained beyond the pilot site.

## Sustainability and Spread

Spread is often related to sustainability (Buchanan et al., 2005; Greenhalgh et al., 2004; Øvretveit & Staines, 2007), which has been defined as 'making an innovation routine until it reaches obsolescence' (Greenhalgh et al., 2004). In our previously-developed framework for sustainability of changed work practices (presented in detail in Chapter 3) we describe sustainability by two related mechanisms through which a new or changed work practice becomes embedded in the daily activities of the organization: *routinization*, or the development of organizational routines for a changed work practice (Greenhalgh, 2008; Yin, Quick, Bateman, & Marks, 1978) and institutionalization, or the gradual adaptation of the organizational context, including structures and processes, to the changed work practice (Yano, 2008; Yano, Goldzweig, Canelo, & Washington, 2006; Yin et al., 1978). From such a perspective, sustainability and spread within an organization are likely to be intimately related, since the organizational structures are often identical. In a quality improvement project on eating and drinking, for example, making an arrangement with the catering staff to change the menu serves to sustain the improvement; it serves to *spread* it if the arrangements affect services at other organizational sites. In such a way sustainability is likely to enhance spread. Here we explore the relation between spread and sustainability to assess convergent validity.

## Objective of the study

We developed a measurement instrument for spread of quality improvements in organizations. Its underlying theoretical distinctions are between: (i) work practices and their results, and (ii) spread and spread practices. The aim of our study is to test its psychometric properties and analyze its convergent validity with sustainability of changed work practices.

## 4.2 METHODS

## Sample and data collection

Our study's respondents were members of improvement teams who had participated on behalf of their organizations in a national quality improvement program in the Netherlands (Care for Better), which was based on Breakthrough Methodology and aimed to improve long-term care (Strating, Nieboer, Zuiderent-Jerak, & Bal, 2011; Zuiderent-Jerak, Strating, Nieboer, & Bal, 2009). The program consisted of seven projects throughout 2006-2008 on pressure ulcers, eating and drinking habits, prevention of sexual abuse,

client autonomy, medication safety, fall prevention, and problem behaviours. In each project, improvement teams developed and deployed small-scale practical interventions for care practices in pilot sites. Our study was part of a larger evaluation research on the 'Care for Better' program (Strating et al., 2011; Zuiderent-Jerak et al., 2009).

The teams had participated in the program's evaluation research. Approximately 2.9 members from 115 teams (N=262) submitted end-of-project data (Strating et al., 2011). We organized a follow-up data collection in April 2009, inviting 171 teams who had finished the program. A total of 127 members responded from 73 teams (team response rate: 43% (73/171)). We expected about two members per team to respond in the follow-up data collection and approximately 1.6 team member responded (individual response rate: 37% (127/342)). The low response rate is reasonable considering the end-of-project response. After data cleaning, we have analyzed 112 questionnaires from 63 teams. Reasons for not participating in the study were mostly related to employee turnover, reorganization, and organizational dynamics in the field.

## Measurement instrument development

The measurement instrument for spread was developed as part of a questionnaire on spread and sustainability. The framework and the content validity of draft versions were assessed by a panel of experts including our research team, four other academics, and a former project leader of the 'Care for Better' program.

Based on the two key distinctions, the following four scales were designed:

1. *Spread of Results (6 items)* measures the extent to which the results have been spread, i.e., are known and used in other sites of the organization.
2. *Spread of Work Practice (5 items)* asks for the extent to which different sources of information or aspects of the work practice are available and being used in other sites of the organization.
3. *Action for Results (4 items)* inquires about the actions that have been undertaken to spread the results to other organizational sites.
4. *Action for the Work Practice (3 items)* inquires about actions for spreading knowledge/ information about the work practice to other sites of the organization.

All items were formulated as statements for evaluation on a five-point Likert scale, ranging from 'don't agree at all' to 'agree very much' plus the option 'don't know' (see Table 4–1). In the instructions, respondents were asked to take their own project in mind. To illustrate, the 'eating and drinking' project aimed to provide an inviting ambiance and reduce malnutrition. To this end, example work practices were setting the table with new dinnerware and distributing medication after instead of during dinner to ensure an ambiance conducive to eating. *Spread of the work practice* in this case could relate to the spread of knowledge and skills for professionals, spread

of documentation on care-related issues on health and nutrition, spread of required practical and instructional materials (e.g., how to set the table or deal with a client to enhance client-centeredness), and spread of organizational tools (e.g., schedules with staff task allocation during dinner or table settings). *Spread of results* could entail items such as improved BMI scores for clients, level of client satisfaction, fewer complaints about dinner, norms for nutrition or dehydration, reduction of kilograms of leftover foods wasted, increased employee motivation, changed performance standards, and so on. Since spread can have many forms, these items were designed to be as generic as possible in the sense that they only ask *if* the relevant knowledge, skills, and materials were spread (i.e., not what or to whom).

### Measurement instrument for sustainability

We measured sustainability on two scales: routinization and institutionalization (Additional file 4), of which the construction was described in Chapter 3. All items were scored on a five-point Likert scale with the additional option of 'I don't know'. Scores were summated to construe the two variables.

The *routinization scale* (16 items; Cronbach's α = 0.91) evaluated the extent to which care workers developed routines for the new work practice. Scores ranged from 16-80. Examples were 'All colleagues involved in the new work practice are knowledgeable about it'; 'We have adjusted our old habits to the new work practice'; 'We all watch for potential flaws in performance'.

The *institutionalization scale* (23 items; Cronbach's α = 0.94) evaluated the extent to which supporting conditions for the changed new work practice were created. Scores ranged from 23-115. Examples were 'We regularly train all staff in the required skills', 'Documentation is accessible to everybody', 'Materials are available when needed', and 'The new work practice is a regular topic in team meetings'.

### Three-step analysis

In step one, the sample characteristics were analyzed using descriptive statistics. Second, confirmative factor analyses were performed with structural equation modelling to analyze both the items and the underlying structure. After data screening, the items were assessed using the following criteria: (i) descriptive statistics, factor loadings, modification indices (checking for cross-loading with items or factors), and reliability estimates (with Cronbach's alpha), (ii) content validity and conceptual arguments, and (iii) respondents' comments and missing values. The models were compared with $X^2$ difference tests on the likelihood ratio $X^2$.

To evaluate the model's goodness-of-fit and structure, we report four commonly used indices as recommended by Kline (2005): (i) the -2log likelihood ratio $X^2$, (ii) Steiger-Lind's root mean square error of approximation (RMSEA), (iii) comparative fit index (CFI),

and (iv) the standardized root mean square residual (SRMR). The -2log likelihood ratio $X^2$ badness-of-fit index related to the probability that the model has perfect fit in the population: the lower the value, the better the fit. The RMSEA is a population-based

**Table 4–1** Item characteristics and the factor loadings for the three factor model

| Items | | n | M | SD | λ |
|---|---|---|---|---|---|
| *Scale: Spread of Work Practices* | | n | M | SD | λ |
| In our organization / in other departments or other teams… | | | | | |
| 1. | …practitioners also use the documentation on the new work practice. | 99 | 3.3 | 0.9 | 0.76 |
| 2. | …the required skills have been trained in other teams. | 98 | 3.3 | 0.9 | 0.79 |
| 3. | …by now they also have developed the new, care-specific knowledge and skills required for the work practice. | 99 | 3.4 | 0.9 | 0.73 |
| 4. | …the practioners have been instructed how to use the materials for the work practice. | 105 | 3.6 | 0.7 | 0.51 |
| 5. | …the practioners now also use the same, new materials for the work practice. | 100 | 3.4 | 0.9 | 0.68 |
| *Scale: Spread of Results* | | n | M | SD | λ |
| 1. | Other teams or department strive for results like ours. | 85 | 3.2 | 0.9 | 0.50 |
| 2. | Other teams or departments achieve similar results in the quality of care. | 72 | 3.0 | 0.8 | 0.77 |
| 3. | Our results have set a standard in new improvement projects in other departments or teams. | 78 | 2.9 | 0.9 | 0.76 |
| 4. | Professionals in other departments or teams use the documentation and information that is available on our results. | 77 | 2.8 | 0.9 | 0.74 |
| 5. | In sum, to what extent have the changes in your care practices, as developed and implemented by your improvement team, been spread to other departments or teams? | 89 | 2.6 | 0.9 | 0.76 |
| 6. | To what extent have the changes been implemented effectively in other departments or teams in your organization? | 80 | 3.0 | 0.8 | 0.64 |
| *Scale: Action for Results* | | n | M | SD | λ |
| The results of the new work practice have been made public: | | | | | |
| 1. | …in presentations (in discussions of progress, formal meetings or other occasions). | 108 | 3.8 | 0.8 | 0.47 |
| 2. | …in the annual reports or other reports. | 95 | 3.8 | 0.8 | 0.55 |
| 3. | …informally in discussions of progress or consultations. | 110 | 4.0 | 0.5 | 0.34 |
| 4. | …in refresher courses or activities. | 95 | 3.6 | 0.9 | 0.70 |
| *Scale: Action for the Work Practice* | | n | M | SD | λ |
| To spread the new work practice(s) we have… | | | | | |
| 1. | …presented the work practice in discussions of progress. | 109 | 3.7 | 0.9 | 0.60 |
| 2. | …organized clinical trainings, workshops or other refresher courses. | 104 | 3.3 | 1.0 | 0.74 |
| 3. | …organized guest visits and exchanges for professionals in the other teams/departments. | 100 | 2.7 | 1.0 | 0.50 |

fit index in which the likelihood ratio is adjusted for parsimony (range 0.10 - 0.05). The CFI quantifies the differences between the independent and estimated models, which should be small (range 0.90 - 1.0). The SRMR indicates the goodness-of-fit in terms of covariance residuals; values should be lower than 0.08. The bivariate correlations for the four variables for spread were also reported.

Third, to explore convergent validity, the bivariate correlations were computed between the spread variables and the two sustainability variables (routinization and institutionalization). The correlation coefficients were compared with Steiger's Z tests (two-tailed, only significant results were reported) (Meng, Rosenthal, & Rubin, 1992). All tests were conducted with a significance level α=0.05. All analyses were performed in SPSS 17.0 and LISREL 8.80.

## 4.3 RESULTS

### Sample characteristics

The sample (N=112) consisted of 45 former project leaders (42%) and 67 team members (58%). most of whom were female (n=80; 77%), had been employed in the organization for more than 6 years (n=96; 66%), and worked more than 30 hours per week (n=78, 65%). The largest job position groups were management, health policy and quality staff (n=65; 55%) and nurses (n=27; 22%). Smaller groups were medical assistants (2%) and medical/social specialists. Such a distribution roughly corresponds with improvement teams in healthcare in general (Strating et al., 2011). The relatively high proportion of managers may have resulted from our communication being ad-dressed to contact persons, who were mostly former project leaders. All improvement projects were represented in the sample. Team distribution was: 16 in pressure ulcer care (25%), 16 in client autonomy (25%), 10 in eating and drinking (16%), 9 in medication safety (14%), 5 in prevention of sexual abuse (8%), and 2 in fall prevention (3%).

### Data screening

All items were screened for univariate and bivariate normality and for outliers. Skewness and kurtosis were seen for some items, but in general extreme values were not found. Notably, the scale 'spread of results' items yielded a relatively high number of missing data and 'I don't know' answers (Table 4–1). For the structural equation modelling these were imputed with the EM-imputation procedure in LISREL (Kline, 2005) and tested for differences with valid responses in the spread variables at hand. The tests did not yield significant differences.

### Analyses of the items and the structure

The descriptive statistics for each item are presented in Table 4–1. Characteristics of each scale are summarized in Table 4–2. The confirmatory factor analysis yielded the following results: likelihood ratio $X^2(129)=239.6$; RMSEA $=0.09$ (with a 90% confidence interval of 0.07 -0.10); CFI$=0.96$; and SRMR$=0.07$. The four-factor model met the above-mentioned criteria for goodness-of-fit, reflected by the positive and high factor loadings of the items (Table 4–1). Given these results, it was not necessary to remove items to optimize the model fit. Several alternative structures were modelled for comparison,

**Table 4–2** Psychometric characteristics of the four scales for spread

|  | Spread of Results | Spread of Work Practice | Action for Results | Action for the Work Practice |
|---|---|---|---|---|
| # items (total of 18 items) | 6 | 5 | 4 | 3 |
| n | 64 | 88 | 85 | 96 |
| Item mean (SD) | 3.2 (0.9) | 3.4 (0.9) | 3.8(0.2) | 3.2(0.5) |
| Scale mean (SD) | 19 (4.5) | 17 (3.8) | 15 0.3) | 10 2.5) |
| Theoretical scale range | 6-30 | 5-25 | 4-20 | 3-15 |
| Average inter-item correlation (min.; max.) | 0.70 (.56 -.83) | 0.68 (.58-.77) | 0.55 (.50-.59) | 0.59 (.51-.66) |
| Cronbach's alpha | 0.93 | 0.91 | 0.70 | 0.80 |

but they did not yield significantly better results (results available on request). Next, the internal consistency was computed for each of the four scales (Table 4–2). Values ranged from sufficient to excellent (0.70 - 0.93).

### Correlations between the spread variables and with the sustainability variables

The bivariate correlations between the spread variables were positive and high (Table 4–3); comparison of correlations are reported in the footnote. Furthermore, 'spread of results' related quite strongly to 'spread of work practice', while the coefficients of the two action-variables yielded moderate, relatively lower values. The spread variables related positively to the two sustainability variables, confirming convergent validity. In general, the relation with 'institutionalization' was stronger than with 'routinization', though this difference was only found significant for 'action for results'. We also found that two variables for 'effective spread' related somewhat higher to 'sustainability' than the action variables. For 'routinization' this concerned both action variables. For 'institutionalization', it concerned only 'action for work practices'.

**Table 4–3** Bivariate correlations between the spread variables and sustainability variables

| | | Spread | | | Sustainability | |
|---|---|---|---|---|---|---|
| | | Spread of Results | Spread of Work Practices | Action for Results | Action for Work Practices | Routiniza-tion | Institution-alization |
| Spread of Results | r | | 0.73* | 0.51* | 0.54* | 0.61* | 0.67* |
| | n | | 78 | 80 | 78 | 79 | 76 |
| Spread of Work Practices | r | | | 0.62* | 0.59* | 0.54* | 0.65* |
| | n | | | 100 | 96 | 99 | 96 |
| Action for Results | r | | | | 0.62* | 0.37 | 0.56* |
| | n | | | | 102 | 106 | 102 |
| Action for Work Practices | r | | | | | 0.28* | 0.35 |
| | n | | | | | 102 | 97 |
| Routinization | r | | | | | | 0.73* |
| | n | | | | | | 103 |

*Significance level $\alpha = 0.05$.

## 4.4 DISCUSSION

We reported on the development and field testing of a measurement instrument for spread of quality improvement in healthcare. The results revealed that the instrument items have sufficient consistency within the scales and cross loading on other scales was minimal. In the confirmatory factor analyses, the four-factor model yielded a good model fit. The reliability coefficients for the scales demonstrated high internal consistency. Convergent validity with sustainability of changed work practices was confirmed. The results offer tentative evidence that the measurement instrument is in line with psychometric properties as defined in the literature.

Following Greenhalgh et al. (2004), we described spread in terms of different, intertwined processes, including diffusion, dissemination, adoption, assimilation and implementation. We proposed two key distinctions for the measurement instrument: 1) between the changed work practice and its results, and 2) between spread practices and their effects (effective spread). The findings confirm the distinctions in several ways. First, the good fit of the four-factor model indicated that the intended latent factors were statistically distinct from one other. Second, the correlations between the four variables were all moderately high and positive. Third, the distinctions were also demonstrated in the analyses of convergent validity with the two sustainability variables.

The finding that spread of results and spread of the changed work practice are positively related conforms to the literature (Buchanan et al., 2005). Spread of the changed work practice focused on spread of the main ingredients of a work practice (skilled and knowledgeable workers armed with the right materials), which are essential to replicate

work practices (Schulz, 2008). We expect this form of spread to be intimately connected with implementation, specifically, reinvention and adaptation of a work practice (Greenhalgh et al., 2004).

Spread of results may have its own effect in the different spread processes (Øvretveit, 2008a). As observed by Thor et al. (2010) in a case study:

> *"(…) the hospital did not capitalize in a systematic manner on these gains to spread them across the organization. Many successes remained localized." (p.323). It is unclear to what extent (lack of) spread of results influences long-term effectiveness of spread.* (p. 323)

Spread practices can influence processes of spread in several ways. Consider a presentation on a changed work practice, for example. It serves to disseminate and diffuse by shaping the perceptions about the quality improvement; it could also facilitate implementation for stakeholders. The distinction between work practices and results is therefore relevant. An improvement team may be well-informed on a work practice and assist in spread practices, but the ability to spread results may require different expertise and skills.

Spread of results may also be as important as spread of work practice-related knowledge, especially recognizing which 'audiences' or networks to address (such as the cafeteria personnel and facilities staff in our example on the eating and drinking project) (Ferlie, Fitzgerald, Wood, & Hawkins, 2005; Ormrod, Ferlie, Warren, & Norton, 2007). Moreover, spread practices could be targeted to second-order users of a changed work practice, such as management staff or others influencing organizational structures and processes.

Our results confirmed the relationship between sustainability and spread. That the variables for spread strongly related to routinization and even more strongly with institutionalization of the changed work practice confirms that sustainability and spread co-evolve and the organizational structures required for both may overlap. This could be the very reason that these concepts are often conflated (cf. Øvretveit & Staines, 2007). It seems inefficient to institutionalize only locally when other sites could benefit; sustainability could thus naturally invoke the question of spread. There might be a risk, however, of investing predominantly in institutionalization by, for example, buying new dinnerware while leaving routinization more or less up to the health professionals. Alternatively, ineffective spread processes may amount to 'pilotitis': organizations repeatedly start isolated pilot projects which are not rolled out into enduring change, eventually resulting in decay and dissatisfaction of organizations and funding agencies (Fraser, 2007; Kuipers et al., 2008).

Our correlations also showed that sustainability was particularly contingent on spread of results, which confirms the importance of being able to show benefits (results) for

legitimizing and negotiating investments to sustain quality improvement (Berwick, 2003; Greenhalgh et al., 2004; Øvretveit et al., 2002). And such investments are key because healthcare innovations are typically complex (Ashworth, Boyne, & Entwhistle, 2010; Greenhalgh et al., 2004) and tend to "(…) go beyond the realm of improvement and results in the redesign of existing structures and/or processes." (Varkey, Horne, & Bennet, 2008, p. 383) Given the demanding nature, spread of results may be essential for realizing optimal institutionalization on the long-term.

In light of this, we considered spread practices in relationship with sustainability. The two 'actions for spread' scales were less strongly related to routinization and institutionalization than the other two spread variables. This may be taken as an indication that spread practices are only part of what is needed to sustain improvements.

### Limitations

Some methodological issues are notable. Firstly, the sample size created limitations in the analyses. The response rates were low but reasonable given the field dynamics and respondents' circumstances. One consequence is that our sample included relatively more successful improvement teams, although we found negative scores and a large variation in answers. The second consequence is that we were only able to analyze the instrument on an individual level. Future research may explore opportunities to study spread dimensions on the team level to take the multi-level nature into account.

Secondly, concerning validity, we realize that our variables were based on questionnaire data, i.e., perceptions. Embedding our follow-up study in the evaluation of the 'Care for Better' program necessitated this strategy. Further research should include multiple measures for sustainability and spread, shedding light on their convergent and divergent validity.

Thirdly, a conceptual question related to the sample population arises from choosing to measure former improvement teams, who know about changed work practices but are probably biased towards the quality improvement. Nor could we expect all of them to be fully informed on work practices in other sites. Indeed, for some items, especially those concerning spread of results, we encountered rather high percentages of 'I do not know' answers. This may be a finding in itself: to what extent is it telling of the field or improvement program that our sample was less informed on spread of results? The scale should be tested further using samples from other populations such as high-level managers or other important stakeholders, who could be (more) knowledgeable on spread of results.

Fourthly, the operationalization of the spread practices scales is limited since the 'actions' scales are defined only in terms of common dissemination activities. This is useful to evaluate a large improvement program, but less so for smaller projects or comparison within an organization. Our 'action for spread' items are simple indications

of the spread processes, but we realize that more kinds of practices are needed. We encourage researchers to add items for different practices depending on the research question and setting. Our focus was on knowledge, skills and materials, but other aspects of work practices may be included, such as principles or values (Feldman, 2000; Feldman & Rafaeli, 2002; Ferlie et al., 2005).

Last, there is the question of how to relate perceptions of different stakeholders in processes of spread such as their senders and receivers. Our instrument asks the initial senders if and how they sent and to what extent they believed the quality improvement had been implemented in other sites. The next step would be to ask receivers about their experiences.

## 4.5 CONCLUSION

We described the development and testing of a measurement instrument for spread of quality improvements in healthcare. The findings confirmed the validity of the measurement instrument and proposed structure, and convergent validity with sustainability. The psychometric properties were in line with recommended methodological standards. The strength of our work is in its design to study spread systematically, as opposed to the usual approach that for the most part measures outcomes. Further studies are needed to develop and validate the instrument for other settings and populations.

Chapter 5

# Measuring in the improvement process for sustainable change

## ABSTRACT

*Background.* Many improvement methods involve repeatedly assessing intervention effectiveness from process and/or outcome measures. In contrast to the importance attributed to measuring, their added value in improvement processes is unclear. In this study, we investigated measurement practices in relation to improvement project effectiveness and later sustainability of changed work practices. Sustainability of changed work practices is conceptualized with two dimensions: routinization, i.e. the development and adaptation of organizational routines, and institutionalization, i.e. the development and adaptation of supporting organizational conditions for a changed work practice.

*Methods.* This study included quality improvement teams participating in seven projects in a large quality improvement program for home care, care for the disabled and the elderly. In a prospective longitudinal design, data were collected at the end of the improvement projects (T1), i.e. on measurement practices and two effectiveness variables: perceived (project) effectiveness (Perceived Effectiveness) as well as objective effectiveness based on prevalence of quality problems (Target Effectiveness). Second, data on sustainability of the changed work practices were collected (at least) one year afterwards (T2).

*Results.* Measurement Practices at T1 weakly related to both Effectiveness variables at T1, Perceived Effectiveness and Target Effectiveness. Measurement Practices at T1 associated positively with both Routinization and Institutionalization at T2. Unexpectedly, Perceived Effectiveness was neither related to Routinization nor to Institutionalization at T2. Target Effectiveness, however, did relate positively to Routinization, but not to Institutionalization.

*Conclusions.* This paper offers a starting point for analyzing the role of measurements in improvement methods in relation to processes of routinization and institutionalization of changed work practices. As theorized, measurement practices are positively related with project effectiveness and sustainability of work practices after implementation. Furthermore, the relation between effectiveness and sustainability is only partially supported. The conditions for effectiveness may be different from those for sustainability of a changed work practice.

## 5.1 BACKGROUND

Many improvement methods involve repeatedly assessing intervention effectiveness from process and/or outcome measures (Bartlett, Cameron, & Cisera, 2002; Bate et al., 2002). This is no surprise, as measurements in general are increasingly popular. Nowadays, many organizations have adopted a form of performance or quality management. In healthcare too, evaluation of output, processes or structural aspects of work practices and the use of standards has become part of everyday practices. One reason for the soaring popularity of measurement lies in their promise to offer a better, i.e. more systematic and less biased, grip on a range of problems and situations in organizations (Nelson, Splaine, Batalden, & Plume, 1998). In improvement processes too, measurements are often considered key.

### Role of measurement in improvement processes

Measurement practices typically involve the creation and use of a practical system for counting of outcomes or process indicators of care processes, such as for example the number of fall incidents in a ward. In quality improvement processes, measurements are used to assess the quality of interventions and aid the (re)design of work practices. Measuring progress in improvement projects can also serve to illustrate benefits, which is an important feature for negotiating change, especially with regard to adoption of innovations (Berwick, 2003). Furthermore, outcome data and evidence could well empower those investing in improvement projects (Bradley, Webster, Baker, Schlesinger, Inouye, 2005; Weiss, Coffman, & Bohan-Baker, 2002). Not surprisingly, measurements are known to be widely used to monitor and steer (Berwick, 2003), as well as to facilitate management for sustainability of work practices (Weiss, 1999). One could say: measurements function as quick references to common (shared) problems, suitable for multiple users (De Bont & Grit, 2012; Greenhalgh, Long, & Flynn, 2005). Nevertheless, the use of measurements is contested as well (Greenhalgh, Long, Brettle, & Grant, 1998; Greenhalgh, Long, Flynn, & Tyson, 2008; Hubley, 2008). For one thing, they may disturb workflows. Furthermore, they take up some of the professionals' scarce time and resources, and require new kinds of knowledge, skills and attitudes. It stands to reason that measurements have specific roles and uses in improvement processes and these demand further study.

A good example of an improvement method which utilizes measurement practices is the Plan-Do-Study-Act cycle. Plan-Do-Study-Act cycles are used in many settings, for example in quality improvement programs based on Breakthrough Methodology. The main aim of Breakthrough Methodology is the implementation of evidence-based practices. Plan-Do-Study-Act cycles structure the improvement process by stepwise changes to care practices guided by measured results (Bradley et al., 2005; Hickman, Newton,

Halcomb, Chang, & Davidson, 2007; Newton, Halcomb, Davidson, & Denniss, 2007). As such measurement practices are intended to be deeply engrained specifically in the study phase and are assumed to contribute to effective changes.

At the same time, the evidence base for improvement methods, such as those based on Breakthrough Methodology, is not strong and studies reveal rather mixed results (Øvretveit et al., 2002; Øvretveit, 2008b; Schouten, Hulscher, Van Everdingen, Huijsman, & Grol, 2008). This is also problematic since project effectiveness is often assumed to be a prerequisite for later sustainability of organizational change. Furthermore, although many barriers and facilitators for quality improvement processes have been identified, it is unclear, how these operate on the long run (Øvretveit, 2008b). The question remains how organizations can sustain positive results and make sure new working methods are effectively deployed on the long-term (Buchanan et al., 2005). Unfortunately, in most studies, effectiveness of new work methods has been assessed only for the time span of the program, thereby a priori limiting the discussion on long-term effects (Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004; Øvretveit, 2008a; Øvretveit, 2008b; Schouten et al., 2008) and empirical analyses of sustainability in terms of 'lasting' changed work practices also were beyond the scope of most evaluation studies (Øvretveit et al., 2002; Øvretveit, 2008a). Thus, there is a good deal to say for examining to what extent measurement practices, as a key component of commonly used improvement methods, enhance chances for improved care practices to be effective- and sustainable. To answer this question we need to study not only how measurement practices may add to project effectiveness in these improvement methods, but also how measurement practices may add to later sustainability of the changed work practices. Furthermore, this information may not be worthwhile, unless we know if project effectiveness affects later sustainability at all.

## Questioning sustainability in terms of work practices

In healthcare, sustainability is often studied in terms of lasting effects on performance or results (Greenhalgh et al., 2004; Øvretveit, 2008b). However, several authors have argued to differentiate between forms of sustainability (Øvretveit, 2008b). Buchanan argued to distinguish sustaining work practices from their results, as well as from sustaining improvement practices (Buchanan et al., 2005). He describes sustainability as maintaining and adapting a new work method over a given, appropriate, period of time. In complex work practices, such as those in healthcare, performance levels tend to fluctuate for many reasons (such as turnover in staff, but also changes in client mix, etc.). Furthermore, one cannot infer the use of a work method or practice from mere results. Analyzing sustainability in terms of work practices is therefore needed to shed light on the processes involved after implementation. Following this call for a process perspective on the relation between effectiveness and sustainability (Greenhalgh et al.,

2004), we focus on sustainability in every day work practices (Slaghuis, Strating, Bal, & Nieboer, 2011). Moreover, we envisage sustainability as a continuous dynamic process- rather than a fixed condition to strive for- and we leave some room in our definitions for the ongoing development of and the (experiential) learning processes in changed work practices. Please note that in this paper the term sustainability refers to changed work practices and not to results unless indicated otherwise.

On the operational level then, sustainability is a process in which actors in a targeted work practice develop shared routines for the new method and performing the new work method becomes part of everyday activities. This phenomenon has been termed routinization (Greenhalgh, 2008; Yin, Quick, Bateman, & Marks, 1978; Yin, 1981): the 'establishment' of routines for the changed or new work practices. This conceptualiza- tion is based on the work of Feldman and Pentland (2003) on organizational routines, which explains how organizational routines are shaped dynamically and may develop through their use.

Routinization cannot do without the regular provision of its many 'ingredients' and the conditions, i.e. structures and processes, supporting it. The process, in which the work practices providing these conditions are developed, is called institutionalization (Jacobs, 2002; Pluye, Potvin, Denis, & Pelletier, 2004; Schreirer, 2005; Yin et al., 1978; Yin, 1981). Institutionalization then is the gradual adaptation of the context of an organization to the new work practice that eventually will be part of this organization's daily activities. Thus, in achieving sustainability of a changed work practice the processes of routinization and institutionalization play distinct roles. Where routinization covers the process in which the actions are shaped and steered, institutionalization extends to the embedding of a work practice in the organization – emphasizing the conditional aspects.

### Focus of this research

The main objective of this study is to study the role of measurement practices in improve- ment processes. In this study we investigate the assertion that measurement practices positively influence both the effectiveness of quality improvement projects and subsequent sustainability of the changed work practices. Three theoretical relations will be tested:

Relation 1 involves the extent to which measurement practices relate to the effective- ness of the improvement project.

Relation 2 involves the extent to which measurement practices during the improvement project relate to subsequent sustainability.

Last, Relation 3 involves the extent to which effectiveness of the improvement project relates to subsequent sustainability.

A follow-up study was designed for improvement teams from a Dutch quality col- laborative improvement program for long-term care: Care for Better. The 'Care for

Better' program was based on Breakthrough Methodology and therefore offers a good opportunity to study the topics at hand. This is, to our knowledge, one of the first studies with actual follow-up data on these topics. Hereby we want to contribute to the growing insights in the working mechanisms of improvement methods used in quality collaborative programs.

## 5.2 METHODS

### Setting

A follow-up study was designed for improvement teams from a Dutch quality collaborative improvement program for long-term care: Care for Better. The quality improvement program Care for Better, run between 2006 and 2008, was open to a wide range of care organizations, such as nursing homes, elderly homes, home care and care for disabled. Improvement projects concerned the following themes: Pressure Ulcers Prevention, Eating and Drinking, Prevention of Sexual Abuse, Client Autonomy, Medication Safety, and Problem Behavior. The projects on a given theme were organized in respective sub-programs, which were set up identically and deployed the same improvement methods.

### Design

For this study we have used outcome data and questionnaire data of the improvement teams (project leaders and team members) which had been collected as part of a larger program evaluation (Strating, Zuiderent-Jerak, Nieboer, & Bal, 2008). The questionnaire data included data on project effectiveness and measurement practices during the project. We have collected data on sustainability at least one year after implementation. A questionnaire was used to assess how the former members of the improvement teams evaluate the sustainability of the targeted work practices.

### Data collection

Data had thus been collected at two moments: at the end of a project (T1), and some twelve months later (T2). Only teams in projects that had been completed more than twelve months ago (counting back from May 2009) were invited to complete the T2-questionnaire. Additional file 6 contains a flowchart with the flow of the samples.

Of the 171 teams who received the T2-questionnaires, 72 teams have participated and 127 questionnaires were returned. After data cleaning, N=112 respondents from 63 teams. Reasons for not participating to the study were predominantly related to organizational dynamics in the field: high employee turnover and many team members now held other jobs; others did not participate owing to lack of time, reorganization or other adverse organizational conditions. Response rates are low, but reasonable given

the circumstances of the respondents and the fact that follow-up studies are common to suffer from attrition. The T2-sample comprised fewer teams than did the T1-sample and the mean number of respondents per team was somewhat lower. This is also a common finding in follow-up studies (Babbie, 1989; John J. Shaughnessy, Eugene B. Zechmeister, Jeanne S. Zechmeister, 2005).

**Table 5–1** Measures and project targets in the 'Care for Better' program[a]

| Project | Measures | Target |
| --- | --- | --- |
| Pressure ulcers | Prevalence degree 2 or higher | Lowering the prevalence of pressure ulcers by 50%(decubitus) |
| Eating and Drinking | Prevalence ill-nutrition | Lowering the prevalence of ill-nutrition by 40% |
| Prevention Sexual Abuse | Attitude Competence Steering | Score 8 at a scale of 1-10 at each measure |
| Medication safety | Prevalence of medication errors | Lowering the prevalence of medication errors by 30% |
| Problem behavior | Prevalence of problem behavior for 2 or 3 clients Prevalence of problem behavior for overall pilot division | Substantially lowering the prevalence of problem behavior[6] |
| Fall prevention | Prevalence of fall incidents | Lowering the prevalence of fall incidents by 30% |
| Client autonomy[7] | Client questionnaires on quality of life and quality of care (client centeredness of care) | Substantial improvement in autonomy and quality of life of clients |

[a] All targets were based on reported evidence for the specific practices and earlier experience. Targets were set by the program organizers. More information on the projects and measures in the Care for Better quality collaborative program can be found in Strating, Nieboer, Zuiderent-Jerak and Bal (2011).

## Operationalizations

Two variables are used to assess effectiveness, i.e. Team Target Effectiveness and Individual Perceived Effectiveness (also aggregated into team scores).

*Team Target Effectiveness* was a team level variable assessing the effectiveness in terms of project outcomes. In particular we used the prevalence measures of the targeted quality problem[11,12], see Table 5–1. These data were collected by team themselves for the improvement project; a description of the collaborative projects and the measurement methods can be found in a multiple case study on the 'Care for Better' program by Strating, Nieboer, Zuiderent-Jerak and Bal (2011). We computed the relative change

11. Since the improvement target for the problem behavior subprogram was undefined/not defined in a SMART matter, all teams achieved the target in this project.
12. Since no outcome measures were available in the client autonomy projects, these were not included in analyses with the Team Target variable.

in the given prevalence from T0 to T1. The relative change scores were dichotomized: having achieved the project targets (improvement) and having not. For example, teams that achieved a more than 50% lower prevalence of pressure ulcers were placed in the improvement group, those that achieved less than 50% decrease were placed in the other group, see also (Strating et al., 2011).

*Individual (and Team) Perceived Effectiveness* was measured at T1 by individual team members using a scale developed by Lemieux-Charles, Murray and Baker et al. (Lemieux-Charles & McGuire, 2006; Lemieux-Charles et al., 2002). The scale contained three items on project effectiveness, which were scored on a five-point Likert-scale. The three items were: (1) 'To what extent do the results match the team members' expectations?'; (2) 'To what extent do the results of the improvement team match the expectation of the management in your organization?'; (3) 'How do you evaluate the effectiveness of the improvement team in light of the results achieved?'. For the *Individual Perceived Effectiveness* variable, individual sum scores were computed (theoretical range 3-15). Internal consistency of this scale was satisfactory, Cronbach's $\alpha$ = .77. For the *Team Perceived Effectiveness* variable, scores were computed by aggregating a team's individual scores into a mean score.

*Team Measurement Practices* was a variable based on 9 items in the T1 questionnaire only for the project leaders (Strating et al., 2008). The scale was translated in Dutch by the NIVEL institute for use in a similar quality collaborative improvement program for hospital care (Dückers & Wagner, 2007). The items centered on the measurement practices during the project for monitoring of the improvement process. For example in the fall prevention projects mentioned before, the measurement practices may include counting fall incidents with post-its notes on a week calendar poster. At the end of the week, the post-its are collected and frequencies are reported along with an analysis of characteristics of the different fall incidents. The work practice in this case may consist of different interventions, such as risk-analyses for clients as well as the provision of mobility training or adjusting medication or installing supporting devices in the rooms.

Scores for Team Measurement Practices could range from 1 (fully disagree) to 7 (fully agree). To give an example: 'The progress was measured continuously.'; 'We came to good agreements on the key measures and their measurement.'; and 'The progress was made visible for our own team or department'. The 9 items are fully listed in Additional file 7. Internal consistency was satisfactory, Cronbach's $\alpha$ =0.80. Scores may range from 9 to 63. The project leader's score was used as a team score.

*Sustainability* was conceptualized in terms of *Routinization* and *Institutionalization*. As explained in the introduction we developed our own measurement instrument. In this measurement instrument we ask employees for their perceptions on the sustainability of the changed work practices in their organization.

As described before, sustainability was conceptualized in two dimensions: routinization and institutionalization. In the T2 questionnaire all team members were asked to evaluate the scales for sustainability (all items are listed in Appendix 4). The construction of the scales is described in another paper (Slaghuis et al., 2011). To make sure the respondents would understand that these items referred to their improvement project and their changed work practice, the T2-questionnaire started with several scales on the results of the improvement project. In addition, the items were accompanied by instructions, which explained the purpose and focus of the scales. All items were scored on a five-point Likert-scale, ranging from 'I do not agree' to 'I agree' and included the option ' I don't know', if relevant. We now introduce both scales.

*Routinization* was a scale of 16 items and measures the development of organizational routines for the changed work practice. Examples of items are: 'All colleagues involved in the new work practice are knowledgeable about it.'; 'There is little opportunity to adapt the work practice to specific situations.'; and 'We all keep an eye on potential flaws in the performance.'. The internal consistency of the scale was excellent, Cronbach's $\alpha = .91$. For the analyses, we computed individual sum scores (range 16 to 80).

*Institutionalization* consisted of a scale of 23 items, directed at the supporting conditions for the changed work practice, including: 1) the required professional skills and the use of formal rules and procedures to sustain these; 2) the availability and use of required practical materials; 3) the availability and use of required documentation materials; and 4) required reflection and evaluation of the (changed) work practice. Some example items are: 'Knowledge and skills for the work practice are listed in our job descriptions.'; 'We always order materials too late.'; 'Work practice documentation is always kept in a special place.'; and 'In our team meetings, we analyze if we have achieved our improvement goals.'. The internal consistency of this scale was also excellent, Cronbach's $\alpha = .94$. The individual sum score may range from 23 to 115.

## Analyses

The three theoretical relations presented earlier were tested (see Figure 5–1), with each relation separately, because integral testing was not possible given the limitations of the T1 and T2 samples. Please beware that, because of this, the reported sample sizes varied across analyses- each time another intersection of the data was used.

Relation 1 between Team Measurement practices and Individual Perceived Effectiveness was tested with multilevel MANOVA. Secondly, relation 1 was also tested with a logistic regression analysis on Team Measurement Practices and the effectiveness variable Team Target Effectiveness.

For Relation 2 we computed a multilevel MANOVA for Team Measurement Practices with Routinization and Institutionalization at the individual level.

For Relation 3 we computed two separate MANOVAs for the effectiveness variables at team level with Routinization and Institutionalization at the individual level.

The following analyses are reported. First, the descriptive statistics of the two samples and the overall scores for the tested variables were summarized. Next, we study each relation with: 1) the bivariate correlation tests and 2) the test results. All tests were based on a significance level of α=0.05 and one-sided where appropriate. The analyses were performed in SPSS 17.0.

## 5.3 RESULTS

### Sample and data

In the T1–sample, 71% (270) of the respondents were team members; 29% (109) were project leaders. Their age ranged from 23-64 years (mean=45; SD=9); about 20% (77) of the sample was male. In the T2–sample, 58% were team members and 42% were project leaders. Age ranged from 19 to 62 years (mean=45; SD=9); about 30% (77) of the sample was male. Respondents from the T1-sample had worked longer in the organization (most over 10 years), than respondents from the T2-sample (majority between 6 and 10 years), $F(1,42)=6.87, p<0.01$. Management staff was represented somewhat stronger in the T2-sample (41%) compared to the T1-sample (35%), $X^2(7)=23.23, p<0.01$. Mean working hours per week did not differ between the two samples. Finally, the overall distribution of respondents for each project is somewhat different at T2,

**Figure 5–1** Conceptual model with operationalizations
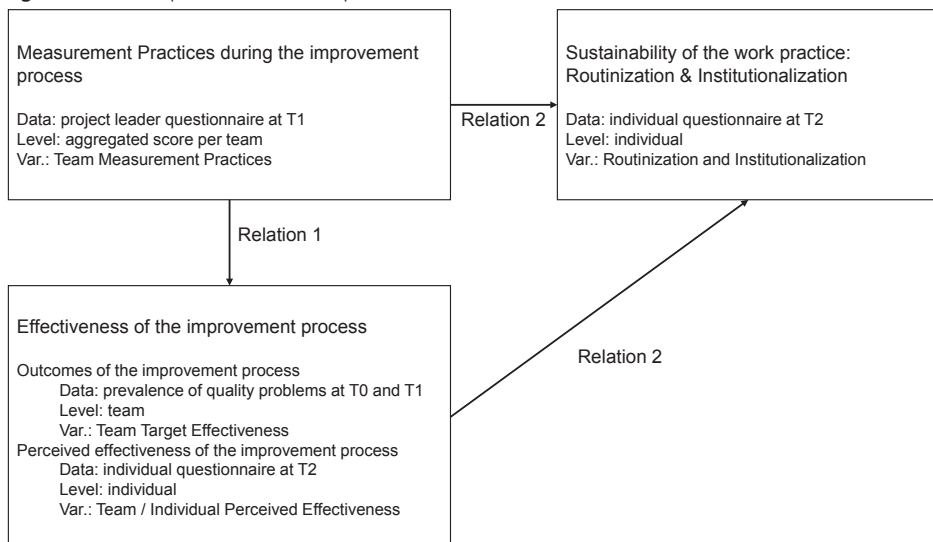
though all projects are still represented, $X^2(6)=19.62, p<0.01$. In Table 5–2 the descriptive statistics of all variables are presented.

## Relation 1: measurement practices and effectiveness

First, we present the bivariate correlations for the individual as well as the team level variable for perceived effectiveness. The correlation between Individual Perceived Effectiveness and Measurement Practices was rather weak and only marginally significant, $r=0.11, N=173, p<0.10$. For Team Perceived Effectiveness there was a significant correlation, $r=0.19, N=291, p<0.01$. Team Target Effectiveness correlated significantly with Team Measurement Practices, $r=0.34, N=195, p<0.01$.

Because of the hierarchical structure in the perceived effectiveness data, with individuals nested in the improvement teams/their organizations, we first investigated to what extent variance in the individual level variables is attributable to team differences with Multilevel Linear Modeling (multilevel MANOVA), for an introduction see: Field (2009, p.725-778). Within-team Individual Perceived Effectiveness scores proved to be interrelated. The difference between the 'empty' model and the team level model was significant ($X^2diff(1)=12.2$), and 33.8% of the variance in Individual Perceived Effectiveness can be attributed to team differences. In other words, the scores are interrelated between team members within the teams. Therefore, the statistical testing of relation 1 had to be done with multilevel MANOVA.

The multilevel MANOVA on Team Measurement Practices and Individual Perceived effectiveness yielded a marginally significant effect, $F(1,66.94)=1.94, p<0.10 (B=0.03, se=0.02)$; see Additional file 8 for the results for the empty and subsequent models. The low beta illustrates that Team Measurement practices, being a team level variable, cannot explain much of the variance on the individual level, i.e. variance *between subjects*. However, the significance in the multilevel regression shows that Team Measurement Practices do add to the explained variance on a different level: *between teams*.

**Table 5–2** Descriptive statistics for the tested variables

| | n | Min. | Max. | Mean | SD |
|---|---|---|---|---|---|
| Routinization at T2 (sum score) | 111 | 17 | 69 | 54.8 | 8.4 |
| Institutionalization at T2 (sum score) | 106 | 25 | 107 | 83.2 | 12.6 |
| Team Measurement practices at T1 (individual data; sum score) | 286 | 22 | 61 | 44.2 | 8.9 |
| Perceived Effectiveness at T1 (individual data; sum score) | 218 | 5 | 15 | 10.7 | 2.0 |
| Team Perceived Effectiveness at T1 (aggregated mean team sum scores) | 369 | 5 | 15 | 10.6 | 1.7 |
| Team Target Effectiveness at T1 | project target not achieved | | | project target achieved | |
| Frequency (N on individual level) (percentages) | 210 (89.4%) | | | 25 (10.6%) | |

Secondly, we tested relation 1 with in a logistic regression of Team Measurement practices (predictor variable) on Team Target Effectiveness (dependent variable). The results indicate a positive effect of Team Measurement Practices, model $X^2(1)=24.56$, $p<0.01$, $Exp(B)=1.18$, $p<0.01$, and Nagelkerke's $R^2=0.25$. This means that the teams that assigned high scores to Team Measurement practices are more likely to be the ones that achieved project targets in terms of Team Target Effectiveness.

### Relation 2: measurement practices and sustainability

Team Measurement Practices at T1 related positively to both dimensions of sustainability at T2, for Routinization $r=0.27$, $N=56$ (pertaining to 27 teams), $p<0.05$, and: $r=0.28$, $N=54$ (pertaining to 20 teams), $p<0.05$ for Institutionalization. The bivariate correlation between Routinization and Institutionalization was quite strong and significant, $r=0.72$ ($N_{ind}=103$).

Because of the hierarchical structure in the sustainability data, here too we investigated to what extent variance in Routinization and Institutionalization was attributable to team differences; Additional file 8 contains full results for these multilevel analyses. For Routinization and Institutionalization no significant variance proved attributable to team differences. Therefore, it was not needed to control for a team level effect and the relation could be tested with MANOVA. These two variables are also addressed in relation 3: there we will therefore also apply MANOVA.

The MANOVA with Team Measurement Practices on Routinization and Institutionalization computed a marginal significant effect, $T=0.08$, $F(2,49)=1.99$, $p<0.1$. The concerning univariate statistics are summarized in Table 5–3. These reveal that Team Measurement practices are positively related to both Routinization and Institutionalization, in line with the expectation that measurement practices in an improvement process are positively related to later sustainability.

**Table 5–3** Results for the separate MANOVA's: with Routinization and Institutionalization at T2

|  | Routinization | | | Institutionalization | | |
|---|---|---|---|---|---|---|
|  | Test statistic | p | $\eta^2$ | Test statistic | p | $\eta^2$ |
| Team Perceived Effectiveness | $F(1,64)=0.22$ | 0.32 | 0.00 | $F(1,64)=1.57$ | 0.11 | 0.02 |
| Team Target Effectiveness | $F(1,54)=7.50$ | 0.004 | 0.12 | $F(1,54)=1.40$ | 0.12 | 0.03 |
| Team Measurement Practices | $F(1,54)=2.88$ | 0.05 | 0.05 | $F(1,54)=3.47$ | 0.03 | 0.06 |

**Table 5–4** Bivariate correlations for Team Target Effectiveness, Team Perceived Effectiveness, and Routinization and Institutionalization.

|  |  | Team Target Effectiveness. | Routinization | Institutionalization |
|---|---|---|---|---|
| Team | r | 0.13* | 0.09 | 0.16 |
| Perceived | p | 0.03 | 0.24 | 0.10 |
| Effectiveness | n | 209 | 71 | 68 |
| Team | r |  | 0.37* | 0.16 |
| Target | p |  | 0.00 | 0.12 |
| Effectiveness. | n |  | 61 | 58 |

### Relation 3: effectiveness and sustainability

To explore Relation 3 we computed bivariate correlations between Team Perceived Effectiveness at T1, Team Target Effectiveness, and later Routinization and Institutionalization at T2 (see Tables 5—3 and 5—4). Team Perceived Effectiveness did neither correlate significantly with Team Target Effectiveness nor with the two variables for sustainability. Team Target Effectiveness related significantly with Routinization but not with Institutionalization.

As stated before, for lack of a team level effect, two separate MANOVA's could be performed to analyze the relation of effectiveness with Routinization and Institutionalization. The concerning univariate statistics are provided in Table 5–2. In line with the bivariate correlations, Team Perceived Effectiveness appeared not to relate to subsequent Routinization nor to Institutionalization, $T=0.03, F(2,63)=1.02, p>0.10$. For Team Target Effectiveness the expected relation was substantiated, $T=0.19, F(2,53)=5.04, p<0.01$. This indicates that the teams that achieved program targets scored higher on Routinization one year later (mean=63; SD=11: N=47), than those that did not (mean=53; SD=3; N=9). These types of teams do not differ in Institutionalization (mean=89; SD=9; N=9; and mean=82; SD=16; N=47 respectively).

In short, the analyses of relation 3 showed mixed results. On the one hand, Team Perceived Effectiveness does not significantly relate to either of the two sustainability variables. On the other hand, a positive effect was found for Team Target Effectiveness, albeit only on Routinization. As such Relation 3 –implying that effectiveness during the improvement project predicts subsequent sustainability– is only partially confirmed.

### 5.4 DISCUSSION

In this chapter we presented our first analyses of the empirical data collected on the sustainability of quality improvements achieved in the 'Care for Better' program. To our knowledge, this is the first study to explore in a follow-up design the sustainability of

changed work practices in relation to the role of measurement practices in improvement processes.

The main results are the following. First of all, Team Measurement Practices appeared not a strong predictor for Individual Perceived Effectiveness, but was substantially related with Team Target Effectiveness. Secondly, there was a positive relation between Team Measurement Practices and later Routinization and Institutionalization. Finally, Team Perceived Effectiveness proved not to predict sustainability, whereas Team Target Effectiveness partially did. So what conclusions can we draw? 1. Measurement practices during the improvement project are related to both effectiveness and later sustainability of the changed work practices. 2. Contrary to what is commonly assumed effectiveness is not a robust predictor of sustainability and mainly seems to affect processes of routinization; not institutionalization. We will elaborate on these in light of the results.

### Measurement in improvement methods – levers for sustainability?

The results concerning the role of measurement practices are consistent with the assertion that these practices may promote sustainability. However, the results are open to interpretation as to the processes at work in this relationship - especially, since there was some confounding. The teams that had their measurement practices 'in place' are also the ones that achieved the program targets, and they scored higher on Routinization, not on Institutionalization. Conceptualizing the improvement process as one with an initial strong focus on (re)designing the work practice, this discrepancy seems 'natural': measuring would optimize the interventions and the changed organizational routines. From this perspective we could regard institutionalization as a second step, perhaps even resulting from routinization. Moreover, the fact that the positive relation between perceived effectiveness and measurement practices was affirmed on the level of teams, i.e. differentiated between the teams, can be interpreted as a sign that measurements are important for improvement teams to develop a shared view about the effectiveness. It may be interesting to explore if and how different perceptions –on the improvement process, on the project, or on an actually changed work practice– can affect sustainability.

### Does effectiveness matter to sustainability?

In this study we conceptualized sustainability in terms of routinization and institutionalization. Yet the evidence for a relation with effectiveness was ambiguous. This is remarkable, especially since Routinization and Institutionalization proved strongly related. How to explain this? For one, the absence of a relation between Perceived Effectiveness and later Sustainability may simply mean that effectiveness is not as important for sustainability as assumed. And then, the effect size to be expected in these processes is unknown. An alternative reading could be that team members' *individual percep-*

*tions about the improvement project* do not predict sustainability of changed work practices strongly. Moreover, the fact that most of the variance in sustainability remains unexplained indicates that other aspects are more important. This all goes to say that it is not feasible to evaluate improvement processes merely by participants' perceptions.

Interpreting the results for what they are complicates the notion that sustainability by definition follows from effectiveness. The teams that had actually achieved the projects targets assigned higher scores on Routinization than did the other, less successful teams. However, a direct relation between Effectiveness and Institutionalization is lacking: even the teams that had actually achieved the projects targets were not distinguishable from the others in terms of Institutionalization. In other words: they were not better at organizing and adapting secondary conditions for the changed work practices. Similarly, teams with positive perceptions on the improvement project did not assign higher scores to Institutionalization. If effectiveness has an influence, it apparently operates mainly via routinization – not institutionalization. And achieving sustainability may require a considerable effort outside the common ingredients of an improvement project. Or vice versa: more attention for institutionalization may be needed, notably in quality improvement collaborative programs.

### Theoretical implications

Our results partially confirmed to the commonly held idea that measurement practices may have an impact on improvement. This is only a starting point, however, seeing that measuring practices probably influence improvement processes in many different ways. One reason for the soaring popularity of measurement lies in their promise to offer a better, i.e. more systematic and less biased, grip on a range of problems and situations in organizations. As such, measurements may serve many functions. They can be incorporated in tools to inform and evaluate policy (Flynn, 2002; Hubley, 2008; Lindgren, 2001; Swanwick, 2007), and in tools to 'remotely' control and manage quality of practices on operational levels. Furthermore, studies on measurements in clinical practice have shown that the interpretation and use of measurements proved to be contingent upon the users' backgrounds (Greenhalgh, 2008; Greenhalgh et al., 1998; Greenhalgh et al., 2005; Greenhalgh et al., 2008). Even a relatively simple measurement may thus not be so simple in its situated meaning; on the other hand its simplicity enables meaning 'to travel' (De Bont & Grit, 2012). In quality improvement, measurements may enhance routinization by improving the intervention design, or affect processes of Institutionalization. With regard to the latter an important question for future research is how to boost the improvement process. A tentative thought on this matter is that this might be achieved by cultivating early onset of institutionalization- as well as routinization and ongoing improvement afterwards.

We have conceptualized sustainability in terms of work practices and distinguished two dimensions, i.e. routinization and institutionalization. This approach seems a worthwhile addition to the literature, in which sustainability is mostly operationalized in terms of results (Greenhalgh et al., 2004; Øvretveit, 2008a; Øvretveit, 2008b; Schouten et al., 2008). Moreover, extending Feldman and Pentland's conceptualization of organizational routines (Feldman & Pentland, 2003) to the domain of changed work practices has enabled us to measure in very concrete terms the dynamics of putting new work methods to practice and the collaborative learning this requires (T. Greenhalgh, 2008). The basic dimensions of institutionalization employed in this study were directly aligned to this conceptualization. They concerned not only the actors' knowledge and skills, but also the practical materials and documentation at hand, and formal structures for organizing and monitoring the quality of practice. Therefore the two sustainability dimensions are distinctly related to each other, and each may be related to other aspects of improvement processes as well. As for a future broader conceptualization, naturally this may include other related aspects or sub dimensions. For example, institutionalization may also be considered in financial or managerial conditions.

## Limitations

In addition to the theoretical considerations discussed above, also some methodological concerns of this study should be addressed. First, sample sizes and statistical power were suboptimal. Many of the organizations involved went through mergers and other organizational changes, and many show high employee turnover. The response rates are low as a result. Relatedly, the T1 sample was not identical to, and lacks overlap with, the T2 sample. This means that it is likely that the former team members are biased to their improvement projects and the targets achieved. Notwithstanding, in our analyses enough variation was found to differentiate between respondents and teams.

A second limitation concerns the sample population of improvement teams and our operationalization of sustainability in a postal questionnaire. Clearly, there are advantages and disadvantages of measuring sustainability with improvement teams. The advantage is that they are knowledgeable on the improvement project and the targeted care practice. But, many healthcare professionals on the operational level are less knowledgeable of managerial or organizational issues. For this reason, some items may be hard to answer, especially those with regard to institutionalization. For future research we recommend using multiple measures of sustainability for cross validation.

A third limitation regards the relation between work practices and their results. In our design, no measure of results 'at T2' was collected. But naturally, it would have been very interesting to explore the relations between results and work practices over time as well specific relations between results and measurement practices. In relation to this, we point to the need to research different forms of sustainability in relation to

each other and the potential of linking theory based measurements to additional (existing) data sets, outcome or administrative data. This issue is particularly important in the context of evaluation research. One specific question that deserves more attention is how sustainability of changed work practices may relate to sustainability of results or performance; especially in relation to decay (Buchanan et al., 2005). In healthcare, conditions of performance are not typically stable and so results may vary substantially across situations and settings. Moreover, quality improvements can yield many different results which are not always easily revealed in terms of measured outcomes. For this reason, research on sustainability in terms of changed work practices is important to move beyond differences in outcomes, to more conceptual explanations based on organization perspectives. To this end both sustainability of work practices and their results may be studied with different kinds of data combined.

A fourth limitation regards the validity of the 'objective' variable Team Target Effectiveness. In constructing this variable, we only had data on prevalence rates of the different medical problems collected by the teams themselves; what they measured to assess effectiveness thus varied. To circumvent this problem we used a scale for perceived effectiveness. But using standardized outcome measures like these only solves the problem partially, because the interventions differed both within and between projects. Furthermore, outcome data may show variation, but explaining this variation typically is rather difficult. These are common problems for evaluation research on quality improvement in healthcare (van den Berg, 2009). Better operationalizations of effectiveness are needed as well as research on teams working on one and the same quality problem; for example in the same quality project of a program. This, however, requires extreme a priori rigor in data management and marketing of the research.

## 5.5. CONCLUSIONS

In this chapter we presented our first analyses on the role of measurement practices in improvement projects in the Dutch quality improvement program Care for Better. To this end, a follow-up study was done with former members of improvement teams at least one year after implementation. What is more, we conceptualized sustainability at the level of changed work practices in terms of routinization and institutionalization. Our main conclusions are twofold. Measurement practices during the improvement project are related to both effectiveness and later sustainability of the changed work practices. Contrary to what is commonly assumed effectiveness is not a robust predictor of sustainability and mainly seems to affect processes of routinization; not institutionalization. This may be caused by 'intervention myopia': an inability to see beyond the intervention. Improvement teams generally maximize their effort to develop an intervention for a given work practice and may tend to 'forget', to simply lack time

and opportunity to adapt potentially important organizational processes and structures in the context. Future research should yield more empirical evidence on the aftermath of quality improvement processes in healthcare and the role of key ingredients in improvement methods for sustainability.

# Routinization and institutionalization of fall prevention practices in long-term care. Stumbling on fresh tracks?

## ABSTRACT

*Background.* More attention is needed for the aftermath of quality improvements in healthcare, in particular for sustainability within organizations. This paper suggests that sustainability can be described in two dimensions. Routinization: development of primary organization routines; and Institutionalization, the development of supporting conditions, i.e. secondary routines.

*Methods.* We conducted an in-depth follow-up study in the context of a quality improvement program for long-term care. Our design consisted of a multiple case study with existing quantitative data on fall prevention practices in three long-term care organizations. In addition, we collected follow-up data in the three cases on sustainability as experienced by professionals.

*Results.* For each case, the developments in changed care practices were analyzed. One case illustrated ongoing improvement, and the two others illustrated decay and lack of sustainability. When sustainability is lacking this is most apparent in routinization, and to a lesser extent in the institutionalization.

*Conclusions.* There was substantial variation in the QI effectiveness in the three cases. Three conditions were observed to be important. First, sustainability required complementarity and connections between routines. Secondly, materials were important for guiding routines as well as for connecting primary and secondary routines. Finally, sustainability within the organization is contingent to 'external' sustainability, i.e. institutional pressures and structures in the wider context.

## 6.1 INTRODUCTION

In the past decades, quality improvement in healthcare has become increasingly popular. Following this development, sustainability has become a distinct issue, especially since many improvement efforts have not yielded substantial results in the long run. As a result, a new 'strategic imperative' has been added to the quality agenda of many organizations: to sustain changed working methods and associated performance improvements (Buchanan, Fitzgerald, & Ketley, 2007, p. 22). The term sustainability has become fashionable and often refers to system level changes; and tends to include environmental values aside from social and economic aspects. However, in this chapter, we center on the organizational level. At this level, the term 'sustainability' may be conceived as an organizational ability, unfortunately it is unclear what this ability should entail in organization theoretical terms. This lack of clarity is also apparent in the way sustainability is often defined. For example, Buchanan, Fitzgerald, and Ketley have described sustainability as "(…) the process through which new working methods, performance enhancements, and continuous improvements *are maintained* for a period appropriate to a given context. The opposite of sustainability where change is not maintained and benefits are lost is decay." (2007, p. xxii; italics added). Similarly, in a recent review Wiltsey Stirman and colleagues posed the following definition: "A program or intervention may be considered to be sustained at a given point in time if, after initial implementation support has been withdrawn, core elements are maintained (e.g., remain recognizable or delivered at a sufficient level of fidelity or intensity to yield desired health outcomes) and adequate capacity for continuation of these elements is maintained." (Wiltsey Stirman et al., 2012, p.10). But that is not all: "Sustainability can also mean *ongoing improveme*nt, retaining the principles while developing the details of a practice to accommodate changing conditions, to achieve even better performance standards. Paradoxically, the survival of new working practice may require adaptation." (Buchanan et al., 2007, p. 227; italics added). In sum, sustainability is not a simple given after an 'effective' improvement project and appears to require all sort of active efforts. Three main aspects can be recognized in most definitions: sustainability of work practices, of their results, and sustainability of some kind of improvement capacity (Buchanan et al., 2005; Øvretveit & Staines, 2007).

Several authors have formulated specific challenges for the study of sustainability (Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004; Wiltsey Stirman, 2012). Firstly, it has been suggested that sustainability must be studied as a distinct and dynamic phenomenon. One reason for this are the growing experiences of lack of attention for a quality theme after improvement efforts have ended in relationship with decay of the improvements. Moreover, it has been argued that sustainability in healthcare entails multifaceted changes *"which raise issues different from those related to product inno-*

*vations with which much the 'diffusion' literature is concerned."* (Buchanan et al., 2007, p. 22). Secondly, a process perspective is needed: an explanation for why a sequence of events unfolds over time in a particular way. Although improvement goals are formulated in terms of long-term effects, attention for this has been lacking. In consequence, not much is known about the development of changed work practices after implementation of improvements in care; and information on the extent, nature or impact of adaptations is lacking. This is important, since improvements can also influence the organizational context through, for example, the development of new structures, roles and processes, and individual attitudes and behaviors (Buchanan et al., 2007, p.147). Improvements thus require tailoring of intervention and local organizational context to each other (Buchanan et al., 2005; Kirsh, Lawrence, & Aron, 2008; Yin, Quick, Bateman, & Marks, 1978). This mutual adaptation continues after implementation and 'outside' the boundaries of improvement projects (May et al., 2007; Parand, Benn, Burnet, Pinto, & Vincent, 2012).

In addition, the organizational processes to implement and sustain improvements depend on the continuing presence of a range of factors. Hence, changed work practices are fragile and vulnerable to decay by definition (Buchanan et al., 2007 p.227). Moreover, quality improvement is clearly not insulated from contextual influences outside 'organizational boundaries', but need to be considered in relation to the organizational field or sector and even in the larger, national or societal context (Ashworth, Boyne, & Entwhistle, 2010).

Thirdly, sustainability should be studied on the level of work practices (Greenhalgh et al., 2004). Studies tend to focus on results rather than on what is done to achieve them. Moreover, it is unclear to what extent perceptions on sustainability are related to actual states of work practices in organizations. To understand sustainability in healthcare requires insights in both results —preferably on the level of client outcomes— and in the work floor processes. In sum, what is needed is a theoretical perspective that accommodates dynamics, which can explain phenomena on the level of practices within organizations from a process perspective, allowing space for unintended as well as intended effects of organizational change and that links long-term effects of quality improvements to their contexts.

In view of the recommendations above, we have developed a framework to describe sustainability on the level of work practices (Slaghuis, Strating, Bal, & Nieboer, 2011). In the framework, we have combined insights from routine theory and (neo) institutionalization theory. The main aim of this study is to continue the theoretical development of the framework by exploring the relationship between sustainability of changed work practices in relationship with their results within organizations. To this end, we investigate sustainability of quality improvements in long-term care in an in-depth analysis of the work practices and results over a period of four years. Specifically, in this chapter

we will analyze fall prevention practices in three long-term care organizations, who participated in a large-scale collaborative quality improvement program for fall prevention in long-term care in The Netherlands (Strating et al., 2011). Two research questions guide our empirical analyses:

1. How do sustainability of changed work practices and their results develop in the fall prevention program?
2. How do sustainability of changed work practices and their results develop in the three long-term care organizations?

Our design comprises a multiple case study of quantitative data on outcomes, structures and processes for fall prevention in combination with perceived sustainability measures in professionals. Next, we introduce the framework for sustainability.

## Theoretical framework

Fitzgerald, Buchanan and Ketley explained improvement of care practices as 'operational innovations' as defined by Hammer (2004 in: Buchanan et al., 2007, p. 232). Operational innovation involves "inventing and deploying new ways of doing work": changing existing work practices or creating new ones. This requires "multifaceted and complementary organizational changes, involving (existing and new) structures, systems and procedures." (Buchanan et al., 2007, p.228) In our framework, we described the changed work practices in terms of organizational routines. Likewise, operation innovation can be described as changing organizational routines. Following this, we theorized sustainability in two dimensions, routinization and institutionalization of the changed work practices. While these two are often mentioned together in the context of sustainability in healthcare, their meaning is often taken for granted and left undefined. Therefore, in our framework we sought to clarify these concepts. We define the first dimension, routinization, in terms of the ongoing development and cultivation of organizational routines for the targeted work practice. These can be called primary routines and concern changed work practices (operational innovations) at work floor levels. The second dimension then concerns the development of supporting conditions for the targeted work practice. These can be called secondary routines, as they are subservient to the primary routines.

Following our research objective, in this conceptualization we strongly center on organizational aspects. We emphasize that these organizational aspect are strongly dependent and connected to cultural aspects, such as symbolic elements, cognitive scripts and normative codes(Scott & Meyer, 1994). Both the primary organizational routines and the secondary organizational routines pertaining to supporting conditions are in part constituted by institutional rules and beliefs that are not only embedded in the existing practices, but also in the wider (institutional) environments (Czarniawska-Joerges & Sevón, 1996; Lounsbury & Crumley, 2007; Røvik, 1996; Ventresca & Kaghan,

2008). Indeed, it follows from institutional theory that the wider institutional context influences sustainability in many ways. We will pay attention to this theme when it is possible; however our main focus is within the organization. We now elaborate on the theoretical background of the two dimensions.

## Routinization

Work practices can be described as organizational routines: "(…) repetitive, recognizable patterns of interdependent actions, carried out by multiple actors." (Feldman & Pentland, 2003, p.96) But, work practices and routines are more than "a set of acts that are externally defined and normatively constrained. They have a meaning that is learned, shared, and experienced by actors in specific social contexts, as they work the practice through. This meaning is internalized and contributes to embedding by anchoring the practice in the lived experiences of individuals." (May, 2009, p. 543). Key aspect of an organizational routine is the shared understanding between actors, while at the same time every actor has his or her own role and task(s); hence, there are many meanings and interpretations to an organizational routine (Feldman & Rafaeli, 2002). In line with this view, organizational routines have been described as "patterns of knowing in practice, which *simultaneously assume and reproduce organizational knowledge."* (Hellqvist 1997 in: Nickelsen, 2008)*.* Routines offer stability but they are also important for learning and helping organizational change (Becker, 2004; Becker, 2008). One reason for this is that they alleviate cognitive (over)load by reducing the need to consider all aspects of actions in practice, thereby freeing as well as guiding the mind to attend to other aspects of the situation.

Feldman and Pentland (2003) have argued that organizational routines can be a source of endogenous change, i.e. change that emerges from experiences with the organizational routines in practice, as opposed to change based on intended and planned improvement efforts. By describing the dynamics in routines related to endogenous change, their theoretical view offers an explanation for the unintended consequences of change processes and modifications after implementation (Røvik, 1996). According to routine theory, organizational routines have a dual nature, which implies that principles and the practices mutually form each other (Feldman & Pentland, 2003). On the one hand, the organizational routine is constituted in the form of a set of principles; principles that the actors know and use to guide and explain their actions in the routine. On the other hand, it is constituted as it is performed in practice: through the performances, actors develop a shared 'formal' understanding (and language) as well as tacit knowledge of what needs to be done in a targeted situation (Feldman & Rafaeli, 2002; Miner, Ciuchta, & Gong, 2008). Furthermore, actors can adjust the principles in light of their experiences and the insights gained through practice. However, this definition does not imply functionality only: the actions in organizational routines may or may not

be useful to some end (Feldman & Pentland, 2003 p.97). Grosso modo, the pattern of actions will serve the key principles of the organizational routine.

We can now define routinization as the process through which the organizational routine(s) for a work practice are developed and cultivated through the mutual reinforcement of principles and practices of organizational routines. The bidirectional relation might be useful to deepen our understanding of routinization as a dynamic, continuous process as in each performance actors align their actions to both the principle and the situations, while at the same they adjust the principles. As Vera and Crossan (2005; 2004) pointed out, routines are also important for improvisation which requires flexibility in alignment of actions to the situations at hand. This view also suites work practices in healthcare, which typically involve highly routinized tasks as well as require improvisation and deviation of routines to meet different care demands for different clients (Greenhalgh, 2008). In other words, to sustain a work practice also means to sustain the capacity to improvise according to changed values/principles.

In this perspective, three sub dimensions for routinization can be derived. The first subdimension involves how principles form practices, i.e. the ways in which the principles are used to guide, account for and refer to the practices pertaining to the organizational routine (Feldman & Pentland, 2003; Pentland & Feldman, 2005). The second subdimension regards how practices form principles, i.e. the ways in which the practices serve to create, maintain and modify the principles. Last, the third subdimension concerns the collective monitoring and, in particular, the exchange of feedback on performance in practice (Feldman & Rafaeli, 2002; Greenwood, 1998). Routinization thus involves a mix of learning processes, including double and triple loop learning (Argyris & Schön, 1978; Miner et al., 2008): maintaining or changing a work practice is related to the variation, selection and retention of the organizational routines belonging to it (Miner et al., 2008). Moreover: 'if consistent, effective selection criteria are in place, variation and selective retention can lead to functional adaptations' (Feldman & Pentland, 2003, p.113). In other words, routinization includes the ongoing development of organizational routines at the work floor level. The question then remains what organizational structures and processes facilitate these processes?

### Institutionalization: 'supply and maintenance' for organizational routines

Aside from the development of primary routines, sustainability also requires the development secondary organizational routines related to the targeted work practice. According to Yin, Quick, Bateman and Marks (1978, p.93) many improvements start out with a strong focus on changing the primary organizational routines, the context is adapted to facilitate this with improvised, mostly ad hoc, arrangements. Then in the process of institutionalization, the ad hoc arrangements are usually replaced. Yin et al. have defined institutionalization as the gradual adaptation of the organizational context, including

—often formalized— structures and processes, to the new or changed work practice. While studies in institutional theory are abundant, still the organizational aspects of sustainability within an organization seem understudied from this perspective. Yin et al. (1978, p. 39) specifically centered on organizational events or conditions. Other authors have also centered on organizational aspects. For example, Burke and Litwin (1992) defined several "transactional aspects" of organizational change which resemble institutionalization as described by Yin and colleagues. They include management practices, structure, systems (policies and procedures), task requirements and individual skills and abilities. In our framework, we integrate these organizational aspects in the concept of institutionalization with the concept of routinization as presented. To this end, we derive subdimensions of institutionalization from the key ingredients in the primary routines to identify important supporting secondary routines. Key ingredients in the organizational routines are: multiple actors with the required skills, with the right materials at their disposal, who can reflect on their actions. Institutionalization then is understood as the process in which conditions are created to provide these ingredients of the primary routines and thereby enable the sustained performance: *the development and cultivation of the required supporting conditions for the targeted organizational routines*. We distinguish four subdimensions of institutionalization: institutionalization of skills, documentation materials, practical materials, and reflection. Although we recognize that importance of other organizational aspects, such as budgeting, rewarding systems, other forms of management of resources, HRM, planning and control cycles, etc.. In our framework these are considered prerequisite to the four dimensions. What follows is a description of the four sub dimensions.

First, new skills may be required to perform a new work practice. To sustain performance these should be provided, monitored, cultivated, and if necessary, updated. On an institutional level, this involves several organizational structures and processes: offering feedback on the skills, offering training, setting demands in job advertisements, monitoring via performance interviews, and so on. Next, organizational routines require many different materials for the actual performance, especially care practices. Two types of materials can be distinguished in form and function. Practical materials serve a primary function for the work practice. Some examples are practical tools or medical instruments, but also patient records. In contrast, documentation materials serve a more secondary function by offering extended memory on the organizational routine and supporting learning processes. Examples are protocols, manuals, care plans, etc. These usually contain formal explicit information on work practice related professional knowledge and skills. The last subdimension, team reflection, refers to formal, purposive forms of reflection and monitoring of the quality of performance between professionals. Important for sustainability is a shared understanding of the main principles to monitor the actions during performance (Osadchiy in: Hernes, Maitlis, & International

Symposium on Process Organization Studies, 2010; Weick, Sutcliffe, & Obstfeld, 2005). This understanding can be developed through institutionalized attention for the work practice in the form of "shared reflection practices".

To summarize, in our framework we describe sustainability in terms of routinization and institutionalization within the organization. With this framework we investigate developments in changed work practices for fall prevention in relationship with their results in three long-term care organizations.

## 6.2 METHODS

### Setting: a quality improvement program for fall prevention

The fall prevention program (FPP) was part of a larger program Care for Better, which ran between 2006 and 2008. This program was based on Breakthrough Methodology (Kilo, 1998) and aimed to improve long-term care. Participating organizations included nursing homes as well as home care organizations. In each project, improvement teams developed small practical interventions for care practices. The participants in the current follow-up study were the former members of the improvement teams. This study is part of a larger evaluation study on the 'Care for Better' program (Strating et al., 2011).

*Fall prevention indicator data.* The national monitor for healthcare, formally: *Dutch National Prevalence Survey of Care Problems (brief: National Problem Survey / NPS),* was organized annually to assess the prevalence, prevention and treatment of a selection of care problems in healthcare organizations (Maastricht University, 2011; Halfens et al., 2013; Nie-Visser et al., 2013). Our study comprised the data on fall problems and prevention in long-term care organizations for three years: 2007 (beginning of project, T0), 2008 (end of the project, T1) and 2009 (follow-up, T2). The data were collected with digital and standardized forms in two rounds a year (April and November). The data collection forms can be found in the annual reports published by NPS (Maastricht University, 2011). Participation to the national health monitor was voluntary, but during the fall prevention program, it was strongly recommended to participate to the fall prevention module at the beginning and at the end of the project.

*Selection of cases and follow-up data collection.* The cases were selected from all participating organizations in the fall prevention program. A total of six organizations were enrolled in the Dutch National Prevalence Survey of Care Problems at all three measurement points. We contacted these organizations through the former improvement teams in the spring of 2010 and asked for their participation to our follow-up study in the fall of 2010. For each organization an information brochure was made about the purpose and the plan of the study. The follow-up questionnaire consisted of

the short version of the scales for sustainability developed by Slaghuis et al. (2011; see Chapter 3).

Three organizations refrained from participation, reasons for this included: having other organizational priorities, commitments to other research projects, or because of lack of time and resources.

Three organizations agreed to participate[13]. Their names have been changed to preserve anonymity.

### The three cases

Case 1 is referred to as Symphonia Court and consisted of two wards pertaining to a large long-term care corporation Symphonia. Symphonia was started in 2003 after a merger and consisted of eight care centers with a total of approximately 900 professionals. The name referred to their mission to organize care reliably and honest. Symphonia upholds "an empowering vision of humanity", in which care practices should fit to demands of clients—not vice versa: "To preserve your cultural individuality, your values and norms, your faith and outlook on life; these are clear starting points". For its professionals, key values were: professionalism, commitment and authenticity, i.e. a personal touch. The two wards offered ward-assisted living and nursing home care.

Case 2 is called Two Riverlands, a home care organization founded in 1996. Two Riverlands now belongs to a larger organization called the The King's Horse Group (KHG). The King's Horse Group started in 2000 as a corporation and consisted of two nursing homes, two care hotels and a home care division. In total, KHG employed about 177 care professionals. The division Two Riverlands provided not only general home care but also convalescent care, specialized nursing and palliative care; at home or in the vicinity. Services were aimed to support clients to live at home and independent as long as possible given their condition on a daily basis. Their client population was diverse and included elderly as well as young clients with disability or severe diseases (including CVA, COPD, and Dementia/Alzheimers disease). The organizational vision was represented in four key words: liberty/independence, quality, professionalism and responsibility for the whole care product (het 'totaalprodukt'). For professionals, the key words were: justice and good fellowship. Two Riverlands operated in small, stable teams. Two Riverlands also operated in so called 'care hotels' owned by the Kings Horse Group.

Case 3 is named Team Orangecounty: a home care team which belonged to a larger corporation for elderly care called FITS. FITS had about 1800 professionals providing care for 2000 clients. FITS started in 2010 after a merger of two foundations and comprised

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13. To explore the case selection we compared the three cases with the rest of the organizations in FPP. Since our goal is to study the cases in-depth, rather than to develop generalizable findings, we do not present results for these explorations. However, these results are available in additional file 15.

ten long-term care centers, mainly located in a large city in the north of the Netherlands. The name FITS referred to their ambition to provide appropriate and pleasant care. The organizational vision was directed at providing care to enable "that people grow old in a comfortable way". Key words in this organization were "respect, good care and good atmosphere; to which we would entrust our own parents". Team Orangecounty provided housekeeping assistance, personal nursing, and/or medical care. The home care services were organized in small teams in a district. Team Orangecounty consisted of about 15 professionals supervised by a district nurse. In addition, from a pool of temporary staff, people were hired occasionally.

### Variables

Let us introduce the variables based on the NPS-data on fall indicators.

*Outcome indicators*. Three variables for outcomes were used, 1) the percentage of clients with a fall, 2) the percentage of clients with multiple falls and 3) the percentage of clients with injuries in consequence of the fall incident. Each of these items could be scored either 'yes' (1) or 'no' (0). For 1) and 2) we computed the percentage by dividing the number of positive scores (1) over the total number of clients in a ward. For 3) the percentage was computed by dividing the number of positive scores (1) over the total number of clients who fell per ward.

*Structure indicators.* A total of 14 structure indicators were included, 7 for the organization as a whole and 7 for the ward level. Each item asked if a specific indicator was in use or in place. This could be answered with either 'yes' (1) or 'no' (0). The positive scores were summed to create a score for each ward. A sum score could range between 0 and 7 for the structures on the organization level and between 0 and 7 for the structures on the ward level.

*Process indicators.* The data collection form included 11 specific fall preventive measures, which could be used for each given client. We made a selection of eight most common measures based on the data analysis. Each of these items could be scored either 'yes: in use' (1) or 'no: not in use' (0). As before, we computed the percentage of clients using a specific measure by dividing the number of positive scores (1) over the total number of clients in a ward. Based on the percentages we calculated sum scores differentiating between two different groups of clients. First we construed a sum score for fall preventive measures of the clients, who fell in the past month. Secondly, we computed a sum score for fall preventive measures of the other clients, who did not fall in the past month. The former includes mainly secondary prevention, i.e. prevention after an incident has occurred. The latter includes mainly primary prevention, i.e. proactive prevention in clients who did not fall but are deemed prone to certain forms of risk. Each fall preventive measure is now briefly described:

*Adaptation of medication*: evaluating, altering and/or monitoring medication use and effects.

*Physiotherapy*: personal physical training to strengthen and improve the muscles and motoric capacities.

*Supportive devices*: distributing, adapting or maintenance of devices, such as walking sticks, wheelchairs, or other walking aids.

*Changing the daily program:* this fall preventive measure entails the analysis of the daily routines of a client and adapting of activities, for example rescheduling physiotherapy appointments are from morning to afternoon or vice versa, but also altering daily habits, such as sleeping behavior, timing of lavatory visits, or regular visits by a caretakers or nurses.

*Supervision*: making sure that staff keeps an eye on a client or a group of clients, making sure that there is at least one member of staff available in a room or ward location.

*Changes in the environment*: these may include removal and / or replacing furniture or objects, for example loose carpets or instable chairs, or standing in the way; but also changes may entail installing aids, such as heightened toilet seats, a shower commode chair, grip grab rails on walls, threshold ramps, and so on.

*Alarm systems*: these may include installation of alarm mats, sensors in the clients' quarters, alarm buttons or wearable beeper system.

*Individual solutions*: these may include instructions for the client on how to get out of bed, or new habits on how and where to store objects, or advice on when and how to ask for assistance, but also agreements with caretakers to assist or keep an eye on certain risk aspects or to undertake certain activities to enhance walking capacities, and so on.

Next, we describe the measurement instrument for sustainability as experienced by professionals (see also Chapter 3).

*Routinization*. Three subscales were construed to assess routinization. Routinization I: Principle forming Practice (5 items, Cronbach's alpha =0.84) asks for the extent to which by now everybody knows how to perform the new work practice. Routinization II (3 items; Cronbach's alpha =0.80) asks if there are variations in practice and if the practices have led to new variations in the principles. Routinization III (4 items; Cronbach's alpha =0.71) represents the role of feedback on performance of the work practice.

Institutionalization. We construed a subscale for each of the proposed four subdimensions of institutionalization. Institutionalization of Skills (8 items; Cronbach's alpha =0.78): this subscale centers on cultivating and evaluating required skills. Institutionalization of Documentation Materials (9 items; Cronbach's alpha =0.81), this subscale as-

sesses availability and use of documentation materials for the work practice. These could include both care-related documentation, like protocols or guidelines, and manuals for medical / diagnostic tests or manuals for organizational processes. Institutionalization of Practical Materials (7 items; Cronbach's alpha =0.91): this subscale assesses availability and use of materials such as medical instruments, diagnostic tests, as well as organizational instruments, such as work timetables or information systems for individual care plans. Institutionalization of Team Reflection (5 items; Cronbach's alpha =0.89): this subscale focuses on the formalized evaluation practices amongst professionals in operational teams.

For each subscale a sum score was computed.

## Analyses

The first part of the data analysis centered on the overall results for all the organizations in the fall prevention program ($N_{T0} = 66$). We started with the analysis of the developments between the three measurement points, T0(2007), T1(2008) and T2(2009), in this group. Next, we compared these results with the non-participating organizations in the rest of NPS. Because the data structures lacked overlap between the three measurement points, we investigated the developments across the three measurement points with descriptive statistics. We tested for differences between the two groups at each measuring moment with nonparametric tests, either Mann Whitney's U test or Kolmogorov-Smirnov Z test if the sample size was small. All tests were performed two-sided, with Exact significance values.

The second part of the data analysis, centered on the three cases, which were studied one by one with descriptive statistics for the outcome, structure and process indicators. In addition, for each organization we explored the scores on the seven sustainability scales.

In the course of the research the authors kept informal contact with the contact persons to verify the information in the data and to gather additional information on the project. In addition, we sought information on the websites of the organizations. These conversations as well as the extra information sources were used to enhance the analysis. For reason of brevity, we offer a selection of the results. More results are provided in Additional files 9-16. All data analyses were executed with SPSS 17.0.

## 6.3 RESULTS

### Part I. Analysis of the fall prevention program

We commenced our analyses by studying the organizations in the fall prevention project. This section consists of two parts: 1) the analyses of the outcome indicators, and 2) the analyses of structure- and process indicators.

Three outcomes were reported: percentage of clients who fell in the past month, percentage of clients with multiple falls and the percentage of clients with injuries as a result of the fall, see Table 6–1. Where relevant, we have pointed to statistical tests concerning the comparison with the other organizations in NPS.

The results show that the organizations in FPP initially reported several serious problems in the outcomes; see Figure 6–1 to 6–6. Moreover, there appeared to be larger variation of fall rates between wards in organizations in the FPP, compared to other nonparticipating organizations in NPS. In the FPP, the three outcomes revealed positive improvements. Finally at T2, the improved outcomes were sustained. As such the improvements in FPP have yielded positive and sustainable results. Moreover, they were comparable to the other organizations in NPS and the variation between wards has decreased.

Next, we described the sustainability of work practices for fall prevention with the structure and process indicator data, see Table 6–1. Again we started by analyzing the organizations in FPP. From T0 to T1, the use of structures for fall prevention clearly increased both on the organizational and on the ward level. Moreover, the structures were maintained in the follow-up measurement at the follow-up in T2. In comparison, it appeared that the organizations in FPP had installed more structures for fall prevention. This is a remarkable finding given the initial problems with falling. However, the statistical results show that no significant differences between FPP and NPS were seen at T0 or at T1; only at T2 organizations in FPP have significantly more structures.

In FPP, changes in the organizational routines are visible in the use of fall preventive measures, which also changes both during the program and afterwards; see Figure 6–7 and 6–8. Most changes were seen in clients who have experienced a fall recently, for this group the use of fall preventive measures decreased between T0 and T1; see Table 6–2. At T2 the use of fall preventive measures for 'fallers' has decreased even more. Considering the clients who did not fall, the results show an increase in the use of fall preventive measures in FPP, indicating increased attention for primary prevention. However, at T2 the use of preventive measures for primary prevention has reverted to the initial level. In comparison with NPS, at T0 no significant differences were seen in the fall preventive measures, neither for clients who fell (secondary prevention) nor for clients who have not fallen (primary prevention). At T1, in FPP significantly more fall preventive measures were used compared to other, nonparticipating organizations in NPS (seeing both variables). Finally, at T2, the differences have diminished: the use of fall preventive measures is leveled with the other organizations in NPS. Across the three measurement moments, the most common measures used in FPP were: supporting devices, supervision and the use of alarm systems, and physiotherapy. Other

less common fall preventive measures were changes in the medication and changes in the environment, such as installation of grips in bathrooms for example. At T0, fall prevention in FPP seems less diverse in comparison with NPS and especially the use of supporting devices is rather popular. At T1, the percentage of clients without a preventive measure has dropped, indicating that by then most clients are subject to some form of fall preventive measures. The use of fall preventive measures was increased for almost all kinds of measures. At the same time a decrease was seen in the use of supportive devices. At T2, even more clients received fall preventive measures. The use of measures was fairly similar to T1. Hence, at T2 the use of fall preventive measures appears partially sustained.

To summarize, on the level of work practices, the results suggest increased attention for primary prevention: more fall preventive measures were provided to clients who did not fall. Moreover, at T1 and T2 most clients were subject to some kind of fall preventive measure and the use of fall preventive measures has become more diverse. Two aspects of these results are important to reflect upon in relation to sustainability. At the first place, it appears that in FPP other decisions are made as to what measure to apply to what client. Interestingly, this is also accompanied by a reduction in use of fall preventive measures. Improving prevention thus does not imply more measures are needed: rather the routines allow more tailored and diverse use of fall preventive measures. These changes reflect increased attention for client centeredness. Secondly, we observed that the institutionalization of fall prevention is a development in the whole organizational field and yields increasingly similar results as well as practices for prevention in the different organizations both in the program and outside in the rest of NPS.

**Table 6–1** Outcome, structure and process indicators for fall prevention[a]

| | | FPP | | | NPS | | | Test statistics | | Effect size |
|---|---|---|---|---|---|---|---|---|---|---|
| | | n | M | SD | n | M | SD | Stat | Exact sign | r |
| *Outcome indicators* | | | | | | | | | | |
| % Clients with fall incident in the past month | T0 | 66 | 16.6 | 9.6 | 127 | 10.0 | 8.8 | 2395 | 0.00 | -0.35 |
| | T1 | 52 | 11.2 | 8.1 | 241 | 9.2 | 7.3 | 5245 | 0.66 | -0.11 |
| | T2 | 22 | 10.0 | 9.2 | 405 | 8.9 | 7.6 | 1.03 | 0.18 | 0.08 |
| % Clients with multiple falls (for the clients with fall incident) | T0 | 65 | 49.9 | 39.4 | 7 | 21.8 | 27 | 0.91 | 0.22 | 0.11 |
| | T1 | 46 | 40 | 38.1 | 202 | 35.1 | 35.2 | 4336 | 0.47 | -0.05 |
| | T2 | 17 | 46.7 | 39.1 | 321 | 67.7 | 35.9 | 1.44 | 0.01 | 0.13 |
| % Clients with injuries after the fall | T0 | 65 | 31.6 | 32.5 | 7 | 35.9 | 18.1 | 0.88 | 0.24 | 0.10 |
| | T1 | 46 | 21.7 | 29.1 | 195 | 34.5 | 36.5 | 3638 | 0.04 | -.013 |
| | T2 | 17 | 25.0 | 39.3 | 314 | 36.4 | 36.3 | 1.31 | 0.03 | 0.12 |
| *Structure indicators* | | | | | | | | | | |
| Organizational level | T0 | 66 | 2.7 | 1.7 | 11 | 2.2 | 1.1 | 0.56 | 0.42 | 0.06 |
| | T1 | 56 | 4.6 | 2.2 | 254 | 4.1 | 2.1 | 6485 | 0.28 | -0.06 |
| | T2 | 22 | 4.4 | 2.1 | 403 | 2.7 | 0.9 | 2.13 | 0.00 | 0.17 |
| Ward level | T0 | 35 | 3 | 1.9 | 7 | 4.1 | 2.2 | 0.83 | 0.19 | 0.13 |
| | T1 | 56 | 5.6 | 1.6 | 255 | 5.4 | 1.3 | 6217 | 0.12 | -0.09 |
| | T2 | 22 | 5.2 | 1.2 | 400 | 4.9 | 1.2 | 1.07 | 0.02 | 0.08 |
| *Process indicators* | | | | | | | | | | |
| Fall-preventive measures for clients who have fallen | T0 | 65 | 253 | 142 | 7 | 240 | 195 | 0.983 | 0.22 | 0.12 |
| | T1 | 56 | 271 | 153 | 202 | 187 | 104 | 3054 | 0.00 | -0.23 |
| | T2 | 17 | 185 | 79 | 321 | 215 | 118 | 0.78 | 0.41 | 0.07 |
| Fall-preventive measures for clients who did not fall this month | T0 | 57 | 160 | 92 | 9 | 218 | 153 | 0.72 | 0.57 | 0.09 |
| | T1 | 46 | 183 | 106 | 244 | 151 | 67 | 4569 | 0.05 | -0.12 |
| | T2 | 22 | 167 | 74 | 405 | 156 | 76 | 1.22 | 0.08 | 0.10 |

[a] When n in one of the groups was smaller than 25, we used Kolmogorov-Smirnov Z. Else all tests were computed with Mann-Whitney U test. This column thus contains different statistics. In the text medians are reported. For T0, this means that only for fall rate Mann-Whitney U test was used. For T1 all tests were performed with Mann-Whitney U tests. For T2, all tests were executed with Kolmogorov-Smirnov Z tests. All tests concerned two-tailed Exact significance tests.
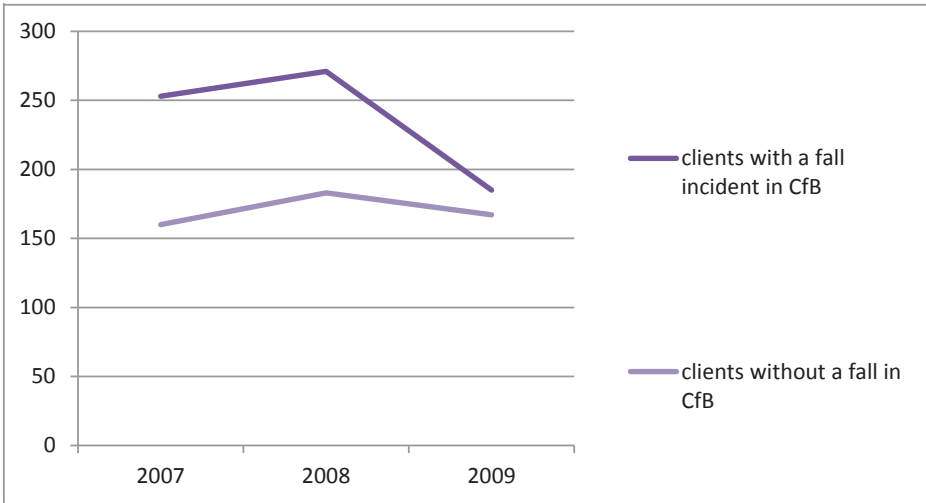
**Figure 6–1** Outcomes in fall incidents in FPP participating organizations
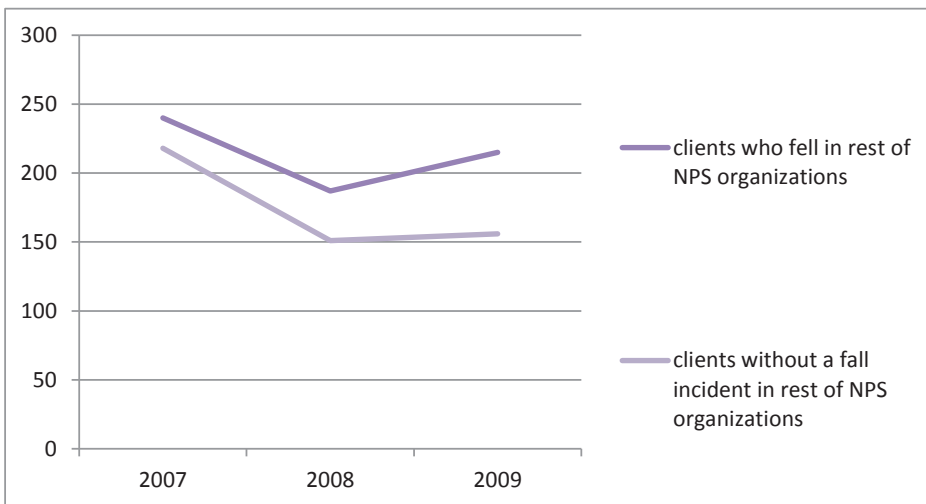


**Figure 6–2** Outcomes in fall incidents in nonparticipating other care organizations
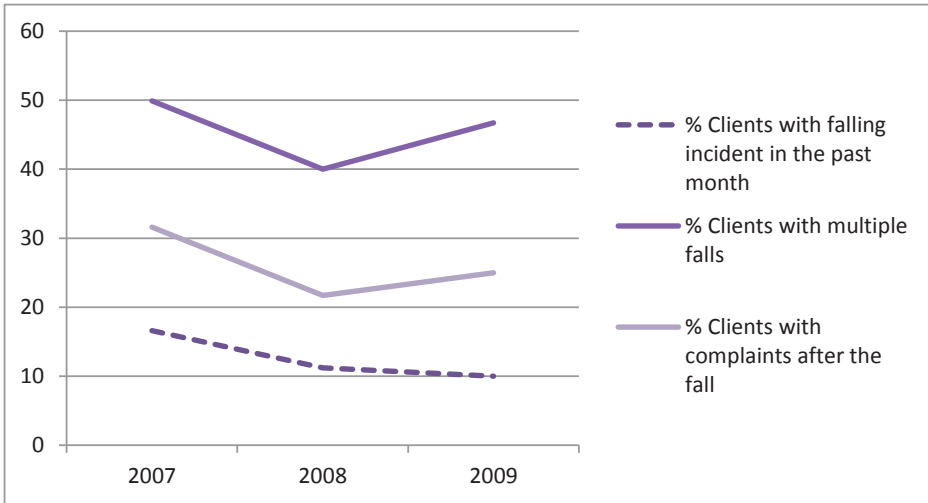
**Figure 6–3** Fall outcome indicators in fall incidents in FPP participating organizations
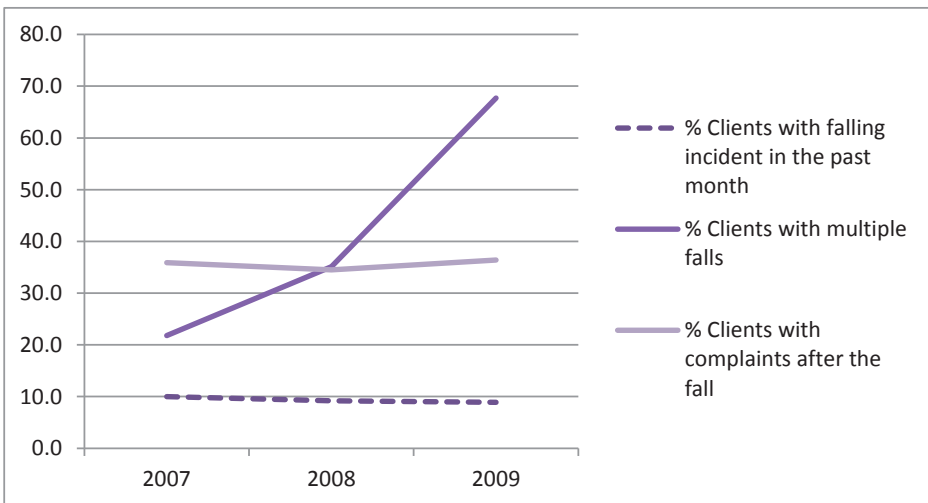


**Figure 6–4** Fall outcome indicators in the rest of NPS over time
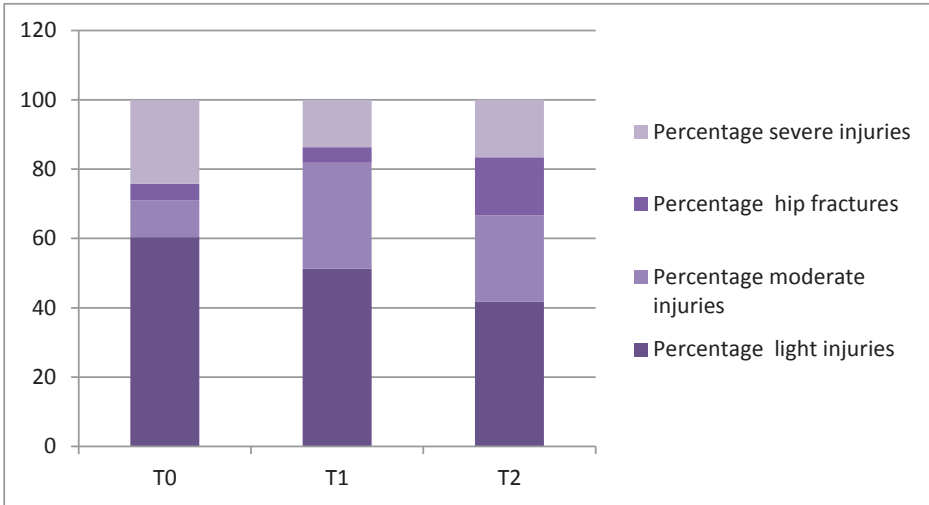
**Figure 6–5** Type of injuries over time in the fall prevention program
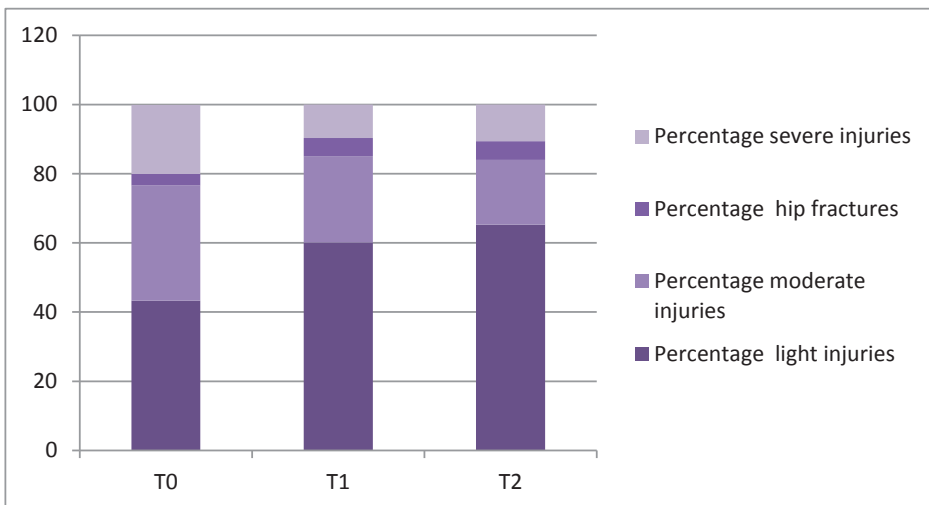


**Figure 6–6** Type of injuries in the rest of NPS
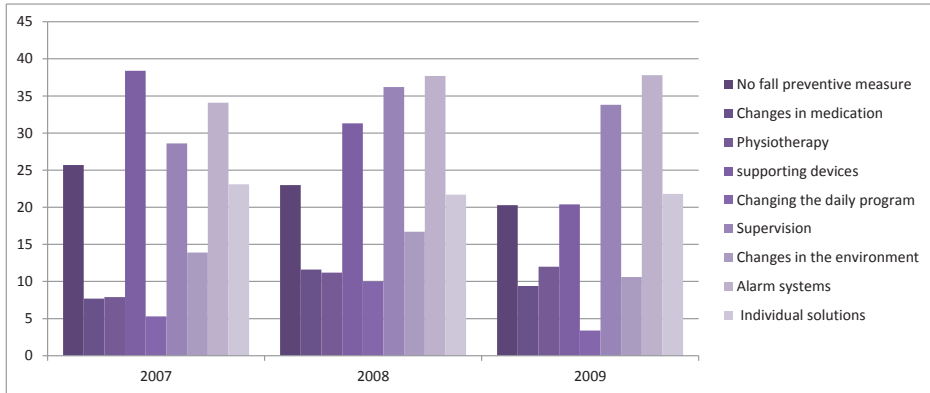
**Figure 6–7** Fall prevention measures in FPP
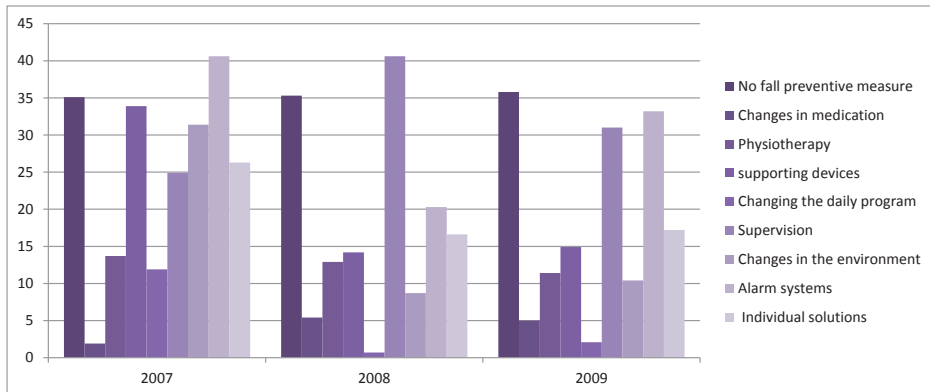


**Figure 6–8** Fall prevention measures in the rest of NPS

**Part II: Analysis of sustainability in the three cases**

In this section, we center on the routinization and institutionalization of work practices in the three cases in relationship with the performance results. Moreover, we explore how these can be related the experiences of professionals with regard to sustainability. The results are listed in Table 6–2 and Table 6–3 and Figures 6–9 to 6–12.

*Case 1: Symphonia Court, a nursing home*

Case 1 in Symphonia Court reveals an example of sustaining change through ongoing improvement. The practices for fall prevention have become embedded and connected to organizational life. This development is first of all visible at the level of outcomes, see Table 6–2. At T0, 16 of the 94 of the clients (17%) had fallen in the past month. Moreover, 8 (50%) of these clients have fallen more than once. The fall caused no injuries in 13 clients, but for three clients it did. For two of these clients the fall even resulted in a hip-fracture. At T1, the end of the program, the percentage of clients who fell in the past month was reduced to about 5%. Still, 50% of the clients who fell tended to fall more than once. The percentage of clients with injuries increased, but the severe injuries appear to have been prevented. The major part (75%) of these injuries was moderate and 25% were light. At T2, no more falls were recorded. Hence, the results seem to have been sustained and even further improvements were seen. We note that this situation is rather unusual given the fact that the client population is fragile and prone to fall.

Considering the structure indicators, we underline the fact that at T0 this organization already had several structures for fall prevention in place. At T1, two changes had occurred: 1) they had started to use an information brochure on fall-related risks for clients and caretakers, and 2) on the ward level, they had begun to systematically assess fall risks for each client. All structures in use have been maintained between T1 and T2.

The main changes consisted of *complementing* and thereby *integrating* the organizational structures for prevention. These changes affected the monitoring, analyses and decision processes of what fall preventive measure to use for each client. It appears that adding the assessment of fall risk in individual clients enabled improved coordination; in particular, it enabled translation of the existing protocol to practice. In the improvement program, a new screening form was introduced for the assessment of risk. Artifacts like these serve the performance of organizational routines: they enable gathering information to guide and to legitimize decisions. For example, think of the decision to remove a carpet from the clients' studio or to prescribe alternative medication. The use of fall preventive measures was strongly reduced between T0 and T1. At T2, no fallers were recorded and thus no measures were reported as well. For clients who did not fall, at T0 no measures were registered – indicating that it was uncommon to apply fall preventive measures for the purpose of primary prevention. Then at T1 this group also received fall preventive measures and at T2, a similar number of fall preventive measures were reported.

**Table 6–2** Fall indicators and sustainability in the three cases

| | | Case 1: Symphonia Court | | Case 2: Two Riverlands | | Case 3: Orangecounty | |
|---|---|---|---|---|---|---|---|
| | | Freq. | % | Freq. | % | Freq. | % |
| *Outcome indicators* | | | | | | | |
| % Clients with fall incident in the past month | T0 | 16/94 | 17% | 4/37 | 11% | 9/67 | 13% |
| | T1 | 4/88 | 5% | 2/25 | 8% | 18/80 | 23% |
| | T2 | 0/94 | 0% | 3/21 | 14% | 19/74 | 26% |
| % Clients with multiple falls (for the clients with fall incident) | T0 | 8/16 | 50% | 0 | 0% | 3/9 | 33% |
| | T1 | 2/4 | 50% | 0 | 0% | 5/18 | 28% |
| | T2 | 0 | 0% | 0 | 0% | 4/19 | 21% |
| % Clients with injuries after the fall | T0 | 3/16 | 19% | 3/4 | 75% | 7/9 | 78% |
| | T1 | 3/4 | 75% | 0 | 0% | 8/18 | 53% |
| | T2 | 0 | 0% | 0 | 0% | 6/19 | 35% |
| *Structure indicators* | | | | | | | |
| Structure indicators on organization level | T0 | 6 | | 6 | | 5 | |
| | T1 | 6 | | 7 | | 6 | |
| | T2 | 6 | | 7 | | 6 | |
| Structure indicators on ward level | T0 | 6 | | 6 | | 0 | |
| | T1 | 6 | | 7 | | 6 | |
| | T2 | 6 | | 6 | | 7 | |
| *Process indicators* | | | | | | | |
| Fall-preventive measures for clients who have fallen | T0 | 281 | | 175 | | 233 | |
| | T1 | 150 | | 200 | | 172 | |
| | T2 | none | | 167 | | 179 | |
| Fall-preventive measures for clients who did not fall this month | T0 | [a] | | 162 | | 196 | |
| | T1 | 163 | | 152 | | 190 | |
| | T2 | 164 | | 139 | | 200 | |

[a] No data available.

**Table 6–3** Sustainability in the three cases measured in care professionals

| | | Case 1: Symphonia Court | | | Case 2: Two Riverlands | | | Case 3: Orangecounty | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Sustainability** | Scale middle | N | M | SD | N | M | SD | N | M | SD |
| I. Principles for routines | 15 | 20 | 15.8 | 2.6 | 12 | 13 | 1.7 | 10 | 13 | 2.2 |
| II. Variation in routines | 9 | 20 | 8.8 | 2.2 | 12 | 7.7 | 1.3 | 11 | 8.7 | 2.3 |
| III. Feedback during performance | 12 | 22 | 9.5 | 2.5 | 12 | 9.3 | 1.3 | 11 | 10.1 | 2.3 |
| I. Skills | 15 | 20 | 17.4 | 2.4 | 10 | 15.5 | 4.1 | 10 | 18.1 | 2.8 |
| II. Documentation Materials | 15 | 19 | 15.1 | 2.5 | 10 | 12.2 | 2.2 | 9 | 12.5 | 2.5 |
| III. Practical Materials | 12 | 19 | 12.7 | 3.4 | 11 | 10.4 | 2.1 | 8 | 11.3 | 2.6 |
| IV. Reflection | 12 | 21 | 13.3 | 2.4 | 10 | 10.9 | 2.8 | 11 | 12.9 | 3.1 |

The use of the individual risk assessment also affected the use of specific fall preventive measures: at T0 it appears that 'one size fits all'–routines are in place, mainly for clients who fell. Especially the use of supportive devices was very common. At T1 several changes were seen. First of all, the use of supporting devices was reduced strongly. This decrease means that a part of the existing routines was stopped (perhaps even *deinstalled?*). Next to this, other preventive measures were used more often, most notably supervision and changes of the environment. The fall preventive measures used at T2 resembled the use at T1, then supervision and adaptations in the environment have gained more importance; this may indicate ongoing improvements.

We interpret these shifts as signifying two developments: 1) there seems to be more attention to client bound vulnerabilities, other than mobility issues 2) there seems to be more awareness about external sources of risk in the organization. This required second order learning processes with regard to fall risk.

The professionals' experiences of the sustainability partially correspond to the findings in the NPS data. To start, Routinization is evaluated positively: both in terms of use of the principles (Routinization I) as well as the development of variation in practice (Routinization II). This confirms with the similarity in fall preventive measures at T1 and T2, meaning the changed organizational routines have survived and professionals were able to develop practical variations. However, the third scale about feedback during performance is scored negatively. Perhaps the need for feedback is lower for practices in which strong prescriptions, for example following from the protocol, are in use and the principles are clear.
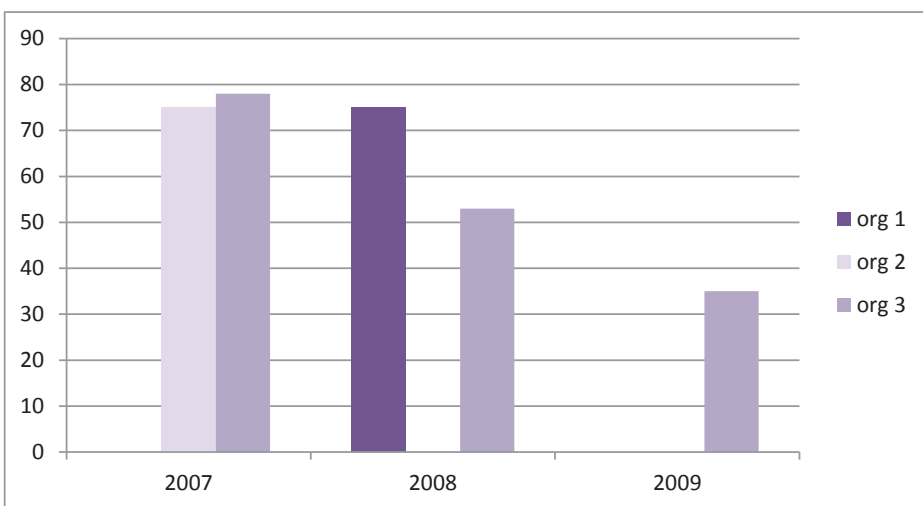


**Figure 6–9** Percentage of clients with injuries after a fall across time

Seeing the supporting conditions, we note that scores are positive but also rather mediocre. This may mean that there is still room for improvement. Alternatively, it may signify that fall prevention is part of everyday organizational life. Looking at the specific dimensions of institutionalization, the Institutionalization of Skills is considered positively and above average. Professionals perceive themselves as professionally adequately equipped to do their jobs. In line with this, documentation and practical materials are also usually available. Also, the perceptions on the availability and use are rather mixed. Some deem everything is in order, others feel that supply of materials is sometimes lacking. Last, not surprising in light of the thorough set of structures for fall prevention, institutionalized reflection is around positive around average. It follows that evaluation practices by now have also been established.

*Case 2: Two Riverlands, specialized home care and a care hotel*
The development of fall prevention in Two Riverlands illustrates decay. Initially, progress in the improvement process was substantiated with clear positive results in relationship with the changed work practices, then partial consolidation followed with mixed results.

At T0, this organization does not seem to have many problems with fall at T0 at the start of the program. The percentage of clients who fell was 11%, which was comparable to the average percentage in the NPS of 13%. A fall in this organization appears incidental and no multiple falls were registered. However, for 75% of clients who fell, the fall incident has resulted in injuries, which, unfortunately, mostly consisted of moderate or severe injuries. In other words, the falls tended to have serious consequences. At T1, the end of the project for only 8% of the clients a fall incident was reported and no multiple falls had occurred. Moreover, the falls had not resulted in any injuries. Then,
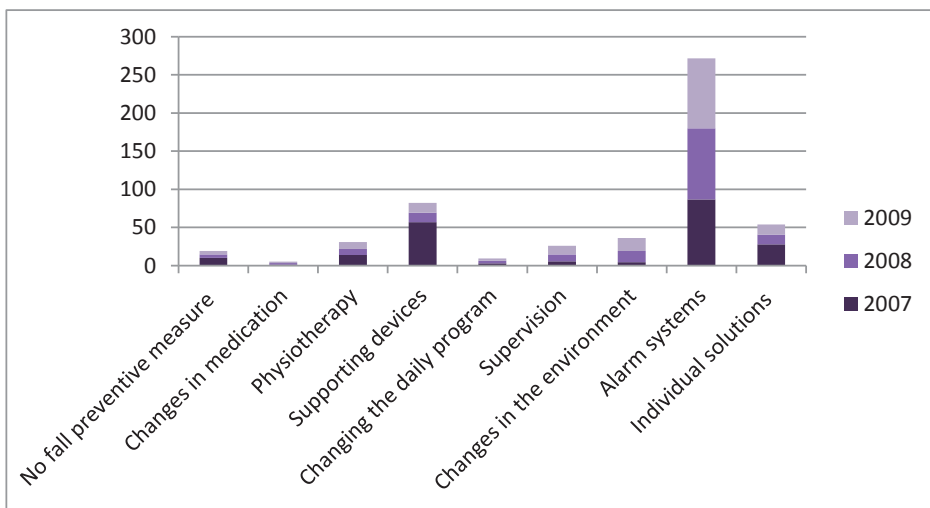


**Figure 6–10** Fall preventive measures in case 1: Symphonia Court

at T2, percentage of clients who fell has relapsed to 14%. Still, no multiple falls were recorded and no injuries. It appears that the positive results have been sustained only partially. These results show that improvement targets can be very different and thus affect different outcomes on the level of clients.

In this organization, several structures were in use at T0, including the individual fall risk assessment of each client. At T1 this organization developed a specific information brochure on falling for its clients. At T2 the structures were maintained. We mention two remarkable aspects of the structures. First, this organization apparently worked on
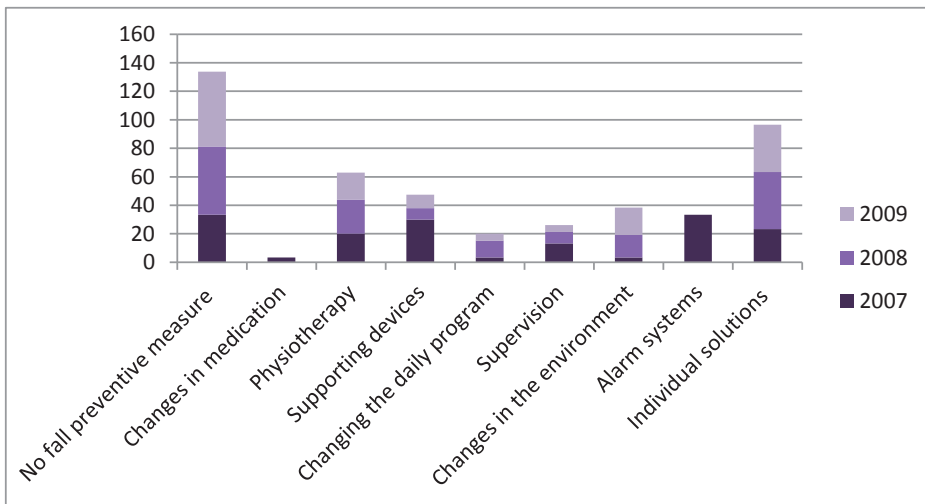


**Figure 6–11** Fall preventive measures in case 2: Two Riverlands
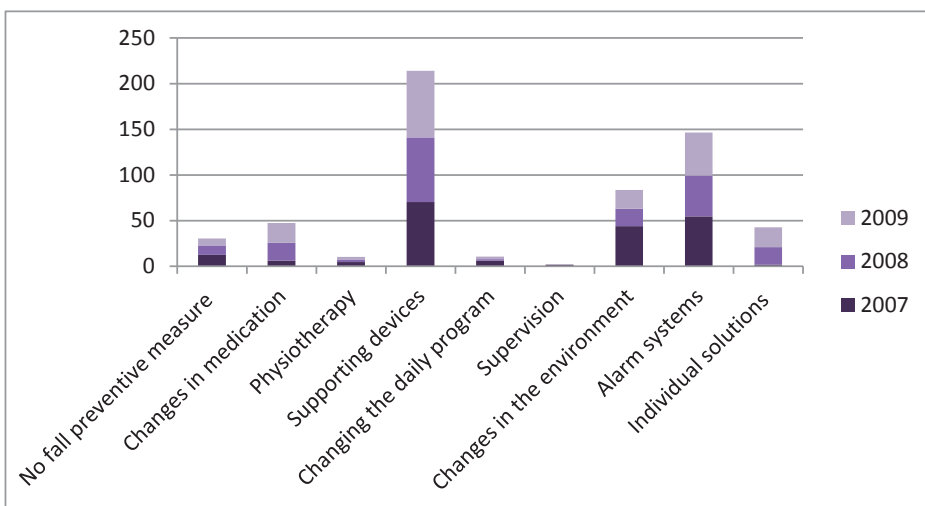


**Figure 6–12** Fall preventive measures in case 3: Orangecounty

better use of existing structures; rather than the development and implementation of new structures. Here too, it seems that existing structures did not guarantee —or necessarily added to— operational effectiveness. Second, the caretakers were not involved; and this was structural across the three measurement points. This difference might have to do with the type of clients: they were rather independent and often only required care for a short period (< year).

For clients who fell, we observed an increase in fall preventive measures from T0 to T1, suggesting a focus on improving secondary prevention in the improvement project. However, at T2, the use of fall preventive measures for clients who fell has dropped back to the initial level. This appears contingent with the relapse in outcomes. In contrast, the use of fall preventive measures for clients who did not fall has remained rather stable, with a slight decrease at T2.

Like elsewhere, a standard combination of fall preventive measures was in use at T0. We also found that many clients, about one third, were not subject to any fall preventive measure at all (this percentage was on average around 10%). Again this might be associated with the type of clients.

At T1, several changes were seen in the fall preventive measures. First, the use of fall preventive measures was cut down; most notably in the use of alarm systems and supporting devices. Second, in contrast to the old combination, now the client was also more involved; and caretakers were contacted albeit only after a fall incident. Third, more diverse options to deal with prevention issues were developed. At T2, it appears that a new standard combination of fall preventive measures was consolidated: individual solutions with the client and or caretakers, supporting devices, changes in the environment, and physiotherapy. Also, changes in the daily program were not part of this new 'recipe' at T2.

The professionals have evaluated the sustainability of the changed work practices rather negative on the whole, seeing the mean scores for the seven dimensions. Presumably, they too have noted the relapse of performance. First, looking at Routinization (in particular I and III), the organizational routines are not deemed to be used to the full nor is fall prevention cultivated in terms of feedback. This was accompanied by rather negative evaluation of the Institutionalization of Documentation Materials, and to a lesser extent, the (availability and use of) Practical Materials. In spite of these, Institutionalization of Skills was evaluated as average. Apparently, the staff was trained and in general the relevant structures were in place, but this does not guarantee the rest: performing the routines. Finally, in contrast with Cases 1 and 3, we also note lower variation in the scores. How can we explain these homogeneous yet mixed perceptions in connection with the slacking performance?

*Case 3: FITS-Team Orangecounty: a home care organization*

Fall prevention seems to have a contradictory history in FITS-Team Orangecounty. While the outcomes continued to deteriorate, achievements were made in avoiding injuries and improving structures and processes. Sustainability in this case thus seems fragile, particularly in terms of routinization. This may be partly due to adverse organizational conditions related to a large merger operation that was finalized in January 2010.

At the start, 13% of the clients fell in the past month and about 33% fell more than once. The majority of the falls lead to physical injuries (78%). While these injuries in general were light (43%) or moderate (28%), in 26% severe injuries occurred. At the end of the project, the number of falls increased to 23%. But, the number of multiple falls was reduced and the injuries have changed notably: no more severe injuries were reported. Then, at T2 the situation remained roughly the same: a relatively high percentage of clients with a fall but at the same time the number of multiple falls decreased. Now, in only 35% of the falls injuries resulted mainly with light injuries. In addition, the number of clients with injuries after a fall incident strongly decreased. In sum, during the project and afterwards, the number of falls has increased, but this organization has improved on preventing injuries (rather than preventing falls). In light of these results, partially sustainable results have been achieved; especially given the fact that since T1 the client population to provide care for was increased by 20% (67 to 80).

In the structures, we found a contrasting situation at T0: while at the organization level several structures were in use, at the team level none of the structures were marked as in place. Moreover, at the organizational level inspection of adherence to the protocol was reported to be lacking. This situation could be typical for home care, where teams operate largely autonomous in the districts and it is more difficult to arrange regulation. At T1 several structures were implemented: the protocol and individual risk assessment; structural attention for fall risk in the different meetings; and the information brochure for clients and caretakers. At T2 both types of structures were sustained. In the team especially the regulation of fall prevention practices was enhanced. Still, there was no reported attention for adherence at the organizational level.

Changes in the fall preventive measures mainly involved the clients who fell. At T0, it is common to provide many fall preventive measures when a client has fallen. At T1 this was cut down. For clients who did not fall the number of fall preventive measures remained constant. At T2, the use of fall preventive measures strongly resembled the level at T1. These results suggest that the work practices were more or less sustained. The specific measures showed that initially prevention largely consisted of the distribution of supporting devices. In other words, the routines were principally aimed at resolving mobility and balance problems with walking aids. Across the three moments, the use of the fall preventive measures did not change radically but some changes were noted. First, overall, less fall preventive measures were prescribed. Secondly, it has become

more common to involve clients, while at T0 arranging individual solutions was rare. This development is accompanied by slight increases in adaptations in medication and in the environment.

The routines seem to have acquired more client centeredness, yet changes also seem rather modest. The pattern of fall preventive might be restricted for practical reasons in home care. In this setting, providing supporting devices is a feasible solution whereas other measures require more effort and coordination with other professionals or caretakers. Moreover, clients live independently and have more autonomy with regard their lifestyle and home compared to nursing home clients. One reason may be that supporting devices are easy to arrange, because their provision is subsidized through external institutional financing structures.

Looking at the sustainability-scores, these are more pronounced than in the other two organizations. On the one hand, we noted that Routinization I and Routinization III were rated rather negatively. This is a sign that the professionals feel that attention to performance of fall prevention routines is lacking. However, feedback could be harder to arrange in home care, since nurses or attendants operate individually and report to the next professional or the district nurse. Moreover, we mention that Team Orangecounty suffered from turnover since both the former project leader and other team members changed position in 2009; and this poses a clear threat for the organizational routine.

On the other hand, Institutionalization received positive average scores. Professionals are quite satisfied with the Institutionalization of Skills, Practical Materials and Team Reflection. This means that the improvements were sustained on the level of these supporting conditions. We note again that the Institutionalization of Practical Materials might have been facilitated because in home care, several materials for fall prevention are already institutionalized. Exceptionally, the Institutionalization of Documentation Materials on the other hand was scored negatively.

## 6.4 DISCUSSION AND CONCLUSION

In this chapter we have investigated sustainability of changed work practices and their results within the organization. In our framework, we described sustainability in terms of routinization and institutionalization. With this framework, three cases were analyzed in the context of a quality improvement program for fall prevention in long-term care. To start, we discuss the developments of sustainability as seen in the three cases. After that, we elaborate on some conditions that may contribute to sustainability based on the analysis of the three cases. Finally, we also reflect on the overall developments in the organizations in the quality improvement program.

### Three stories of sustainability

Seeing the three cases, it is clear that organizing for the sustainability of fall prevention practices involves not only changes in the routines for fall prevention at the work floor, but also in the supporting conditions. This was first of all recognizable in the ongoing improvements in Case 1 Symphonia Court where the sustained changes were also contingent with the performance results in the client outcomes. Moreover, the ongoing improvement was also accompanied by positive perceptions of professionals of the routinization and the institutionalization. Still, the professional evaluation seemed somewhat meager given the positive results. Yin, Quick, Bateman and Marks (1978) described this as part of the final stage of institutionalization 'disappearance': since by then the innovation is no longer considered a novelty and the use is no longer dependent on the presence of the original incumbents.

In contrast Case 2 and Case 3 illustrated improvements which were only partially sustainable. The analysis of Case 2 "Two Riverlands" revealed a classic pattern: improvement followed by immediate decay (Buchanan & Fitzgerald, 2007). Moreover, there is a contrast between the formalized structures, suggesting that everything is well taken care of, with the low outcomes on the operational level, where only improvement is seen in the type of injuries. While some changes were seen in the processes as indicated by the preventive measures, these changes seemed only partially routinized later. In Jepperson's terms, the project was effective as a temporary collective mobilization, i.e. "intended action to intervene in a historical process to secure the persistence of social order" (Jepperson, 1991), which yielded the development of new/alternative routines. But it did not yield stable routine reproduction processes, i.e. recurrence of patterns (routines) is still dependent on collective mobilization. This means that institutionalization is lacking and further collective action is needed to (re)develop and maintain the changed practices in the organization. However, because already many structures and processes are common in use and the remains sediment in the organization, the decay is perhaps less easy to take notice of in this setting.

In Case 3 a different story unfolded: sustainability was lacking probably because of several adverse organizational conditions. Seeing the results, it seems that the project in Team Orangecounty served the clarification and formalization of fall prevention in the team. Through this exercise, the practices in Team Orangecounty have been aligned with the regulatory processes in the organization FITS. At the same time the outcomes have not improved but deteriorated; and at the level of actual fall preventive measures changes were rather modest. The lacking of sustainability was thus most visible at the level of the primary routines. Two organizational conditions are particularly likely to have affected this situation: the high turnover in the team and the increased workload of serving more clients. In addition, there are practical reasons why prevention practices are limited related to the setting of home care with teams operating autonomously in the

districts. In such a setting monitoring can be difficult to arrange and practices can easily become de-coupled. Next to this 'isolation' on the work floor level, there is a second kind of isolation that may have affected the sustainability: isolation of the project. The project can be seen as a form of 'isolated mobilization': the improvement efforts were, and remained, confined to the team level. And it is likely that the adverse organizational conditions have increased this isolation. This isolation of the project entails vulnerability for decay or lacking of sustainability, since the reproduction of routines also depends on a embedding in and reinforcement at other levels in the organization (Jepperson, 1991).

### Organizing for sustainability: contributing conditions

Seeing the three cases, there are several aspects which have contributed to the sustainability.

Firstly, <u>building on foundations</u>: on a structural level we have seen that already many structures were in place. In terms of institutionalization also the majority of professionals is already acquainted with these structures. Hence, the importance of fall prevention is already recognized, disciplined and enacted in the organizational routines and is part of the professional identities (Brown & Lewis, 2011). The improvement project thus builds on existing foundations in micro level of the actors.

Secondly, sustainability is related to the <u>complementarity of structures</u> for fall prevention. For example, the newly introduced individual fall risk assessment complemented the existing structures in Case 1. As a procedure, it guides and enable to translate the idea of risk management, and the rules formulated for this in the guideline, to practice both in the interaction between client and professional, as well as in the interaction amongst professionals in monitoring fall problems in a ward or the organization as a whole. This procedure thus serves the connection of routines within micro spheres as well as between the micro to meso level (Nickelsen, 2008; Røvik, 1996).

Thirdly, <u>materials appear to be key for both routinization and institutionalization</u>. To put it simple: some materials are easier to sustain than others. When multiple actors are in play, workability of a routine is affected by the usability of the pertaining materials for its different users. Nickelsen (2008) argued the need to attend to this theme in institutional theory. He showed how specific aspects of the rubber material influenced the design process of the production routines via different actors, including the technical designers as well as production managers. Similarly, in long-term care, Bal and Stoopendaal (2013) explored the situated role of materiality in a quality improvements for eating and drinking. They illustrated how the use of serving dishes was also sustained because they activated the old routines of clients, thereby enhancing sustainability in clients. In our analyses the role of materials was also apparent and the changes in the practice for fall prevention were well suited to become sustained since they *merely required further translation of already materialized ideas*. As Czarniawska and Sevon wrote:

*Planned changes are often sets of ideas which never materialize; whereas materialized ideas go down like avalanches, with almost no resistance, especially if they acquire the form of complicated machinery.* (p. 20)

For example, in the individual fall risk assessment procedure which was mediated by a *form* that guided the attention of professionals for certain risks. This form was also used by very different users and it served to connect structures. Thereby it facilitated permeability of boundaries in the organization (Kerosuo, 2006) between the operational level and other, for instance, regulatory processes. In addition, we saw that the provision of fall preventive measures shifted from 'one size fits all' approach to a more client centered use. While beforehand supporting devices and alarm systems were the most commonly used measures in combination with physiotherapy, later alternative solutions are applied more frequent. These material aspects require different routines of professionals and clients; and they reframe what constitutes fall risk as well as the identity of clients. The increased attention for the environment of clients requires keeping an eye on material aspects, such as the presence of warning signs on wet floors. Also, materials are connected to processes outside the ward and the organization, since they need to be provided on a regular basis. Examples are rules and processes concerning subsidizing and financial structures for providing fall preventive measures, which are created by insurers and policymakers; this is also a source of sustainability. In light of this theme of external linkages, we continue the discussion with the results on the level of the improvement program as a whole.

### Sustaining changes across the field? ´If the boot fits… ´

Was fall prevention sustainably changed in the field of long-term care? The overall findings suggest this is the case seeing the development of isomorphism in fall prevention. First of all, the organizations in the fall prevention program achieved positive developments in the outcomes which also were sustained. Furthermore, across the three measurement moments the variation decreased. This can be denoted as normative isomorphism of results (Pollitt, 2001). This development is also visible in the regression to a mean in the reported fall rates in the National Monitor for Healthcare (Maastricht University, 2011). In other words, it appears that a new normative code for acceptable fall rates was established. Secondly this isomorphism of results was accompanied by isomorphism on the level of work practices, which has been illustrated both in the structures and the fall preventive measures, where variation between wards decreased. Third, variation decreased within the program as well as outside in the other organizations in NPS.

This isomorphism can be explained in terms of logic of appropriateness of the means and ends for fall prevention (Scott & Meyer, 1994). The theme of fall prevention was

easily theorized (Lounsbury & Crumley, 2007). In this sense, fall prevention is sustained through the logic of appropriateness: values for prevention fit to other values and masterideas with regard to rationalization (Lounsbury & Crumley, 2007; Scheuer & Scheuer, 2008; Scott & Meyer, 1994) which in healthcare entail for example: patient safety, quality of care, client autonomy and wellbeing, but also managerial values related to financial aspects, such as cost containment and efficiency. From a professional perspective fall prevention is a rather ´clear´ problem and most professionals will agree on the need to prevent a fall incident—the norms are already shared. In addition, the solutions to reduce fall risk are also produced with rational instruments that limit room for interpretation and this may aid sustainability on at the operational level. However, the clarity of a practice is not to be considered absolute: the values may be not so clear if they are considered in relation to other risks, norms and values (Benn & Dunphy, 2007).

In a similar vein, Røvik (1996) explained that mechanisms of fashion are important drivers for organizational change. In the course of the improvement program, it appears that fall prevention became fashionable in long-term care. One indication for this was the fact that this program did not have any problems with attracting participants. Moreover, the importance of fall prevention has also been stressed by influential —macro level— actors. First, in 2004 the Dutch association for clinical geriatricians revised a guideline for fall prevention, which gradually disseminated to most long-term care organizations. Next, in 2005 the Dutch government and the main professional associations for long-term care defined so called 'norms for responsible care' and their statement also explicitly addressed fall prevention. Then later in 2006 fall prevention was proposed as a theme in the quality collaborative for long-term care. The fashion of fall prevention in long-term care also was spread through the inclusion of fall prevention in the National Problem Survey in 2007. All these developments yielded external pressures as well as the construction of institutional structures and processes, which are external sources of sustainability, enhancing or restricting sustainability within the organization. Admittedly, this chapter can only sketch some of the contours of system level changes based on this design. More insight in the macro level developments in the sector as well as in more specific context conditions is required to further explain how external sustainability and the relationships with the wider institutional context affect transition of the health system. Here lies a task for future research with for example extensive case study designs. In line with these questions, we underscore the need to attend more to multiplicity of change: parallel and sequential projects, quality improvements as part of movements for organizational change over years, instead of centering on the evaluation of single improvement efforts.

# Chapter 7

# Construing improvement capacity profiles for improvement teams. On early birds and late bloomers

## ABSTRACT

*Background*. Variation in the effectiveness of quality improvement efforts in healthcare can be explained by paying attention to context factors related to improvement capacity. However, insight in the interplay between various context factors is still lacking. In this study, we propose the use of latent class analysis (LCA) to develop profiles of improvement teams based on variables related to team level improvement capacity. The study explores the relationships between team profiles and long-term effects related to sustainability, spread and continuous improvement.

*Methods*. This study centered on a Dutch quality collaborative improvement program for long-term care (N=147 teams). At the end of the quality improvement projects, questionnaire data were collected on several variables related to team level improvement capacity. One year or more after the projects, questionnaire data were collected on sustainability, spread and continuous improvement (N=63 teams).

*Results.* The LCA modeling revealed three clusters: 1) 'Middle Course Improvers', teams with moderate scores; 2) 'Strong Focus Improvers', i.e. teams with substantially higher ratings of factors for improvement capacity; and 3) 'Low Capacity Improvers', teams with a weaker scores. Next, exploratory analyses revealed differences between the three clusters in long-term effects. For sustainability, Strong Focus Improvers scored relatively high on Routinization (development of organizational routines) while no differences were seen in Institutionalization (creation of supporting conditions). Looking at Spread, Low Capacity Improvers scored notably lower than the other two clusters. Finally, the Strong Focus Improvers prevailed with regard to Continuous Improvement.

*Conclusions*. Looking at team level context factors, it is possible to differentiate improvement teams in terms of improvement capacity to understand variation in effectiveness. Moreover, differences between the clusters also appear to resonate in the long-term effects; most notably in the spread within the organization. LCA can be usefully applied in the study of quality improvement in healthcare.

## 7.1 BACKGROUND

Major points of discussion in many evaluation studies concern the unexpected and rather mixed results of quality improvement in healthcare. What is more, the effectiveness of quality improvement efforts tends to vary substantially across what seem to be more or less similar settings (Alexander & Hearld, 2011; Kaplan et al., 2010). Variation in quality improvement effectiveness is commonly attributed to the intervention itself in combination with 'context factors' (Kaplan, Froehle, Cassedy, Provost, & Margolis, 2012). Context factors that are most directly associated with the improvement process have been described with different concepts, including: improvement capacity (Alexander & Hearld, 2011), change process capability (Solberg, Asche, Margolis, & Whitebird, 2008), improvement climate and capability (Benn, Burnett, Parand, Pinto, & Vincent, 2012), quality improvement maturity (Joly, Booth, Mittal, & Shaler, 2012), and core implementation components (Fixsen, Blase, Naoom, & Wallace, 2009). Aside from these exceptions, context factors are typically undertheorized (Kaplan et al., 2010; Kaplan et al., 2012). One reason for this is that evaluation studies usually center on the measurement of outcomes to make results visible; hence they are not necessarily designed to operationalize context (Øvretveit et al., 2011). Moreover, there appear to be large differences in the attention paid to context factors in evaluation research depending on the quality theme targeted. For example, attention for context factors is relatively common in evaluations of computer physician order entry and computer decision support systems while in evaluations for more clinical interventions, such as prevention of catheter-related bloodstream infections context factors are rarely taken into account (ibid.). As a result, there is much unknown about the interplay through which context factors may affect processes of developing, implementing and sustaining changes in healthcare (Alexander & Hearld, 2011). In response to these shortcomings, this study was designed to gain insight in the interplay between context factors in relationship with long-term effects of quality improvement with a theory-based evaluation research.

### Improvement capacity: specific team level context factors

Kaplan et al. have defined context as 'anything not part of the technical quality improvement process that includes the quality improvement methods themselves and the clinical interventions' (2010, p. 502). Context factors can include many different aspects in the organization, such as quality improvement team functioning, team climate, management for change, as well as aspects outside the organization, for example policy developments, market competition, technological advances, etc. (Alexander & Hearld, 2011; Kaplan et al., 2010; Kaplan et al., 2012; Øvretveit & Klazinga, 2012). Typically these refer to the organizational level, which in healthcare, as in other organizations, involves a structure of departments and/ or locations consisting of wards. However, in

many cases quality improvement work is carried out by temporary teams which create and implement interventions locally, in a location or even in just one (pilot) ward (Mittman, 2004; Parand, Benn, Burnet, Pinto, & Vincent, 2012; Rubenstein, Mittman, Yano, & Mulrow, 2000). Hence, an important part of the 'improvement capacity' is expressed at the level of quality improvement teams (Buchanan, Fitzgerald, & Ketley, 2007, p. 10). In this paper we describe context factors with the term 'improvement capacity' which we define as '*the interplay of context factors which enable or restrain the improvement process and specifically affect the performance potential of an improvement team during the improvement process*'.

The term improvement capacity corresponds to "local program implementation factors" (Benn et al., 2012): these are factors, that stir the specific development of a climate and capabilities for a quality theme. We emphasize that these are distinct from "organizational readiness" (Burnett et al., 2010), because organizational readiness refers to *preconditions* for quality improvement *at the organization level*: such as tension for change, leadership style and commitment to quality, consistency with existing goals; sound management processes and meeting government targets; organizational stability; past history of successful change; and culture and environment for improvement work (ibid.). What is more, a study by Benn and colleagues (2012) revealed that factors related to improvement capacity played a significant role whereas factors related to preconditions and organizational characteristics had only small measurable effects (Benn et al., 2012). The importance of local factors is also affirmed by Kaplan et al. (2012) who mention similar factors: availability of resources, team leadership, team skills, micro-level motivation, micro-level improvement culture and capability. A review by Alexander and Hearld (2011) yielded similar findings yet centered predominantly on the organizational level. This study also demonstrated that the evidence is not consistent across studies for some factors: the direction of an effect may be positive in one case and negative in another, and some factors appeared not to contribute at all or even to impede implementation. Seeing these studies, we note two problems that triggered our study: 1) while the interplay is discussed, context factors are mostly investigated one by one, rather than address their interplay, and 2) there is a tendency to center on the organizational level, which is rather large in scope given the specific situated character of improvement projects.

The first aim of this study is to investigate the interplay between team level context factors by developing profiles for improvement teams, because a profile could provide an integrated view. Related to this, the second aim is then to explore how the team profiles for improvement capacity are associated with long-term effects of quality improvement. We attend to three kinds of long-term effects, which relate to common targets in quality improvement: 1) to sustain results and changed working methods, 2)

to spread new working methods within the organization, and 3) to strengthen continuous improvement.

## Long-term effects of context factors on quality improvement

In general the main target in any improvement effort is to achieve sustainable gains (Stetler, Ritchie, Rycroft-Malone, Schultz, & Charns, 2009). However, our theoretical understanding of sustainability in care practices is still in its infancy and long-term effectiveness is often not assessed in evaluation studies (Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004; Wiltsey Stirman, 2012). Paradoxically, the definition of sustainability is often confined to an end-phase in the quality improvement process, (cf. Alexander & Hearld, 2011; Fixsen et al., 2009), while at the same time it seems to be a dynamic condition. For example, Alexander and Hearld focus on adoption, implementation and sustainability. Similarly, Fixsen et al. describe six functional stages of implementation: exploration, installation, initial implementation, full implementation, innovation, and sustainability. These different stages are associated dynamically and each stage may affect the others in various ways (ibid.). Moreover, sustainability also includes resilience and the capacity to deal with setbacks and backsliding: sustainability is "not only the survival of project-related changes but also the continued effectiveness and capacity to adapt or replace interventions or programs within contexts that continuously change" (Fixsen, Naoom, Blase, & Friedman, 2005 in: Sobo et al. 2008). This definition also fit into the much called for transition toward a more sustainable health systems.

This dynamic character was a starting point for our previously developed framework, in which we distinguish two dimensions in the improvement process that are related to sustainability: 1) routinization, which refers to the development of new or changed organizational routines related to a quality theme and 2) institutionalization, which refers to the development of the supporting conditions for those routines (Slaghuis, Strating, Bal, & Nieboer, 2011). We hypothesize that the improvement capacity is positively associated with subsequent sustainability conceived in these two dimensions.

Aside from sustainability, a second goal in most quality improvement efforts is the spread of quality improvements to other departments within the organization. Spread requires different actions aside from developing and implementing interventions (Greenhalgh et al., 2004): it also requires attending to stakeholders and the organizational context in a broader sense; outside the context of an initial pilot project (Slaghuis, Strating, Bal, & Nieboer, 2013). It might be helpful to distinguish spread from sustainability when studying quality improvement at the local level. For one, clearly one can sustain a new working method in one ward but this does not imply its spread to another. In this study we explore to what extent improvement capacity is positively associated with subsequent spread within the organization.

Thirdly, many quality improvement programs aim to increase the capacity for improving. According to Høvlid et al. (2012) healthcare organizations "learn, create, and share knowledge about evidence-based practices and the system issues that facilitate or inhibit the learning processes" in quality improvement efforts (Crites et al., 2009 cited in Hovlid et al. 2012). Ford II et al. (2011) have shown that commitment to and the use of quality tools but also the continued use of improvement methods serves not only implementation but also sustainability. As Høvlid et al. suggested, continuous improvement strengthens *the connection of learning cycles* within the organization to achieve awareness and insight in the system issues and thereby enable shared understanding to grow. Continuous improvement is, first of all, seen when after a project further changes and adjustments are developed. Secondly, continuous improvement is associated with transfer of 'ownership' of the quality theme from the improvement team to other actors; creating structural responsibilities. Thirdly, continuous improvement entails that quality tools and methods are applied to other quality themes.

### Research questions and design

Two main research questions in this study are:

1. What team profiles can be identified and how can we describe the interplay of team context level factors for improvement capacity for each profile?
2. How are the team profiles related to subsequent sustainability, spread and continuous improvement?

In a nutshell, this study aims to explore the interplay between team level context factors related to improvement capacity in connection with long-term effects of quality improvements. To this end, this study applies latent cluster analysis (LCA) to classify improvement teams in a Dutch quality improvement program for long-term care. When the teams are classified into clusters based on the team level context variables, we can label these and develop a profile for each cluster. Next we explore potential differences between the clusters in the long-term effects.

LCA is a data reduction technique that models the variation (heterogeneity) in a population by sorting subjects into sub populations (clusters) based on the variance in a given set of variables (Lanza, 2007; Morin, Morizot, Boudrias, & Madore, 2011; Wang & Hanges, 2011). LCA is not new in healthcare. However, it is mostly used to classify individuals and mainly centered on client predispositions or behaviors, indicators for quality of life, patterns of health service use and satisfaction, and clinical / treatment characteristics. To our knowledge LCA has not been applied in the context of evaluation of quality improvements. Creating profiles with LCA seems a suited way to investigate the interplay between context factors.

Following Morin et al. (2011) we will include some covariates for an optimal classification of the teams: commitment for quality improvement in the organization, motivation

and the availability of quality systems. These were postulated in the evaluation research framework for the 'Care for Better' program (Strating, Zuiderent-Jerak, Nieboer, & Bal, 2008) which was based on the framework from Cretin, Shortell and Keeler (2004); see Chapter 1. We chose these three variables because they are likely to facilitate improvement capacity at the organizational level.

## 7.2 METHODS

### Setting

The quality improvement program 'Care for Better' ran between 2006 and 2012. It was open to a wide range of care organizations, such as nursing homes, elderly homes, home care and care for disabled. Improvement projects concerned the following themes: Pressure Ulcers Prevention, Eating and Drinking, Prevention of Sexual Abuse, Medication Safety, Problem Behavior, Fall Prevention, and Client Autonomy. The projects on a given theme were organized in respective sub programs, which were set up identically and deployed the same improvement methods. A description of 'Care for Better' and the evaluation research are provided by Strating et al. (2008; 2011).

### Design and data collection

The study is based on a prospective design. First data were collected at the end of a project (T1) to assess several aspects of the improvement capacity with a questionnaire. Data were collected in 146 improvement teams (N=379 persons; project leaders and team members). Second, after the projects ended (T2) follow-up data were collected with a questionnaire to evaluate sustainability, spread and continuous improvement. Only teams in projects that had been completed more than twelve months ago (counting back from May 2009) were invited to complete the T2-questionnaire. After data cleaning, the T2 follow-up data included 63 teams with 112 respondents. Reasons for not participating were predominantly related to high employee turnover. Others did not participate owing to lack of time, reorganization or other adverse organizational conditions.

### Measurement instruments

*Variables for long-term effectiveness*. In the follow-up study (T2) we assessed sustainability, spread and continuous improvement. The scale for sustainability consisted of two scales: Routinization and Institutionalization. This scale was based on a theoretical model for sustainability (Slaghuis et al., 2011). Spread was measured with four scales (Slaghuis et al., 2013): Effective Spread of the Results; Effective Spread of the Work practice; Action for Spread of Results; and Action for Spread of the Work practice. Continuous improvement was assessed with three scales: Use of improvement methods

(in general); Ownership of responsibility; and Continued Improvement (on the initial quality target). The scales concerning Continuous Improvement after the project had not been validated yet. For this reason, a full list of the items is included in additional file 17; more information on the psychometric properties is available upon request.

*Variables for improvement capacity.* The following variables were included as part of improvement capacity: project effectiveness, team skills, team leader strategy, management support and resources, plans for sustainability and plans for spread. Project Effectiveness was measured in individual team members using a scale developed by Lemieux-Charles, Murray and Baker et al. (2002).The Team Skills scale was based on the Group Innovation Inventory developed by Caldwell and O'Reilly (2003). The scales for Sustainability plans, Spread plans and Board Support and Resources were created by Dückers and colleagues (Dückers & Wagner, 2007; Wagner, et al., 1999). Team Leader strategy was assessed with a scale from the ICICE team work survey (Cretin, et al., 2004; Shortell & Peck, 2006).

*Variables for organizational context*. Several variables served to assess the organizational context: quality improvement motivation, quality improvement commitment, and the use of quality systems (collected at T1). To operationalize Motivation we used a scale translated by Lemmens et al. (2009) based on Expectance-Valence theory (Lin et al., 2005). Commitment was operationalized with a scale from the ICICE team work survey (Cretin, et al., 2004; Shortell & Peck, 2006). Finally, the Assessment Chronic Illness Care (ACIC) instrument measured presence of several quality systems: the delivery system design, decision support systems, and clinical information systems (Bonomi, et al., 2002).

Additional file 18 and 19 offer an overview of all variables. When possible, validated measurement instruments were used. The internal consistency of all scales used ranged between sufficient to excellent (Cronbach's α 0.58–0.93). To create team scores we summated the item scores and computed an aggregated mean score per team.

## Data analysis

We computed latent cluster models with the following variables: Project effectiveness, Team Skills, Sustainability plans, Spread plans, Board Support & Resources (abbreviated to Board Support), and Team Leader Strategy. We started with exploratory modeling to determine the number of clusters (2-5) using model comparisons. The goodness of fit of each model was evaluated with indices including -2Log Likelihood ratio, Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC), and the classification error (Lanza, Flaherty, & Collins, 2003). The likelihood ratio (-2Log Likelihood ratio) expresses the degree of agreement between the predicted and the observed data structure. The lower the likelihood ratio, the more the model fits to the data structure. The AIC and the BIC are log likelihood statistics that take the number of parameters

into account and the sample size—hence these also attend to parsimony of the model. Lower values for AIC and BIC signal better goodness of fit. Finally the classification error indicates uncertainty in the clustering of individual subjects/elements. The higher the classification error, the more risk exists that individual elements are wrongly specified as pertaining to a specific cluster. For model comparison we estimated -2LL difference tests based on bootstrapped solutions (Magidson & Vermunt, 2004). If the difference in likelihood ratio is significant in a $x^2$-difference test, then the additional parameters in the more complicated model are needed to achieve adequate model fit (Lanza et al., 2003). Last, we fitted a final model with covariates to strengthen the model fit and to reduce the classification error. For brevity we report only the main findings of the LCA modeling. More information about the LCA modeling is available in the additional file 20. Based on the final model, we interpreted cluster profiles by comparing the cluster means and in light of the scale (midpoint).

The second step in the analysis consisted of exploring potential differences between the clusters in Sustainability, Spread and Continuous Improvement at T2. To this end, we calculated Kruskal Wallis tests with the cluster grouping variable as an independent variable and the T2-variables as dependent variables (significance level $\alpha=0.05$).

The analyses were performed with SPSS 19.0 and LatentGOLD®, version 4.5.0.12256.

## 7.3 RESULTS

### Sample
In the T1–sample, 71% (270/379) of the respondents were team members; 29% (109/379) were project leaders. Their age ranged from 23 to 64 years (mean=45; SD=9); about 20% (77) of the sample was male. In the T2–sample, 58% were team members and 42% were project leaders. Age ranged from 19 to 62 years (mean=45; SD=9); about 30% (77) of the sample was male. Respondents from the T1-sample had worked longer in the organization (most over 10 years), than respondents from the T2-sample (majority between 6 and 10 years), *F(1,42)=6.87, p<0.01*. Management staff was represented somewhat stronger in the T2-sample (41%) compared to the T1-sample (35%), *X²(7)=23.23, p<0.01*. Mean working hours per week did not differ between the two samples. Finally, all projects were represented at T2, although the number of teams varied somewhat across projects, *X²(6)=19.62, p<0.01*.

### Analysis step 1: Latent cluster modeling
The latent cluster modeling revealed that a three cluster model yielded the best model fit. The pertaining fit indices were *-2LL =-2077, BIC=4343, AIC=4230, NPar=38, Classification error=0.07;* an overview of the LCA modeling results is available in Supplementary file 3. To compare the model fit with alternative models, -2LL difference tests

with bootstrapped solutions were calculated: to compare the three and the two cluster model, *-2LLdif= 117, p< 0.0001, s.e< 0.0001*; and to compare the four with the three cluster model*, -2LLdiff =27, p=0.18, s.e = 0.02*. Both comparisons showed that the three cluster solution yielded the best model fit. To this model, we added the covariates. Modeling with covariates demonstrated that only Quality Improvement Commitment contributed significantly to the model fit: Employee involvement (*Wald = 8.2, p=0.02*), HR utilization (*Wald=7.7, p=0.02*) and General Involvement (*Wald=1.4, p<0.001*). The pertaining fit indices of the final model were: *-2LL=-2058, BIC=4335, AIC=4204, NPar=44, Classification error =0.05*. Based on this final model the improvement teams were classified into the three clusters.

In Table 7–1, the specific statistical results for each cluster are presented. The final model yielded one larger cluster with 90 teams (cluster probability = 61%) and two smaller clusters, cluster 2 consisted of 30 team (cluster probability = 20%) and cluster 3 consisted of 27 teams (cluster probability = 19%). The $R^2$ coefficients revealed that each variable contributed significantly to the model. However, there were two variables, Plans for Sustainability and Plans for Spread, which contributed only moderately to LCA modeling.

Next, we interpreted the results so as to label each cluster and develop a cluster profile, see Table 7–2 and Figure 7–1. In Cluster 1, the teams appeared to score rather mixed: positive for project effectiveness and team leader strategy, but average for team skills and board support, while sustainability and spread plans were rated just below the middle of the scale. This cluster can be denoted as the "Middle Course Improvers" since most of their attention and quality appears to lie in their action for the project. Teams in Cluster 2, on the other hand, can be described as "Strong Focus Improvers". In this cluster, the improvement teams generally scored above average in all variables. These teams appear to have both the project and the supporting context in place. Moreover, these teams in general also scored higher than the teams in Cluster 1 and Cluster 3 on the LCA model variables. Finally, in cluster 3 we find teams with notably lower scores on most of the variables in comparison with the other clusters. Seeing the scale middles we noted that there are in particular negative scores for Team Skills and Board Support. This cluster can be considered "Low Capacity Improvers" as the project appears to have been done under somewhat meager conditions.

### Analysis step 2: Exploratory analyses of long-term effects in the clusters

The second step in the analysis involved exploring the relationships between the clusters and the T2 variables for sustainability, spread and improvement practices. First, we explore the variables for each cluster (see Table 7–3 for descriptive statistics). To end, we present the results for statistical tests for differences between the clusters.

**Table 7–1** LCA results for the three cluster model for each improvement capacity variable at T1[a,b]

| Model Variables | R² | Cluster 1 Mean | Cluster 2 Mean | Cluster 3 Mean | Total Mean | Range | Midpoint | SD | n |
|---|---|---|---|---|---|---|---|---|---|
| Project effectiveness | 0.48*** | 26.6 | 29.3 | 21.6 | 26.2 | 15-33 | 21 | 3.6 | 143 |
| Team skills | 0.56*** | 31.3 | 35.1 | 24.3 | 30.7 | 9-39 | 30 | 4.6 | 143 |
| Sustainability plans | 0.20** | 49.6 | 60.2 | 48.9 | 51.7 | 23-75 | 55 | 9.9 | 95 |
| Spread plans | 0.14* | 7.7 | 10.8 | 7.6 | 8.4 | 3-18 | 9 | 3.4 | 89 |
| Board support | 0.39*** | 38.2 | 49.3 | 30.6 | 39.0 | 15-65 | 40 | 9.4 | 144 |
| Team leader strategy | 0.55*** | 22.8 | 24.7 | 18.0 | 22.3 | 12-30 | 15 | 2.9 | 126 |

[a] Theoretical range and midpoint for each scale.

[b] The R²-coefficient indicates the contribution of that variable to the common variance explained by the LCA model. The significance level of R² is represented with an asterisk: * $p<0.005$; ** $p<0.001$; *** $p<0.0001$

**Figure 7–1** Cluster profile plot based on z-scores for the improvement capacity variables at T1.
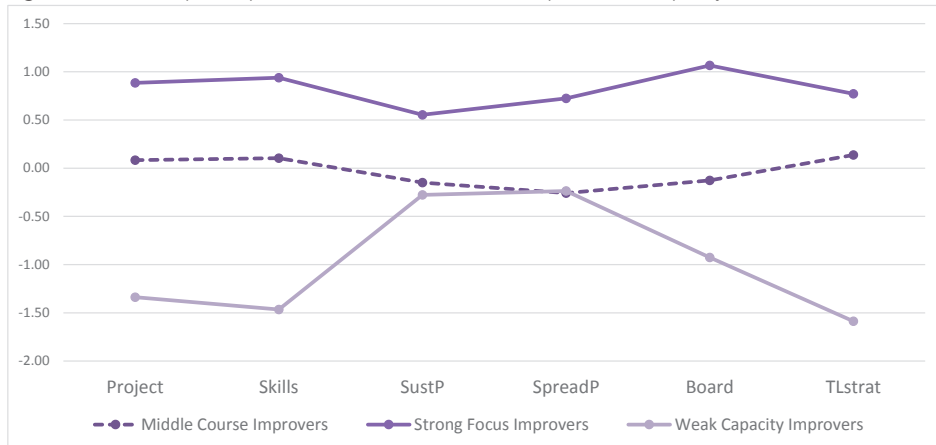


Legend of Figure 7–1. Cluster 1 = Middle Course Improvers. Cluster 2 = Strong Focus Improvers; Cluster 3 = Low Capacity Improvers. Figure 7–1 variables: Project = Project Effectiveness, Skills = Team Skills, SustP = Sustainability plans, SpreadP = Spread plans, Board = Board Support and Resources, TLstrat = Team Leader Strategy.

*Cluster 1 Middle Course Improvers.* The teams from this cluster evaluated sustainability positively and above the scale middles average. But at the same time, the within cluster variation (see SD) was relatively large for both Routinization and Institutionalization. The scores for Spread ranged between positive and neutral values. On the one hand, Spread of the work Practice and Action for Spread of Results were assessed positively. On the other hand, Spread of Results and Action for Spread of the Work Practice received rather neutral scores. The three variables for Continuous Improvement were also rated

**Table 7–2** Descriptive statistics for Sustainability, Spread and Continuous Improvement at T2[a]

|  |  | Mid-point | Cluster 1 | Cluster 2 | Cluster 3 | Grand mean | p [b] |
|---|---|---|---|---|---|---|---|
| *Sustainability* |  |  |  |  |  |  |  |
|  | M | 39 | 43.7 | 47.5 | 42.2 | 44.2 | 0.02 |
| Routinization | n |  | 39 | 11 | 9 | 59 |  |
|  | SD |  | 6.2 | 3.3 | 2.5 | 5.6 |  |
|  | M | 54 | 60.7 | 66.0 | 63.3 | 62.1 | 0.13 |
| Institutionalization | n |  | 37 | 11 | 8 | 56 |  |
|  | SD |  | 8.9 | 4.4 | 6.6 | 8.1 |  |
| *Spread* |  |  |  |  |  |  |  |
|  | M | 18 | 17.0 | 19.3 | 15.6 | 17.2 | 0.04 |
| Effective Spread of the Results | n |  | 37 | 11 | 8 | 56 |  |
|  | SD |  | 3.3 | 1.5 | 5.9 | 3.6 |  |
|  | M | 15 | 18.1 | 21.5 | 14.8 | 18.2 | 0.03 |
| Effective Spread of the Work practice | n |  | 34 | 10 | 8 | 52 |  |
|  | SD |  | 4.3 | 1.7 | 7.0 | 4.8 |  |
|  | M | 12 | 15.0 | 16.1 | 12.9 | 14.9 | 0.10 |
| Action for Spread of Results | n |  | 40 | 11 | 8 | 59 |  |
|  | SD |  | 1.9 | 0.8 | 4.7 | 2.5 |  |
|  | M | 9 | 9.4 | 10.7 | 7.2 | 9.3 | 0.02 |
| Action for Spread of the Work practice | n |  | 39 | 11 | 8 | 58 |  |
|  | SD |  | 2.2 | 1.2 | 3.2 | 2.4 |  |
| *Continuous Improvement* |  |  |  |  |  |  |  |
|  | M | 21 | 23.8 | 26.7 | 24.5 | 24.4 | 0.03 |
| Use of improvement methods | n |  | 40 | 11 | 8 | 59 |  |
|  | SD |  | 3.7 | 2.3 | 1.7 | 3.4 |  |
|  | M | 15 | 15.0 | 16.8 | 14.7 | 15.3 | 0.05 |
| Continued improvements | n |  | 40 | 12 | 10 | 62 |  |
|  | SD |  | 2.2 | 2.2 | 3.1 | 2.4 |  |
|  | M | 15 | 15.0 | 16.1 | 12.9 | 14.9 | 0.05 |
| Ownership of responsibility | n |  | 41 | 12 | 10 | 63 |  |
|  | SD |  | 2.8 | 4.1 | 3.5 | 3.3 |  |

[a] The p-values for the Kruskal-Wallis tests for differences between the three clusters.

rather neutral. All in all, these scores indicate satisfaction with regard to sustainability and more mixed views on Spread and Continuous Improvement.

*Cluster 2 Strong Focus Improvers*. In general in this cluster positive sentiments prevailed on most T2 variables and in general these teams scored higher than the Middle Course Improvers and the Low Capacity Improvers. Moreover, the general pattern of results resembles the results in the Middle Course Improvers. Sustainability was evaluated

**Figure 7–2** Cluster profile plot based on z-scores for the long-term effectiveness variables at T2



Legend of Figure 7–2 variables: Cluster 1 = Middle Course Improvers, Cluster 2 = Strong Focus Improvers, Cluster 3 = Low Capacity Improvers. Rout = Routinization, Inst = Institutionalization, Spread Res = Effective Spread of Results, Spread WP = Effective Spread of the Work Practices, Spread Act Res = Actions for Spread of Results, Spread Act WP = Actions for Spread of the Work Practices, Imp Meth = Use of Improvement Methods, Cont Imp = Continuous improvement, Own = Ownership.

positive. For Spread, only Spread of the work Practice and Action for Spread of Results were assessed positively. Seeing the variables for Continuous Improvement we observed that Use of Improvement Methods was rated positive in contrast with the other clusters.

*Cluster 3 Low Capacity Improvers.* Despite the negative sentiments at T1, in this cluster also sustainability was rated positively in light of the scale middle. However, looking at the spread variables the teams were negative to neutral. In combination with this, the teams are somewhat positive about their Continued Use of Improvement Methods and about Continuous Improvements. On the other hand, questions concerning Ownership, i.e. handing over responsibilities to other actors, were answered negative. All in all, these results suggest that they are still working on the initial improvement targets one year after the projects have ended.

To end, we tested for differences between the clusters in the long-term effects (see Table 7–2 and Figure 7–2). With regard to sustainability, significant differences were seen between the clusters with regard to Routinization. The Strong Focus Improvers score highest and the Low Capacity Improvers scored lowest. No significant differences were found for Institutionalization. This appears to be a rather counterintuitive finding. At the same time, we noted that there was relatively large variation between teams with regard to Institutionalization, in particular in the Middle Course Improvers. This signals that after the improvement project and the implementation some organizations wrap up, while others continue and invest extensively in the creation and maintenance of

related supporting conditions. Next, the scores on the Spread variables measured at T2 differed significantly between the clusters, with the exception of Action for Spread of Results. The Low Capacity Improvers scored low in all four variables for spread. Also the other clusters scored more or less comparable. Finally, looking at Continuous Improvement at T2, the three clusters differed significantly for each of the three variables. Again the scores in the Strong Focus Improvers exceeded the scores in the other two clusters, most notably with regard to the variable for Use of Improvement Methods.

## 7.4 DISCUSSION

In this chapter we have investigated the interplay between several aspects of improvement capacity. To this end, we construed team profiles based on LCA modeling of team level context factors in improvement teams in a quality collaborative program for long-term care. First, three clusters of improvement teams were identified based on a set of variables related to team level context factors. Secondly, we explored how the clusters and the team profiles were associated with later sustainability, spread and continuous improvement. In the theoretical discussion we will expand on the following themes. To start, we highlight the main characteristics of the team profiles for each cluster. Next, we explore how the team profiles appear to be projected on long-term effects. Recognizing the exploratory nature of this study, we confine ourselves to some tentative interpretations. After the theoretical discussion, we will reflect on the methodology. Finally, we provide directions for future research and health policy implications.

### Team profiles for improvement capacity
The first phase of the LCA modeling revealed three clusters which differentiated the improvement teams in terms of improvement capacity: 'Middle Course Improvers', 'Strong Focus Improvers' and 'Low Capacity Improvers'. The Middle Course Improvers comprised the majority of the improvement teams (about 60%) and the other clusters each consisted of a smaller proportion (about 20%). The fact that Strong Focus Improvers, i.e. high performing teams, could be distinguished in the latent cluster analysis is important. These teams appeared to have developed both interventions and the relevant team level context factors contingently during the project. A closer look revealed that their skills, team leader strategy and the support and resources from the organization were rated substantially higher in comparison with the Middle Course Improvers. In contrast, the cluster of Low Capacity improvers comprised teams that scored notably lower in project effectiveness, team skills, board support, and team leader strategy. Also, this cluster scored predominantly lower than the scale middles, which indicates rather negative sentiments. In contrast, the other two clusters were positive on many aspects.

### Long-term effects in the three clusters

The second step of the analyses concerned the relationships between the clusters and long-term effects. The Middle Course Improvers were more or less satisfied with the Sustainability as well as with the Spread within the organization. With regard to Continuous Improvement, there was room for improvement seeing the rather neutral evaluations. We also noted that there was a lot of variation in Sustainability within this cluster. While in some cases sustainability was lacking, in others all kinds of efforts are undertaken to achieve sustainability. This might have to do with a down-side of project based quality improvement: when a project has a low status of importance and is undertaken *"at the margins of mainstream activities",* then it risks "*simply being tolerated or ignored until they go away by coming to an end"* (Dixon-Woods, McNicol, & Martin, 2012 p. 880) and in consequence sustainability and alignment with the organization might be neglected (Bovenkamp, de Mul, Quartz, Weggelaar-Jansen, & Bal, 2014). Such lack of strategic alignment is a negative mark of "projectification": the phenomenon that modern organizations increasingly operate in temporary structures (Bergman, Gunnarson, & Räisänen, 2013)[14].

The second cluster, the Strong Focus Improvers stood out both in improvement capacity and in long terms effects. In this cluster positive sentiments prevailed with regard to the three long-term effects, in particular in Routinization, Effective Spread to other departments and the three variables related to Continuous Improvement. In other words, these teams have managed to sustain and continue improving on the targeted quality theme. What is more, they are applying the improvement methods in new quality improvement efforts. This profile corresponds with some of the aspects that top hospitals have been reported to use to cultivate sustainability, such as monitoring and maintaining attention for the quality theme (Webster et al., 2008).

Next, we consider the long-term effects for the weak capacity improvers. What is striking in this cluster is the low evaluation of Spread within the organization. Aside from this, the differences between the weak improvers and the steady improvers seemed to be less pronounced in the follow-up data looking at sustainability and continuous improvement. One exception regards the low scores in the Ownership variable, which suggest that these teams might still be working on the quality theme or even have prolonged the project. Together these findings may be taken as a sign that some of the weak improvers are 'catching up' with the other two clusters. In some of these teams, a weak start was made in the project followed by an incubation time after which a more thorough strategy was developed and implemented: this can be seen as a '*late bloomer'*

14. There are also advantages of projectification one could argue. A certain level of projectification can also be necessary for organizations to become better in quality improvement, since many improvement routines are part of projects. This does requires substantial and new forms of strategic alignment though.

effect. We note that such development is entirely in line with the initial aim of many quality improvement collaboratives to invite experimenting with improvements through pilot projects (Mittman, 2004). There is some support for this explanation that they are late bloomers based on personal telephone communication with the improvement teams during the data collection, in which some teams shared that they were redesigning the whole project '*now for real*'. In these teams, the project mainly centered on developing and implementing interventions and truly served as a pilot by contributing to the analysis of the quality problem in the organization. In contrast, in the cluster with the Strong Focus Improvers, the project may have served a different function: to finalize and fortify an existing improvement strategy. In these '*early birds*', participation in the quality improvement collaborative program resulted in *consolidation* of the quality strategy in the organization. Both for the early birds and the late bloomers there is a close relationship between the organization, improvement capacity and the improvement process on the long run. Sustainable changes, including all three long-term effects, also presume and require changes in the context (Kirsh, Lawrence, & Aron, 2008); and even the improvement capacity in this sense is created by the organization.

The variation in effectiveness between as well as within groups means that improvement efforts 'succeed' at different moments. Most evaluation studies do not attend to these late or gradual developments because they do not follow-up on the quality improvement effects after programs have ended. Instead, what most studies offer is an evaluation at the end of a project in which low results are likely to be mistaken for failed improvement — where in fact, it might be too early to tell. Are we collectively underestimating the effects of quality improvement work?

### Methodological reflection

To our knowledge, this is the first study to examine team profiles of improvement capacity in healthcare with latent cluster analysis (LCA) techniques in a theory based evaluation research. There are three important advantages of this approach with regard to the study of context factors in quality improvement. For one, latent cluster analysis is suited to deal with variation within a population (Lanza, 2007) – which is exactly what is called for in many evaluation studies emphasizing the need to improve how we handle variation in quality improvement effectiveness. The second advantage is that it is a data reduction technique (ibid.). Using one cluster variable as a predictor is more economical than including a set of variables. The third advantage of using LCA to investigate context factors is that results can be formulated in terms of clusters, in our case on the level of improvement teams. As such, LCA offers actionable results that are easier to share with policymakers, managers or other stakeholders (Morin, Morizot, Boudrias, & Madore, 2011).

Aside from these strengths, we also want to share some critical reflections on the research methodology used in this study. One limitation concerns the follow-up data collection, which yielded a rather low response. In connection with this, it is possible that there is a selection effect, excluding improvement teams and organizations who might be busy with other themes or who were dissatisfied with the program. This could in part explain the small differences between clusters in the follow-up data. Secondly, there are disadvantages of using questionnaires to evaluate long-term effects. These contain predominantly perception based measures and offer mainly subjective information of the improvement teams (Alexander & Hearld, 2011). A next step is to include other measures in the design; for example, structured observation of practices or clinical outcomes. Moreover, consecutive qualitative study of improvement teams could complement the understanding of the team profiles.

## Next steps

As this study has shown, the team profiles based on context factors can be related to long-term effects on sustainability, spread and continuous improvement. What is more, this study revealed that in many organizations long after the project still all sorts of activities were undertaken. What needs to be done to sort these themes further in future research?

First of all, a next step could be to create profiles based on a broader framework (for example also including more aspects related to the micro system, or to the external organizational environment). Recently some commendable frameworks have been developed that describe context factors; cf. Fixsen et al. (2009), Kaplan et al. (2010), Damschröder et al. (2009). These offer powerful startingpoints to investigate the interplay of context factors. Secondly, related to this, LCA modeling could be a helpful technique: not only to identify the main factors and their interplay but also for data reduction. It seems that in evaluation research it is custom to produce lists of relevant factors. We have a chance to reduce these lists with LCAs based on actual statistical evidence. This could also serve to decrease the burden of evaluation research on the participants by shortening questionnaires. Thirdly, we also encourage further exploration of different LCA designs in quality improvement evaluation research. Creating team profiles at the start of a project may contribute to feedback processes and monitoring during quality improvement collaborative programs.

We offer the following recommendations for policy makers and others who may support or govern quality improvement in healthcare. On the first place, we underscore that the evaluation of quality improvement collaborative program should attend to long-term effects. On the second place, further support of ´aftermath processes´ may be provided as such extra effort could contribute to a programs' effectiveness. This research demonstrated the importance of context factors related to improvement capacity. A

question is to what extent quality improvement collaboratives or other initiatives can set demands or even support the development of such improvement capacities, i.e. it could also include facilitating that organizations create a context for improvement (and attending to the quality of the interplay during the improvement process). Furthermore, improvement capacity profiles can be used for formative evaluation purposes since they make strengths and weaknesses visible and based on the profiles more tailored support and monitoring can be provided during a program. Early birds are likely to have different needs compared to late bloomers. Another option would be to design 'exploratory programs' which target pilot projects versus 'professionalization programs' which aim to support consolidation and spread within care organizations.

## 7.5 CONCLUSIONS

In this chapter, we have presented a LCA modeling of improvement teams in a quality collaborative program for long-term care. Two lessons can be learned. Firstly, variation in long-term effects both between and within clusters indicates that interplay of the context matters for the aftermath of the improvement process, which is volatile and dynamic. Secondly, lack of improvement capacity and attention for the interplay between context factors are associated with lack of effectiveness in the long run. These findings also demonstrate the value of extending evaluation research by following up on improvement efforts on the long term: it may reveal unexpected late bloomers.

# A sketch of the dynamics for Sustainability in the Care for Better program. Resonating Results?

## INTRODUCTION

> *"What the results are of 'Care for Better' cannot be stated in one sentence, but depends on what counts as a result and for whom."* (Strating et al., 2011, p. 259)

The improvement projects in the 'Care for Better' program have yielded a variety of results both in the short and in the longer run, as the previous chapters have shown. These chapters generated insights in quality improvement in general. However, it was outside of the scope of these chapters to discuss these results in relation to specific aspects of the 'Care for Better' program[15]. This is precisely the aim of the current chapter.

The leading questions in this chapter are: *how and to what extent have the participating care organizations in the 'Care for Better' improvement projects realized sustainable changes in their care practices? And how can we understand these micro level effects vis-à-vis organizational conditions and developments in the wider environment?*

To answer these questions, I gradually zoom out and review a large part of the findings with regard to the micro-level of changed work practices[16] as part of the organizational context and ultimately to the field level developments. Building on these findings, I will reflect on s*ustainability* in the broader sense, i.e. focus on the effects of the program on a larger scale, as part of developments in the sector of long-term care in the Netherlands. The aim of this exercise is to contextualize the findings as part of the larger, social system of long-term care in the Netherlands.

This chapter has a different character compared to the empirical chapters presented before, because of its broad scope and the variety of data sources used. For these reasons, it is written in essay style in using 'I' as the subject or narrator rather than 'we'. At this stage, my intention is to enhance grip on the findings by applying the theoretical framework at a higher level. Complementary to this chapter, the final Chapter 9 will develop a theoretical discussion of the findings and implications with the aim to advance the theoretical account. Figure 8–1 depicts the main conceptual relationships that will be addressed in this chapter.

The following four questions guided this analysis:

1. To what extent and how have the improvements been sustained?
2. To what extent and how have the improvements been spread within organizations?

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15. Here I draw from the concept 'resonance' from Chia (1999, p.223). Resonance stands for how sounds collide and combine. Sound waves can amplify each other in accord. Sound waves may also block each other, then silence is the result. In the context of QI, resonance may refer to the accumulated effects of mobilization processes. Like sound waves, mobilization processes can strengthen or block each other.

16. This chapter will not offer a comparison between the sub programs. In additional file 22-24 I have included descriptive statistics and comments on a couple of differences and similarities for those who might be interested.

3.  How are local, organizational context factors and/or conditions associated with sustainability and spread of changed work practices at the local level?
4.  How are developments in the wider institutional environment (at the field level) possibly influencing the sustainability and spread of changed work practices at the local level?

This chapter integrates a threefold combination of data. First of all, I shall revisit and extend some of the findings in previous chapters. Secondly, this chapter builds on the findings from a final evaluation report from the iBMG research team on the 'Care for Better' program assigned by ZonMw (iBMG, 2012). The evaluation report is based on data from the follow-up study on sustainability and spread. Aside from that, it also documents other findings about the improvement projects and the program as well as findings concerning phase 2 of the 'Care for Better' program. The current chapter only presents results regarding the processes and activities for sustainability and spread. Thirdly, I will revisit and extend the historical overview of developments in the long-term care sector which was provided in Chapter 1.

## Outline of this chapter

This chapter is divided in two parts. The first part serves to integrate the findings from the previous chapters and thus centers on sustainability and spread of the improvement projects. After this, I investigate how these are associated with the organizational conditions. In the second part, I stepwise explain some of the interplays related to the main findings, zooming out from the project level to the wider institutional environment. The chapter ends with a few concluding remarks.
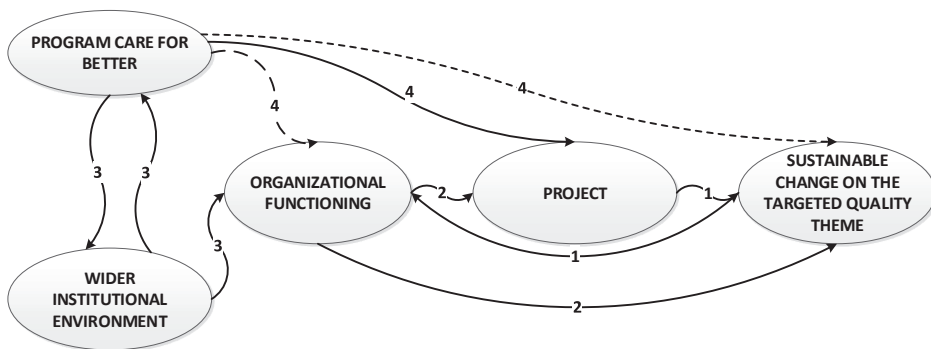


**Figure 8–1** Conceptual relations guiding this Chapter

## 8.1  SUSTAINABILITY AND SPREAD OF THE IMPROVEMENT PROJECTS

To situate the analysis of sustainability and spread in the 'Care for Better' program, I will gather some findings with regard to the initial quality problems in the care organizations and the initial effectiveness of the improvement projects. Then, the question of sustainability is addressed by combining findings from Chapter 2, on the framework for sustainability and the measurement instrument, and from Chapter 6, which centered on sustainability in terms of structure, process and outcomes indicators in the fall prevention projects. After that, I elaborate on the spread of improvement within organizations based on Chapter 4 and Chapter 7.

### 8.1.1 Initial situation and outcomes in the program

Let us review some of the results achieved in the 'Care for Better' program during and at the end of the projects. The initial results were rather positive, both in the progress experienced by improvement teams, as well as in the measured outcomes regarding the quality problems (Strating, Zuiderent-Jerak, Nieboer, & Bal, 2008). Table 8–1 and Figure 8–2 illustrate this, using the results presented by the iBMG evaluation (Strating, Stoopendaal, Zuiderent-Jerak, Nieboer, & Bal, 2009).

Aside from the successes, it was also noted that many organizations did not achieve the goals which were formulated for each project by the program leaders (Strating et al., 2008; Strating, Nieboer, Zuiderent-Jerak, & Bal, 2011). Moreover, success appeared to vary a lot between improvement teams and projects (ibid. Strating & Nieboer, 2013). At end of the first rounds of the program, the iBMG evaluation research reported the observation that only few improvements seemed to take managerial values sufficiently into account, while the majority did not and the researchers were concerned how this would limit the chances for sustainability (Strating et al., 2008).

Moreover, an analysis of the consumers' experiences of quality with indicator data (formally called CQ-indices) revealed that the participating organizations experienced various urgent quality problems (iBMG, 2012). In short, participation could be considered a necessity and there was all the more reason for management to be on board in these projects. The CQ data were collected across the whole care sector in the years 2009 and 2010. The results showed that organizations in the 'Care for Better' program scored substantially lower than other organizations in the field. Particularly low client-satisfaction scores were seen in: experienced professionalism and safety, ambiance, experienced privacy and quality of living spaces, experienced independence and autonomy, personal hygiene and safety in living conditions. In that same period, from 2008 to 2010, a major reform called the 'Care Living Plan' Act was introduced across the whole field to improve client centeredness; see also Figure 8–5 in this chapter for the

**Figure 8–2** Results in the first rounds of the program



Adapted from: Strating et al. 2009.

developments in the sector between 2006 and 2015. During this period, organizations participating in 'Care for Better' have achieved more substantial progress in hospitality and ambiance, while care services in non-participating organizations have deteriorated in these respects. In 2010, the differences with non-participating organizations were reduced and some aspects were scored more positively; for example, the quality of

**Table 8–1** Initial results in the 'Care for Better' improvement sub programs

| Sub program | Results from the projects (taken from Strating et al. 2009) |
|---|---|
| Medication Safety | Average number of counted medication errors reduced from 36 to 10 per month |
| Fall Prevention | Average prevalence of fall incidents reduced from 23% to 8% |
| Eating and Drinking | Average prevalence in malnutrition down from 31% to 24% |
| Problem Behavior | Average of problems in designated clients reduced from 34 to 7 noted problems per client |
| Prevention of Sexual Abuse | Enhanced attitude and competences in professionals; enhanced management, in particular of incidents; rating from 3 to 8 |
| Pressure Ulcers | Average prevalence down from 18% to 10% |
| Client Autonomy | Different targets and measures used for quality of life and client-centeredness; no aggregated results available |

food and ambiance during meals, and respecting personal rights in relationship with the use of restraints. All in all, these findings indicate that, in the eyes of the clients, participating organizations have a lower quality of care to begin with and that they were making substantial improvements in the course of the program. The decrease of these differences across the field may be taken as a sign of isomorphism; various pressures have contributed to this, to which I shall turn in the second part of this chapter.

To summarize, the initial results of the program were positive and in line with the initial targets. While the program ran, the reported quality indices changed from signaling serious quality problems to satisfactory consumer experiences. At this point, we note that these findings only demonstrate contingencies, and that it is not possible to attribute these changes solely to the participation in the program. Simultaneously, several changes were taking place in the field in relationship with various quality issues, such as the introduction of the Care Living Plans, the introduction of performance indicators and a heightened activity of the Healthcare Inspectorate.

### 8.1.2 Sustainability of changed work practices in the improvement projects

Next, I explore the effects of the program in terms of sustainability, using on the sustainability model for changed work practices (Slaghuis, Strating, Bal, & Nieboer, 2011). As explained in Chapter 3 and 4, two dimensions are distinghuished in the sustainability of organizational routines: Routinization and Institutionalization (see Figure 8–3 on next page). Routinization refers to the process in which professionals learn and further adapt the routines by practicing them regularly—in other words, by using a routine, professionals (as well as other actors involved) develop it as well. In contrast, Institutionalization encompasses making sure that the supporting conditions are provided to enable performance of the organizational routine.

To illustrate the model I take a look at a project for 'Eating and Drinking', which focused on prevention of malnutrition and improving ambiance during suppers (Stoopendaal & Bal, 2013). The changed routines were related to setting the table, creating calmness in the ward by changing some other routines (e.g. no medication distribution during supper time), et cetera. For these changes, professionals were trained in how to set the table, and during supper time they take action to protect the calmness in the room. New routines may develop through the experiences and responses of professionals with the new routines. For example, maybe the cook is more inspired, because clients eat with more attention; or the reception desk officer joins in at the table every now and then to help creating a calm ambiance and shares observations; and the responses of clients affect routines like setting the table and seating arrangements to meet their preferences.

Now, all these new routines set demands on every day practices: to make sure they are sustained in a dynamic way, various kinds of changes could be needed in the organizational context. Such as: re-organizing the kitchen design and adjusting places of tools,

finding out ways to discover and document the preferences of clients; buying new materials such as toasters, food trolleys, dishes, decorations, water jugs or weighing scales; teaching staff how to set the table, to introduce a code of conduct for those assisting during dinnertime (no radio on, no entry for external visitors, a moment of silence at the beginning and at the end of a meal, and so on). Both dimensions, Routinization and Institutionalization, need to be attended to create sustainable changes in work practices. Both sets of changes, in routines and in the organizational setting, are thus required to make the 'Eating and Drinking' project effective. Moreover, these changes are heterogeneous, in the sense that they require adapting various aspects: social interactions, individual habits, adjusted materials and new organizational methods in care
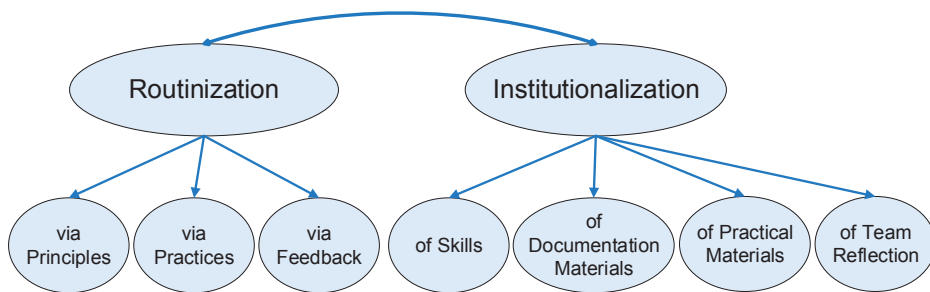


**Figure 8–3** Model for sustainability of changed work practices

**Table 8–2** Sustainability and spread in the 'Care for Better' improvement projects[a][b]

|  | M | n | SD |
|---|---|---|---|
| *Sustainability* |  |  |  |
| Routinization[13] | 55.1 | 85 | 8.9 |
| Institutionalization | 84.9 | 56 | 13.8 |
| *Spread* |  |  |  |
| Spread Activities | 18.1 | 78 | 3.6 |
| Spread Effectiveness | 26.7 | 81 | 5.7 |
| *Context factors* |  |  |  |
| Leadership for the quality improvement project[14] | 16.9 | 93 | 3.6 |
| Leadership at Board level | 18.4 | 68 | 5.0 |
| Leadership for quality improvement capacity in general | 15.5 | 77 | 3.9 |
| Measurement system | 19.9 | 111 | 3.3 |
| Use of Measures | 31.3 | 107 | 4.6 |

[a] Range Leadership 5-25; range Leadership at Board Level 6-30; range Leadership for QI 7- 35; range Measurement system 6-30; range Use of Measures 10-50.
[b] Range Routinization 16-80; range Institutionalization 24–120; range Spread Activities 6-30; range Spread Effectiveness 8-40.

practices. As Stoopendaal and Bal (2013) show, all these changes need to be aligned to make the project successful.

*Positive evaluation of sustainability by former improvement teams*

In general, the former improvement team members were moderately positive about the extent to which the improvements were sustained. This is visible in the overall scores across the program, as well as in the three scales for Routinization (see Table 8–2 and 8–3). To be precise, Routinization here involves: 1) the evolution and the stabilization of the principles in the organizational routines in the changed work practice, 2) the adjustment of the organizational routines given the experiences in practice and the evolution of variations in practice for different situations, and 3) the reflections on the organizational routine becoming more articulate: professionals can give each other feedback and can be critical to themselves about their actions, i.e. they can optimize their own performance in different settings and talk about it.

Moreover, they were also rather satisfied with Institutionalization, which was rated even more positive than Routinization. This means that aspects that are directly related to the organizational routine also have been installed, such as: 1) making sure that the required skills are developed and trained, 2) making useful documentation available and keeping it up to date, making sure that professionals turn to relevant documents in their work, 3) making useful practical materials are available and keeping them in order or replacing these when broken, and 4) organizing formal regular reflection about a work practice (on the practical-operational level as well as on the strategic level).

These results suggest that sustainability in these projects is primarily achieved through Institutionalization. The question is if Routinization is staying behind a bit or not? Making sure that organizational routines are performed frequently is important for their sustainability: when the routines are not practiced, the tacit knowledge, which is required to perform them, may vanish, and then, professionals might be tempted

**Table 8–3** Subscales of sustainability of changed work practices

|  | M | N | SD |
|---|---|---|---|
| Routinization | 55.1 | 85 | 8.9 |
| Institutionalization | 84.9 | 56 | 13.8 |
| Subdimensions |  |  |  |
| Routinization by cultivating principles | 27.1 | 100 | 4.8 |
| Routinization by developing variations in practice | 13.6 | 101 | 2.5 |
| Exchange of feedback in practice | 14.0 | 99 | 2.2 |
| Institutionalization of Skills | 22.5 | 82 | 5.3 |
| Institutionalization of Documents | 25.2 | 92 | 4.4 |
| Institutionalization of practical Materials | 19.1 | 90 | 2.7 |
| Institutionalization of Reflection practices | 16.8 | 102 | 3.6 |

to return to their former routines. Alternatively, the scales for Routinization may be evaluated lower because professionals are accustomed to the new routines and do not consider them as new methods anymore—daily performance has become the common way to operate and is accordingly experienced.

This explanation confirms to the stage model from Yin et al. (1978). In this model, the life history of an innovation starts with improvisation followed by expansion. The final phase is called 'disappearance', which involves:

> *"the completion of the remaining passages and cycles, and the (disappearance – SSS) period was one in which the innovation continued to be used but eventually lost its recognition as an innovation. During this past period, in other words, an innovation achieved the status of standard agency practice."* (Yin, Quick, Bateman, & Marks, 1978, p. 57-58)

In their view, passages and cycles, in which supporting conditions are created or maintenance takes place, are important for institutionalization; both are directly related to the establishment of routine reproduction procedures.

The results from Chapter 7 complement the picture sketched above. This chapter combined data on structure, process and outcome indicators for fall prevention and investigated developments from 2007-2009 across the field. In the starting period of the program, the participating organizations had a relatively high prevalence of fall incidents, which resulted in severe injuries in some clients. Then, in the project, substantial progress was demonstrated in outcomes as well as in the use of preventive measures. The analysis of fall prevention practices also showed that in many organizations the project results were sustained for a period of time. However, the National Care Problem Survey data suggest that a lot of these organizations already had several structures in place to begin with, including the following: education of clients, training clients' mobility, systematically creating a safe environment, and using a protocol. Seeing their initial severe quality problems with fall incidents in combination with these structures, it seems that merely having a structure in place does not guarantee a certain performance on the level of organizational routines. After the projects, daily practices have changed and the use of fall preventive measures has become more diverse, possibly due to increased client centeredness. The changes in care practices and their outcomes appear to have been sustained in 2009.

The fall prevention study illustrates that sustainability is vulnerable. Moreover, improvements are likely to decay when a nursing home ward operates in isolation from the organization that it is part of. Lack of sustainability is first felt at the operational level—while several structures may be implemented, this does not guarantee that they are part of effective organizational routines.

There are several developments of quality structures in the wider institutional environment that could have contributed to these changes, as already argued in Chapter 7. The analysis showed that sustainability is strengthened, when organizational structures and processes are aligned. For example, the use of individual fall risk assessment procedures appeared to be instrumental to mediate organizational routines on the level of client-care worker interactions, as well as to serve higher level regulatory processes. Moreover, this alignment is reinforced, when materials support both routinization and institutionalization. Artifacts, such as the fall risk form, may play important roles in care practices as well as in improvement processes. As Stoopendaal concluded, based on her observations of the organizations and conferences, in many ways the improvement processes involved *purchasing stuff:* investing in various new materials (source: iBMG evaluation research team meeting minutes).

Not only the symbolic, but also the practical value of materials influences their place in a routine, and their role in quality improvement processes, like routinization and institutionalization, and spread. Three examples serve to explain the role of materials in 'Care for Better'. The first example concerns the medication safety program, where safety jackets were introduced to be used during medication distribution rounds on wards. Their main function was a symbolic one: they signaled to professionals and clients on a ward that a professional should not be disturbed because he/she is busy distributing medication. However, the practical shape of these jackets contributed to sustainability and spread in many respects: they were one size fits all, and could be put on quickly; they were washable; they did not require extensive instruction or explanation to clients, professionals, or managers; they could be transported and distributed easily (low weight); and they were relatively cheap, and as such, they were easy to replace. All these qualities were useful in the new or adjusted organizational routines as much as in the institutionalization and spread of the improvements across wards.

The second example is found in the eating and drinking routines in a care home (Stoopendaal & Bal, 2013). An important artifact in this new routine was a placemat that was posted on the kitchen cupboard door. The placemat was a reminder how to set the table for nurses and attendants, and showed a picture of plate and utensils in their proper positions. This artifact was very helpful for professionals who are not used set a table; for example, because at home they dine on the sofa, since modern life has changed these customs (Stoopendaal & Bal, 2013). In short, in this example clearly not only the symbolic value matters, also the practical shape and practical place, on the inside of the cupboard door, matter for this routine.

A third example shows that sometimes, practical aspects that seem to be more remote can limit chances for institutionalization quite directly; particularly in relationship to management demands. In the pressure ulcer prevention projects, institution of materials was problematic, because in some organizations, new expensive matrasses

were purchased and the initial projects yielded great results. However, later, the high price did prove to be problematic since the budgeting department considered them un-affordable in view of scale-up to all other units (source: iBMG evaluation research team meeting minutes). In other words, it was not possible to align these improvements with managerial values which was necessary for the spread to other units in the organization.

Finally, we also mention the importance of deinstitutionalization for sustainability (Jepperson, 1991). As Yin et al. (1978) already have noted: "The elimination of super-seded practices required a deliberate effort and did not automatically follow the installa-tion of new practices." (p. 80). In other words, improvement also means to deliberately stop performing certain routines. This aspect was not researched in this dissertation, but may be important in view of certain sustainability problems. Based on our framework, to discontinue the use of certain routines may require the active disposal of materials which are related to those routines. To give an example, I mention the 'Care for Better' project 'Ban the Girdle'(Ban de Band), which was designed to reduce the use of physical restraints and to increase the use of alternative methods (ZonMw & Vilans, 2015). In this project, de-institutionalization was key: teams progressively aborted the praxis of using a "Swedish girdle" (in Dutch: Zweedse band) to tie clients to their beds. One care worker commented: "Recently, we got rid of the last girdle, which was still in our storage cabi-net for emergencies. Ever since we threw it out, we cannot go back any more, we have to do it the new way." (source: personal communication with former team member during data collection). Selling off the Swedish girdles was an emotional experience for this care team, because it affected their sense of risk and safety at work. Moreover, now they would no longer have the possibility to resort to the previous practice if the new methods faltered. We will return to the role of materials also in Chapter 9.

In sum, at the start of the projects, the participating organizations started out with some severe quality problems. The projects yielded positive results in combating these problems, although differences were seen between the projects. Some problems may be easier to improve upon than others. In our data, there are substantial signs of sus-tainability in the 'Care for Better' projects. However, sustainability cannot be taken for granted, even when a project went well and yielded positive results initially. What is more, there was ample variation between teams, particularly in Institutionalization. All in all, these findings show that sustainability of the changed work practices developed in the improvement projects is evaluated positively but results at the local level are also somewhat mixed.

### 8.1.3  Spread to other departments in the organizations

In this section I integrate the findings regarding the spread of improvements within the participating organizations after the program. Again, I take the main findings as a starting point, and then elaborate on some of the local processes related to spread.

As discussed in Chapter 5, spread was evaluated relatively low across the program, in all the projects. In other words, the former improvement teams were quite dissatisfied with the spread of the improvements in their organization. In Table 8–2, some descriptive statistics for two scales are presented: Activities for Spread and for Effectiveness of spread. Specifically low scores are reported for Effectiveness of Spread. This chapter also revealed that the variables for spread were strongly related to Institutionalization. This connection with Institutionalization is also affirmed by some of the results from Chapter 7, which also revealed that teams with high levels of improvement capacity in the cluster of Strong Focus Improvers had evaluated spread rather positively, while in the other clusters substantially lower ratings were given. At the same time, results in Chapter 7 also demonstrated that making plans for spread was only weakly related to improvement capacity. Low scores in improvement capacity generally predict a later lack of spread in the future. In many cases spread was a theme that would be addressed afterwards—when the projects were done (Strating et al., 2008). Together these findings suggest that spread was not in the scope of most project plans: neither at the start, nor at the end of the projects[17].

These results confirm the idea that spread and sustainability should not be equated. The processes require only partially overlapping efforts, means and capacities. This also seems logical, seeing the structures in care organizations with locations and nursing home wards that operate more or less autonomously in many respects. It also implies that sustaining in one location requires attention from actors *in that location*. Sustainability is thus also something that the former improvement team can attend to easily, assuming that the majority of the former improvement team members are still working at the pilot site. Spread to other departments, in contrast, requires *collaboration between departments*—and the involvement of actors in other places, such as high level management. Initiating such contacts is not something that any member of a former improvement team will regularly do—whereas they might feel more authorized to comment on aspects related to sustainability within their own department. Therefore, we can neither assume that all members of former improvement teams will try, nor that they will succeed to build bridges to other departments, because such *linking work requires managerial involvement at higher levels* (Alexander, Weiner, Shortell, Baker, & Becker, 2006; iBMG, 2012). To conclude, it appears that achieved sustainability in one department does not imply that spread to other departments has been or will be achieved.

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17. The project plans did mention spread as an important strategic target in general, but the concrete steps to this end were often not clearly defined.

Care organization Vilente has continued improving on fall prevention from 2007 onwards.

| | |
|---|---|
| 2007-2008 | Participation in the first rounds of the Care for Better project to develop a guideline for fall prevention and decrease fall incidents. |
| 2009 | Implementation of fall prevention guidelines for nursing homes, hospices and adjusted on for convalescent home/assisted living facilities. |
| 2010 -2011 | A second 'Care for Better' project was started in phase 2 targeting fall prevention and mobility. Mobility is reframed: it can contribute to both physical health and fall prevention, as well as with mental wellbeing and behavioral autonomy. Individual fall risk is assessed frequently and individual mobility plans are created. |
| 2012 -2013 | Extension of results of the 2011 project. Revision of the fall prevention guidelines and design of screening instrument for mobility. In the care locations mobility is encouraged by offering an array of activities on a regular basis, including: fitness, billiards, darts, shovel board, hiking, wii and x-box kinetic gym exercises, active coffee meetings, and dancing. |

**Figure 8–4** Example of continuous improvement in a large care organization

*Now for real-strategizing for spread: enhancing mobilization by starting a new project*
On a positive note, there are signs that, in the long run, care organizations will make extensive their efforts to upscale improvements to other nursing home wards or units. Some signs of these late bloomer developments were also reported in Chapter 7: several improvement teams were still working on an improvement project, and the owner-ship of the project had not changed in that sense. In addition, these spread activities were also reported in telephone conversations in the course of the data collection with former project leaders or other organization contact persons. In many cases, new plans were being developed for full-scale implementation. In connection to these plans, many persons shared that they had underestimated the difficulty and provisions to achieve improvement at that level. The improvement project thus had had *a revealing func-tion*—learning by doing on the organizational level—only in retrospect did the teams see what was needed and with those insights did they construe new plans to redo the project, 'now for real'. In some cases, it seemed that the 'Care for Better' program helped organizations to learn how to improve, simply by allowing them to do some experimenting with interventions in pilot sites. Such trying-out projects could be consid-ered a form of 'organizational role-play'. It could be is a very important kind of role-play, because through its crises, it eventually may trigger and aid the design of more substan-tial processes of mobilization (Jepperson, 1991). In this sense, in many organizations, there are chains of activities and projects in which continuous improvement is organized in a discontinuous way. Moreover, we should acknowledge that such an improvement process does not always target 'better' performance through a linear development, but may also include changing and broadening the scope of a quality theme. Figure 8–4

offers an example in which one participating organization worked on strengthening mobility in clients so as to improve both fall prevention and wellbeing[18].

When problems occur in quality improvement efforts, the underlying problems that hamper spread are often unsolved and under-analyzed; and the solution to implementation or spread problems then often becomes 'to start a new project!'. However, if the next project is based on a similar frame and again lacks mobilization, it obviously also risks to fail again. This situation may thus repeat itself and amount to a sequence of projects. In this sequence, new projects are often (re-)framed as a 'now for real' project, using even more rigorous ways to improve and having learned from mistakes, trying remedy all previously encountered problems. This may sound as if it were problematic, but perhaps it should be recognized as part of reality: initial problems in spread can be expected and implementing more complicated changes in care practices simply entails going through different phases of learning (Hovlid, Bukve, Haug, Aslaksen, & von Plessen, 2012). In terms of Crossan, Lane and White (1999), this means that to develop from intuiting to institutionalization may require several learning cycles.

### 'Weather changes', mobilization strategies and coordination tactics

This section gives an example of the difficulties with organizing spread. The example regards spread processes in a large care organization which were studied as part of the evaluation research. The pertaining care organization offered mainly nursing home care and care for disabled. This organization comprised more than 100 locations across a large Dutch city. I will reflect on a few developments which eventually led to situation of what seemed a serious tension between the intentions to install a set of novel work practices across the organization on the one hand, and a number of organizational conditions and processes, on the other hand. Although some dissemination efforts were initiated, larger scale-up was not achieved and the pertaining evaluation research (which I was asked to execute) was eventually aborted.

In this organization, three locations participated in the 'Care for Better' program with one improvement team each. The improvement teams worked on Prevention of Sexual Abuse in the context of care for the disabled. Amongst other interventions, the changes comprised the use of a handbook for professionals on dealing with sexuality. The handbook offered practical advice for coping in various situations, such as: how to deal with clients who fall in love with a professional or with another client, responding to intimidating behavior, saying 'no' to a client or helping clients say 'no', engaging in a dialogue with clients about love and sexuality, and so on. The former project leader presented the project to the board of directors. Unfortunately, this introduction did not go well and her effort to negotiate further spread failed initially. Despite these initial

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18. The material in Figure 8–4 was drawn from a presentation by Ms. Carry Putman projectleader (20 juni 2013).

difficulties, some of the project leaders eventually succeeded in gaining support for a spread strategy using 'ambassadors'. The ambassadors were supposed to visit other sites and share their knowledge and skills concerning the changed practices. Still, this was not an easy process, as one of the former project leaders remarked:

> *One of us continued on her own to make sure that the results would spread. In other locations everything came to a stop. It was not embedded in the [organizational - SSS] line. Then there was another lady who initiated the project, and who gave up; and yet another one who has changed jobs to [another care organization]. Because of these developments, the ambassadors only comprise staff members and two team managers, the other counsellors have left. (…) The counsellors had the best connections with the operational level. Now it is petering out.* (Interview with former project leader)

Altogether, there were four problems which hampered the initial spread of the improvements: lack of embedded spread agents, staff turnover, lack of commitment in receiving units, and role ambiguity. Clearly, for spread of a changed work practice, it is of great importance who the messengers are and what knowledge they can share vis-à-vis the receiving employees. Another related problem was that the role of the 'ambassadors' appeared to be ill-defined. On a more positive note, the organization is learning by doing: trying new ways to spread this practice. What is perhaps a disadvantage is the strong emphasis on the senders' perspective; this dissemination strategy still tends to ignore the situation and interests of the receivers.

To remedy the spread problems encountered by the ambassadors, a new large scale project was designed in phase 2 of the 'Care for Better' program. This organization-wide scale-up project aimed to implement a novel, evolving, experimental spread strategy, which still needed to be developed. However, this project encountered several adverse conditions, including: 1) mergers and changes in units and team structures; 2) related to this, the HR registry systems were neither similar nor connected; 3) the mandate of the project team was unclear, hierarchically they were dependent on a new innovation unit, and in consequence, they were obliged to wait for decision-making and instructions from this unit. In addition, both the board member and the project leader did not have regular job positions in the receiving wards; they were predominantly working across the organization. This aspect of 'being external' probably limited their capacity to create the required interactions at the local level—they seemed to be operating as some sort of 'free rangers'. In the course of the project, it became clear that the project team was unable to translate all the ideas into interactions at an operational level, for all the reasons mentioned above. Meanwhile in the project team meetings which I attended as evaluation researcher, the conversations were filled with creative and visionary ideas about change (like 'Leitbild' and 'viral change')—perhaps this was also a response to the

counterproductive situation and the inability to make practical plans. To end, I underscore that these circumstances were also problematic for the research. As a researcher I was asked to evaluate this newly evolving spread strategy—how could I operationalize these novel spread concepts in a suited evaluation research? What is more, the evaluation research suffered on a practical level: for example the project leader was unable to name the number of locations and employees who could participate to the evaluation research. This became an ongoing joke in my communications with the project leader which illustrated the powerlessness we both were confronted with.

This short history demonstrates a struggle that many care organizations are in: they need to discover how to work on quality improvement through a complex organizational learning process in a turbulent context. I also want to note that, while ample knowledge on how to manage an improvement project is available, to design a spread strategy that fits to the organizational structure and internal dynamics is not an easy task. In terms of institutional theory, these observations suggest that mobilization was lacking. Moreover, organizations need to learn how to organize different types of mobilization processes. In many cases, the method of spread, i.e. type of activities for dissemination, were experimented with and, therefore, contested. Relating to the work by Sahlin-Andersson (1996): spread entails imitation and it follows from this view that also the method of spread (the dissemination strategy) needs to be translated, i.e. edited at the local level. And this can also happen ineffectively, as seen in the example of the ambassadors. There are some practical conditions related to the chances for 'editing success', and this editing has to be considered in relationship with leadership at all levels. When leadership is diffuse, and allows for a lot of variation in translating, it is likely that a concept such as the "ambassador's role" becomes the victim of misinterpretations for various reasons, random as well as intentional. And when interpretations do not converge, this affects the level of mobilization. This also corresponds with Van Loon (2014) who concludes that for effective implementation of care standards, interventions need to be both flexible *and* give direction. Iterations between implementation and development are needed to reach this dual character of interventions. Moreover, spread involves more than singular objects; it involves multiple forms of knowledge, creating different packages for different imitators. Therefore, spread entails multiple interventions to facilitate various local editing processes. And developing these interventions in alignment is not an easy task.

### Spread—an improvement target outside the scope of many projects

Aside from conditions in the organization, also the 'Care for Better' program influenced the mobilization for spread. In retrospect it appears that spread was simply not articulated strongly in the Breakthrough methodology, on which the program was based. This lack had been predicted by some. Already at the start of the 'Care for Better' program

some policy documents expressed concerns regarding the potential lack of spread, albeit more indirectly: *"some of the changes require more structural changes in the organizations. In connection with this, the Breakthrough Methodology has limitations and needs to be adapted."* (Ross-van Dorp, 2004; ZonMw, 2010). The lack of spread was also partially predicted by change consultant Sarah Fraser (2007) who interviewed program project leaders to formulate recommendations to the steering committee of the program:

> *"(…) most interviewees mentioned that knowledge was what ZvB [Care for Better – SSS] intends, or does, spread. Yet no one talked of any knowledge management theories or practices."* (p. 31) She also commented that *"(…) your implementation strategy is to create pilot projects and then to push out … it is a single site to multisite scale up type model. Now imagine an alternative model where total target audiences are involved in the design and delivery from the outset (…) they can achieve this by using technology. Three things happen. The design and delivery are simultaneous. Behavioral change happens from the outset and is not a linear process. Secondly, the opportunity for all to be involved from the start is available. Thirdly, everyone, at their own collaborative pace, learns together (wisdoms of the crowds stuff)."* (ibid., p.47)

Fraser's claim that the basic structure of the program may make it difficult to spread results and changed practices was affirmed—it is difficult to continue a quality improvement process after a project has ended. This also depends on the extent to which a nursing wards or location is in contact with other parts of the organization. As tentatively explained in Chapter 7, a nursing home ward as well as an improvement project may suffer from 'isolation' and this isolation may impede sustainability and spread in the long run. The general point is this: attention for what happens after a project in terms of knowledge management tends to lack in the 'Care for Better' projects, while this aspect seems to be instrumental in connection with spread. In other words, the initial lacking of spread may have been built-in by the choice for small-scale improvement projects, where, in fact, more substantial changes are needed to really make sustainable change possible on that local level. There are serious downsides of project-based improvement in relation to experiments in pilot sites. These can be understood with our theoretical framework: in many cases responsibility for dissemination appears to be organized rather informally and non-binding (particularly in comparison with the improvement project); that is, the mobilization decreases and often falters. After a project, it is often unclear who should initiate what activities for spread—nobody seems responsible anymore, a project can be degraded to "being nobody's business"; what to do with the legacy of the project? Moreover, given the findings in earlier chapters, I suspect that, in general, dissemination in 'Care for Better' has largely been confined to 'voluntary' sender-based

work by the improvement teams: a rather selective set of, at best still passionate, local actors with very limited time and resources. Instead of tapping into organization-wide movements or needs of potential receivers, there seems to be a tendency to 'rely' on spread by senders, as a form of evangelist isomorphism (Clegg & Bailey, 2008). I wonder if more movement could have been created if the other institutional mechanisms had been articulated more strongly, such as changes in organizational regulations that trigger coercive isomorphism.

To summarize, the findings with regard to spread suggest that there was a backlog of spread, at least in part of the participating organizations. Spread seems to require strategic activities which are very different from Routinization and Institutionalization at the local level. It seems that these strategic activities related to spread, particularly the key processes at the receivers' side, fell outside the scope of the projects. On the other side, there are also signs that organizational abilities and capacity for spread were lacking. The participating organizations were in dynamic conditions, and, in many ways, they were still at beginner levels in terms of designing and executing these mobilization processes. These findings with regard to sustainability and spread are clearly connected to organizational conditions. The next section concentrates on this theme.

### 8.1.4 Organizational context factors for sustainability and spread

This section commences with a review of findings concerning the organizational context *during* the 'Care for Better' projects. Secondly, I discuss some findings with regard to leadership and measurement *in the long run*— after the projects.

Chapter 7 targeted the question 'how does the interplay of team level factors during the project affects the long-term effects of quality improvement ?' In the latent class analyses, three aspects were investigated: sustainability, spread and three variables related to continuous improvement. This study showed that team level context factors played a significant role and were associated with the long-term effectiveness of improvements in the 'Care for Better' program. One of the key findings in this study was that effective improvement entails the adjustment of the organizational context, since it requires a certain level of improvement capacity. As Chapter 7 affirmed, team level context factors in the organization matter for the later sustainability and spread. But, what is their role after the project?

The final report for ZonMw explored the situation after the projects using the follow-up data one year or more after the projects had finished. The main aim was to discover relationships between leadership and measurement variables with subsequent sustainability and spread (iBMG, 2012).[19] In Table 8–4, the results are provided. These

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19. To this end, for each of the five variables two levels (low x high) were created based on the median; for example two groups were created for the independent variable Local Leadership to compare the dependent

**Table 8–4** Leadership and Measurement in relationship with Sustainability and Spread[a][b]

| Factor | level | Sustainability of Changed Work Practices | | | | | | Spread | | | | | |
| | | Routinization | | | Institutional-ization | | | Activities for Spread | | | Effectiveness of Spread | | |
| | | n | M | SD | n | M | SD | n | M | SD | n | M | SD |
| Leadership general | LOW | 53 | 52.9 | 10.4 | 50 | 77.8 | 14.8 | 37 | 16.9 | 3.2 | 44 | 24.3 | 5.6 |
| | HIGH | 38 | 57.7 | 5.6 | 38 | 84.9 | 6.3 | 33 | 20.2 | 2.3 | 33 | 30.0 | 3.0 |
| Leadership at Board level | LOW | 35 | 53.3 | 11.7 | 34 | 76.5 | 17.0 | 33 | 16.9 | 4.1 | 33 | 24.1 | 6.9 |
| | HIGH | 30 | 55.0 | 6.6 | 30 | 84.0 | 7.8 | 21 | 19.8 | 2.6 | 29 | 28.8 | 3.9 |
| Leadership for quality improvement Capacity | LOW | 41 | 53.9 | 11.4 | 39 | 77.0 | 16.1 | 33 | 17.7 | 3.6 | 33 | 25.6 | 6.5 |
| | HIGH | 34 | 56.7 | 5.8 | 34 | 84.3 | 7.0 | 25 | 19.7 | 2.6 | 29 | 28.4 | 4.0 |
| Measurement System | LOW | 68 | 52.9 | 9.4 | 64 | 77.8 | 12.9 | 46 | 17.6 | 4.4 | 53 | 25.5 | 6.5 |
| | HIGH | 40 | 58.5 | 4.5 | 40 | 84.0 | 9.1 | 30 | 19.1 | 1.5 | 27 | 28.8 | 2.7 |
| Use of Measures | LOW | 59 | 53.3 | 8.8 | 54 | 77.1 | 12.1 | 42 | 17.5 | 4.1 | 40 | 25.1 | 6.4 |
| | HIGH | 45 | 57.2 | 7.8 | 46 | 84.1 | 10.7 | 33 | 19.0 | 2.6 | 39 | 28.0 | 4.8 |

[a] Low versus High scores in the specific factor; levels were created with median.
[b] Range Routinization: 16-80; range Institutionalization: 24–120; range Activities for Spread: 6-30; range Effectiveness of Spread: 8-40.

suggest that Routinization predominantly requires effort at the level of the (clinical) microsystem—continuous attention and local leadership are beneficial for sustainability. Useful measurement practices are part and parcel of this process to provide structured reflections on the quality of care—with regard to this theme, May et al. (2007) use the notion of "reflective monitoring", which can be seen as a means to enhance the way in which a practice is further 'edited'.

We note that Institutionalization was associated with high-level leadership. In this analysis, leadership at the higher level referred to a consulting role for high level managers or board members: to 'think along' and to actively help out where needed. For example, by creating supportive conditions, making resources available or motivating improvement efforts by acknowledging their value publicly or visiting a ward to come and see what has been improved. Besides developing the organizational strategy, high level management can offer guidance in the implementation.

The results also show that measuring the targeted practice after the projects was relevant for Institutionalization. "Measuring" was assessed with two scales. One referred to the system used for measuring, i.e. the whole set of organizational routines that serves to collect and interpret data in connection with the improvement goals for the quality problem. The other scale referred to the use of measured data as part of qual-

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variable Routinization. These analyses consisted of independent t-tests with a significance level of 0.05. In the final report the analyses are fully documented (iBMG, 2012).

ity routines, i.e. making sure that they are linked to various organizational processes, such as monitoring of quality in operational processes, but also to identify opportunities to improve or to demonstrate a level of quality to others. Both aspects of measuring were found to be strongly related to Institutionalization (iBMG, 2012). The development of a measurement system requires a certain level of involvement, because it is often done with help from quality officers, ict staff and others in the organizations. In addition, the quality of the measures and the use of the measures probably help to promote a practice, since they serve to make results visible and thereby help gain support for the improvements from actors who are not directly involved on a daily basis, such as high level management. What is more, the measures, in some cases, are an integral part of the targeted practice and thereby directly connected to routinization. For example, weighing a client is part of everyday client-level routines for eating and drinking and predominantly serves the monitoring of clients; a more secondary use of the data concerns aggregating the malnutrition measures, so as to assess the prevalence of malnutrion problems in the pertaining nursing home ward. In sum, the ongoing use of measurements after a project appears to be directly associated with both Routinization and Institutionalization. This result also corresponds to the findings presented in Chapter 6 which showed that measurement practices during the project were related to the perceived effectiveness of the project as well as to later sustainability of the changed work practices.

Next, we delve into some findings with regard to leadership and spread. With regard to spread, leadership is observed to have a different emphasis in comparison with sustainability. Higher effectiveness in spread was contingent with leadership for sustainability and spread. This is the case both at the local level of for example middle management as well as at higher levels of leadership by board members. This result underlines the value of charting and *staying* the course for sustainability and spread of quality improvements. Such a finding is relevant to underscore, because the care sector finds itself in quite turbulent times. I note that, contrary to expectations, high level leadership to develop quality improvement capacity was not related to the Effectiveness of Spread. This suggests that general enthusiasm for quality improvement is not enough to mobilize for spread, whereas specific involvement that connects to operational aspects does contribute positively. Stoopendaal (2011) studied this phenomenon and she refers to "gaps" between management and the operational level, which hamper the spread of improvements. In other words, it is important that leadership is directing specific forms of mobilization. Sustainability and spread are first and foremost associated with the involvement of high level management in connection *with the quality theme at hand*. This is another sign that effective organizational learning does not separate the 'what' and the 'how'—it makes more sense to learn how to innovate when one has a specific quality goal and practice to apply a method to.

This concludes part 1 of this chapter. In the past section, I have aggregated the findings with regard to the improvement projects in the 'Care for Better' program. To this end, I have described the initial effects as well as the long-term effects on sustainability on the changed work practices, spread within organizations, and the role of various organizational conditions and factors. Let's take a moment to gather what have we learned so far. Initially, the projects yielded positive but varied results. Later sustainability of changed work practices was also evaluated positively with room for improvement in Institutionalization. However, in many organizations spread appeared to be lacking. In connection to this I have reflected on: 1) the role of the program and Breakthrough Methodology; 2) the internal dynamics of the organization as well as the experience and capacity to strategize for spread; and 3) the relationship between organization functioning in general and, more specifically, leadership and measuring. The next step is to explain and contextualize this picture with an eye for some of the conditions and developments in the Dutch care sector.

## 8.2  EXPANDING THE SCOPE

The findings discussed in the previous section contain ample signs of sustainable organizational change; in the sense that the 'Care for Better' improvement projects have yielded lasting effects in a large part of the participating organizations. On the other hand, there also seem to be a number of threats to these lasting effects. To begin, I consider the role of the improvement projects, as part of the 'Care for Better' program. Furthermore, I will tentatively describe how the changed work practices may evolve in response to developments and conditions in the (wider) organizational context, which in many care organizations comprises several wards or locations. The question is to what extent and how organizational functioning has specific effects on sustainability and spread. Finally, I will sketch how the macro-environment may have affected the sustainability and spread of improvements in the 'Care for Better' program.

### 8.2.1  A closer look at the improvement projects

The improvement projects in 'Care for Better' yielded positive but varied results in the short as well as in the long run. Later sustainability of changed work practices was evaluated positively with room for improvement in institutionalization. However, in many organizations spread appeared to be lacking. Furthermore, initial results offer no guarantee for subsequent sustainability.

The main reason for this seemingly weak relationship between the projects and subsequent sustainability and spread is that the aftermath of quality improvement is dependent on many factors which entail complex internal dynamics within the organization, both within locations and within wards. Given these dynamics, organizing

for sustainability and spread is not a straightforward linear process. In other words, organizational functioning explains the bulk of the variance and thus is a more important predictor of the long-term effects of an improvement process, than the program and the project.

Moreover, it is clear that sustainability also requires the adaptation of the organizational context.at the same time, this organizational context is highly influential on the actual use of new methods in routines. In relation to this, it is important to recognize that care workers need to balance care [practices: for example, they are responsible for adherence to several different guidelines at the same time. Put more precisely, the different organizational routines may correspond or conflict with each other requiring *articulation work* (Strauss & Corbin, 1998) by professionals, which demands improvisation at those critical junctions of organizational routines. This requires flexibility in the organizational structures and reflexivity in professionals. To understand this, the type of innovation also needs to be taken into account. We need to consider w*hat practice* is routinized and institutionalized; a complex service innovation requires many adjustments on the operational level. That is, service innovation typically involves redesigning multiple intertwined organizational routines and this necessitates more fine-tuning in terms of adapting the local organizational context.

The 'Care for Better' improvement projects also had side effects. They helped to open the discussion on what good care is and gave room to the voice of professionals at the operational level, who often feel unheard and dominated by managers. The program helped to revive the relationship between care content and quality management. Where in some domains, measurement had obtained a ritual status, now a serious attempt was made to conceive new forms of quality management for care practices. At the operational level, this has led to increased appreciation of measurement. This means that not solely management claims the ownership of monitoring care practices from the external point of view, but also the measures gained meaning for the insiders at the operational level, as a tool to show how things were going and to negotiate further measures. For example, new ways were discovered to use guidelines effectively and to enhance adherence in the subprogram of Prevention of Sexual Abuse (van Loon, 2015). The use of a guideline served to open the dialogue on a very intimate and painful quality problem which many professionals struggle with. It also expressed an acknowledgement of professional identity and their sometimes difficult tasks, which, in effect, creates a sense of being responsible and being held responsible.

Another effect of the projects relates to the *coupling* of practices in care organizations. For example, one organization has trained nurses and attendants to become better in analyzing causes of problem behavior in clients (source: interview with former project leaders). At the start, the daily registrations contained little information or sometimes even rather blaming comments (e.g. "the client was an annoying old hag today").

After the project, nurses were able to report their observations in a more objective way (e.g. "the client was not feeling well. Because her leg hurt more than usual, she had a bad mood"). In this organization, initially hardly any incidents were reported, and for this reason, an improvement goal in the 'Care for Better' project was 'to increase the registration of problematic behavior and incidents using the existing form'. The fact that these registries are now a more reliable source of information can be considered a sign of re-coupling practices, which were largely de-coupled before the project.

Furthermore, there are several signs that many organizations started new projects to sustain and spread changed work practices within the organizations after the program. I have called this a 'late bloomer effect' (see Chapter 7). In these cases, participating in the project was a revealing experience, the project served as a *lens*: experiences and observations in the project revealed what was necessary and what was possible at the practice level, in terms of intervention design, but also in terms of routinization and institutionalization for sustainability, and, imitation and editing for spread. Multiple projects or efforts may be needed to edit a best practice —to tailor it to the local situations and to create alignment across wards or locations— because of the complex organizational learning processes involved.

Again, I underline the intimate connection of care content and best practices with the methods for quality improvement, which are required to achieve effective quality improvement. One may recognize the importance of certain care values and the need to adopt a changed practice, if no effective quality improvement method is applied to translate the best practice to the local setting, improvements probably will not be sustained. This is precisely what the strong focus improvers, identified in Chapter 7, have in common: they bundle their knowledge of care and of improving effectively to translate specific quality goals to local practices. In terms of editing processes, they combine and align a 'best practice' with their own care practices, and at the same time, they are able to translate improvement methods to make the project feasible in their own local settings.

It appears that some of the problems in sustainability and spread are in part associated with downsides of Breakthrough Methodology. This method centers on implementing best practices and treats these as stable units. Breakthrough Methodology is strongly based in a diffusionist frame of thought, and as a result, it has a tendency to underestimate the amount of adaptation work needed for institutionalization. Stated in terms of institutional theory, it underestimates the editing process and mobilization. In consequence, while Breakthrough Methodology aims to spread best practices, it does not articulate how to organize the spread within an organization (one could say that it tends to leave best practices as 'orphans at the door', that is: more or less passively waiting for adoption within the organization).

Related to this, we also observed that in Breakthrough Methodology, the improvement process generally concentrates on the intervention design: optimizing interven-

tions to *primary users* of a work practice (routinization, i.e. development of routines for clients and care-workers). However, in our view, a great part of what sustainability entails is institutionalization. This means that changed work practices entail assigning new roles for secondary users, like high level managers, facility officers, kitchen staff, financial controllers, and so on. These more remote 'secondary' users[20], and secondary routines as part of local institutionalization, are equally important for sustainability and long-term effectiveness. This part of institutionalization, we could also denote as a form of *secondary user configuration* (Akrich, 1992; Oudshoorn & Pinch, 2003).

In conclusion: complex service innovations demand a lot of adjustments of the organizational context. This poses extra demands on the organizational processes for sustainability and spread. It can be helpful to pay attention to institutionalization and secondary users of a changed practice, preferably at an early stage. Discovering the needs and possibilities to optimize institutionalization is an iterative organizational learning process, that may entail multiple projects or efforts to achieve sustainable changes.

### 8.2.2  Organizational functioning sets the bandwidth for quality improvement

Rather than centering on the design of interventions or practices, sustainability may be better understood if we consider organizational functioning. Organizational functioning sets the band-width for the long-term effects of quality improvement, because mobilization for a quality theme is the product of the organization. More precisely put: to enable sustainability and spread entails re-coupling or making adjustments in coupling. Likewise, fragmentation and problems in the coupling of organizational structures can impede long-term effectiveness. Czarniawska (2008) explains this as follows:

> *(…) different systems, or parts of a system, can be either decoupled (separated and indifferent to what is happening in other systems or parts) or tightly coupled (without clear dividing lines and receptive to whatever is happening in other parts of systems). At present, engineers hold that loosely coupled systems hold best. In a loosely coupled system, disturbances in one part of the system need not cause disturbances in other parts.* (p. 41-42)

The coupling and extent of fragmentation of practices in organizations are related to the organizational functioning in general. In the Dutch long-term care sector, it is known that many organizations have trouble in general functioning. In the early years of 2000 as well as to date, there were/are ample signs that care organizations experience both difficulties in business administration and basic organizational tasks, as well as difficulties

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20. Alternative term is 'implicated actors' (Clarke, 2005).

in strategic responsiveness to their environments (Hospitality Care Committee, 2005).[21] Moreover, it is clear that organizational functioning affects quality of care. A study by the NIVEL, a research institute for healthcare, demonstrated that locations or wards who score positively on context factors, such as perceived workload, employee satisfaction, cooperation/collaboration, and transfer of information between care professionals, achieve better outcomes (Hingstman, Langelaan, & Wagner, 2012). In a similar vein, in this dissertation, in particular Chapters 6 and 7 have shown that some context factors for improvement capacity were also intimately related to sustainability. The difficulties in sustainability may be explained by limitations due to decoupling and fragmentation in care organizations—weak internal capabilities in combination with conflicting isomorphic pressures may impede quality improvement. Decoupled structures[22] affect the possibilities to strategize effectively, in particular, when those strategies require or assume certain practices to be coupled.

What is more, in a state of low organizational functioning and a complex environment, high level management is likely to be oriented to the external environment, and this may even worsen fragmentation at the strategic level (Bovenkamp, de Mul, Quartz, Weggelaar-Jansen, & Bal, 2014). I bring to mind the wave of mergers in the long-term care sector in the years 2007-2008. A merger may serve as a solution to optimize internal processes and to cut costs of some operations, but often leaves the problems related to internal fragmentation unaddressed, or aggravates them. To work on quality improvement in such a setting can be difficult, because the improvement project may suffer from, and reveal the extent of, the fragmentation—and discovering the malfunctioning of the organization can be painful and frustrating, and damaging the staff morale.[23] [24] This problem particularly applies to operational or service innovations, because these are connected to various structures in the organization (Fitzgerald

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21. As explained in the introduction, this lack is likely to have been aggravated by some organizational changes, such as the increased burden of changing care populations (intensified care demand) and cost containment policies in the previous decades, gradually lowering the staff education level. At the same time, the main tasks of providing everyday care to clients, as well as the (wider) organizational environment were (regarded as) relatively stable. As such, many stakeholders were lured into the thought that long-term care simply did not require much organizing work.

22. The term structure refers the formal shape of a set of practices. A practice can be understood as a set of organizational routines. In literature there seem to be different uses for these terms.

23. Discovering fragmentation could be considered advantageous in terms of organizational learning. In relation to this I mention an anecdote from the research team: Stoopendaal undertook various case studies in the program and shared her observation in our meetings of the research team. She commented on various occasions that the improvement projects should not be considered innovation rather these projects were forms of 'renovation' (source: minutes from team meetings iBMG evaluation team). This is telling of the general organizational functioning in the field in this period.

24. This negative effect has been analyzed in terms of Durkheim's concept 'anomy': ineffective organizational change may lead to the breakdown of moral and social bonds, and corruption (Martin, Johnson, & Cullen, 2009).

& Buchanan, 2007). In light of such adverse organizational conditions, many projects risk not to yield sustainable change, in spite of initial strong results. A lack of internal stability at the strategic level probably affects the conditions for effective spread most directly, because spread requires strategy across organizational units; f.e. between nursing home wards or locations. This is increasingly recognized: high-level management has an important role to play to strategize these issues at the local level and to prevent (potential) gaps (Stoopendaal, 2011). This all goes to say that high level management has specific roles in resolving problems related to fragmentation and coupling.

In terms of institutional theory, the organization as a whole can be viewed to operate as a wider institutional environment for a given ward or location. In that sense, congruency of isomorphic pressures is also 'situated': when mobilization is effective within an organization, this means that the organizational environment is becoming aligned with the internal isomorphic pressures. When a project is not embedded, one could say that this actually indicates that the internal isomorphic pressures are not strong enough or lack alignment. As stated before, this is likely to lead to or is probably associated with lack of strategizing activity (Jarzabkowski, 2005). In connection to this, I want to underline the close relationship between (deep level) organizational learning, as aimed for through quality improvement, and strategic renewal of an organization. Crossan, Lane and White (1999) argued that organizational learning only leads to effective strategic renewal, when changes are integrated and institutionalized in the organization.

It follows from these remarks that the role of high level management is essential to enable strategizing for quality improvement at all levels, particularly for the processes related to sustainability and spread. However, recoupling cannot be strategized from the desk of a high level manager alone, because he or she may not see or understand certain problems, precisely because of loose coupling. Therefore, strategizing by all actors is needed to resolve local problems, to enable organizational learning at a higher level. That is, single loop learning does not suffice to achieve sustainable changes. What can be learned from the strong focus improvers, is that the success of the improvement team cannot be separated from the overall positive functioning of the organization, as expressed in team level context factors during a project, as well as in leadership and measurement for sustainability afterwards.

### 8.2.3 The wider environment and the role of the program

How do the wider organizational field and the program affect chances for later sustainability and spread? To understand this, we need to acknowledge some of the complexities in the organizational environment at large. In terms of institutional theory, the environment is a complex of various isomorphic pressures, which may be congruent but may also contradict each other. For example, think of the Healthcare Inspectorate steering for reduction of pressure ulcers, while, at the same time, other indicator data

**Figure 8-5** Timeline with recent developments in the Dutch long-term care sector



2010 - 2014

New themes emerge in policy for long term care: client autonomy in terms of self-management;
wasting resources and lean operational process; burden of rules and regulations, overkill of registration;
fraud in personal care budgets; and new forms of internal organization, such as self-steering autonomic teams

2011 - 2016
*Quality of Care program*
(Kwaliteit van Zorg: Versnellen, verbreden, vernieuwen)
- patient choice and transparency
- development of quality instruments
€ 1.200.000 in 2015

2012
*Care for Better program
formally ended 2012*
*€ 30.000.000*

2012 - 2014
*Program Safety in Care*
(Veiligheid in de Zorg) € 3.000.000

2013 - 2015
*Ambient Assisted
Living Program*

2006 - 2013
*Program for palliative care*
€ 9.650.000

2007 - 2012
*Diseasemanagement Chronic Disease Program*
€ 17.997.736

2006 - 2016
*National Program for Elderly Care*
(Nationaal Programma Ouderenzorg)
€ 89.000.000

2011 - 2012
*Front runner
innovation program KIKK*

2009 - 2016
*In voor Zorg! program for care sector*
Approximated costs per year € 5.000.000
Estimated total by end 2015 € 120.096.571

2009
start campaign *My time for care*
(mijn tijd voor de zorg):
Actiz 'Dreambus' tours the country
to inspire professionals

2006 - 2013
*Ambient Assisted Living
(AAL) program*
€ 19.600.000

2008 - 2010
*Building program for long-term care*
(bouwprogramma); small-scale living
€ 2.700.000.000

2008 - 2016

**Policy development: restructuring of the long-term care sector (HLZ)**

This figure is based on an exploratory review of the developments in the care sector that relate to Care for Better. As such it consists of a selection and is neither complete nor conclusive. Data about these developments were collected from newspaper articles in the LexisNexis database as well as documents from the Dutch Ministry for Wellbeing, Health and Sports (www.vws.nl).

may reveal lack of quality of life, and low satisfaction with eating and drinking. Addressing these issues may require very different approaches.

Three recent developments could be associated with the progress in the 'Care for Better' program and its long-term effects: 1) health policy reforms, 2) the emergence of what seems to be a 'market' of improvement programs, 3) implementation —and *maturation*— of the care living plan. On the one hand, these developments can pose difficulties, since altogether these developments may in effect distract organizations in their strategizing activities. On the other hand, some of the reforms directly serve to stabilize the quality agendas, because they aid the coupling of practices within wards or within the organization.

First of all, as became clear in the introductory chapter, the past decade has been a dynamic period with some major reforms in the basic structures of the care processes. A new system for long-term care was designed in which the foundations of long-term care are rearranged in financial as well as organizational structures; see Figure 8–5. This new system includes several new legal arrangements: the separation of housing and care, a new act for long-term care (*Wet langdurige zorg*, Wlz), a new act for supporting care services (*Wet maatschappelijke ondersteuning*, Wmo), and a new act for insurance of personal chronic care (*Wet zorgverzekeringen*, Zvw). Generic themes behind these new legal arrangements are: 1) the call for living independently rather than in care institutions, 2) the increasing the role of volunteers (or relatives) substituting professionals, and 3) the increased financial contribution of clients given cut-downs in re-funding in long-term care.

These reforms demand substantial organizational change from care organizations and are predicted to put various strains on the financial health of care organizations, which now—rapidly—have to adjust how they manage their financial assets and real estate on a financially viable basis, due to the separation of (funding of) housing and care. Some experts anticipated the closing down of numerous locations; estimates range from 200 to as much as 600 care homes that might be closed in 2015 of a total 2200 approximately (ING, 2014). A recent study of these reforms by BDO, a consultancy, signals weakness in various aspects of business administration (i.e. governance, finance, administration, organization and cost containment, operational control, information systems and ict infrastructures) (BDO Branchegroep Zorg, 2014). Even worse, the BDO report observes that many care organizations in their study seem to lack strategic flexibility, which is likely to affect innovation and quality, management of partnerships, external profiling, and capacity management.

A second development, that influenced the effects of the 'Care for Better' program, is that many new quality improvement programs have been initiated, since the program started. While intended to support organizations in changing practices, the sheer number of quality improvement programs on offer can be outright daunting. Figure 8–5

illustrates this phenomenon and offers a provisional overview. The timeline in Chapter 1 also shows that 'Care for Better' was not the only program in its time (see Figure 1–3). It is likely that this abundance of programs and improvement targets creates distracting effects on organizational strategizing. Particularly, because each program requires the care organization to prepare proposals to compete for funding and the decision time frame is largely beyond the control of an organization. What is more, competing for these funds requires organizational resources and a certain level of professional writing skills to formulate up-to-standard proposals. In other words, the market of modern improvement programs evokes distraction and wastage, since many proposal will not be renumerated. To produce a more substantive claim on this topic would require empirical study.

On a more positive note, there are also signs that the strategic agenda for certain quality issues has become more comprehensive and ordered in the past decade. In part, this stability seems to stem from quality indicators. For example, the development of care indicators has led to a more or less stable *selection* of quality aspects to attend to. In general, the importance of administrating quality indicators has increased as part of quality management. While it seems only rational to demand more attention for quality and hence more transparency, there are also obvious downsides to this. For one, it has also led to complaints about the 'pressure to regulate and report' (*regeldruk* where measurement practices became de-coupled and new forms of quality management produced incongruent and inefficient procedures (Meurs, 2014)[25]. This development thus offers another example which shows that the combination of initiatives for improvement actually may induce tensions that impede care quality.[26]

Apart from these developments, the introduction of Care Living Plans to enhance client-centeredness in 2008 impacted the organization of care in several respects. It stands to reason that the care living plans also affected the sustainability and spread of the 'Care for Better' improvements. Initially, translating the idea of client-centeredness to practice was difficult but by now everyone, from clients (!) to geriatricians and attendants, has learned to work with the Care Living Plans. These plans have a channeling function in what used to be an informal, in some ways even neglected or less articulated, 'messy' part of everyday care. To illustrate, I share one comment from a location

25. This exemplifies how at the aggregated level certain policy changes may have substantial, unexpected and even counterproductive effects. While the increased attention for measuring can be legitimized as important for sustainability, they can also produce tensions between managing for risk and quality. In this respect, sustainability can be said to be related –though not equated- to risk management (Gephart, Van Maanen, & Oberlechner, 2009). Coupling of measuring practices is instrumental to balance attention for to quality and risk.
26. Chia (1999) uses the term resonance to denote the coherence in the emerging meaning and organizational forms. We could compare it to directing a multitude of orchestras with a multitude of directors. The emergence of harmony is resonance. In my view, resonance requires alignment of isomorphic pressures to tune the mobilization processes.

manager in an organization where the Care plans are effectively used to align various practices:

> *In a way the care plan serves as a foundation; (…) it is evaluated twice a year, then we review the situation factually on a client level, centering on 'How is someone really doing? How are we doing? Are we meeting his demands or needs? ' (…) And when certain aspects are lacking, we steer for improvement with those directly involved.* (source: interview location manager[27])

Moreover, these care plans are used to create oversight of quality. For example, the location or middle (team) managers meet twice a year for a structured evaluation of care plans in a nursing home ward. These meetings can center on the actual content of the care plans; think of measuring malnutrition per location by weighing clients regularly and inspecting this module of the care plans.

> *(…) we check the computer right at the spot and then… a click on a button, because that's how it works, really! Then you can immediately show what … to all the team managers in the evaluation meeting. (…). For each client we then check: "Hey! Is the plan still in line with what we agreed with one another?" (...) and he can take action indirectly or directly in his own team; reports the findings to them and back to the unit, to share "this is what shape we are in" …. And I have to say that it really helps to improve quality, also in reporting.* (source: ibid.)

In this example, the care plans are used in several organizational routines for quality and these strategic connections have been developed gradually: important observations from the care plan evaluation meetings are fed into other quality processes as well, by sharing these with quality committees or in internal audits. When used in this way, the care plan can enable effective forms of institutional layering (Bovenkamp et al., 2014), because it covers a lot of aspects of quality, and as such, it can have a key role in coupling practices, on the client level as well as on higher levels of quality management. However, such new supporting routines were not a given, as they also needed to be developed—in that sense, implementing the care-living plan required substantial organizational changes, and was not a straightforward exercise for many care organizations (van Loon, 2015).

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27. Source: an interview by dr. T. Broer with a high level manager and a board member in a large Dutch organization for elderly care. My gratitude to dr. Broer for sharing the material. Analyses of the data have been reported in '*De rol van de bestuurder bij patientveiligheid*' (Broer, Stoopendaal, Strating and Buljac, 2013).

> (…) Now we know the way, to colleagues far 'way to find it,
> And Care for Better man, it has made us united. (…)
>
> Food in squares – it is past forever,
> We choose from bowls… and tables do look clever! (…)
> Care for Better put quality right in the spotlight,
> And for the customers of Vilente that is way better than "alright" (…)
>
> While Care for Better now is done and over,
> in Vilente we just keep goin' and goin' (…) [by C. Putman. 2012]

**Figure 8–6** Illustration of the program as social movement: excerpts of Care for Better rap

### 8.2.4 The program and its adaptations

Some of the effects of the program were social, in the sense that 'Care for Better' created an authentic social movement in the sector, which triggered an authentic desire for change and for quality of care in professionals. Moreover, the mood was quite positive in general. To illustrate, one project leader sung a rap at the final celebration day for the end of program in 2012. Figure 8–6 shows some excerpts of the lyrics. In many ways, participation in 'Care for Better' reinvigorated a sense of professional pride. The program showed that change is possible and it empowered professionals. And the encounters between professionals in the conferences of the program may have eased their solitude and served to counter feelings of powerlessness. In this sense the 'evangelical isomorphism' in the program was partially effective, in particular in combination with mimetic forces pushing the use of certain practices: it did increase the wish in professionals to imitate other organizations. Moreover, it demonstrated that in other places the seemingly impossible was possible or doable. Obviously these isomorphic pressures entailed an appeal to the nobler motive in professionals and strengthened morale in a sector that was under heavy criticism and suffering from demoralization. In addition, the projects made visible some of the hard work done by professionals and a way to market it: they could associate themselves with the 'brand' Care for Better. The efforts were not just some professionals trying something; they were part of a serious quality improvement program, with support from authorities such as the Dutch Ministry for Wellbeing, Health and Sports. This authoritative background of the program also served to validate what the professionals were doing. And it served was a way of backing up professionals, when they had to justify interventions or investments to their managers—since 'strange eyes were looking at their care' (Broer, Nieboer, & Bal, 2012). Nevertheless, despite these positive forces, from our findings it is also clear that much more is needed than these forms of isomorphism when it comes to organizing for sustainability or spread.

While it ran, the program evolved to meet newly discovered demands and needs. One could say, that it was a learning organization itself. In the later rounds. In the second phase of the program, the scope, content and improvement methods were adjusted, to remedy some of the initial problems with regard to sustainability and spread, and to strengthen the managerial embedding of projects. In other words, the emphasis has shifted from implementation of best practices in phase 1, to enhanced attention for the role of leadership, links with care education and the need to create forms of knowledge management to retain and transfer knowledge gained, in phase 2.

Strengthening leadership in the program activities will aid quality improvement, because it may secure the levels of mobilization and thereby steer the editing processes (Sahlin-Andersson, 1996). And as I have argued in the previous sections, mobilization requires commitment not only at operational level, but also at management level to invigorate leadership—and strategizing for quality improvement—in other locations to enhance mimetic isomorphism. Naturally, spread can be greatly stimulated if the receiving locations want to imitate a certain practice. And to this end, involvement of high-level management is key, to link the practice at hand to the local discourse, frame it in connection to the meta-narratives, to create coercive pressures through regulations, and to mobilize powerful actors to change norms. It comes as no surprise that more subprograms were started to support managers with organizational development in phase 2 of 'Care for Better'. In fact, both 'Care for Better' 2 and 'Into Care' targeted the role and involvement of high level management and the development and implementation of quality improvement strategies. Since, at least to my knowledge, no evaluation report has been made public on the 'Into Care', it is neither clear to what extent this program is effective, nor to what extent it has remedied some of the weak points of the 'Care for Better' program.

Aside from strengthening managerial skills and focus, another development contributed to long-term effects of quality improvements: teaching improvement skills to students in health profession courses. This has been one of the main goals of phase 2 of the program, to invite more collaboration between care education institutes and the care organizations, and to strengthen alignment of nursing courses with the current innovating practices in organizations (ZonMw, 2010). Training future professionals in innovation skills affects the norms (and thereby the outcomes) for quality improvement in this professional group. From institutional theory, it is a means to enhance normative isomorphism. Whereas, phase 1 of 'Care for Better' stressed the need to implement best practices and thereby articulated mainly mimetic processes (organizations wanting to imitate), and coercive isomorphism played much less a role (organizations did not necessarily feel obliged to use similar norms and forms). Moreover, coercive isomorphism was rather weak in the first phase, because the role of regulating actors was under construction; e.g. the Norms for Responsible Care were still being defined and translated into

measurable indicator systems in the period 2005-2008. As the program progressed, more and more regulatory structures were installed and the coercive pressures develop in convergence. This means that the institutional levers for sustainable change have become stronger.

At the same time, as noted before:, there are many more changes on the way in Dutch health policy, and some shifts in attention. Particularly the shrinking labor market issues have gained urgency. To date, there are still ongoing, heated debates about the quality of long-term care. To illustrate, in the fall of 2014, the father of the Dutch minister for Health Wellbeing and Sports, Mr. van Rijn, complained about the quality care for his wife in a national newspaper; he voiced many peoples' concernstriggering public outrage (De Telegraaf, 2014). Recently in 2015, the new long-term care system has been implemented with a couple of serious startup problems. To mention one: the financial refunding procedures in the personal care budgets were allocated to an alternative institution, who was not able to process and refund the declared costs, leaving professionals and clients in financial stress for months. On the whole, the wider institutional environment confronts organizations with a complex change agenda, which requires strong dynamic capabilities; and it is likely that pursuit of this change agenda will bring about various forms of creative destruction, both on the micro as well as on the meso-level.

In short, it is striking in the development of the program over the years, that the attention for leadership has grown hand in hand with the awareness to embed knowledge and skills for quality improvement in related subsidiary structures, such as in professional educations systems; thereby creating increased normative isomorphism (DiMaggio & Powell, 1983). The internal mobilization processes in the organization are strengthened through the stronger leadership for quality improvement. On the other hand, when the professions change, this should provide pressure for quality improvement bottom-up eventually, so that, in the end, also mobilization processes will benefit, when professionals have the capabilities and skills to contribute to these because of their training. Still, augmenting the scope of the program to also align with the educational organizations was yet another challenge. As Stoopendaal concluded in her evaluation of the educational projects (iBMG, 2012): the educational sector is wholly another field, with its own institutional structures and corresponding dynamics. Linking between such diverse institutional fields raises yet other challenges than the ones discussed in this dissertation.

## 8.3 CONCLUDING REMARKS

In this chapter, I reviewed the main findings with regard to the improvement projects and reflected on how these may have been affected by some of the circumstances at

the organization level, in the wider environment as well as in relationship with the 'Care for Better' program. Let us return to the four questions raised at the beginning of this chapter:

1. To what extent and how have the improvements been sustained?
2. To what extent and how have the improvements been spread within organizations?
3. How are local context factors associated with sustainability and spread of changed work practices at the local level?
4. How are conditions and developments in the wider institutional environment (at the field level) related to sustainability and spread of changed work practices at the local level?

With regard to sustainability and spread, some differential results were revealed. On the one hand, sustainable changes have been achieved in care practices in many respects. On the other hand, spread to other wards or units has been lagging. A closer look at the organizational context demonstrated that sustainability and spread are intimately related to the organizational functioning, and its existing structures and processes. In fact, to engage in quality improvement requires a certain level of improvement capacity, which should be primarily directed at the quality problem at hand. The importance of these adaptations and the development of this capacity is explained in relationship with mobilization: some adaptations influence how organizations deal with isomorphic pressures, and how certain forms of coupling are adjusted, both in view of routinization and institutionalization, as well as for imitation and editing to achieve spread. Isomorphic pressures are not only found in the external environment. Rather, the complicated internal isomorphic pressures make mobilization vulnerable, particularly in large care organizations with a high number of (dispersed) locations. In view of this structural complexity, 'decay' indicates a decline of attention, which lowers the mobilization needed for institutionalization. It comes as no surprise that in view of all such processes taking place, it can be expected that quality improvement works best as a sequence of mobilization periods, rather than one project. This does not mean that project-bound improvement is ineffective. Rather, it means that it is likely that this is not sufficient to make sustainable changes. Moreover, it is important to clearly determine the scope of a project – to mobilize means to focus. That is, the attention should be *divided and constantly travel between* problem analysis, intervention development, implementation, routinization, institutionalization, imitation and editing by other wards or locations. The sequential quality of quality improvement process needs to be accommodated in the organization of quality improvement, i.e. how mobilization processes are organized. Likewise, in quality improvement *evaluation,* internal in organizations as well as in

quality improvement evaluation research, more attention could be given to sequential quality of quality improvement process across periods of time.

The program played a double role with regard to how the participating care organizations mobilized themselves for quality improvement. On the one hand, the program fired up activity, inspired, empowered and triggered the desire to improve and to imitate other organizations. The program has enhanced long-term strategizing in care organizations, even when, initially, the project faltered. On the other hand, the program methodology was strongly centered on best practices and hence, processes of sustainability and spread were much less articulated. Likewise, higher-level strategizing was needed to generate managerial support and to negotiate for adaptations in the organizational context to provide adequate quality improvement resources in the long run—yet this appeared to be partially neglected in the 'Care for Better' projects. These flaws were also visible in the results in the long run. The program evolved positively in view of these observations: projects in later rounds benefited from emendations and subprograms were developed to support more specific quality improvement processes; to create more convergent developments in the field. We suspect that this contributes positively to sustainability and spread of the improvements in the targeted care practices.

This dissertation largely centered on the interplay between organizational and quality improvement processes. However, the chapter at hand also offered starting points to gain insight into role of the wider environment. There are multiple 'external' sources of sustainability, which may facilitate or impede mobilization for a quality theme, either by directly affecting the quality improvement process or alternatively by impacting organizational conditions and processes related to mobilization. This impediment may have been aggravated by some of the problems in the organizational functioning of care organizations, which is characterized by fragmentation and decoupling of practices. Staying the course in this context is not an easy task for quality improvement strategists. Part of the effect of the program may have been that the initial problems with sustainability and spread served to confront the participating organizations and led to crisis in relation with the quality theme.

Many of the findings in this chapter can be viewed as signs of Sustainable change in relationship to the quality improvement efforts in the 'Care for Better' program. For one, never before such a large-scale quality improvement effort had been made in Dutch long-term care sector. The very fact that this effort was made is an immense accomplishment. This accomplishment made the field visible to itself. One could argue that this is one of its most important functions: the program has performative value in terms of inviting imitation, familiarizing with and professionalizing innovative practices in the sector. The ongoing policy changes in combination with the organizational weaknesses at the level of basic business administration practices together produce complicated internal organizational dynamics, which are likely to pose continuing threats for the

stability in care organizations, and thereby threats for the sustainability and the spread of quality improvement efforts. In this sense, learning organizations are unfit for Sustainability, if they are not able to resolve some of their problems in fragmentation.

# Chapter 9

# Organizing for sustainability and spread: discussion & conclusions

*How can we understand sustainability and spread of quality improvements in healthcare? More specifically: how can we describe the interplay between improvement project and organization, and the dynamics in the aftermath of improvement processes with regard to the long-term effects of quality improvements in healthcare organizations?*

This dissertation set out to explore sustainability and spread in a large-scale quality improvement program 'Care for Better' in the Dutch long-term care sector, centering on the micro-and meso-level interplay between improvement process, project and care organization. The general theoretical literature on these subjects, and particularly in the context of long-term care, is inconclusive on several vital questions. At the same time, there is a need for actionable[28] insight in the subject of long-term effects of improvement, because many healthcare systems are "in a state of crisis" as many nowadays say. Care organizations need to extend their capacities to meet demands of quality and transparency, as well as to adjust to the growing and aging populations of clients in long-term care. More insight in the long-term effects of quality improvements is required to develop and evaluate health policy and related quality improvement efforts. The need for quality improvement in healthcare goes hand in hand with a need for knowledge and understanding of quality improvement processes in this field. This dissertation aims to contribute to some of the insights called for by providing a theoretical account of sustainability and spread by integrating quality improvement literature with organization theory perspectives. Moreover, this dissertation provides a theory-based operationalization for collecting questionnaire data on sustainability and spread; and explores some alternative methods for field research in the context of quality improvement evaluation, such as a quantitative case study on fall prevention; and extending cross-sectional designs combined with latent class analysis techniques. The following sub questions guided the research:

1. How can we theorize and operationalize long-term effectiveness, i.e. sustainability and spread, of quality improvements from an organization theoretical perspective?
2. To what extent are project effectiveness and subsequent sustainability of changed work practices related?
3. How can we describe the interplay between processes and structures, outcomes of care practices and their development over time with regard to sustainability?
4. To what extent is the interplay between team level context factors for improvement capacity associated with long-term effectiveness??

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28. Actionable is a term that I borrowed from applied business research. It stands for the ease with which results at the data level can be interpreted at the practice level and translated into practical recommendations (consulting) (cf. Malhotra & Birks, 2011).

5. To what extent have the improvements in the 'Care for Better' program been sustained and spread and which factors and/or developments contributed to the dynamics in these processes?

To answer these questions, this dissertation presents five empirical chapters and one integration chapter on the findings in view of the program and the Dutch care sector. This final chapter takes stock of the knowledge gained in five sections. First, in Section 9.1, we expound on the empirical findings of sub questions two to four. In this section we[29] synthesize our main findings in two themes: 1) sustainability and spread as part of the improvement process; and 2) the interplay between organizational context and the processes of sustainability and spread. After that, Section 9.2 addresses some theoretical implications with regard to sub question one building on the empirical findings. Third, in Section 9.3, we reflect on the research methodologies used and how sustainability and spread can be operationalized in evaluation research. Fourth, in Section 9.4, we draw our final conclusions and formulate a few recommendations for health policy and future research on quality improvement in healthcare.

## 9.1 DISCUSSION OF FINDINGS ON SUSTAINABILITY AND SPREAD

At the start of our research, little knowledge was available about sustainability of quality improvement in healthcare both on the conceptual as well as on the empirical level. In this dissertation, we took up these challenges. To this end, we have developed a framework for studying sustainability and spread and created theory-based operationalizations.

So, what have we learned about sustainability and spread from the previous chapters? First of all, in our theoretical framework we posit that sustainability of a changed work practice entails processes of routinization and institutionalization. In our empirical studies, we have used this framework to assess sustainability in the improvement projects in a follow-up data collection. We have seen that routinization and institutionalization were regarded moderately positive by the larger part of the improvement teams. From Chapter 6 we have learned that the fall prevention projects did yield substantial changes, which were sustained in both outcomes as well as in process and structure indicators. On the other hand, from Chapter 5 we learned that outcomes at the end of a project are only weakly related to subsequent sustainability at the practice level afterwards. The effectiveness of an improvement project in outcomes is foremost related to the routinization of a changed care practice; and somewhat less to its institutionalization.

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29. Consistent with the other chapters in this thesis, this final chapter uses 'we' and 'our' to indicate the narrator. As you might have noted, in Chapter 8 the narrator was referred to with "I" (as a subject). The main reason for this exception is the reflective character.

In addition, in Chapter 7 we saw that the making of plans for sustainability and spread was only remotely related to subsequent routinization and institutionalization. In other words, we cannot presume that the effectiveness of an improvement project indicates sustainability; and we need to be careful of what evidence is used to assess sustainability.

Furthermore, as Chapter 6 on fall prevention illustrates, the work practices were evolving over time; indeed, both outcomes and processes were subject to substantial changes. These developments were also resonating in the routinization and institutionalization as experienced by the care teams in our cases. These findings suggest that the improvement process in general and sustainability need to be considered in view of the actual performance; we need to look beyond the installation of formal organization structures. To sustain means more than having a certain structure or working method in place, rather it requires cultivating its use at the level of organizational routines. Moreover, sustainability entails ongoing adjustment in a work practice and its embedding (also referred to as 'editing', see Chapter 2); and therefore the aftermath of any improvement process is inherently dynamic.

Building on our framework of sustainability of changed care practices, we theorized spread as a process through which ideas are imitated and edited in other units in the organization. The main premise is that spread requires mobilization by senders as much as by receivers. The senders may engage in what are typically called activities for dissemination; they edit a prototype of their practice into a complex of 'packages' (often documents about a practice and how to adapt and introduce it) and share their knowledge and experience with receivers. Receivers, on their part, need to mobilize themselves to unpack and edit the packages, and to develop their imitations in accordance with the specific demands of their own setting. Following Scandinavian institutional theory, the editing process is shaped by the translation of the meanings about the changed practice to fit to the meaning system at hand (Czarniawska-Joerges & Sevón, 1996; Scheuer & Scheuer, 2008). Moreover, local meanings are related to the larger meaning system within organizations as well as related to meanings in the wider institutional environment.

Findings concerning the spread of quality improvements to other nursing home wards or departments in the organization showed that in many cases the spread was problematic or lacking in the eyes of the improvement teams: they were not satisfied with the activities for spread which had been undertaken after the project. Also, the results suggest that these teams did not succeed in engaging other departments to work on implementation of the changes in their work practices. This seemed to be in contrast with the positive evaluation of sustainability. At the same time, processes for spread appeared to be rather strongly related to institutionalization. A possible explanation for this is that both institutionalization and spread are harder 'to orchestrate' because they

require more high-level managerial involvement; at least, more than routinization which can be arranged largely on the local level.

All in all, a key point in our observations is that most of the improvement projects encountered quite dynamic and diverse aftermaths. Secondly, project effectiveness and even making plans for sustainability and spread may be important but these cannot guarantee a straightforward process with regard to sustainability and spread. This corresponds with Dooley and Van de Venn's (1999) claim that organizational change entails a process with punctuations, shocks and setbacks. As argued in Chapter 7 and 8, the project is instrumental and served some very different purposes in the participating care organizations. For some teams the project was a platform to experiment, for others it was a means to consolidate more mature improvements.

Given some of the problems in sustainability, our findings raised questions regarding value of Breakthrough Methodology. As noted in Chapter 8, Breakthrough Methodology revolves around implementing best practices. In consequence, intervention development and implementation were the main tasks in the projects and in the program activities. In some ways, this can be understood as a design error of the program; we call this 'project myopia'. a lack of attention paid to sustainability and spread was built-in from the start in the design, because they were much less prominent themes in the projects, in spite of the ambitious initial targets which had been formulated in the program. What we can learn from this, is that the projects serve to frame and organize the improvement process. Apparently, in this frame sustainability and spread often receive low priority and can to be left rather undefined for a long time.

Our research concentrated on some interplays between organizational context and sustainability and spread. The variation in team level improvement capacity was studied in Chapter 7. To our knowledge, this is one of the first studies that demonstrates how team level context is associated with subsequent sustainability, continuous improvement and spread. In this study, we used latent class analysis (LCA) techniques to develop team profiles. In the LCA modeling, three clusters of improvement teams were identified: Low Capacity Improvers, Middle Course Improvers and Strong Focus Improvers. This study revealed that teams with high levels of improvement capacity later also stood out in terms of sustainability and spread, also this study revealed that these teams were ahead in continuing to improve in the quality theme at hand as well as in other themes. Furthermore, the results showed substantial variation in long-term effects amongst the weaker performing teams. On the one hand, some teams experienced difficulties in sustaining and spreading changes. On the other hand, there were several teams that continued their improvement work and achieve moderately positive levels of sustainability in spite of initial low capacity for improvement. However, teams with weaker improvement capacity were inclined to confine their efforts to enhance the sustainability

and it follows that these teams refrained from investing time and effort in spread as well from designing new, next interventions and/ or improvements.

Looking at the characteristics of successful teams, we noted that these teams appeared to be fortunate in terms of their own skills in improvement practices. Aside from skills, the leadership at the team level was also stronger than in other teams. Moreover, successful teams were actively supported by high level management and board members; also they were likely to receive resources for their quality improvement work, such as time and financial means. Finally, we also note that these teams were more able to develop and maintain effective measurement systems, and they were more likely to use measurements in various monitoring practices. Developing such quality management structures for a project often requires a certain level of strategizing[30] across organizational units. In other words, the improvement capacity in these teams contributed to the mobilization for developing new work methods as well as for sustainability and spread.

What is more, our findings revealed that the variables related to motivation and commitment had relatively little predictive value with regard to the long-term effectiveness of quality improvement efforts (as seen in Chapter 7, LCA modeling with covariates). Based on our framework and these findings, we argue that mobilization entails more than mere motivation at the local level. This is important, because change management literature traditionally emphasizes motivational aspects. When we try to explain the lack of lasting effects, this is often attributed to the performance of the project team, which was not 'able to motivate every one'. A common solution then becomes to enhance the communication 'to take away resistance'. While communication about a project is key, it should serve more than persuasion to adopt and other forms of cognitive compliance. It should lead to sufficient and specific mobilization in various actors to initiate and effectuate quality improvement processes in terms of the imitation and editing of care practices.

Moreover, our findings corroborate the idea that materials play vital roles in routinization and institutionalization as well as in the processes related to spread. Materials are inscribed with skills, tacit knowledge, rules, procedures; both their symbolic value and practical form deserve our consideration (D'Adderio, 2011; Oudshoorn & Pinch, 2003). The complex role of materiality can be understood when we consider the process of translation, which entails interactions between heterogeneous elements: people and materials. D'Adderio (2008) speaks of "heterogeneous organizational communities with distributed agency". There is thus not one type of actor to consider but multiple

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30. Here I draw from Jarzabkowski (2005) who theorizes the concept of "strategizing" building on Activity theory, which describes organizational learning (Engeström, 2007). "Strategizing" means that many actors are involved in interactions which contribute to the development and implementation of a strategic objective. From this point of view, strategy is more than a task or idea of high level managers: it is a collective process through which strategy emerges.

actors with multiple roles and agencies; there is not one type of material to consider but multiple materials; with each multiple influences and interactions. For example, consider an improved guideline for dealing with sexuality and prevention of sexual abuse. It may be used by nurses and attendants to look up what to do in various situations, but it can also be used to negotiate further investment in board meetings. In the former situation the guidelines' extensive format may suit the users. In the latter situation, the extensive format may not be suited because board members as secondary users[31] are not likely to spend a lot of time to read lengthy documents and they do not need to be informed at that level of detail.

### 9.1.1 Organizational interplay

On the whole, our findings suggest that long-term effects are indeed to a large extent shaped by the local functioning of the organization, which may or may not be directly related to the quality theme at hand. This observation confirms to Yin's claims, already in 1978 that "The major conditions for routinization are internal. External agency support needs to be designed with more sophistication to be effective given this characteristic." (p. vi) When a project is finished, this does not imply that the improvement process is finished—nor can we expect it continue in a linear way. Here too we observe that sustainability and spread cannot be guaranteed after a project and involve dynamics with varying results: leading to lack of continuation after a project or to sequential forms of improvement with 'now for real' projects and late bloomer effects. These findings underscore the importance of the interplay between organization and improvement processes. To achieve long-term goals, the teams need a certain level of skills to work on improvements, support of higher management and resources. In other words, quality improvement requires certain qualities and a certain level of skill in an improvement team to enable an improvement process as well as some organizational support. Some projects may have been painful in that respect, because they revealed the absence or shortcomings of such organization-related capacities. We emphasize that not only the practice needs to be embedded in the organization, also the project and the quality improvement process require some level of embedding in the organization to obtain

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31. Here I draw from Science and Technology Studies in which various perspectives on users have been proposed. Oudshoorn (2003) and Akrich (1992) developed the notions of user configuration and inscription of roles and responsibilities in materials. If we want to sustain a work practice, it is important to take actors in routines into account, as well as to pay attention to the actors that are remotely connected to that practice and who may only be encountered when we study institutionalization. The former could be considered primary users of a changed work practice, the latter secondary users. Routinization then can be understood as primary user configuration; institutionalization as secondary user configuration. Clark (2005) also underscores the importance of what she coined 'implicated actors'.

access to resources, support and decision power; and these factors also feed into routinization and institutionalization.

Related to this, Chapter 6 also concentrated on the interplay between organizational context and the improvement process. This chapter investigated fall prevention practices in three care organizations in a period of four years. The first case concerned an example of strong quality improvement and balanced development of sustainability; both routinization and institutionalization were evaluated moderately positive. These developments were already visible in the developments in the outcome, structure and process data. In the second case, it seemed that only partial sustainability was realized and there were signs of decay: the institutionalization seemed to lag and the indicator-data also revealed some signs of backsliding. The third case demonstrated classic backsliding. While some changes were visible in the processes, in the outcomes more fall problems were reported. At the same time, the client-staff ratio went up and the organization went through a merger. From our theoretical perspective, we infer that routinization and institutionalization are facilitated when changes in practices are built on existing practices and when structures are combined and complementary to each other. Second, materials are used as junctions between routines for a care practice as well as in routines related to supporting conditions. Materials were seen to play some important roles in the care practices as well as in the improvement practices related to these, both during the projects as well as later.

Aside from these interplays, we observed that in various ways the improvement process was also directly or indirectly affected by processes in the wider organization. As argued in Chapter 8, internal organizational developments were likely to distract attention or pose a threat for improvement processes and long-term effects. Sometimes, it was decided that an alternative improvement theme would be pursued and the improvement process was supplanted or postponed. Indeed, there seem to be many quality themes deemed urgent and subject to fashion in long-term care, thus creating tensions and discontinuities in the strategizing practices which echo in the sustainability and spread of improvements. As noted in Chapter 1, there was a wave of mergers in the long-term care sector which also affected many of the participating organizations in the program. What is more, such organizational changes may directly impede processes of spread, for example when administrative systems are not aligned yet, as seen in Chapter 8. To be more specific, mergers often invoke rearranging locations or nursing home wards. This can influence the care practices directly because when the 'set' of actors changes, organizational routines change (Feldman & Rafaeli, 2002). In particular, mergers can affect routinization of a certain care practice when changes in the organizational processes (unintendedly) damage parts of the collective organizational memory, the shared sense-making in the actors and the organizational routines related to the care practice.

### 9.1.2  Relations with the wider institutional environment

Aside from internal developments, the field of long-term care has also witnessed various changes in policy that may have put pressures on the participating organizations. As argued in Chapter 8, some of these developments might have contributed positively to the targeted quality theme and the sustainability. The roles of the Dutch healthcare inspectorate (IGZ; Inspectie voor de Gezondheidszorg) and the Healthcare Authority (NZa; Nederlandse Zorg Authoriteit) have been reformulated and this has led to an increase in quality monitoring. When analyzing fall prevention in Chapter 6, we mentioned the following policy changes: the introduction of a new guideline for fall prevention, the subsection on fall prevention in the Norms for Responsible Care, and the inclusion of fall indicators in the National Problem Survey (*Landelijke Prevalentie Meting in de Zorg*, LPZ). These can be considered external sources of sustainability because they influence intervention development or regulatory processes related to a practice in rather direct ways.

On the other hand, we underline that it has been *and still is* a dynamic period with some profound changes in the Dutch health system: there are new demands in the norms for quality of care on a content level as well as concerning the transparency; and these are increasingly assessed with various indicators and measurement systems. More recent reforms entail that care organization are responsible for covering their housing costs with the care revenue. The intention is also that care organizations close down some of their locations; forcing clients to be moved to other locations. In combination with these changes, three healthcare policies are implemented simultaneously to transform the provision of lighter care services from healthcare organizations to volunteers and informal care services and to cut down the use of lighter services.

Moreover, many large-scale improvement collaborative programs have been initiated since the 'Care for Better' program (see Figure 8–5). Paradoxically, the increased use of these policy instruments may actually pose a threat to sustainable change in the sector: while these programs call for sustainable change, at the same time they seem to frame that change in a non-sustainable way. Each individual program targets a specific local improvement process, but together these programs also complicate the institutional environment of the sector at large. Firstly, they create a multiplicity of impulses that organizations can and have to respond to—each program is an invitation. In line with this, many care organizations have increased their expenditures on writing proposals to compete for subsidized forms of improvement. Secondly, the programs have different foci, which may lead to shifting the strategic agenda rather than to maintaining a certain course. Third, we note that each program harvests a vast amount of quality instruments which often remain unused. There is a proliferation of knowledge production and documentation, which creates more questions of spread (dissemination). To illustrate, the final ZonMw report on the 'Care for Better' program lists over 500

sources which were created in this program (ZonMw, 2012). Another example: a recent study on health innovation in the Dutch province Limburg surfaced 253 best practices / innovations which 'now only need to be spread' (Thoma-Lürken et al., 2015). So, whereas new programs might elicit 'now for real' projects, the proliferation of goals, best practices, and measurement systems that come with these programs, as well as the need to increase administrative capacity to acquire projects and manage them in fact often leads to distraction of the required mobilization processes for sustainability and spread of a changed care practice.

All in all, we can question the increased use of quality improvement programs because they complicate the (institutional) environment of care organizations (Greenwood, Raynard, Kodeih, Micelotta, & Lounsbury, 2011) and possibly—and quite likely—have distractive, maybe even disruptive, effects. We are witnessing the growth of a semi-public 'industry' of improvement of long-term care.[32] This 'industry' is based on project-bound improvement, stemming from popular frames of thought (rationalization) The growth of this ' industry' is facilitated by certain interdependencies between QI methodology and the organizational strategies for quality improvement, which in combination eventually create built-in problems in sustainability and/or spread which then on their turn necessitate starting a new, next project: a 'now for real' project. At the level of programs, these mechanisms could multiply into a sector-wide need for a 'now for real' programs': yielding sequences of improvement programs with 'frequent flyer' care organizations. As Armenakis and Bedeian (1999) wrote: "(…) change initiatives take on a 'program of the month aura' " (p. 312). This concern that care organizations may be developing a potential addiction to improvement programs and projects thus neither new nor unique. We need to be critical about the value of the emerging improvement policies for achieving *sustainable* change of care practices[33]. The bulk of the variance in quality improvement effectiveness is not explained by specific methods or factors, but by the organizational functioning and this is why evaluation research should attend to the larger picture.

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32. To explain this concern, consider the case of the diet industry which emerged in the 1940s (BBC, 2015). This documentary showed that this industry flourishes in spite of ample evidence that demonstrated that on average after less than two years the participants are likely to be back on their starting (over-)weight. In other words these "solutions" do not work. Instead, effective weight loss is foremost depending on the changes in lifestyle. Likewise, we want to emphasize that sound quality improvement is foremost the result of sound organizing.

33. There always is a tendency to isolate an object of research when we demarcate it—we frame it and the rest becomes 'context'. Improvement projects (as well as at a higher level QICs and even healthcare policies) are often studied as singular entities. Therefore, much is unknown about the aggregated effects of multiple improvements. This is yet another reason why it would be commendable to change the scope and unit of analysis in evaluation research, from the single project level to the organizational level. Strangely, this subject is neither considered point of discussion theoretically, nor with regard to the designs in evaluation studies. In line with this, we noted that researchers rarely take expected effect sizes into account in the design of evaluation studies.
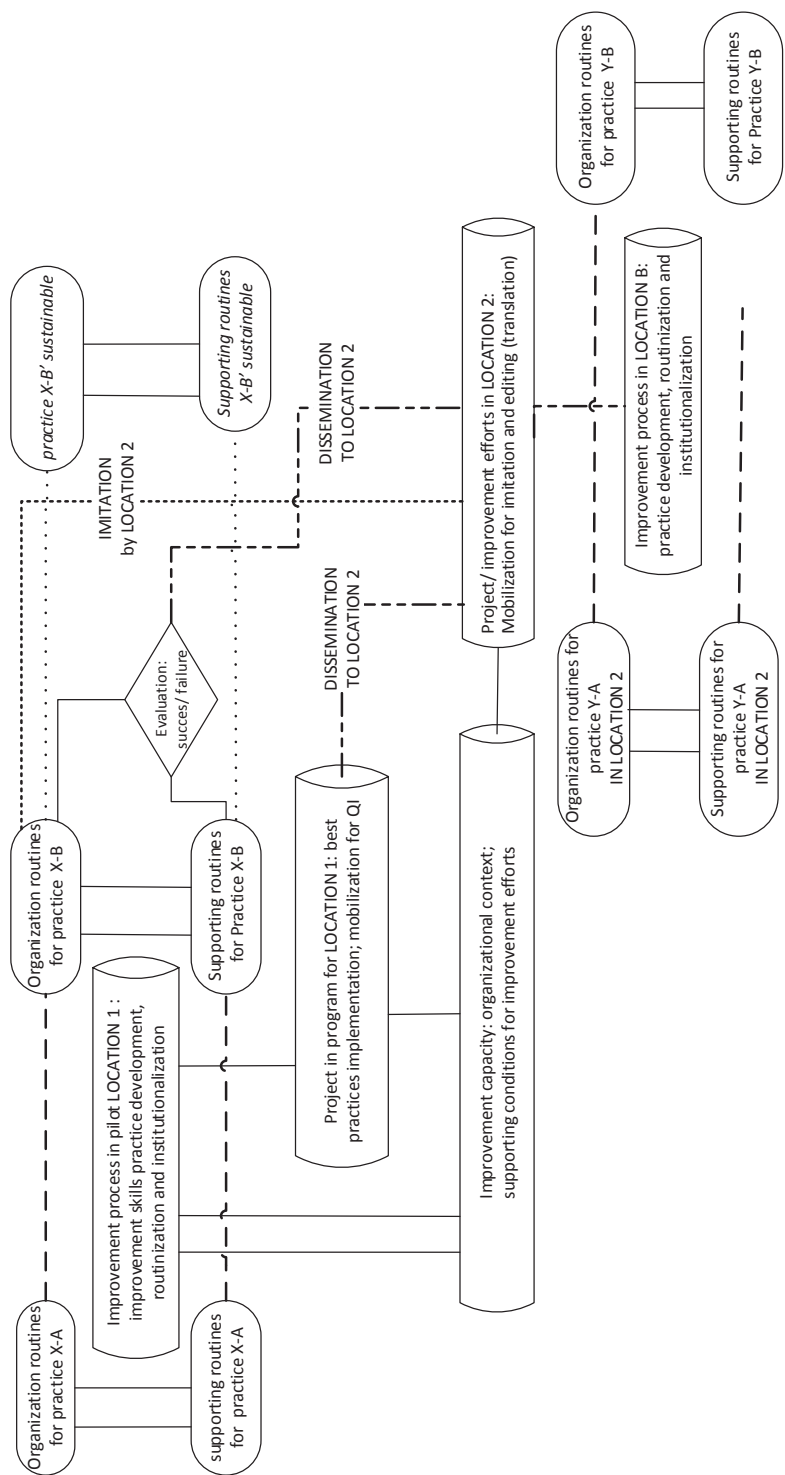
**Figure 9–1** Graphic representation of DRI-IME framework for sustainability and spread

## 9.2 THEORETICAL IMPLICATIONS

A main objective of this dissertation was to develop a theoretical account of sustainability and spread. In this section we will discuss the theoretical issues which emerged from our findings with the aim to extend our theoretical framework.

### 9.2.1 The DRI-IME framework for sustainability and spread

Starting point of the framework is the idea to describe work practices as built from organizational routines. In this framework we tied together two theoretical perspectives from organization theory: Routine theory and Scandinavian institutional theory (based on Institutional theory and Translation theory). Moreover, our framework seeks to offer a process perspective and is building on views brought forward in Process Organizing Studies (Hernes, Maitlis, & International Symposium on Process Organization Studies, 2010). For this reason the model is founded on the premises that both the organization as well as practices need to be understood as dynamic, consisting of ongoing, emerging interactions and not as static entities. The framework *for sustainability and spread of changed work practices* can be denoted with the abbreviation DRI-IME (pronounced: dream), which stands for *Dynamic Routinization & Institutionalization (for sustainability), IMitation and Editing (for spread)*. In the DRI-IME framework sustainability comprises two kinds of processes at the local level in organizations: routinization and institutionalization. The core idea is that sustainability entails a combination of processes that enable the cultivation of changed care practices at the level of the organizational routines, as well as the reproduction of supporting conditions for those routines. This then means that sustainability indicates the embedding of a changed work practice through the mutual, ongoing and dynamic adaptation of the pertaining organizational routines as well as through alignment with the organizational context. In short: sustainability of changed care practices means keeping routines alive and up-to-date. While a routines' enactment ensures its existence, its mere existence in certain principles does not guarantee its enactment *in a certain form*. In Figure 9–1 and in Additional file 25[34] a graphic representation is offered.

Our next goal is to explain how sustainability and spread pertain to the process of quality improvement at large. To this end, we will apply Scandinavian institutional theory, using the concept of 'action nets'. Through this exercise, we want to detail how the process ('becoming') perspective which was described in Chapter 2 may contribute to our understanding of improvement work as requiring a dynamic set of processes in relationship with everyday organiz*ing* (Czarniawska, 2008). To start, let us return to two

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34. In this figure the arrows should be bent to underscore the emergent and dynamic quality of the improvement process and organizing perspective; in Additional file 25 we have provided such a figure. In Figure 9–3 which illustrates lack of sustainability  the arrows are bent. Additio
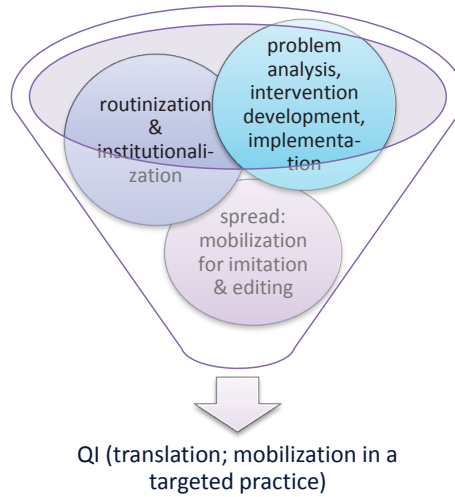
**Figure 9–2** Graphic representation of the quality improvement process

core concepts in institutional theory, mobilization and routine reproduction procedures (Jepperson, 1991; Scott & Meyer, 1994). While mobilization refers to incidental action, routine reproduction procedures are stabilized action patterns. In any social system these two modes of organizing can be distinguished. Applying this distinction to quality improvement processes, the different activities for quality improvement can be understood as forms of mobilization[35].

Quality improvement mobilization comprises not only problem analysis, intervention development, implementation, routinization and institutionalization and processes of spread within the organization. In our view, sustainability and spread should be conceived as parallel processes along with problem analysis, intervention development, and implementation, which are all forms of local editing, that is, of adjusting interventions (packages of ideas) to local contexts.

In line with this, we hypothesize that effective forms of quality improvement balance the attention for all of these mobilization processes. Conversely, an improvement process can be ill-balanced, in the sense that it is oriented too strongly to some of these processes, neglecting others, thereby impeding alignment between the practice and its evolving organizational context. This we have called *project-myopia* in Chapter 5 meaning that the focus is too exclusively on intervention development and implementation.

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35. See the work by Lounsbury and Crumley (2007) for instance. Their practice creation theory describes mobilization, performativity and theorization through interactions among a broader array of actors. In their view, institutional change practice creation " *(…) is a reciprocal process that includes the emergence of anomalous activity, the problematization of extant practices, social recognition of an innovation, and political processes.*" (p. 1006)

We suspect that isolation of improvements can only be combated with more substantial mobilization work afterwards; to re-connect the quality improvement process to the organization.

A teacher in painting once told me: '*do not to focus solely on the nose, or another part of the face, when drawing a portrait*'[36]. The main reason behind this advice was that portraits are likely to become fragmented in their composition. When the other parts are added later on, this will always show in the final picture. Instead, the painters' eye should continuously travel the picture, which should emerge as a whole. Weick (2010) has called managers *poets* for this ability: to articulate what attention is needed for various organizational processes: sometimes strategic, sometimes more tactical. Likewise, *poetry of mobilization* refers to the need to shift attention while at the same time maintaining adequate focus in quality improvement efforts.

Based on these assertions, the improvement process can be conceptualized as a composite that includes various mobilization processes amongst which sustainability and/or spread. See Figure 9–2. Now how is this related to the idea of organiz*ing* in action nets? According to Czarniawska (2008) the organization as we know it, actually is a *temporary effect of an action net that exists through ongoing organizing in a given time and place* (p. 18). The action net connects actions; and the actions shape the inter-relationships between the actors[37]. We can conceive 'the organization' as a large action net which is built from various smaller action nets, in which a care practice for a certain quality theme is interwoven (ibid.). For example, eating and drinking comprise various actions in everyday practices in a care home. The action net for eating and drinking is connected to other action nets, such as medication distribution rounds, or cleaning the clients' rooms, or administrative and financial procedures. An action net includes organizational routines, but also includes other elements that are not necessarily part of a routine (informal actions, everyday life). This overlapping quality of organizational action nets is what Deleuze and Guattari call a rhizome: the structure of the action net at large does not have to be fully linear, symmetric or geometric; rather it is bulblike, clustered and intertwined; it expands 'horizontally' rather than in a hierarchical way (in: Chia, 1999; see also Hallward, 2006).

We argue that in quality improvement processes two layers of action nets (rhizomes) are connected and co-evolve: 1) the targeted care practice consists of (an) action net(s), and 2) the quality improvement process comprises organized efforts to change the targeted practice, and to this end *temporary action nets* are created. The main aim of the improvement processes is to loosen up and alter the existing action nets for a care practice (Chia, 1999). However, this may require substantial temporary action nets that

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36. Gunter Heijnen (2002). Teacher in visual arts, DéKunsthumaniora, Antwerpen.

37. Note that this contrasts with Actor-Network-Theory.

serve various forms of quality improvement mobilization. The notion of improvement capacity posited earlier can be used to understand this mobilization as capacity of 'the organization as an action net' to create purposeful movement and to create the required action nets for a changed care practice.

Some of the problems in quality improvement are found at the junctions of action nets: improvement teams simultaneously create (temporary) quality improvement action nets as well as concern themselves with the action nets of a targeted practice. This can be difficult and consuming—for this reason it is easy to use quality improvement methods, *to create stabilize action nets* for quality improvement. Novice improvers may experience difficulties because the mobilization processes lack improvement capacity. This lack is always situated: a dynamic environment with contradicting isomorphic pressures sets different demands in terms of mobilization action nets than a more stable environment. Part of what mobilization is, is the capacity to deal with the institutional complexities, to influence internal isomorphic pressures, and to neutralize threats for the improvement action net (Greenwood et al., 2011).

Greenwood et al. (2011) argue that we can expect enduring institutional complexity both within organizations as well as at the field level in the healthcare sector. The institutional complexity partly explains some of the difficulties often experienced in the alignment of practices with other activities and practices in the organization (Stoopendaal & Bal, 2013). In relation to this certain aspects of leadership are important: those forms of leadership that articulate various quality improvement processes and serve to embed these in the ongoing strategizing activities of the organization (Jarzabkowski, 2005). There is a growing body of literature on organizational responses to institutional complexity that offers new avenues to understand how quality improvement efforts are part of and affected by strategic renewal (Hernes 2005; Pache & Santos 2010; Thornton, Jones & Kury 2005: all in Greenwood et al 2011). From this point of view the adaptations in Phase 2 of the 'Care for Better' program, particularly the emphasis on organizational development and scale-up, make sense because they increase the embedding at the strategic level and lever external sources of sustainability.

### 9.2.2 Sustainability: dynamics and ongoing mobilization can be expected

While effective improvement efforts may yield more or less stable practices, which can be reproduced without further hassle, after some time, some form of mobilization will probably be needed to update or adjust a practice. The need to update may also arrive from endogenous change in the organizational routines (Feldman & Pentland, 2003). The development of variations in routines eventually may produce the need to alter some of the principles or circumstances, task distributions, et cetera. D'Adderio (2008) has described this in terms of *framing* (shaping action and interpretations within a certain bandwidth) and *overflow* (interpreting or acting 'outside the intended frame'):
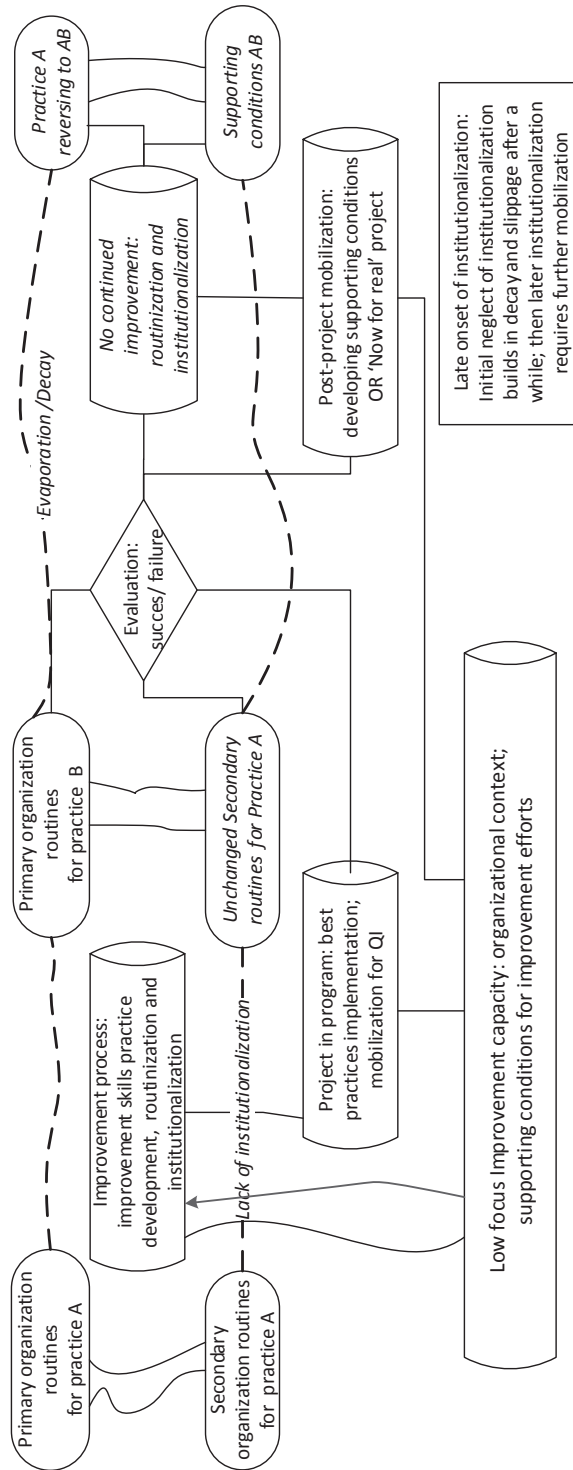
**Figure 9–3** Lack of sustainability

*(…) framing action exerted by SOP's, rules and formal tools delimits and closes search spaces providing guidance and control. (...) There is always overflowing which opens up search spaces thus introducing scope for divergence, adaptation and change. (…) Overflowing is often followed by further reframing which again brings convergence between the procedures or rules and performances.* (p. 770)

For three reasons, sustainability cannot be static. First of all, practices are evolving and yield *endogenous change*: "the tendency of a routine to change or stay the same depends on the processes of variation, selection retention that take place between the ostensive and performative aspects of the routine. " (Feldman & Pentland, 2003, p.114) The concept of overflow may help to understand why endogenous change is bound to occur and could lead to mobilization. Sustainability in these terms means that a practice can endure overflow and is reframed again and again. The second dynamic is thus that *continuous improvement in practices should enable dealing with overflow*. That is: they should serve reframing. Sustainability is thus understood as making a practice overflow-proof. That is: making a practice stable so it copes well with flow and overflow in terms of both allowing variation versus protecting 'fidelity' (i.e. avoiding too much divergence of the adhered principles). To deal with overflow requires attention, i.e. reflexive monitoring, in organizational routines as well as beyond through further mobilization (Feldman & Pentland, 2003; May et al., 2007; Miner, Ciuchta, & Gong, 2008). Thirdly, practices may change because of *exogenous sources of change*. For example some care organizations move whole wards of clients to new buildings. In the new buildings, some fall prevention routines might not be needed anymore because it has a different interior design (for example, the elevators have security access codes to prevent clients wandering of). Another example: some care aspects require more extensive recording in the Care Living Plans due to changes in healthcare laws; for example, the laws regarding use of restraints. In short, sustainability inherently suffers from what Ciborra (2002) calls '*drift*' (á la dérive), because artefacts, information systems (which in our case are care practices) always afford some room for (re-) interpretation and variation and thereby will evolve in a non-linear, non-evolutionary way:

*Tactics stay glued to things and situations: they allow for a detailed reading of affordances and the discovery of new ones. …artefacts and people become the springboard for new actions, for further tactics: the reregistering of the world through the disclosure of the dispositions (hidden affordances) keeps the everyday world moving, and makes bricolage and improvisation into sources of innovation. (…) [SS: and leads to:] the reinvention of artefacts and technologies and their shifting away from the pre-assigned uses. The result is drifting. (…) drift chases the plan away while being complementary to it.* (ibid., p. 91-92)

Now the term drift might be difficult to accept for managers, because of its association with loss of control. However, we should be careful not to assume that full control is possible or even desirable. The notion of drift does not imply that everything is "completely out of control" (suggesting a quality improvement project is hijacked by fate); rather it refers to a notion of the world as only partially controllable, since agency is distributed. Managers can deal with drift in a responsive manner, rather than combat it to control the organizing process. In Daoism and T'ai Chi Ch'uan there is a term for this: wú wei wú, it means to move along, to act without acting (cf. Cheng Man Ch'ing, 1999).

Furthermore, sustainability cannot be explained as a final stage or phase; rather, sustainability is part of any improvement process from the start. This conflicts with some perspectives discussed in the introduction, which tend to depict organizations as static entities and finalize the improvement process through 'anchoring' or 'refreezing'. In our view, the many sources of changes in routines and drift create the dynamic quality of organizing: practices are built from evolving, emerging interactions. To summarize this view we share an analogy about a circus artist who walks on a rope[38]. The stability in his posture and movement are the result of the continuous work to keep the body balanced. Hence, while a practice may gain stability, this stability can only be created through ongoing efforts by various actors. To illustrate, in Chapter 7 all three clusters scored relatively high on continuous improvement for the changed care practice; including the strong focus improvement teams. *It never freezes in the DRI-IME framework.*

### 9.2.3  Some explanations for lack of sustainability

Some terms that refer to problems in sustainability are 'decay', 'slippage', and 'evaporation'. In the empirical chapters of this dissertation, we observed signs that in some cases 'everything reverted back to the old way of working'. Our framework offers starting points for the explanation of such problems. Firstly, there is the weakening of the changed practice after a project. This can signal a lack of routinization. If routines are not practices with a certain frequency, the knowledge of how to perform the routine may fade from the actors' memories. On the other hand, institutionalization may fall down, remain constrained or limited, become outdated, neglected or directly hampered by other processes and practices in the organization. As a result, 'the ingredients' of the organizational routines are not provided for adequately. For example, when professionals change jobs and new replacing staff is not trained well in the changed care practice. Or when the required materials are no longer available; for example serving dishes might break and not be replaced.

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38. Unfortunately I don't remember exactly where I have read about this example. It probably is derived from a study in process organization studies.

Secondly, sustainability may be limited when tensions or dilemmas with other practices are not resolved effectively on the operational level, thereby 'weakening' organizational routines. This probably results in workarounds or 'violation' of the principles of a practice (D'Adderio, 2011). Examples are skipping the registration of minor incidents because of time pressure, or locking clients in their homes for the good of fall prevention (sacrificing client autonomy). In short: on the operational level routines may interfere, overlap and contradict; and this is where professionals are improvising to protect quality in different respects. Care practices are bound to contradict with each other at times, but for routinization it may be necessary to resolve some of those conflicts. This could be done by identifying important conflicting points and to reinforce/identify the principles which can be used to deal with such situations in a coherent way.

Thirdly, as suggested in Chapter 7, coupling of practices is important for routinization and institutionalization. Czarniawska (2008) refers to coupling as connecting action nets. To relate this to one of the examples above: training of staff can be arranged by the Human Resource (HR) department. If HR has other priorities, then training in the targeted practice may be discarded. In other words, HR practices need to be coupled to a targeted care practice. Another example: if purchase of certain materials does not become part of everyday budgeting procedures, the continuation of the care practice with those materials may be at risk.

In Figure 9–3, we provide a graphic representation which shows how practice A transforms into practice B to illustrate our framework. In the cylinders mobilization processes are depicted; the oval shapes comprise the targeted care practice. The project is understood as a temporary and partially 'external' action net which directs and amplifies the change processes at the practice level. A practice comprises both the core elements of its routines as well as related supporting conditions. In cases with a low improvement capacity, development of the supporting conditions tends to lag (late or lacking institutionalization). Decay then may result in reverting to previous routines, a mixture of A and B. When decay is noted often new form of 'post-project mobilization' is started. This new effort probably stresses sustainability, i.e. routinization and institutionalization. However, new efforts often also entail revisiting the initial problem analyses and interventions which were developed in the previous effort. When improvement capacity is still low, it is likely that continued mobilization will falter again.

### 9.2.4 Theorizing spread

Building on the theorization of sustainability of changed work practices, spread is understood as a complex of processes of imitation and editing in which senders and receivers are mobilized in relationship to the targeted quality theme. While senders tend to focus their efforts on translating their messages and materials to enroll other actors, receivers are mobilized to frame and reframe these messages and materials to adapt

them to their local setting and adapt their setting to accommodate the use of new working methods. Effective mobilization will thus not only result in editing processes by senders, but also mobilized receivers will need to edit their understanding of the changed practice to eventually mobilize themselves to engage in intervention development and implementation. Effective spread should result in quality improvement efforts in receiving wards. From this, it logically follows that effective spread can ultimately be assessed in terms of sustainability in the receiving nursing home ward.

Recognizing the need for these editing processes, it is understandable why spread to other wards or locations can pose difficulties: it requires collaboration between nursing home wards or locations. In other words, it requires the creation of translocal action nets (Czarniawska, 2008). This is even more tangible considering the layered internal structure of most care organizations consisting of multiple units with various wards or locations. Various isomorphic pressures within the organization may lever how much opportunities senders in specific wards or locations have to mobilize for spread. Institutional pressures affect the opportunities of receivers to engage and imitate other wards or locations.

Based on this view, the lack of spread in the 'Care for Better' projects can be understood as a problem in mobilization and editing, both in senders as well as in the potential receivers. Regarding the senders, we remarked that the activities for spread mainly seemed to be directed at sharing the results with the changed care practices and sharing some knowhow about the projects. The most common strategy appeared to be to simply offer the information available. Powell has denoted this as 'evangelical isomorphism' because it seeks to convince the receivers by mere missionary work (Clegg & Bailey, 2008). What seemed to lack is attention for the needs in the receivers and strategic "use" of alternative (normative, mimetic or coercive) pressures (Pollitt, 2001; Powell & DiMaggio, 1991). This problem of lack of attention for receivers has also been observed in various other studies on spread[39]. For example, a WHO report presented a list with ten common mistakes in dissemination, the majority of these concern lack of insight in what the 'potential adopters' are interested in, need to know, and what they need not know (World Health Organization, 2013). We mention two of these: "to assume that information will influence decision-making" (using materials for effective mobilizing) and "to confuse authority with influence" (mobilization is more than communication; it should lead to action). In our framework, these mistakes exemplify editing problems and lack of strategic alignment of isomorphic pressures in the organization. It may take some ongoing mobilization (across time and space) to build up or even to 'combine' various isomorphic pressures internal in the organization, whereby then a certain level

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39. In institutional theory reciprocity is an important and debated theme. For example, the work by Powell (1990) addresses reciprocal patterns of communication and exchange.

of mobilization at the local level can emerge which will contribute to effective spread. This goes to show that "marketing a new practice by senders" is often simply too weak as a means to effectuate spread; that is, leading to adequate mobilization in receivers with the purpose of inviting imitation processes on their part. In relation to this, we also noted that there seems to be little attention for reciprocity[40] in relation to spread, while this could be a condition sine-qua-non for quality improvement. We could learn from scholars on transition management in this respect. In that field, for example, the notion of "permaculture" emphasize collaboration and co-design. Permaculture originally referred to a design method to develop sustainable land-use systems, but is currently applied in various other fields cf. urban planning (Copeman, 2008). Moreover, such reciprocity may be related to sustainability as well, since institutionalization in many respects necessitates the creation of structures across departments, which could in part enable reciprocal processes of spread (Alexander, Weiner, Shortell, Baker, & Becker, 2006). The role of management then is to enable and orchestrate *reciprocal forms of strategizing* by various local actors between organizations or departments (wards or locations) (Jarzabkowski, 2005).

### 9.2.5  Overarching theoretical points: role of materials in quality improvement

With regard to sustainability, we have asserted that materials are important on the level of care practices as part of organizational routines as well as for improvement practices. This has for example been illustrated in the context of fall prevention, e.g. removal of loose carpets to prevent stumbling, or providing better glasses for visus correction, but also the use of a form for individual risk analysis are important aspects of every day practices. Both in design as well as in usage, artefacts are inscribed with meaning (Akrich, 1992) and as such they influence (distributed) action and cognition in organizational routines. They enable but may also impede adherence to a rule. Several examples of this have been described in the previous Chapter 8. We recall one of those examples to elaborate on the relations between routines and materiality: the eating and drinking routines in a care home (Stoopendaal & Bal, 2013). An important element in this routine was a placemat that was posted on the kitchen cupboard door. The placemat was an aid for nurses and attendants to set the table and showed a picture of plate and utensils in their proper positions. According to D'Adderio (2008) artefacts have a mediating role between routine-as-expression (performance dimension) and the routine-as-representation (ostensive dimension), because artefacts are embedded with "skills, tacit knowledge,

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40. A few exceptions do exist. For example in the context of user-based design methods more attention is given to concepts such as co-creation (Bate & Robert, 2006). Aside from that, management methods that stress bottom-up innovation, such as lean methodology, seem also more open to reciprocal processes (Bisgaard, 2009).

procedures, that tend to become durable." D'Adderio's research focused on how software influences information flows between different design departments in the automotive industry. She investigated how software shaped the design routines for new models of cars. While materials, including software, invite certain behavior, in her view actors are not determined solely by rules in routines—there is always room for deviation: "The rule is, at any given time, what the practice has made it." (Taylor, 1993 in: D'Adderio, 2008, p. 722). In D'Adderio's view stable routines do not:

> (…) emerge so much as the result of pure beliefs alignment, but as the emergent outcome of competing agencements. (…) The fact that a rule 'works' is the result –and not the premise of– of successful performance, a formula that –over time– has been able to create the world in which it can function and therefore now encounters little or no resistance. (p. 787).

In other words, in order to create or maintain a routine, more is needed than actors and principles. Materials are part and parcel of the interactions in routines, because of their coordinating, performative roles. In relation to this, we also mention the importance of deinstitutionalization: to discontinue certain organizational routines might require the active disposal of materials which are related to those routines. We bring to mind again the disposing of the Swedish girdles as described in Chapter 8—if the pertaining materials are not available and thus performance is blocked, the routine is likely to waste away. It is likely that materials are thus associated to various forms of 'unlearning', which is also part of sustainable change (K. Becker, 2008).

In addition, while documents are important materials that serve the negotiation of further investments in institutionalization of a care practice, practical materials may also help to communicate about a new practice on a concrete, operational level and this may serve mobilization. Similarly, materials are part of mobilization for spread. Think of the example of the safety jacket worn during medication rounds to signal that professional is busy and should be disturbed less. Introducing such a routine elsewhere can be easily done because it does not require much instruction to wear one nor does it not cost a lot to purchase. Hence, some materials are easy to spread and their use in a practice is easily edited in another location. Materials serve as containers for multiple ideas to travel through organizations. Not only in project documentation (text form) but also in practical form, such as placemats, post-its and wall boards to track incidence of certain care problems, the digital form of the Care Living Plans which can be accessed during formal meetings for quality monitoring purposes. The numerous examples mentioned highlight that materials impact how we view quality of care in various ways: they shape how and which aspects of practices are made visible during improvement processes. Moreover, the examples show that materials are instrumental on another level: in quality improvement mobilization. While the market for quality tools and methods is booming and quality

improvement routines are growing, the material side of quality improvement mobilization is often ignored. Seeing the importance of materials in healthcare practices as well as in quality improvement practices, we would welcome further research on the symbolic and physical role of materials, particularly in relation to sustainability and spread.
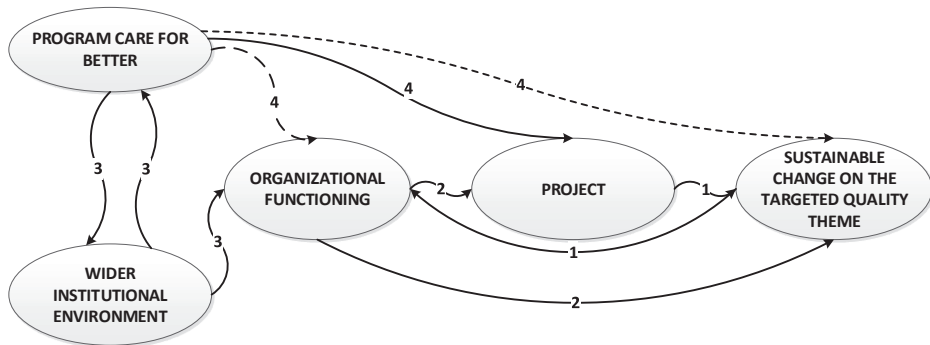


**Figure 9–4** Graphic representation of the meso relationships between program, organization, and improvement process

### 9.2.6 Interplay of projects and program

In the next section we extend the framework in view of the interplay between the improvement, the organizations, the program and the wider environment; see Figure 9–4. Regarding the program, we have argued that the projects served different functions. Also we posed that the relatively weak relationship between project effectiveness and later sustainability and spread does not prove that project effectiveness is unimportant as predictor. Rather, it corresponds to the fact that different projects served different purposes and that there were substantial differences between participating organizations in their progress with improving the targeted practices. For some teams, the project was an adventure to experiment with new ideas and pilot. For other teams, the project was utilized to amplify and to consolidate already existing improvements. In both situations the projects contribute to shared sense-making yet in very different ways. This difference in purpose and function also resonated in the dynamic aftermath of the improvement projects. For example in many cases what we called 'now-for-real' projects or other continued activities were initiated after the 'Care for Better' projects (see Chapter 6 and 8). This renewed strategizing for quality improvement seemed to be a common organizational response to problems in sustainability and spread.

These findings confirm the dynamic nature of processes related to organizational change, as for example emphasized in the work by Dooley and Van de Venn (1999). Moreover, our observations revealed various forms of 'cascade learning' (Jacobs, 2002) or sequential/incremental improvement (Plowman, 2007). Recent work on a Dutch dis-

ease management program also showed that improvements develop over the course of a couple years. Organizations who had worked on innovating their disease management practices before the program performed better because of their previous investments and experience (Tsiachristas, Waters, Adams, Bal, & Mölken, 2014).

The program and the projects channel mobilization with regard to a quality theme; they serve to direct attention and articulate which of the different quality improvement processes require most attention and which actions to be organized. A project is an instrument to translate strategy to practice and serves to amplify and redirect internal movement in organizations. A project can also be understood as a temporary trans-local action net (Czarniawska, 2008). When the project is part of a program this means that the action net for quality improvement is connected to other action nets and mobilization is levered via trans-local action. For example, having to present results on a program conference requires all sorts of activities from an improvement team and may contribute to the internal mobilization in various ways. As Thor et al. (2010) wrote:

> *An improvement program is not simply a fixed intervention, ready to be installed in a predefined form on day one and then run mechanically. Instead, it is a changeable west of methods, relationships, dependencies, and learning contingent on many circumstances for its conduct and success.* (p. 322)

Moreover, the program strengthens mimetic and normative isomorphism on two levels: for one it helps ideas about what good care is and about what good practice constitutes to spread. Secondly, it teaches how to change practices; it serves to share insights in improvement methodologies—it stirs the creation of improvement routines. As such the program is a vehicle of the travel of many organizational fashions across the field (Czarniawska-Joerges & Sevón, 1996; Røvik, 1996). We also wish to point out that the program methodology also needed to be edited to the local contexts of the improvement teams in their organizations. During the course of the program, observations from project leaders and feedback from the improvement teams were used to edit the Breakthrough Methodology in the specific projects. In some cases seemingly simple aspects were experienced as rather difficult. For example, measures are frequently collected as part of the PDSA cycle. However, in the client autonomy improvements these measures required inventing and testing newly developed indicators to assess the soft themes related to autonomy. As a result, in these projects very diverse 'homegrown' measures were put to use. In contrast, improvements in pressure ulcer reduction could be measured in a straightforward manner using existing prevalence indicators.

## 9.3  RESEARCH STRATEGIES FOR SUSTAINABILITY AND SPREAD

Several challenges have been identified in the evaluation of quality improvements in healthcare (Alexander & Hearld, 2009; Buchanan et al., 2005; Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004; Wiltsey Stirman, 2012). It was our objective to address these issues both at the theoretical as well as at the methodological level. To begin, we developed a theory based framework intended to align the study of quality improvement in healthcare with the study of how to organize care. Secondly, we extended the time scope of the evaluation research to include a follow-up data collection and used longitudinal designs to be able to detect relationships and developments over time. In addition, in our designs we experimented to attend to interplays between the project, the organization, and the improvement teams. In this section we want to discuss the methodology used.

We reflect on three themes in view of our initial research objectives: 1) operationalization of the main concepts of sustainability and spread, 2) research designs for assessing long-term effects and 3) evaluation research strategies based on a process perspective.

### 9.3.1  Operationalizing sustainability and spread with questionnaires

Seeing the gaps in literature and our initial observations about the program, projects, the changed practices and the improvement teams, it was clear that the theoretical framework and hence any measurement instrument of sustainability and spread should give room to the dynamic quality of the improvement processes. In Chapter 3 we presented the measurement instrument for sustainability of a changed work practice. In Chapter 4 we reported on the development and testing of the four scales for spread. What have we learned from designing and testing these measurement instruments? To what extent has our dynamic approach worked out well?

With regard to sustainability, the seven dimensional model for routinization and institutionalization was validated in former improvement teams and we developed a long and short version of the measurement instrument. Moreover, the scales were also tested in care teams (only professionals) in three organizations in Chapter 5 on fall prevention. In addition these scales have been used in other settings of quality improvement in healthcare (cf. Cramm, Phaff, & Nieboer, 2013; Cramm & Nieboer, 2014; Makai, Cramm, van Grotel, & Nieboer, 2014). Since their publication, the scales are frequently used and are being validated in many other settings, including: hospital care, mental health, care for disabled, and elderly care. Psychometric analysis of the scales revealed that in particular routinization in terms of learning from variation in performance yielded very mixed responses. This confirms to other observations that performance as a cognitive process quickly dissipates from our conscious memory and in general there is a discrepancy between thinking about action and performance (Parmigiani &

Howard-Grenville, 2011). How to operationalize the aspect 'variation in performance' more effectively is a question for further study.

Particularly in the context of the evaluation of improvements and quality monitoring, acknowledging that there is variation in routines may conflict with the upheld principles and may violate actors' professional self-image and norms. Variation is still associated with 'bad practice', whereas in everyday life and practice, it is accepted as a given (Essén, 2008). One reason for the negative association might be that we all tend to think in terms of stability (Czarniawska, 1996). In consequence, it can be difficult to operationalize a process perspective on routines using a questionnaire that asks for formal explicit thought on a subject. Some of the insights in how actors vary their routine behaviors may be cognitively impenetrable—people maybe simply are not able to access their own (tacit) knowledge in that way (M. C. Becker, 2008). We will return to this subject in the next section.

Traditionally, research on phenomena related to routines is based on qualitative research methods. However, these methods yield tailored, demanding designs when dealing with large-scale improvements where approximately 200 organizations are involved. Rather than providing an overview, a more qualitative study on improvement and sustainability of routines in changed care practices could center on a specific project (medication safety; problem behavior and so on). Particularly, such design could make it possible to identify starting points for describing variation in practices related to a quality theme as a source of routinization in quality improvement processes. This in effect means that to this end, the objective of such evaluation research would need to be adjusted. Based on such findings, maybe a next step could be to identify what data could be collected on a larger scale, using less obtrusive methods like video recording. In ethnomethodology some examples can be found, such as the work from Clark and Pinch on nonverbal behavior in sales processes (in: Llewellyn & Hindmarsh, 2010). Similarly in care, Iedema, Mesman and Carrroll (2013) use video recordings of medical practices performed in the operating theatre. Afterwards, these are watched and reflected on together by the research and a care team in order to learn about the way in which the practices contribute to or hamper patient safety. However, such qualitative action research designs can be quite expensive—particularly in view of quality improvement evaluation budgets. Alternatively, we mention that many practices leave traces because they are documented already nowadays. In the near future, aggregation of practice related secondary (BIG) data in line with the sustainability model might be a viable and less costly alternative—one that might even allow more advanced cross level (statistical) analyses.

With regard to spread, it was impossible to find useful scales seeing the fragmented, highly diverse literature. All we have found were measurements of 'plans for spread'; two-three items usually rated at the end of a project. Given our intention to assess spread as a process across the program, we sought to design generic scales that could be rated in

different projects. Moreover, we centered on senders and measured actions for spread in the former improvement teams as well as their impressions of the effects: to what extent have results and the changed work practice been spread to other wards or locations? Recognizing that the targeted quality themes may differ widely between quality improvement projects, such measurement instruments need to have strong generic quality as well as theoretical potential[41]. As stated before, in our view, effective spread can be assessed in terms of sustainability in the receiving ward. For this reason, measurement of sustainability in receiving wards would be the 'ultimate' proof of spread.

The measurement instruments were adapted to the audience of former improvement teams. In addition, we also adapted the instructions for the specific projects. For example this meant that the instructions used project-specific examples. In the eating and drinking project, the examples of materials concerned food trolleys, weighing scales, dishes and table cloths, and so on. It is important to realize that former improvement teams consist of a heterogeneous sample and the members may have substantially different knowledge about the project, the practice and the organization since their job positions vary. In our research it was not possible to perform differentiated analyses, but one could experiment with this in future research. On a psychometric level we raise the question to what extent we should expect variance within teams or not. In future research, it could be possible to assess validity for subgroups and one might be able to map different patterns of answers in the various dimensions. In this respect, we need to be careful what to consider a valid scale in evaluation research of quality improvement. Validity is not a universal given; a scale can only be valid given the setting, population, place and time. When these change, the scales must be adapted to improve the 'phenomenology of the questionnaire'[42]. In the evaluation of quality improvement in healthcare, this paradox of measurement aggravates. Measurement instruments need to be tailored (edited) to the local context of the quality problem at hand, but we also need them to be comparable to expose generalities. Particularly, this produces a tension in the setting of large-scale quality improvement programs with different quality targets. What do we consider optimal data validity? What we currently often study are relative differences in perceptions of different experiences. In relation to this, we also remark the strong preference for questionnaire studies, which seems to permeate society in

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41. The published papers have provoked a lot of response, they are frequently accessed and I regularly receive requests for use or adaptation of measurement instruments. This signals an authentic need for measurement instruments on these topics.

42. I thank prof. dr. Grin for our discussion on this topic in 2013. The term phenomenology is relevant because the filling in of a questionnaire is hardly ever discussed in evaluation studies as an individual reflective experience while attending to this could help to develop instruments. Our retrospective questionnaire on improvements in care and many related variables was experienced as demanding by respondents. For this reason, think aloud protocols are important in pilot testing to gain insight in these experiences.

general. There are many other research methods possible, such as structured observation, analysis of secondary data, and so on.

### 9.3.2 Optimizing evaluation research: designing for a combination of information

Our operationalizations needed to fit to the larger evaluation research as executed by the iBMG research team. Initially this evaluation research was designed to cover all the improvement projects. To this end questionnaire data were collected at the start and at the end of the projects in all teams of the participating organizations. The iBMG research team merged these data with outcome data provided by the improvement teams. In the follow-up study oncemore questionnaire data were collected. The strategy in this design of the evaluation research was to combine these different data structures. However, as expressed in the methodological discussions in the empirical chapters, we have experienced substantial difficulties with data analysis due to sampling problems. Analysis of the overlaps between data structures was not always possible. On the other hand, this dissertation had the advantage of access to a large sample of improvement teams: the size sufficed to compute various quantitative analyses. The research strategy had another point of improvement: all data concerned single projects (f.e. not on other simultaneously ran improvement efforts). An interesting extension of the design would have been to combine data of multiple projects per organization to investigate combinations of projects, since quite a number of care organizations participated in multiple projects of the 'Care for Better' program during several years. This would have been relevant for the questions related to sustainability and spread, which as we have argued require ongoing nurturing as well as repeated mobilization. Moreover, cost-effectiveness analysis could be expanded to include costs in the long run, i.e. in view of sustainability and spread. Makai and colleagues did investigate this theme partially in the pressure ulcer collaborative and showed that cost-effectiveness estimates may drop if we take lack of sustainability into account (Makai, Koopmanschap, Bal, & Nieboer, 2010). A next step would be to assess sustainability data systematically using the DRI-IME framework and to explore how to integrate those data in cost-effectiveness modeling and possibly to expand the notions of effectiveness to include sustainability in the context of economic evaluations[43].

Aside from the operationalizations, we also tried out some new designs for evaluation research. In Chapter 7 we explored the uses of latent class analysis techniques in relationship with sustainability, spread and continuous improvement. This is an example

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43. Interdisciplinary collaboration is required to find out to what extent cost effectiveness analysis can be combined with theory based evaluation, such as DRI-IME. This would require extending the scope to include more context related variables. Also to attend to routinization and institutionalization the modeling needs to include more variables with regard to more remote costs of QI.

of a population-based statistical technique. Characteristic for such techniques is that they yield statistics at the level of subpopulations (clusters) rather than statistics on the level of variables and factors (Lanza, Flaherty, & Collins, 2003; Morin, Morizot, Boudrias, & Madore, 2011). The more generally known cluster models and related logit models are often used by marketers who want to discover *segmentation in their customer population*. Such an eye for segments could also be relevant for evaluation researchers who study clients, professionals, teams, locations or wards, or organizations. Further-more, program makers might also be helped by specific insights in their 'customers': improvement teams and organizations. Moreover, in our view, these techniques could be valuable to investigate variation between improvement teams or organizations more in-depth. In addition, LCA offers possibilities for data reduction. While the evidence about sustainability and spread commonly lacks, the evidence on factors that affect improvement projects —albeit mainly during projects— is abundant. To reduce these long lists of barriers and facilitators, alternative statistical techniques such as latent class analysis could be helpful. Also, LCA might provide insight in how various variables are interrelated within each subgroup, unraveling patterns and interplays between various factors. A next step could be to follow subgroups a longer period and possibly com-bine LCA modeling with qualitative action research or case studies building on specific insights and information to interpret findings with a good sense of the local setting. This might also help evaluators to translate their messages back into the field to create knowledge which is even more actionable.

### 9.3.3 Operationalizing a process perspective

As sympathetic and credible as it sounds, the process perspective does not easily trans-late to research methodology that can be used to evaluate quality improvements in healthcare. as Chia argued (1999): it is so much easier to think in the Parmenidian way: considering reality in terms of substances, objective singular entities that are related, factors and variance rather than in processes and change, relational identity, emergence or becoming. This applies not only to the way in which we theorize, it also applies to how we operationalize. The process perspective raises some epistemological questions with regard to the operationalization of sustainability and spread. On the one hand, sustainability and spread can be understood as processes, and on the other hand, they are also manifest in certain organizational conditions or events as Yin and his colleagues (1978) have pointed out a long time ago[44]. In this dissertation, we essayed to incorpo-rate these processes and conditions in our operationalizations.

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44. This comment does not only apply to this dissertation. The same tension between process and conditions is also visible in early work on institutionalization of innovations (Yin, Quick, Bateman, & Marks, 1978; Yin, 1981).

In our questionnaires we inquired for changes made in the organization and the changed care practices, the performance results of the projects, arrangements of monitoring practices, experiences with roles in quality improvement processes, and so on. However, process theorists may not agree with this approach and recommend following a process more in-depth. This could be done for example with a time series design using structured observations or a more qualitative approach such as comparative case studies, or even ethnographic designs.

In our view, this discussion concerns general question that warrants further debate: how and to what extent can we research an ongoing process based on the manifest traces it leaves? In this dissertation we argue that it is possible to assess improvement processes based on cross-sectional data and we contend that such effort can help us to produce useful, theoretically valid and actionable knowledge. However, we do need to be careful so as not to confuse the traces with the ongoing, emerging interactions themselves that constitute organizing. As Chia (1999) explained: we should not mistake the trajectory from A to B, with the process of movement (ongoing), nor the map for the territory. But we do need 'maps' —researchers always work with representations to derive generalities. It all depends on the research problem at hand to what extent we can meet the demands following from the theoretical perspective based on Process Organization Studies (Hernes et al., 2010). To evaluate quality improvement in healthcare requires applied research designs in most cases. For the purpose of analytical necessity in an evaluation research, there are some advantages of collecting data based on traces of movements, it might be less intrusive and less costly, and it is possible to collect data in a larger sample. At the same time, we have to be critical of the types of 'maps' which we construe based on our data and question to what extent they help us to build valid theoretical accounts.

One final remark on the methodology: the way in which we studied the 'Care for Better' collaborative was also shaped by the reigning frames of thought in the program, its methodology, and by actors from ZonMw[45]. All of these, at least partially, enacted the diffusionist frame of quality improvement. The fact that this dissertation, i.e. the study of sustainability and spread, was only started when the program was half underway is just one illustration of how the evaluation research was 'entangled' in the very same quality improvement frame of thought and in effect may have helped to reproduce it. To give one example, the assumption 'sustainability and spread happen after the project' in part steered to design decision to collect data on sustainability and spread afterwards. On the other hand, the intermediate research report on the program did identify lack of

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45. These ideas draw from performativity theory as discussed by D'Adderio (2008) who builds on perspectives from economic sociology by Callon (1998; 2007) and MacKenzie (2003; 2006). In this view knowledge production (as occurring in sciences as well as elsewhere) is problematized as a social process.

attention for sustainability and embedding in managerial values (and these recommendations were also a response to observations in previous quality improvement programs, c.f. Faster Better in the curative sector). The question "what kind of 'maps' do we produce ?" is an important one, all the more because knowledge is used politically and always to some extent serves to consolidate power structures.

## 9.4  CONCLUSIONS

This dissertation provides examples of how sustainability and spread of quality improvement in healthcare can be described and theorized. If we transcend the specific findings from each chapter and take them together, they also provide insight into some important overarching themes with the most fundamental theme being the interrelated organizational dynamics.

First of all, we can conclude that project effectiveness should not be mistaken for sustainability and spread. In fact, project effectiveness appeared weakly related to long-term effects, whereas the organizational interplay between project and practice had much more influence on later sustainability and spread.

Secondly, we presented our DRI-IME framework which focuses on this interplay: Dynamic Routinization and Institutionalization for sustainability of changed work practices and IMitation and Editing for spread. In our framework, sustainability of changed work practices can be understood in terms of two processes: routinization and institutionalization. Spread can be theorized in terms of imitation and editing; and includes mobilization on behalf of both senders and receivers. At the receiver's end, then mobilization should lead to a composite of improvement processes unfolding over time, including local problem analysis, intervention development, implementation, routinization and institutionalization. In these processes, interactions between human actors as well as with various materials (non-human actors) are key.

Thirdly, we maintain that while sustainability and spread are related they are also distinct: they both entail some specific processes of mobilization at the local level. The DRI-IME framework can be applied to describe how care practices develop over time within nursing home wards as well as trans-locally, across the organization.

Fourthly, in particular the interplay between team level context factors for improvement capacity is associated with long-term effectiveness of quality improvement. In line with this, variation in quality improvement effectiveness can be understood in terms of variation in local improvement capacity.

Finally, with regard to long-term effects of the 'Care for Better' program, we concluded that some results have been achieved, sustained and even spread. Moreover, we also discovered several organization factors and developments that may have contributed to the dynamics involved in these processes, such as the team level improvement capacity

(team skills), measuring and monitoring practices, and focused leadership. However, we also underline our concern that the developments in the wider context of health policy are likely to distract rather than focus attention and thus pose a threat to Sustainable change.

### 9.4.1 Recommendations for policy

With regard to the use of quality improvement programs such as 'Care for Better', one recommendation is to carefully consider the scope and the framing effects on how targets are set, and how projects are structured and planned. Following our DRI-IME framework, we contend that by including more space for the early onset of sustainability —routinization and institutionalization— as well as spread during a project, in the end this will contribute to more secure long lasting effects. The challenge is to intertwine these processes along the way, instead of planning them as conditional stages (first design and implement, then sustain and spread).

We bring to mind again that the Dutch Ministry for Wellbeing, Health and Sports has initiated multiple large scale quality improvement programs in addition to the 'Care for Better' program since 2005 and coordination across programs for a longer period seems to be largely absent. The dynamics in the policy realm thereby seem to invoke 'now for real' programming of improvement efforts. One can see in the horizon of the care organization, many initiatives which offer avenues for improvement. The risk of pursuing this course is that it inadvertently may induce competition between the programs and the pertaining quality themes and thus could invoke a lack of strategic focus. At the policy level, interactions and coordination between programs could be strengthened, by including these interactions in the design of initiatives to enhance knowledge management and dissemination between programs. Similarly at the level of policy evaluation more attention could be given to the interrelations between programs and initiatives. While the unit of analysis in current evaluation strategies still seems to be projects and teams and programs, we may need to shift our attention to field level developments and cross program effects, preferably assessed in organizations.

If spread is part of the policy directive, the policy instrument at hand, be it a program or other improvement initiative, should articulate and support mobilization for spread in senders and receivers as part of the improvement process, rather than presume that spread occurs spontaneously as an independent stage 'after the job has been done'.

In view of the importance of the organizational functioning for sustainability and spread, one could argue that improving the business administration capacity can be a quality goal in itself. This could also entail being more selective at this level in enrolling participating organizations in a specific program. If we consider the difficulties when fostering spread strategies at the level of organizations, perhaps improvement programs could work with a medium number of multiple nursing home wards or locations to set the stage for further scale-up, rather than small-scale experimenting.

When we acknowledge that improvement processes take years, then facilitating different types of mobilization in organizational change might be acknowledged in health policy strategizing. For example, some programs may serve small-scale experimentation, whereas other programs may serve spread and scale-up. The policy instruments may be designed to accommodate sequential improvement at the organizational level. In particular, they should allow more space for editing and mobilizing.

### 9.4.2 Recommendations for research

We commence with a few recommendations for evaluating improvement programs. After that, we offer a few directions for theoretical themes to address in future research.

In evaluation of quality improvement programs the unit of analysis is often the program or the projects, and the variables measured are often confined to outcomes at the end of the project. We plea for expanding the scope to include the processes of improvement at the local level, viewed from the horizon of the organization. In addition, we recommend studying the meso-level effects by studying interactions between organizations and (multiple) programs. Furthermore, instead of evaluating single projects, we suggest the potential value of inquiring cases of organizations who participate in multiple projects over a period. If we were to study 'regular subscribers' or organizations which are working on multiple improvements, this might serve as a method for shedding light on the *sequential relationship* between improvement activities in organizations and their long-term effects and how these can be facilitated with external policy instruments, such as QIC programs.

Some theoretical aspects require further study. First of all, we suggest approaching quality improvement as a mixture of mobilization processes and in relation to this, to gain insight into how middle and high-level management can strengthen mobilization by creating action nets and certain interactions. The question is not "How can we involve leaders ?", rather it should be "How can the processes of mobilization be facilitated ?" Moreover: "What strategy can be employed in order to align internal isomorphic pressures, which are related to the targeted practice ?" By linking action nets across practices to create improvement capacity, flexible forms of mobilization can be developed so as to contribute to quality improvement as a composite.

A second possible avenue of research is the theme of materiality in quality improvement. While the role of human actors is continuously stressed in quality improvement evaluation studies, it appears that much less attention is devoted to understanding how materials may contribute to or impede processes of routinization and institutionalization, imitation and editing. The body of quality improvement literature could benefit from insights into the role of materiality; particularly in routine/practice studies, process organization studies, and science & technology studies.

Thirdly, we underscore the need for studies on quality improvement as ongoing sequential process in which routines for improvement play vital roles. Particularly, there are

important relationships between improvement routines as part and parcel of reflexive monitoring practices and certain forms of strategizing at various levels in the organization. In many ways, the study of quality improvement has developed a tendency to consider quality improvement separate from questions of strategic renewal. However, in our view a theme that deserves more scholarly attention is how organizational strategy is related to dynamic capabilities of care organizations in order to respond to the institutional complexity of health systems.

### 9.4.3  Final conclusions

Shifting the emphasis *from improvement projects to the organization*, *from routines as rigid to routines as generative of change*, *from organization to emergent organizing* has provided us with some new ground for exploring some of the most relevant, but as yet under-researched questions about sustainability and spread in quality improvement in healthcare. By means of a new theoretical framework, DRI-IME, which builds on Routine and Scandinavian institutional theory we were able to account for sustainability as a dynamic, sequential unfolding process that combines routinization and institutionalization of changed care practices. This framework also helps us to improve our understanding of the spread of quality improvement in terms of the imitation and editing of care practices. The framework and the empirical studies of quality improvements in the 'Care for Better' collaborative improvement program provide ample vantage points to observe and characterize some of the interplays between projects, the improvement process and organizing.

This dissertation set out to resolve some of the limitations in current quality improvement evaluations and to design a theory-based evaluation research with new ways of operationalizing sustainability and spread. The measurement instruments are a strength of this dissertation. These not only are theory-based, but they also have been shown to have good psychometric properties. Moreover, with regard to our designs, state that including the interplays with the organization in the scope of (evaluation-)research requires purposeful experimentation with methods and development of new forms of rigor in a setting which increasingly mixes applied and fundamental research. In particular, Latent Class Analysis seems to be a promising technique in the context of quality improvement evaluation.

Finally, we emphasize that organizing quality improvement is dynamic and unfolding, as are  organizing processes in daily care practices. Most quality improvement with regard to more complex forms of operational innovation will require sequences of mobilization, i.e. it takes waves of quality improvement to become effective in the long run. Rather than waiting for the waves to calm down, effective quality improvement demands that we learn how to ride these waves. This is a learning process which requires new routines for improvement. Riding the waves of quality improvement will always be a balancing act.

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# Additional files

## ADDITIONAL FILES CONTENTS

**Additional file 1** - PCA results for Routinization (Chapter 3)

| Component | Initial Eigenvalue | | Rotated Sums of Squared Loadings | | | Component Transformation Matrix | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Total | % of Var. | Total | % of Var. | Cumulative % | c1 | c2 | c3 | c4 | c5 |
| 1 | 7.9 | 34.5 | 5.7 | 24.9 | 24.9 | 0.82 | 0.52 | -0.17 | 0.09 | 0.17 |
| 2 | 2.8 | 12.2 | 3.2 | 14.1 | 39.0 | -0.04 | 0.27 | 0.87 | 0.41 | 0.02 |
| 3 | 1.4 | 6.1 | 2.6 | 11.4 | 50.4 | -0.47 | 0.8 | -0.19 | -0.16 | -0.29 |
| 4 | 1.2 | 5.4 | 1.6 | 6.8 | 57.1 | 0.07 | 0.07 | 0.39 | -0.87 | 0.28 |
| 5 | 1.1 | 4.7 | 1.3 | 5.7 | 62.9 | -0.33 | 0.14 | -0.17 | 0.2 | 0.90 |

| | Communalities | Rotated Component Matrix* | | | | |
|---|---|---|---|---|---|---|
| | | c1 | c2 | c3 | c4 | c5 |
| **Rout I-1** | 0.73 | 0.81 | 0.15 | -0.08 | 0.01 | 0.22 |
| **Rout I-2** | 0.60 | 0.54 | 0.17 | -0.45 | 0.08 | 0.28 |
| **Rout I-3** | 0.71 | 0.33 | 0.03 | 0.43 | 0.61 | 0.22 |
| **Rout I-4** | 0.59 | 0.04 | 0.18 | -0.73 | 0.06 | 0.11 |
| **Rout I-5** | 0.64 | 0.72 | 0.29 | -0.16 | 0.10 | -0.02 |
| **Rout I-6** | 0.58 | 0.56 | 0.41 | 0.25 | 0.15 | 0.11 |
| **Rout I-7** | 0.68 | 0.79 | 0.16 | -0.18 | -0.06 | 0.00 |
| **Rout I-8** | 0.65 | 0.37 | 0.59 | -0.16 | 0.02 | 0.37 |
| **Rout I-9** | 0.50 | 0.35 | 0.42 | 0.09 | 0.33 | 0.29 |
| **Rout I-10** | 0.62 | 0.78 | -0.03 | -0.01 | 0.02 | 0.11 |
| **Rout II-1** | 0.73 | 0.36 | 0.09 | -0.22 | -0.11 | 0.73 |
| **Rout II-2** | 0.45 | -0.08 | -0.17 | 0.64 | 0.02 | -0.09 |
| **Rout II-3** | 0.81 | 0.85 | 0.22 | -0.02 | 0.07 | 0.17 |
| **Rout II-4** | 0.73 | -0.06 | 0.37 | 0.66 | 0.28 | 0.28 |
| **Rout II-5** | 0.58 | -0.20 | 0.18 | 0.71 | 0.09 | -0.03 |
| **Rout II-6** | 0.61 | 0.62 | 0.42 | -0.22 | 0.03 | 0.04 |
| **Rout II-7** | 0.58 | 0.26 | 0.43 | 0.07 | 0.57 | -0.08 |
| **Rout II-8** | 0.54 | 0.53 | 0.45 | -0.22 | 0.08 | 0.06 |
| **Feedback-1** | 0.60 | 0.47 | 0.44 | -0.15 | 0.12 | -0.39 |
| **Feedback-2** | 0.67 | 0.55 | 0.55 | 0.06 | -0.23 | 0.00 |
| **Feedback-3** | 0.63 | 0.39 | 0.66 | -0.09 | 0.00 | -0.18 |
| **Feedback-4** | 0.63 | 0.20 | 0.19 | 0.05 | -0.73 | 0.15 |
| **Feedback-5** | 0.61 | 0.05 | 0.77 | 0.02 | -0.03 | 0.12 |

• Method: Varimax rotation with Kaiser normalization.

**Additional file 2** - PCA results for Institutionalization (Chapter 3)

| Component | Initial Eigenvalues | | Rotated Sums of Squared Loadings | | | Rotated Structure Matrix | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | % of Var | Total | % of Var. | Cumulative % | c1 | c2 | C3 | c4 | c5 | c6 | c7 | c8 |
| 1 | 11.51 | 39.7 | 5.50 | 18.95 | 18.95 | 0.62 | 0.43 | 0.39 | 0.42 | 0.15 | 0.21 | 0.15 | 0.11 |
| 2 | 2.69 | 9.28 | 3.63 | 12.51 | 31.46 | -0.34 | 0.39 | -0.54 | 0.33 | 0.53 | 0.06 | 0.21 | -0.09 |
| 3 | 2.04 | 7.05 | 3.33 | 11.47 | 42.94 | 0.30 | -0.57 | -0.23 | 0.11 | 0.19 | -0.23 | 0.52 | 0.41 |
| 4 | 1.56 | 5.36 | 3.21 | 11.07 | 54.00 | -0.42 | -0.07 | 0.43 | 0.13 | 0.37 | -0.02 | -0.31 | 0.62 |
| 5 | 1.42 | 4.89 | 1.92 | 6.63 | 60.64 | -0.05 | -0.41 | 0.01 | 0.00 | 0.14 | 0.89 | 0.03 | -0.13 |
| 6 | 1.35 | 4.64 | 1.89 | 6.53 | 67.17 | -0.34 | 0.12 | 0.50 | -0.29 | 0.08 | -0.03 | 0.71 | -0.19 |
| 7 | 1.25 | 4.32 | 1.83 | 6.32 | 73.49 | -0.04 | 0.38 | -0.28 | -0.32 | -0.39 | 0.32 | 0.20 | 0.61 |
| 8 | 1.13 | 3.89 | 1.64 | 5.65 | 79.13 | 0.34 | 0.11 | -0.06 | -0.70 | 0.59 | -0.02 | -0.17 | 0.00 |

**Table A2. 2**

| | Communalities | Rotated Component Matrix | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | c1 | c2 | c3 | c4 | c5 | c6 | c7 | c8 |
| **Skills-1** | 0.64 | 0.52 | -0.08 | 0.37 | 0.35 | -0.07 | -0.30 | 0.04 | 0.09 |
| **Skills-2** | 0.86 | 0.63 | 0.12 | 0.20 | 0.42 | 0.00 | 0.39 | 0.28 | 0.04 |
| **Skills-3** | 0.83 | 0.21 | -0.23 | 0.02 | 0.31 | -0.09 | 0.36 | 0.59 | 0.38 |
| **Skills-4** | 0.83 | 0.74 | 0.16 | 0.17 | 0.14 | 0.15 | 0.44 | 0.00 | 0.03 |
| **Skills-5** | 0.73 | 0.77 | 0.24 | 0.15 | 0.11 | -0.09 | 0.11 | -0.14 | 0.08 |
| **Skills-6** | 0.86 | 0.77 | 0.10 | 0.21 | 0.18 | 0.19 | 0.07 | 0.37 | -0.04 |
| **Skills-7** | 0.80 | 0.68 | 0.06 | 0.48 | 0.12 | 0.11 | 0.20 | 0.16 | -0.07 |
| **Skills-8** | 0.86 | 0.71 | 0.14 | 0.33 | 0.18 | 0.14 | -0.06 | 0.41 | -0.13 |
| **Skills-9** | 0.87 | 0.21 | 0.21 | 0.19 | 0.83 | 0.11 | 0.20 | 0.04 | -0.06 |
| **Materials-1** | 0.63 | 0.01 | 0.31 | 0.02 | 0.61 | 0.33 | 0.10 | 0.16 | 0.14 |
| **Materials-2** | 0.81 | 0.43 | 0.27 | 0.03 | 0.73 | 0.08 | -0.05 | 0.09 | 0.01 |
| **Materials-3** | 0.77 | 0.09 | 0.05 | -0.06 | 0.06 | 0.86 | 0.00 | 0.02 | 0.11 |
| **Materials-4** | 0.71 | 0.09 | 0.19 | -0.09 | 0.02 | 0.14 | -0.03 | 0.80 | 0.01 |
| **Materials-5** | 0.82 | 0.05 | 0.19 | 0.05 | 0.34 | 0.80 | 0.06 | 0.12 | 0.03 |
| **Materials-6** | 0.71 | 0.33 | 0.27 | 0.24 | 0.59 | 0.30 | 0.13 | -0.08 | -0.03 |
| **Materials-7** | 0.62 | 0.21 | 0.22 | 0.10 | 0.28 | 0.09 | 0.62 | 0.06 | 0.21 |
| **Documentation-1** | 0.88 | 0.19 | 0.79 | 0.18 | 0.18 | 0.05 | 0.26 | -0.13 | -0.27 |
| **Documentation-2** | 0.86 | 0.20 | 0.75 | 0.10 | 0.39 | 0.17 | 0.24 | 0.15 | -0.02 |
| **Documentation-3** | 0.72 | 0.09 | 0.70 | 0.16 | 0.25 | 0.26 | 0.03 | 0.25 | 0.06 |
| **Documentation-4** | 0.71 | 0.19 | 0.47 | 0.39 | 0.12 | -0.15 | -0.35 | 0.37 | 0.09 |
| **Documentation-5** | 0.87 | 0.01 | -0.01 | 0.12 | -0.05 | 0.19 | 0.04 | 0.12 | 0.89 |
| **Documentation-6** | 0.81 | 0.50 | 0.62 | 0.19 | 0.23 | 0.02 | 0.20 | 0.12 | 0.16 |
| **Documentation-7** | 0.85 | 0.58 | 0.49 | 0.07 | 0.32 | -0.06 | -0.05 | -0.10 | 0.39 |
| **Documentation-8** | 0.84 | 0.69 | 0.54 | 0.02 | 0.11 | 0.12 | 0.07 | -0.01 | 0.20 |
| **Reflection-1** | 0.76 | 0.44 | 0.02 | 0.46 | 0.24 | -0.09 | -0.03 | -0.26 | 0.47 |
| **Reflection-2** | 0.80 | 0.27 | 0.06 | 0.85 | 0.02 | 0.01 | 0.08 | -0.03 | 0.03 |
| **Reflection-3** | 0.84 | 0.45 | 0.12 | 0.72 | 0.26 | 0.02 | 0.13 | 0.07 | 0.10 |
| **Reflection-4** | 0.87 | 0.07 | 0.32 | 0.84 | 0.09 | 0.00 | 0.18 | -0.07 | 0.12 |
| **Reflection-5** | 0.81 | 0.20 | 0.34 | 0.41 | 0.02 | -0.05 | 0.68 | -0.03 | -0.17 |

**Additional file 3** - NNFI / Tucker-Lewis Indices for the modelling (Chapter 3)

| | Model° | NNFI |
|---|---|---|
| **INITIAL MODEL: 52 variables** | 0F | 0.89 |
| | 1F | 0.89 |
| | 2F | 0.89 |
| **Model phase 1: LONG selection** | 0F | 0.93 |
| | 1F | 0.93 |
| | 2F | 0.93 |
| Non-imputed data | 2f | 0.86 |
| **Model phase 2: SHORT selection** | 0F | 0.95 |
| | 1F | 0.94 |
| | 2F | 0.95 |
| Non imputed data | 2F | 0.93 |

° See methods section for the description of the model structures. 0F= basic model with seven factors; 1F= seven factors and one hierarchical latent factor; 2F= proposed structure of seven factors and two hierarchical latent factors, see also Figure 1 in Chapter 3.

The NNFI also is an incremental / comparative fit index, however it corrects for model complexity (i.e. it favors simpler models) (Kline 2005).

*Results*. The initial modeling shows that based on the NNFI cannot distinguish between the three models. In relation to the critical value of .90 it is clear the initial model leaves room for improvement. The modeling with the long version then reveals better a model fit. Again no differences between the three models are seen. Finally, the short version was modeled. This yielded improved model fit, meaning that the differences between the independence model and the estimated model have decreased. Now is also be-comes apparent that the one factor model does not perform as well. In conclusion we note that based on these results the question if sustainability is best described with the two dimensional model is partially confirmed.

**Additional file 4** - Long and short version of measurement instrument (Chapter 3)

| | *LONG version* |
|---|---|
| **No.** | **Routinization I** |
| 1 | The new practice is regarded as the standard way to work. |
| 2 | The new work practice is easy to describe. |
| 5 | All colleagues involved in the new work practice are knowledgeable about it. |
| 6 | Everybody has developed their own way to perform the new work practice properly. |
| 7 | The work practice has replaced the old routine once and for all. |
| 8 | Everyone knows exactly for which tasks and responsibilities they are accountable. |
| 9 | Despite the usual exceptions in practice, it is not hard to perform the work practice as prescribed. |
| 10 | Performing the new routine always goes swimmingly well. |
| | **Routinization II** |
| 13 | We are accustomed to the work practice. |
| 16 | We automatically work according to the new work practice. |
| 18 | We have adjusted our old habits to the new work practice. |
| 11 | Optional: There is little opportunity to adapt the work practice to specific situations. |
| | **Routinization III - feedback** |
| 19 | If my work is not up to standard, my colleagues will comment on this. |
| 20 | We all keep an eye on potential flaws in the performance. |
| 21 | Problems in performing the work practice are usually brought up by our team leader. |
| 23 | We often jointly discuss how to handle comments. |
| | **Institutionalization of Skills** |
| 24 | Work practice knowledge and skills are listed in the job requirements in recruitment ads. |
| 25 | Newly recruited staff is thoroughly introduced to the work practice. |
| 27 | We regularly train all staff in the required skills. |
| 29 | Important knowledge and skills are addressed in performance interviews |
| 30 | Knowledge and skills for the work practice are listed in our job descriptions |
| 31 | In performance interviews goals are set for work practice skill development. |
| | **Institutionalization of Documentation Materials*** |
| 32 | All staff is informed that work practice documentation is available. |
| 33 | Documentation is accessible to everybody. |
| 34 | Work practice documentation is always kept in a special place. |
| 35 | Documentation is easily replaced when lost. |
| 38 | Documentation is used frequently. |
| 39 | Work practice documentation is regularly updated following new developments in (long-term) care. |
| 40 | Documentation is used for updating training. |
| | **Institutionalization of Practical Materials*** |
| 41 | Materials are almost always available. |
| 42 | Materials are never in the same place. |
| 43 | Materials are well-stocked when needed. |
| 46 | We always order our materials too late. |

| 47 | Responsibility for the materials is assigned to designated staff. |

**Institutionalization of Team Reflection**

| 48 | The new work practice is a regular topic in team meetings. |
| 49 | In our team meetings we choose our improvement goals together. |
| 50 | The performance of the work practice is evaluated every now and then (for example once per 3 or 6 months). |
| 51 | In our team meetings we analyze if we have achieved our improvement goals. |
| 52 | Team decisions about the worm practice are recorded, and made available in minutes or otherwise. |

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*SHORT version*

**No.  Routinization I**

| 1 | The new practice is regarded as the standard way to work. |
| 2 | The new work practice is easy to describe. |
| 5 | All colleagues involved in the new work practice are knowledgeable about it. |
| 7 | The work practice has replaced the old routine once and for all. |
| 10 | Performing the new routine always goes swimmingly well. |

**Routinization II**

| 13 | We are accustomed to the work practice. |
| 16 | We automatically work according to the new work practice. |
| 18 | We have adjusted our old habits to the new work practice. |
| 11 | Optional: There is little opportunity to adapt the work practice to specific situations. |

**Routinization III - feedback**

| 19 | If my work is not up to standard, my colleagues will comment on this. |
| 20 | We all keep an eye on potential flaws in the performance. |
| 21 | Problems in performing the work practice are usually brought up by our team leader. |
| 23 | We often jointly discuss how to handle comments. |

**Institutionalization of Skills**

| 25 | Newly recruited staff is thoroughly introduced to the work practice. |
| 27 | We regularly train all staff in the required skills. |
| 29 | Important knowledge and skills are addressed in performance interviews |
| 30 | Knowledge and skills for the work practice are listed in our job descriptions |
| 31 | In performance interviews goals are set for work practice skill development. |

**Institutionalization of Documentation Materials***

| 34 | Work practice documentation is always kept in a special place. |
| 35 | Documentation is easily replaced when lost. |
| 38 | Documentation is used frequently. |
| 39 | Work practice documentation is regularly updated following new developments in (long-term) care. |
| 40 | Documentation is used for updating training. |

**Institutionalization of Practical Materials***

| 41 | Materials are almost always available. |
| 42 | Materials are never in the same place. |

| 43 | Materials are well-stocked when needed. |
| 47 | Responsibility for the materials is assigned to designated staff. |
| | **Institutionalization of Team Reflection** |
| 48 | The new work practice is a regular topic in team meetings. |
| 49 | In our team meetings we choose our improvement goals together. |
| 50 | The performance of the work practice is evaluated every now and then (for example once per 3 or 6 months). |
| 51 | In our team meetings we analyze if we have achieved our improvement goals. |

* please note: these scales contained special introduction texts and priming question to aid the respondent in understanding the question and relating it to their own work practice; see the next pages.

*Introduction for Institutionalization of documentation materials Scale:*
The next scale centres on the use of documentation materials for the changed work practice. Depending on the type of care process, some forms of documentation materials or manuals will be important. There are many kinds of documentation materials in healthcare. For this reason, we define documentation materials as all (written) resources used for reference or instruction for the changed work practice, such as: protocols, information brochures, books, instructions, user manuals for instruments, and so on.

| In connection to the changed work practice, we have: | |
| --- | --- |
| Protocols or other guidelines for the care related aspects of the work practice. | ☐ yes<br>☐ no |
| Documentation or resources about organization practices, such as: registration procedures, administration, etc. | ☐ yes<br>☐ no |
| Documentation for instruments or diagnostic tests, etc. | ☐ yes<br>☐ no |

| How important are these for the actual performance? | ☐ very important<br>☐ moderately important<br>☐ neutral<br>☐ slightly important<br>☐ not important at all<br>☐ I don't know |
| --- | --- |

*Introduction for Institutionalization of practical materials scale:*
In long-term care many materials are used daily. There are many different kinds of practical materials, such as: a food car, a blood pressure cuff, incontinence materials, supportive stockings, but also, actual organizational charts or schedules, a list of nutrition prescriptions, and so on. In the following items we are interested in the materials for your changed work practice.

Please take a moment to briefly describe which materials are used in the work practice:

……………………………………………………………………………………………………………………………………

……………………………………………………………………………………………………………………………………

……………………………………………………………………………………………………………………………………

……………………………………………………………………………………………………………………………………

To what extent are the following materials used, when you work according to the changed work practice?

| Medical instruments or tools | ☐ very important<br>☐ moderately important<br>☐ neutral<br>☐ slightly important<br>☐ not important at all<br>☐ I don't know |
|---|---|
| Diagnostic tests | ☐ very important<br>☐ moderately important<br>☐ neutral<br>☐ slightly important<br>☐ not important at all<br>☐ I don't know |
| Organizational instruments | ☐ very important<br>☐ moderately important<br>☐ neutral<br>☐ slightly important<br>☐ not important at all<br>☐ I don't know |
| Care plans or other client related charts | ☐ very important<br>☐ moderately important<br>☐ neutral<br>☐ slightly important<br>☐ not important at all<br>☐ I don't know |

Other materials are used, namely:

……………………………………………………………………………………………………………………………………

……………………………………………………………………………………………………………………………………

**Additional file 5** - Correlations between subscales- based on short version (Chapter 3)

|  |  | Rout Iª | Rout II | Rout III | Skills | Docu | Mat | Refl |
|---|---|---|---|---|---|---|---|---|
| **Rout Iª** | r |  | 0.84* | 0.66* | 0.71* | 0.68* | 0.53* | 0.48* |
|  | N |  | 85 | 80 | 62 | 71 | 72 | 83 |
| **Rout II** | r |  |  | 0.59* | 0.65* | 0.58* | 0.57* | 0.44* |
|  | N |  |  | 81 | 65 | 70 | 72 | 85 |
| **Rout III** | r |  |  |  | 0.64* | 0.49* | 0.49* | 0.57* |
|  | N |  |  |  | 62 | 73 | 72 | 81 |
| **Skills** | r |  |  |  |  | 0.68* | 0.50* | 0.70* |
|  | N |  |  |  |  | 60 | 57 | 65 |
| **Docu** | r |  |  |  |  |  | 0.59* | 0.52* |
|  | N |  |  |  |  |  | 67 | 71 |
| **Mat** | r |  |  |  |  |  |  | 0.34* |
|  | N |  |  |  |  |  |  | 72 |
| **Refl** | r |  |  |  |  |  |  |  |
|  | N |  |  |  |  |  |  |  |

Note. * p<.01. ªrout I = Routinization I. rout II = Routinization II. rout III = Routinization III. Skills = Institutionalization of Skills. Docu = Institutionalization of Documentation Materials. Mat = Institutionalization of Practical Materials. Refl = Institutionalization of Team Reflection

**Additional file 6** Flow chart of the data collections T1 and T2 (Chapter 5)
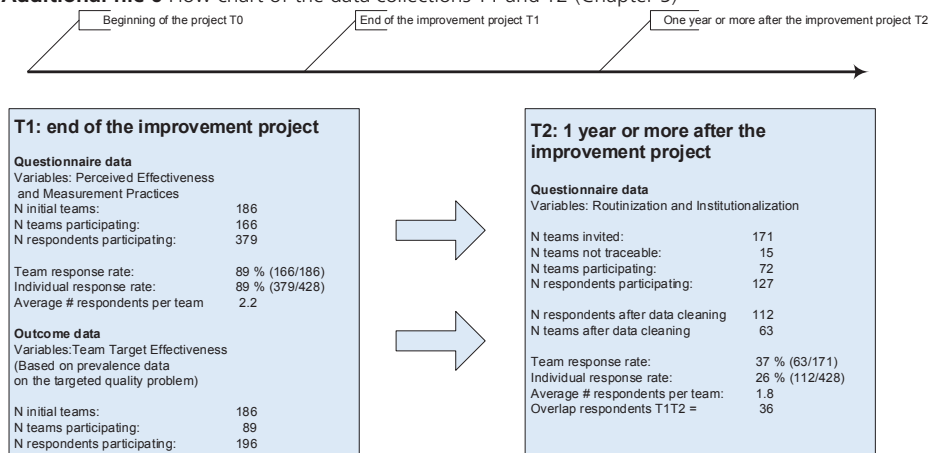


**Additional file 7** Scale for Measurement Practices (Chapter 5)

All items had Likert-scale answering options from 1-5

1.       The progress was measured continuously.

2.       The progress reports we received were timely and accurate.

3.       Measuring indicators on outcomes and processes helps to guard the progress in the project.

4.       We came to good agreements on the key measures and their measurement.

5.       We had sufficient ict systems and support for our measurement system.

6.       We worked according to the PDSA cycle method in our improvement project.

Progress was made visible for:…

7.       … our own team/ department.

8.       … other teams / departments in our organization.

9.       … other parties outside our organization.

**Additional file 8** - Multilevel regression analyses (Chapter 5)
All significant effects are indicated with an asterisk.

### A. Multilevel regression analyses for relation 1:
   Team Measurement Practices and Individual Perceived Effectiveness

| Model | 1 | | 2 | | 3 | |
|---|---|---|---|---|---|---|
| | B | se | B | se | B | se |
| Intercept | 10.84 | .141 | 10.77 | .17 | 9.59 | .87 |
| | | | | | .026 | .019 |
| Team Measurement Practices at T1 | | | | | | |
| - 2 log likelihood | 704.93 | | 692.74 | | 696.91 | |
| Variance level 1 individual | 3.42 | .37 | 2.295 | .37 | 2.28 | .34 |
| Variance level 2 team | | | 1.17* | .45 | 1.16* | .41 |
| Δ- 2 log likelihood | | | -12.2 | | 4.17 | |
| Δ explained variance level 1 | | | | | -1.5% | |
| Δ explained variance level 2 | | | | | -1% | |

* significant effect, p<0.05.

### B. Multilevel regression analyses for relation 2:
   Team Measurement Practices on Routinization

| **Model** | **1** | | **2** | | **3** | |
|---|---|---|---|---|---|---|
| | B | se | B | se | B | se |
| Intercept | 55.47 | 1.26 | 55.62 | 1.38 | 43.34 | 6.42 |
| Team Measurement Practices at T1 | | | | | 0.27* | 0.14 |
| - 2 log likelihood | 316.14 | | 314.55 | | 313,43 | |
| Variance level 1 individual | 70.85 | | 58.39 | | 60,72 | |
| Variance level 2 team | | | 11.62 | | 4,68 | |
| Δ- 2 log likelihood | | | -1.59 | | -1,12 | |
| Δ explained variance level 1 | | | | | 4% | |
| Δ explained variance level 2 | | | | | -11% | |

* Marginal significance, p<0.1

**C. Multilevel regression analyses for relation 2:**
**Team Measurement Practices on Institutionalization**

| Model | 1 B | se | 2 B | se | 3 B | se |
|---|---|---|---|---|---|---|
| Intercept | 84.13 | 2.77 | 84.11 | 2.9 | 63.46 | 12.9 |
| Team Measurement Practices at T1 | | | | | 0.46* | 0.28 |
| - 2 log likelihood | 243.39 | | 243.25 | | 241.36 | |
| Variance level 1 individual | 229.91 | | 213.2 | | 207.29 | |
| Variance level 2 team | | | 17.15 | | 9.82 | |
| Δ- 2 log likelihood | | | -0.14 | | -1.89 | |
| Δ explained variance level 1 | | | | | -3% | |
| Δ explained variance level 2 | | | | | -4% | |

**D. Multilevel regression analyses for relation 3: effectiveness variables on Routinization**

| Model | 1 B | se | 2 B | se | 3 B | se |
|---|---|---|---|---|---|---|
| Intercept | 55.19 | 1.51 | 55.42 | 1.65 | 44.49 | 18.77 |
| Team Measurement Practices at T1 | | | | | 7.50 | 4.86 |
| - 2 log likelihood | | | | | -0.45 | 1.34 |
| Variance level 1 individual | 257.53 | | 256.57 | | 246.78 | |
| Variance level 2 team | 82.9 | | 70.79 | | 74.5 | |
| Δ- 2 log likelihood | | | 11.38 | | 5.87 | |
| Δ explained variance level 1 | | | -0.96 | | -9.79 | |
| Δ explained variance level 2 | | | | | 5% | |

**E. Multilevel regression analyses for relation 3: effectiveness variables on Institutionalization**

| Model | 1 B | se | 2 B | se | 3 B | se |
|---|---|---|---|---|---|---|
| Intercept | 84.59 | 3.46 | 84.59 | 3.46 | 84.88 | 44.42 |
| Team Measurement Practices at T1 | | | | | 5.86 | 8.83 |
| - 2 log likelihood | | | | | -1.15 | 3.01 |
| Variance level 1 individual | 179.83 | | 179.83 | | 168.93 | |
| Variance level 2 team | 264.64 | | 264.64 | | 281.08 | |
| Δ- 2 log likelihood | | | 0.00 | | 0.00 | |
| Δ explained variance level 1 | | | 0 | | -10.9 | |
| Δ explained variance level 2 | | | | | 6% | |

Final comment on the controls for team level variance

The model comparison for each set of analyses (i.e. in each table, comparing model 2 with model 1 and model 3 with model 2) yielded no significant results based on chi-square difference tests, all p>.10. This means that adding the team level variance in the intercept and in the random coefficient does not add to the variance explained

In addition, to the multilevel regression analyses, intra class coefficients were computed for Routinization and Institutionalization. as well as for their sub scales. No significant correlations were seen. As a result. it is highly unlikely that there is a team level effect in these two variables. This however is probable also partly due to the team size; which was rather small with 1.6 respondents per team.

**Additional file 9** - Types of injuries in FPP (Chapter 6)

| | | FPP | | | NPS | | |
|---|---|---|---|---|---|---|---|
| | | M | N | SD | M | N | SD |
| Percentage of clients who fell with light injuries | T0 | 60.4 | 38 | 44.2 | 43.3 | 6 | 38.3 |
| | T1 | 51.3 | 22 | 46.5 | 60.1 | 115 | 45.9 |
| | T2 | 41.7 | 6 | 49.2 | 65.3 | 190 | 41.3 |
| Percentage of clients who fell with moderate injuries | T0 | 10.6 | 38 | 22.1 | 33.3 | 6 | 40.8 |
| | T1 | 30.5 | 22 | 42.0 | 25.0 | 115 | 40.8 |
| | T2 | 25.0 | 6 | 41.8 | 18.7 | 190 | 33.6 |
| Percentage of clients who fell with hip fractures | T0 | 4.8 | 38 | 18.5 | 3.3 | 6 | 8.2 |
| | T1 | 4.5 | 22 | 21.3 | 5.2 | 115 | 19.9 |
| | T2 | 16.7 | 6 | 40.8 | 5.4 | 190 | 19.3 |
| Percentage of clients who fell with severe injuries | T0 | 24.2 | 38 | 39.1 | 20.0 | 6 | 24.5 |
| | T1 | 13.6 | 22 | 35.1 | 9.7 | 115 | 27.2 |
| | T2 | 16.7 | 6 | 40.8 | 10.6 | 190 | 26.8 |

**Additional file 10** - Process indicators in FPP (Chapter 6)

| % Clients with the measure: | | FPP | | | rest NPS~ | | |
|---|---|---|---|---|---|---|---|
| | | N | M | SD | N | M | SD |
| No fall preventive measure | T0 | 66 | 25.7 | 29.1 | 9 | 35.1 | 31.0 |
| | T1 | 56 | 23.0 | 24.9 | 244 | 35.3 | 31.4 |
| | T2 | 22 | 20.3 | 19.8 | 405 | 35.8 | 31.1 |
| Changes in medication | T0 | 66 | 7.7 | 18.7 | 9 | 1.9 | 2.5 |
| | T1 | 56 | 11.6 | 22.5 | 244 | 5.4 | 15.8 |
| | T2 | 22 | 9.4 | 21.3 | 405 | 5.0 | 14.5 |
| Physiotherapy | T0 | 66 | 7.9 | 9.8 | 9 | 13.7 | 21.2 |
| | T1 | 56 | 11.2 | 13.8 | 244 | 12.9 | 20.6 |
| | T2 | 22 | 12.0 | 14.9 | 405 | 11.4 | 16.2 |
| Providing or changing supporting devices | T0 | 66 | 38.4 | 29.2 | 9 | 33.9 | 18.8 |
| | T1 | 56 | 31.3 | 24.9 | 244 | 14.2 | 19.5 |
| | T2 | 22 | 20.4 | 22.3 | 405 | 14.9 | 20.3 |
| Changing the daily program | T0 | 66 | 5.3 | 12.7 | 9 | 11.9 | 22.3 |
| | T1 | 56 | 10.0 | 20.9 | 244 | 0.7 | 3.2 |
| | T2 | 22 | 3.4 | 8.3 | 405 | 2.1 | 9.8 |
| Supervision | T0 | 66 | 28.6 | 36.1 | 9 | 24.9 | 29.2 |
| | T1 | 56 | 36.2 | 35.0 | 244 | 40.6 | 35.6 |
| | T2 | 22 | 33.8 | 28.2 | 405 | 31.0 | 34.9 |
| Changes in the environment | T0 | 66 | 13.9 | 26.2 | 9 | 31.4 | 31.3 |
| | T1 | 56 | 16.7 | 28.3 | 244 | 8.7 | 17.3 |
| | T2 | 22 | 10.6 | 14.3 | 405 | 10.4 | 21.3 |
| Alarm systems | T0 | 66 | 34.1 | 36.4 | 9 | 40.6 | 37.5 |
| | T1 | 56 | 37.7 | 39.2 | 244 | 20.3 | 26.3 |
| | T2 | 22 | 37.8 | 41.9 | 405 | 33.2 | 32.7 |
| Individual solutions with clients or care takers | T0 | 66 | 23.1 | 27.8 | 9 | 26.3 | 36.5 |
| | T1 | 56 | 21.7 | 24.2 | 244 | 16.6 | 24.5 |
| | T2 | 22 | 21.8 | 23.7 | 405 | 17.2 | 26.5 |

~ Unfortunately no complete data were available for T0.

**Additional file 11** - Injuries after the fall in the three cases (Chapter 6)

| | Case 1: Symphonia Court | Case 2: Two Riverlands | Case 3: Orangecounty |
|---|---|---|---|
| | % | % | % |
| **T0** | | | |
| % clients with complaints after the fall | 22.5 | 75 | 78 |
| Light complaints | 25 | 0 | 43 |
| Moderate | 0 | 33 | 29 |
| Hip fractures | 75 | 0 | 0 |
| Severe complaints | 0 | 67 | 29 |
| **T1** | | | |
| % clients with complaints after the fall | 75 | 0 | 53 |
| Light complaints | 25 | | 63 |
| Moderate | 75 | | 38 |
| Hip fractures | 0 | | 0 |
| Severe complaints | 0 | | 0 |
| **T2** | | | |
| % clients with complaints after the fall | No falls | 0 | 35 |
| Light complaints | | | 50 |
| Moderate | | | 50 |
| Hip fractures | | | 0 |
| Severe complaints | | | 0 |

**Additional file 12** - Process indicators in the three cases (Chapter 6)

|  | Case 1 | Case 2 | Case 3 | Total |
|---|---|---|---|---|
| **T0** | | | | |
| *% Clients with the measure:* | | | | |
| No fall preventive measure | 10.2 | 33.3 | 12.5 | 16.6 |
| Changes in medication | 1.0 | 3.3 | 6.3 | 2.9 |
| Physiotherapy | 13.8 | 20.0 | 4.7 | 13.1 |
| Providing or changing supporting devices | 56.8 | 30.0 | 70.3 | 53.5 |
| Changing the daily program | 3.0 | 3.3 | 6.3 | 3.9 |
| Supervision | 5.5 | 13.3 | 1.6 | 6.5 |
| Changes in the environment | 4.4 | 3.3 | 43.8 | 14.0 |
| Alarm systems | 86.8 | 33.3 | 54.7 | 65.4 |
| Individual solutions with clients or care takers | 27.9 | 23.3 | 1.6 | 20.2 |
| **T1** | | | | |
| *% Clients with the measure:* | | | | |
| No fall preventive measure | 4.6 | 48.0 | 9.7 | 16.7 |
| Changes in medication | 2.3 | 0.0 | 19.4 | 6.0 |
| Physiotherapy | 8.1 | 24.0 | 2.8 | 10.8 |
| Providing or changing supporting devices | 12.6 | 8.0 | 70.8 | 26.0 |
| Changing the daily program | 3.5 | 12.0 | 1.4 | 5.1 |
| Supervision | 9.3 | 8.0 | 0.0 | 6.7 |
| Changes in the environment | 15.0 | 16.0 | 19.4 | 16.4 |
| Alarm systems | 93.1 | 0.0 | 44.4 | 57.7 |
| Individual solutions with clients or care takers | 12.8 | 40.0 | 19.4 | 21.2 |
| **T2** | | | | |
| *% Clients with the measure:* | | | | |
| No fall preventive measure | 4.4 | 52.4 | 8.1 | 17.3 |
| Changes in medication | 2.0 | 0.0 | 21.6 | 6.4 |
| Physiotherapy | 9.2 | 19.0 | 2.7 | 10.0 |
| Providing or changing supporting devices | 12.8 | 9.5 | 73.0 | 27.0 |
| Changing the daily program | 3.1 | 4.8 | 2.7 | 3.4 |
| Supervision | 11.2 | 4.8 | 0.0 | 6.8 |
| Changes in the environment | 16.9 | 19.0 | 20.3 | 18.3 |
| Alarm systems | 91.6 | 0.0 | 47.3 | 57.6 |
| Individual solutions with clients or care takers | 13.3 | 33.3 | 21.6 | 20.4 |

**Additional file 13 - Fear of falling and activity avoidance indicators (Chapter 6)**

These two graphs show how initially the fear of falling and the tendency to avoid activities for fear of falling increases in clients during the projects. Afterwards, the rates lower again.

Fear of Falling
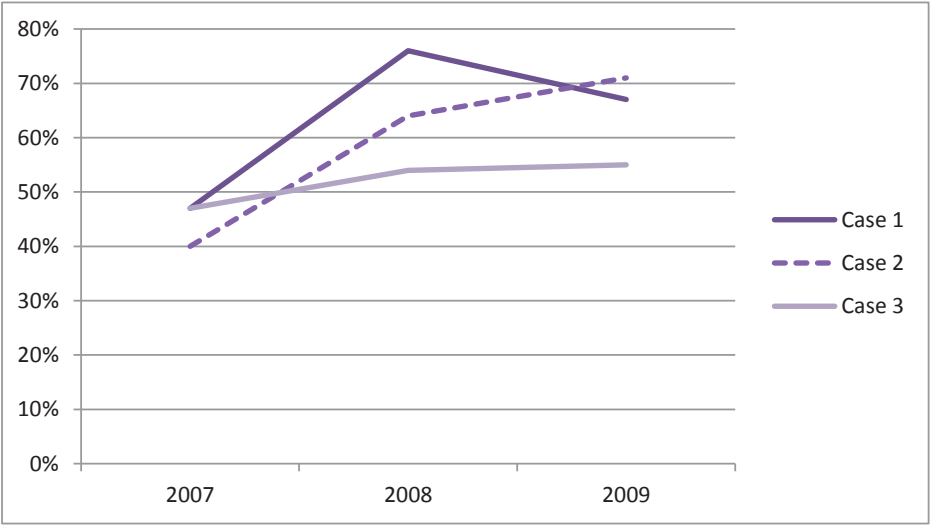


Avoidance of Activity
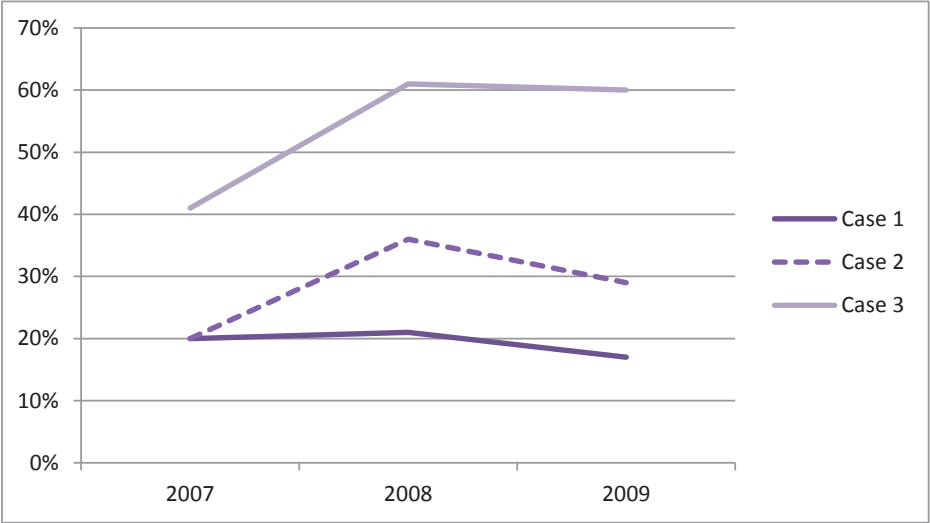
**Additional file 14** - Comparison three cases and the rest of the Fall Prevention Program (Chapter 6)

| | | Cases | | | Rest of FPP | | |
|---|---|---|---|---|---|---|---|
| | | n | M | SD | n | M | SD |
| *Outcome indicators* | | | | | | | |
| % Clients with falling incident in the past month | T0 | 4 | 14.6 | 3.2 | 62 | 16.7 | 9.8 |
| | T1 | 4 | 9.9 | 8.6 | 48 | 11.3 | 8.1 |
| | T2 | 4 | 10.0 | 12.4 | 18 | 10.0 | 8.8 |
| % Clients with multiple falls (for the clients with falling incident) | T0 | 4 | 33.3 | 31.2 | 61 | 51.0 | 39.8 |
| | T1 | 4 | 31.9 | 23.7 | 42 | 40.8 | 39.3 |
| | T2 | 2 | 10.5 | 14.9 | 15 | 51.6 | 39 |
| % Clients with complaints after the fall | T0 | 4 | 49.4 | 31.2 | 61 | 30.4 | 32.5 |
| | T1 | 4 | 50.8 | 40.9 | 42 | 18.9 | 26.7 |
| | T2 | 2 | 17.6 | 25.0 | 15 | 26.0 | 41.4 |
| *Structure indicators* | | | | | | | |
| Organizational level | T0 | 4 | 4.5 | 3.0 | 62 | 2.5 | 1.5 |
| | T1 | 4 | 6.3 | 0.5 | 52 | 4.4 | 2.2 |
| | T2 | 4 | 6.3 | 0.5 | 18 | 4.0 | 2.1 |
| Ward level | T0 | 4 | 5.8 | 0.5 | 31 | 2.8 | 1.7 |
| | T1 | 4 | 6.3 | 0.5 | 52 | 5.5 | 1.7 |
| | T2 | 4 | 6.3 | 0.5 | 18 | 4.9 | 1.2 |
| *Process indicators[1]* | | | | | | | |
| Fall-preventive measures for clients who have fallen* | T0 | 4 | 243 | 53 | 61 | 254 | 146 |
| | T1 | 4 | 168 | 47 | 42 | 280 | 156 |
| | T2 | 2 | 173 | 9 | 15 | 186 | 84 |
| Fall-preventive measures for clients who did not fall this month | T0 | 2 | 179 | 24 | 55 | 159 | 93 |
| | T1 | 4 | 167 | 36 | 42 | 185 | 111 |
| | T2 | 4 | 167 | 40 | 18 | 167 | 81 |

~ for all variables we computed Kolmogorov-Smirnov Z tests with Exact significance.

[1]See Methods section for information on the variable construction.

Theoretical range from 0-7.

**Additional file 15** - General characteristics NPS data (Chapter 6)

| | T0 | | | | T1* | | | | T2* | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | Total | selectie cases | rest FPP | rest NPS | Total | selectie cases | rest FPP | rest NPS | Total | selectie cases | rest FPP | rest NPS |
| Number of clients | 4489 | 122 | 959 | 3408 | 6989 | 210 | 761 | 6018 | 11552 | 189 | 376 | 10987 |
| Number of clients with a falling incident | 521 (12%) | 19 | 155 | 347 | 695 (10%) | 27 | 93 | 575 | 1014 (9%) | 22 | 33 | 959 |
| Number of clients with no falling incidents | 3968 (89%) | 103 | 804 | 3061 | 6214 (89%) | 178 | 667 | 5369 | 10440 (90%) | 162 | 342 | 9936 |
| Clients with no further data available | 1370 | | | | 8906 | | | | 16152 | | | |
| Total number of clients | 5859 | 226 | 1226 | 4407 | 6909 | 219 | 924 | 14752 | 11454 | 348 | 404 | 26952 |
| Number of wards | 233 | 7 | 51 | 167 | 649 | 7 | 49 | 593 | 1027 | 12 | 19 | 996 |
| Organization type | | | | | | | | | | | | |
| General hospital | 30 | 0 | 0 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nursing home | 76 | 4 | 17 | 55 | 0 | 0 | 14 | 593 | 5 | 1 | 4 | 0 |
| Convalescent care | 7 | 0 | 7 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 | 0 |
| Care for mentally disabled people? | 9 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 |
| Care for physically disabled | 14 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mental healthcare | 3 | 0 | 3 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 |
| Home care | 16 | 1 | 1 | 14 | 0 | 0 | 3 | 0 | 1 | 1 | 0 | 0 |
| Nursing hospital | 78 | 2 | 8 | 68 | 0 | 0 | 11 | 0 | 2 | 2 | 0 | 0 |
| Nursing hospital- part of corporation | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1015 | 8 | 11 | 996 |

**Additional file 16** - Summary of findings per case (Chapter 6)

| | Case 1 Symphonia Nursing home | Case 2 Two Riverlands Specialized home care- care hotel | Case 3 Team Orangecounty Regular home care |
|---|---|---|---|
| General image | *Sustaining change through ongoing improvement and complementing structures and practices* | *Progress followed by decay: lacking routinization despite many structures* | *Isolated improvement effort yielding partial sustainability under adverse organizational conditions* |
| Outcomes | Positive strong results for all outcomes; | Initial progress with positive outcomes, then partial sustained results: relapse in falling incidents, but still less en less severe complaints after a falling incident | Contradictory history: outcomes deteriorated across three measurement moments, still some achievements were made in avoiding complaints. |
| Structures | Already many structures in place; improvements concerned (integrated) use of existing structures. New: information brochure for clients and caretaker and 2) systematic individual fall risk analysis for each client | Already many structures in place at T0, including the fall risk assessment. New: information brochure for clients and caretaker. Notable: caretakers structurally not involved (T0-T2) | Reported lack of adherence of protocol and lack of structures on ward level. at the ward level, none of the mentioned structures were marked as in place. New: information brochure and ward level structures. |
| Prevention for clients who fell | Use of fall preventive measures for fallers is strongly reduced between T0 and T1. At T2, no fallers were recorded and thus no measures were reported as well. | Increase in fall preventive measures for clients who fell from T0 to T1. At T2, the use of fall preventive measures dropped back to the initial level. | At T0, it is common to provide many fall preventive measures when a client has fallen. At T1 this is cut down. Sustained at T2. |
| Prevention for client who did not fall | At T0 no measures were registered – indicating that it was uncommon to apply fall preventive measures for the purpose of primary prevention. Then at T1 this group also received fall preventive measures and at T2, a similar number of fall preventive measures were reported. | The use of fall preventive measures for clients who did not fall has remained rather stabile, with a slight decrease at T2. | The number of fall preventive measures remained constant across the three measurements |

**Additional file 16** - Summary of findings per case (Chapter 6) (*continued*)

|  | Case 1 Symphonia Nursing home | Case 2 Two Riverlands Specialized home care- care hotel | Case 3 Team Orangecounty Regular home care |
|---|---|---|---|
| Specific fall preventive measures | At T0: very straightforward and simple. Especially the use of supportive devices is very common, mostly in combination with individual arrangements with clients. At T1: the use of supporting devices is reduced. Next to this, other measures are used more frequently. At T2 resembled the use at T1. | Notable: in general many clients (+-33%) without fall preventive measures. At T0: A standard combination of fall preventive measures was in use at T0. At T1: a decrease in the use of alarm systems and supporting devices. Also an increase in individual arrangements with clients. At T2: a new standard more diverse combination of fall preventive measures is consolidated. | At T0: prevention largely consisted of the distribution of supporting devices. Then, across the three moments modest changes: 1) less measures are prescribed; 2) an increase in individual arrangements with clients 3) more adaptations in medication and in the environment. |
| Routinization experienced by professionals | Routinization is evaluated positively. Notably Routinization I as well as Routinization II (the development of variation in practice). But Feedback during performance is scored negatively. | Routinization appeared lacking. Notably Routinization I and Routinization III were rated rather negatively. | Routinization appeared lacking. Notably Routinization I and Routinization III were rated rather negatively. |
| Institutionalization experienced by professionals | Employees moderately satisfied with Institutionalization. Institutionalization of Skills is considered positively and above average. Other dimensions of Institutionalization (of Documentation and Practical Materials and Team Reflection) around average. | Mixed feelings about Institutionalization Institutionalization of Skills was evaluated as average. Rather negative views on the Institutionalization of Documentation Material, and to a lesser extent, Practical Materials. | Institutionalization in general scored around average. Employees are quite positive on the Institutionalization of Skills, of Practical Materials, and of Team Reflection. An exception was Institutionalization of Documentation Materials, which was scored negatively. |

**Additional file 17** - Operationalization of T1 and T2 variables (Chapter 7)

| T1 DATA | # | Scale | Range | Rel. | Type[1] | Example item |
|---|---|---|---|---|---|---|
| *MODEL* | | | | | | |
| Project effectiveness | 7 | 1-7 | 7-35 | 0.86 | | 'To what extent do the results match the team members' expectations?' |
| Team Skills | 6 | 1-7 | 6-42 | 0.80 | | 'Our team was very effective in using measuring techniques to develop and test its interventions.' |
| Sustainability plans | 11 | 1-7 | 11-77 | 0.82 | PL | To sustain the changed work practice… we will document our new methods in procedures and / or guidelines.' |
| Spread plans | 3 | 1-5 | 3-15 | 0.72 | PL | 'Were the approaches used in the Care for Better project and the experiences of the team also used to improve other quality themes in your organization ?' |
| Board support & Resources | 10 | 1-7 | 10-70 | 0.89 | | 'The board of directors showed genuine interest in our improvement team.' 'Team members were allocated sufficient time to work on our improvement project.' |
| Team leader strategy | 5 | 1-5 | 5-25 | 0.89 | TM | 'Our team leader is able to express views on values for quality of care and improvement of care with clarity.' |
| *COVARIATES* | | | | | | |
| **QI Commitment** | | | | | | |
| Employee involvement | 5 | 1-5 | 5-25 | 0.76 | PL | 'Usually our employees are involved from the start in the development of plans for improving on a given quality theme.' |
| HR utilization | 3 | 1-5 | 3-15 | 0.66 | PL | 'Care professionals are trained or educated to improve their competencies and quality of care.' |
| General involvement | 3 | 1-5 | 3-15 | 0.74 | PL | 'The executive board encourages quality improvement work.' |
| **Motivation** | | | | | | |
| Expectancy | 2 | 1-7 | 2-14 | 0.60 | TM | The implementation of changes will enable me to contribute to improve the clinical outcomes of our clients.' |
| Instrumentality | 13 | 1-7 | 13-91 | 0.93 | TM | The implementation of changes will enable me to use my knowledge and experience more effectively.' |
| Valence | 13 | 1-5 | 13-65 | 0.85 | TM | 'It is important to me that other employees support our improvement efforts.' |

| T1 DATA | # | Scale | Range | Rel. | Type[1] | Example item |
|---|---|---|---|---|---|---|
| **Quality systems** | | | | | | |
| Activities for medical professional quality | 4 | 1-4 | 4-16 | 0.67 | PL | 'Internal audits are: not common / common practice / enhanced as common practice since Care for Better / newly introduced since Care for Better.' |
| Decision support systems | 3 | 1-4 | 3-12 | 0.62 | PL | 'Evidence-based guidelines are not available / are available but not integrated / are available and are supported with professional training / are available and are supported and are integrated through the use of reminders or other effective methods to change professionals' behaviors. ' |
| Delivery system | 4 | 1-4 | 4-16 | 0.76 | PL | "Medical checkups are: planned when needed by clients or professionals / planned following guidelines / are secured because the team monitors these / are adjusted to individual needs, differences in intensity and manner(phone, personal conversation, e-mail) and correspond to guidelines. |
| Clinical information system | 5 | 1-4 | 5-20 | 0.70 | PL | A register(of clients) is: not available / includes name, diagnosis, contact information and date of latest contact on paper or in computer file/ serves to investigate potential sub groups with clinical relevance/ is integrated with the use of guidelines and contains built-in reminders for key care elements. |

| T2 FOLLOW-UP DATA | # | scale | Range | Rel. | Example item |
|---|---|---|---|---|---|
| **Sustainability** | | | | | |
| Routinization | 13 | 1-5 | 13-65 | 0.91 | 'All colleagues involved in the new work practice are knowledgeable about the changed work practice' |
| Institutionalization | 18 | 1-5 | 18-90 | 0.94 | 'Knowledge and skills for the work practice are listed in our job descriptions' |
| **Spread** | | | | | |
| Effective Spread of the Results | 6 | 1-5 | 6-30 | 0.93 | 'Other teams or department strive for results like ours.' |
| Effective Spread of the Work practice | 5 | 1-5 | 5-25 | 0.90 | 'In our organization / in other departments or other teams practitioners also use the documentation on the new work practice.' |
| Action for Spread of Results | 4 | 1-5 | 4-20 | 0.80 | 'The results of the new work practice have been made public: …informally in discussions of progress or consultations.' |
| Action for Spread of the Work practice | 3 | 1-5 | 3-15 | 0.75 | 'To spread the new work practice(s) we have: …organized clinical trainings, workshops or other refresher courses.' |
| **Continous Improvement** | | | | | |
| Use of improvement methods | 7 | 1-5 | 7-35 | 0.84 | 'Using the improvement methods has become the common way to work on improvements.' |
| Continued improvements | 5 | 1-5 | 5-25 | 0.58 | After the improvement project, we were satisfied with improving on the targeted theme.' |
| Ownership of responsibility | 5 | 1-5 | 5-25 | 0.66 | 'Each local operational team now has its own responsibility for further changes of changed work practices.' |

# is the number of items; Scale is the number of answering options; Range is the theoretical range of a scale; Rel. is the value of Cronbach's α for internal consistency; Type refers to the data TM=team member PL =project leader.

**Additional file 18** - Scales for continuous improvement (Chapter 7)

Background

Setting of use: evaluation of the Care for Better QIC program for long-term care
Sampling frame: former quality improvement teams of long-term care organizations
Answering options on a 5-point Likert scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, and 5 = strongly agree

### I. Use of improvement methods

1. We still use the improvement methods in our operational team.
2. The improvement methods fit well with our way of thinking.
3. We are not really accustomed to the improvement methods in our department.
4. The improvement methods are not congruent with our way of thinking about quality of care.
5. The improvement methods are not suitable for the changes needed in our organization.
6. In our organization there is little room to apply the improvement methods in other areas.
7. Working with the improvement methods is standard in our organization / department.

### II. Continued improvements after the project

1. After the improvement project, we were not done with our improvements.
2. The new method has not changed much after the improvement project is.
3. There was really no time or space to continue our improvement efforts after the improvement project.
4. Upon completion of the improvement project, we found the new method was sufficiently improved.
5. After the improvement project, we focused on the retention of the new method.
6. The project-based way of working of Care for Better is now also applied to other quality themes.

### III. Ownership of responsibility

1. The improvement team still has the responsibility for the new method.
2. Nowadays everyone thinks about the new / changed care process - not only the improvement team.
3. Our leadership / management has appointed new people with the task to ensure that the improvements are maintained.
4. Now, each (operational) team is responsible itself for how the new method is further developed.
5. After the improvement project, the improvement team continued to develop the new method.

**Additional file 19** - Descriptive statistics for all variables at team level (Chapter 7)

|  | N | Min | Max | Mean | SD |
|---|---|---|---|---|---|
| ***T1 model variables*** |  |  |  |  |  |
| Project effectiveness | 143 | 15 | 33 | 26.2 | 3.6 |
| Team skills | 143 | 9 | 39 | 30.7 | 4.6 |
| Sustainability plans | 95 | 23 | 75 | 51.7 | 9.9 |
| Spread plans | 89 | 3 | 18 | 8.4 | 3.4 |
| Board support and resources | 144 | 15 | 65 | 39.0 | 9.4 |
| Team Leader Strategy | 126 | 12 | 30 | 22.3 | 2.9 |
| ***T1 Covariates*** |  |  |  |  |  |
| **QI commitment in the organization** |  |  |  |  |  |
| Employee involvement | 103 | 11 | 25 | 18.8 | 3.2 |
| HR utilization | 103 | 6 | 15 | 11.9 | 2.2 |
| general involvement | 143 | 5 | 15 | 10.8 | 2.2 |
| **Motivation** | 146 | 50 | 229 | 127.8 | 28.9 |
| **Quality systems** |  |  |  |  |  |
| Activities for professionals | 95 | 4 | 12 | 6.8 | 1.7 |
| Decision support systems | 77 | 6 | 30 | 19.1 | 5.1 |
| Delivery system | 79 | 16 | 43 | 31.9 | 6.2 |
| Clinical information system | 76 | 16 | 52 | 37.3 | 7.4 |
| ***T2 variables*** |  |  |  |  |  |
| **Sustainability** |  |  |  |  |  |
| Routinization | 78 | 29 | 56 | 43.9 | 5.7 |
| Institutionalization | 73 | 40 | 80 | 62.6 | 7.5 |
| **Spread** |  |  |  |  |  |
| Action for Spread of the work practice | 58 | 3 | 14 | 9.3 | 2.4 |
| Action for spread of results | 59 | 4 | 18 | 14.9 | 2.5 |
| Effective spread of the work practice | 52 | 6 | 24 | 18.2 | 4.8 |
| Effective spread of the results | 56 | 5 | 21 | 17.2 | 3.6 |
| **Continuous Improvement** |  |  |  |  |  |
| Use of improvement methods | 76 | 14 | 31 | 24.5 | 3.2 |
| Continued improvements on the targeted quality theme | 81 | 8 | 20 | 15.5 | 2.4 |
| Ownership of responsibility | 81 | 5 | 20 | 15.1 | 3.3 |

**Additional file 20** - Modeling results for the latent class analysis (Chapter 7)

| Basic models | LL | BIC | AIC | NPar | Class. Err. |
|---|---|---|---|---|---|
| 1-Cluster | -2229 | 4518 | 4482 | 12 | |
| 2-Cluster | -2135 | 4396 | 4321 | 25 | 0.04 |
| 3-Cluster | -2077 | 4343 | 4230 | 38 | 0.07 |
| 4-Cluster | -2064 | 4382 | 4229 | 51 | 0.07 |
| 5-Cluster | -2053 | 4425 | 4233 | 64 | 0.11 |

| Model variants with covariates | LL | BIC | BIC diff[1] | AIC | AIC diff[1] | NPar | Class. Err. |
|---|---|---|---|---|---|---|---|
| A. 3C model with all 8 covariates: QI commitment, motivation, quality systems | -2049 | 4367 | -23 | 4205 | 25 | 54 | 0.051 |
| B. 3C model with 4 covariates for quality systems | -2069 | 4367 | -23 | 4229 | 1 | 46 | 0.056 |
| C. 3C model with one covariates for Motivation | -2069 | 4338 | 5 | 4219 | 11 | 40 | 0.067 |
| D. 3C model with three covariates QI commitment | -2058 | 4335 | 8 | 4204 | 26 | 44 | 0.054 |
| E. 3C model with QI commitment: employee involvement covariate | -2073 | 4346 | -3 | 4226 | 3 | 40 | 0.066 |
| F. G. 3C model with QI commitment: HR utilization covariate | -2075 | 4349 | -6 | 4230 | 0 | 40 | 0.070 |
| H. 3C model with QI commitment general involvement covariate | -2064 | 4327 | 16 | 4207 | 22 | 40 | 0.068 |

[1] Difference in BIC and AIC between the 3 clustermodel and a variant.

The fit of the three cluster model was better compared with the two cluster model, as indicated by the decreased BIC and the AIC values. In addition, -2LL difference test with bootstrapped solutions demonstrated that the three cluster model had a significantly better fit than the two cluster model, -2LLdif= 117.0, p< 0.0001, s.e< 0.0001. The three cluster model was also compared with a four cluster model, which gave somewhat contrasting results: the BIC dropped but the AIC did not change. Still, the four cluster solution was not significantly better compared with the three cluster solution seeing the -2LL difference test, -2LLdiff =26.6, p=0.18, s.e. = 0.02. The classification error increased as more clusters where estimated. This is due to the fact that the cluster sizes naturally become lower in models with more clusters, which suffers from sampling error and thereby negatively affects the classification error.

Several model variants were compared (see variants A-G). In variant B, only four variables for quality systems were included. The results show that these variables seemed to worsen the model fit as illustrated in the negative differences in BIC and AIC. Next, variant C shows that organizational motivation did not yield a substantially improved model fit. Next, variant D contained the variables for QI commitment. These did demonstrate added value in terms of improved model fit as seen in the differences in the BIC and the

AIC values. Also the pertaining classification error was lower in models that included the QI commitment variables. Finally, variant E, F and G were computed to identify specific relations for each variables for Qi commitment. These variants did not yield an improved fit compared to variant D. For these reasons, variant D is the preferred model: a three cluster model including three covariates for quality commitment: Employee Involvement, HR Utilization and General Involvement. According to this model, the teams were sorted with a cluster grouping variable.

**Additional file 21** - Initial results per Care for Better subprogram (Chapter 8)

| | Pressure Ulcers | Eating and Drinking | Prevention of Sexual Abuse | Client Autonomy | Medication Safety | Fall Prevention | Problem Behavior |
|---|---|---|---|---|---|---|---|
| | | | | # teams % | | | |
| Program target achieved | 6 (24%) | 18 (47%) | 8 (29%) | 0 (0%) | 26 (74%) | 19 (79%) | 9 (64%) |
| Stable performance | 9 (36%) | 12 (32%) | 12 (43%) | 5 (83%) | 0 (0%) | 3 (13%) | 0 (0%) |
| Deteriorated performance | 1 (4%) | 8 (21%) | 0 (0%) | 0 (0%) | 1 (3%) | 2 (8%) | 0 (0%) |
| Performance unknown | 9 (36%) | 0 (0%) | 8 (29%) | 1 (17%) | 8 (23%) | 0 (0%) | 5 (36%) |
| Total | 25 (100%) | 38 (100%) | 28 (100%) | 6 (100%) | 35 (100%) | 24 (100%) | 14 (100%) |

**Additional file 22** - Distibution of projects in the three clusters (Chapter 8)

|  |  | Middle Course Improvers | Strong Focus Improvers | Weak Capacity Improvers | Total |
|---|---|---|---|---|---|
| Pressure Ulcers | Count | 10 | 3 | 2 | 15 |
|  | % | 11% | 9% | 8% | 10% |
| Eating and Drinking | Count | 18 | 10 | 3 | 31 |
|  | % | 21% | 30% | 12% | 21% |
| Prevention Sexual Abuse | Count | 5 | 3 | 5 | 13 |
|  | % | 6% | 9% | 19% | 9% |
| Autonomy | Count | 16 | 1 | 6 | 23 |
|  | % | 18% | 3% | 23% | 16% |
| Medicationsafety | Count | 15 | 10 | 3 | 28 |
|  | % | 17% | 30% | 12% | 19% |
| Fall prevention | Count | 12 | 5 | 3 | 20 |
|  | % | 14% | 15% | 12% | 14% |
| Problem behavior | Count | 12 | 1 | 4 | 17 |
|  | % | 14% | 3% | 15% | 12% |
| Total | Count | 88 | 33 | 26 | 147 |
|  | % | 100% | 100% | 100% | 100% |

**Additional file 23** - T2 distribution of projects given cluster variable (Chapter 8)

|  |  | Middle Course Improvers | Strong Focus Improvers | Weak Capacity Improvers | Total |
|---|---|---|---|---|---|
| Pressure Ulcers | Count | 6 | 1 | 0 | 7 |
|  | % c | 15% | 8% | 0% | 11% |
| Eating and drinking | Count | 6 | 3 | 1 | 10 |
|  | % c | 15% | 25% | 10% | 16% |
| Prevention Sexual Abuse | Count | 4 | 1 | 1 | 6 |
|  | % c | 10% | 8% | 10% | 10% |
| Autonomy | Count | 9 | 1 | 4 | 14 |
|  | % c | 22% | 8% | 40% | 22% |
| Medicationsafety | Count | 6 | 5 | 2 | 13 |
|  | % c | 15% | 42% | 20% | 21% |
| Fall prevention | Count | 4 | 1 | 2 | 7 |
|  | % c | 10% | 8% | 20% | 11% |
| Problem behavior | Count | 6 | 0 | 0 | 6 |
|  | % c | 15% | 0% | 0% | 10% |
| Total | Count | 41 | 12 | 10 | 63 |
|  | % c | 100% | 100% | 100% | 100% |

**Additional file 24** - Bar chart with the cluster variable distribution of program projects (Chapter 8)



**T2 Distribution of projects across clusters**

- Middle Course Improvers
- Strong Focus Improvers
- Weak Capacity Improvers
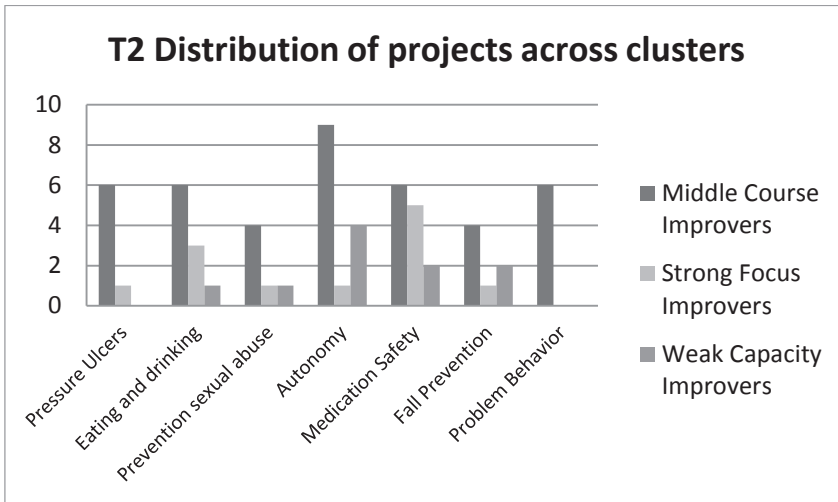
**Additional file 25** - DRI-IME framework in process perspective style with bended arrows (Chapter 9)
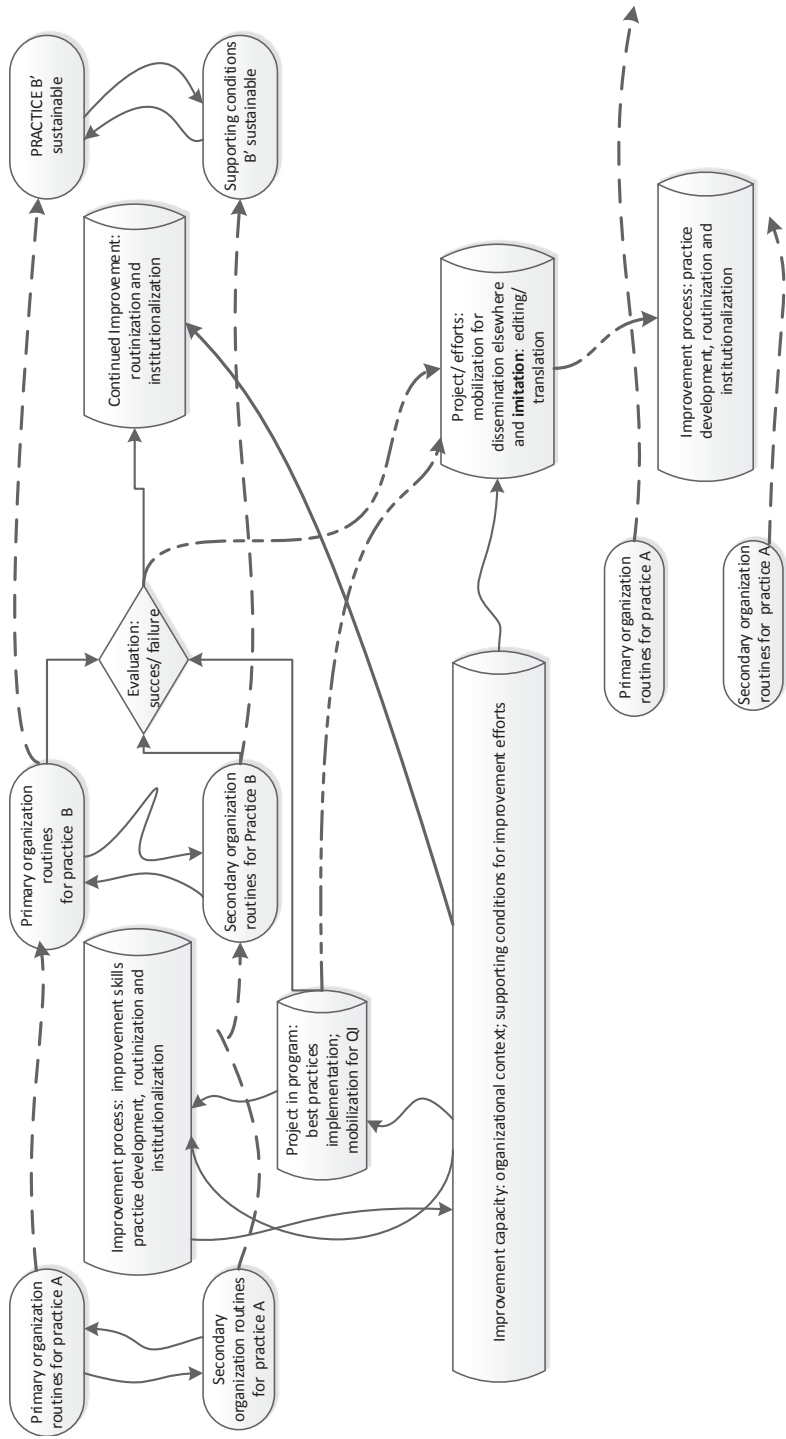
**Additional file 26** - Questionnaire for the follow-up datacollection

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Management Gezondheidszorg

# VRAGENLIJST BORGING
# EN VERSPREIDING

**EVALUATIE ONDERZOEK ZORG VOOR BETER**

## OPBOUW:

1. Gevolgen van de nieuwe werkwijze
2. Het verbeterproject in de organisatie
3. Werken met nieuwe werkwijze
4. Handleidingen en materialen
5. Toepasbaarheid
6. Terugblik op het verbeterproject
7. Het verbeteren in uw organisatie
8. Meetmethoden
9. Interesse voor de werkwijze en de gevolgen
10. Verspreiding van de werkwijze en de gevolgen
11. Verspreiding van het verbeteren
12. Achtergrond informatie

# TOELICHTING

Deze vragenlijst wordt gebruikt als terugblik op het Zorg voor Beter programma. Via deze weg wordt uw mening gevraagd over een aantal onderwerpen in verband met het verbeterproject waarbij u betrokken bent geweest. Ten eerste wordt onderzocht op welke manier de nieuwe manieren van werken een plaats hebben gekregen in uw organisatie. Hierbij is de vraag in welke mate de verbeteringen op dit moment nog te zien zijn in het werk.

Het tweede onderwerp is het verbeteren van werkprocessen. De vraag is wat Zorg voor Beter heeft opgeleverd voor de manieren waarop in uw organisatie verbeteracties worden ondernomen. Zo kunnen wij leren hoe innovatieprogramma's als Zorg voor Beter werken. Uw antwoorden zijn van groot belang om inzichten te ontwikkelen in positieve zo wel als negatieve kanten van het veranderen.

Deze vragenlijst is een proefversie. Daarom is er gekozen om meerdere vragen te stellen in de verschillende onderdelen. Het is de eerste keer dat hij wordt gebruikt en wij zullen op basis van de antwoorden de vragen selecteren om een korte versie te maken. Maar bij deze alvast ons oprechte excuus voor de lengte. Het invullen van de vragenlijst duurt tussen de 30 en 45 minuten.

Uw antwoorden zullen vertrouwelijk worden behandeld en uitsluitend geanonimiseerd worden gebruikt. De op het voorblad gedrukte code is slechts ter verwerking van de respons. Deze vragenlijst is alleen bedoeld voor leden van het interne verbeterteam van het Zorg voor Beter project.

Voor vragen met betrekking tot deze vragenlijst kunt u contact opnemen met:

Drs. Sarah Slaghuis
E-mail: slaghuis@bmg.eur.nl
Tel. 010 - 408 8543

Retour: graag terugsturen naar iBMG met bijgevoegde retourenvelop zonder postzegel. Wilt u zo vriendelijk zijn dit binnen 3 weken na ontvangst te doen?

Retour naar:

Drs. S.S. Slaghuis
iBMG
Postbus 1738
3000 DR Rotterdam

**Hartelijk dank en succes met invullen!**

# 1. GEVOLGEN VAN DE NIEUWE WERKWIJZE

In dit onderdeel wordt ingegaan op wat de nieuwe werkwijze heeft opgeleverd in uw organisatie. Bovendien zijn wij geïnteresseerd in welke mate deze zijn veranderd van aard of zijn vastgehouden.

## POSITIEVE GEVOLGEN

**A. DE NIEUWE WERKWIJZE HEEFT DE VOLGENDE POSITIEVE GEVOLGEN:**

| Cliënten | Ja | Nee | Weet niet |
|---|---|---|---|
| Het welzijn van cliënten is toegenomen. | ☐ | ☐ | ☐ |
| De gezondheid van de cliënten is toegenomen. | ☐ | ☐ | ☐ |
| De veiligheid van cliënten is toegenomen. | ☐ | ☐ | ☐ |
| De tevredenheid van de cliënten over de kwaliteit van zorg is toegenomen. | ☐ | ☐ | ☐ |
| Cliëntgerichtheid is toegenomen. | ☐ | ☐ | ☐ |
| Cliënten klagen minder dan voorheen. | ☐ | ☐ | ☐ |

| Medewerkers | Ja | Nee | Weet niet |
|---|---|---|---|
| De tevredenheid van de medewerkers is toegenomen. | ☐ | ☐ | ☐ |
| De betrokkenheid bij de afdeling / organisatie is toegenomen. | ☐ | ☐ | ☐ |
| De medewerkers zijn enthousiast over het werken met de Doorbraakmethode. | ☐ | ☐ | ☐ |
| Er is helderheid over de verdeling van taken. | ☐ | ☐ | ☐ |
| Medewerkers kunnen elkaar gemakkelijker aanspreken op gedrag. | ☐ | ☐ | ☐ |
| Het werk biedt meer uitdaging. | ☐ | ☐ | ☐ |
| Wij zijn professioneler geworden. | ☐ | ☐ | ☐ |

| Organisatie | Ja | Nee | Weet niet |
|---|---|---|---|
| Er zijn betere mogelijkheden om onze afdelingsresultaten bij te sturen. | ☐ | ☐ | ☐ |
| Onze afdeling heeft een beter imago gekregen. | ☐ | ☐ | ☐ |
| Externe partijen zijn positiever over onze afdeling / organisatie. | ☐ | ☐ | ☐ |

| Rendement van het werk | Ja | Nee | Weet niet |
|---|---|---|---|
| De productiviteit is toegenomen. | ☐ | ☐ | ☐ |
| De werkdruk is afgenomen met de nieuwe werkwijze. | ☐ | ☐ | ☐ |
| Er worden minder materialen gebruikt. | ☐ | ☐ | ☐ |
| Wij besparen tijd met de nieuwe werkwijze. | ☐ | ☐ | ☐ |
| In onze organisatie worden met de nieuwe werkwijze kosten bespaard. | ☐ | ☐ | ☐ |
| Buiten onze organisatie worden kosten bespaard met de nieuwe werkwijze. | ☐ | ☐ | ☐ |

# 1. GEVOLGEN VAN DE NIEUWE WERKWIJZE

Vervolg

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**B. HOUDT DE POSITIEVE GEVOLGEN DIE U ZOJUIST HEEFT GENOEMD IN GEDACHTEN BIJ HET INVULLEN VAN DE VOLGENDE VRAGEN:**

| | Zeer eens | Eens | Neutraal | Oneens | Zeer oneens | Weet niet |
|---|---|---|---|---|---|---|
| De werkwijze levert nog hetzelfde op als direct na afloop van het verbeterproject. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Wij leveren nu betere zorg dan direct na het verbeterproject. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Wij hebben de veranderingen in de zorg voor cliënten effectief ingevoerd in onze afdeling. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Wij behalen nu de hoogst mogelijke prestaties op dit gebied. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

## ANDERE GEVOLGEN

**C. DE NIEUWE WERKWIJZE HEEFT VOOR DE VOLGENDE PROBLEMEN GEZORGD:**

| Cliënten | Ja | Nee | Weet niet |
|---|---|---|---|
| De werkwijze vraagt meer van de cliënten dan voorheen. | ☐ | ☐ | ☐ |
| De werkwijze vraagt meer van de vertegenwoordigers van cliënten dan voorheen. | ☐ | ☐ | ☐ |
| De risico's voor cliënten zijn toegenomen. | ☐ | ☐ | ☐ |

| Medewerkers | Ja | Nee | Weet niet |
|---|---|---|---|
| De werkdruk is toegenomen. | ☐ | ☐ | ☐ |
| De werkwijze biedt minder flexibiliteit voor de medewerkers dan voorheen. | ☐ | ☐ | ☐ |
| De medewerkers zijn minder gemotiveerd. | ☐ | ☐ | ☐ |
| Er kleven andere nadelen aan de nieuwe werkwijze, namelijk: | | | |

**D. GEEF VOOR DE VOLGENDE STELLINGEN AAN IN WELKE MATE ZE VAN TOEPASSING ZIJN:**

| | Zeer eens | Eens | Neutraal | Oneens | Zeer oneens | Weet niet |
|---|---|---|---|---|---|---|
| De nieuwe manier van werken levert minder problemen dan de oude. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Voor bepaalde beroepsgroepen biedt de nieuwe werkwijze veel voordelen. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| De oorspronkelijke knelpunten zijn nog niet opgelost. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Met de nieuwe werkwijze is het veel gemakkelijker om goede zorg te verlenen. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Dankzij de nieuwe werkwijze behalen wij onze doelen als afdeling. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Ik kan mijn professionele vaardigheden niet goed kwijt in de nieuwe werkwijze. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| De nieuwe werkwijze brengt andere aspecten van zorg in het nauw. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Tegenwoordig worden er minder fouten gemaakt. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Naast de voordelen, kleven grote nadelen voor medewerkers uit bepaalde beroepsgroepen. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Tegenwoordig is de samenwerking in het team beter. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Wij hebben nu andere knelpunten dan voor het verbeterproject. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Dingen lopen vaker moeizaam met de nieuwe werkwijze. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

# 2. HET VERBETER-PROJECT IN DE ORGANISATIE

**In dit onderdeel richten we ons op de doelen en visies van de organisatie en de plaats van het verbeterproject hierin.**

# COMMUNICATIE VAN DE NIEUWE WERKWIJZE

## A. DOELEN EN VISIES IN VERBAND MET HET VERBETERPROJECT:

| | Zeer eens | Eens | Neutraal | Oneens | Zeer oneens | Weet niet |
|---|---|---|---|---|---|---|
| Doelen van het verbeterproject worden duidelijk beschreven in de jaarplannen. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Verspreiding van verbeterexpertise is in onze organisatie alleen op papier prioriteit. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Het zorgen dat de nieuwe werkwijze wordt vastgehouden behoort tot de visie van de organisatie. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Doelgerichte verspreiding van de nieuwe werkwijze is een onderdeel van de jaarplannen. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| De verbeteracties in onze organisatie sluiten duidelijk op elkaar aan. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| De organisatie heeft geen strategische plannen voor het (her-)gebruiken van de verbeterkennis in kunde. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

## B. MIJN DIRECT LEIDINGGEVENDE …

| | Zeer eens | Eens | Neutraal | Oneens | Zeer oneens | Weet niet |
|---|---|---|---|---|---|---|
| …heeft goed zicht op gevolgen van de nieuwe werkwijze. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| …denkt mee over hoe we de gevolgen kunnen handhaven. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| …gebruikt de metingen (indicatoren) om te kijken naar de gevolgen. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| …vraagt zelden uit zichzelf naar de nieuwe werkwijze. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| …schept goede voorwaarden voor het werken volgens de nieuwe werkwijze. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| …komt in overleggen met [hoger] management niet op voor onze belangen in de nieuwe werkwijze. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| …geeft ons gelegenheid om de werkwijze verder aan te passen. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| …denkt mee over hoe we de nieuwe werkwijze verder kunnen verbeteren. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| …geeft complimenten over de manier waarop de zorg nu verleend wordt met de nieuwe werkwijze. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

## C. IS HET VERBETERPROJECT NOG WEL EENS ONDERWERP VAN GESPREK?

| | Resultaten | Werkwijze | Verbeteren |
|---|---|---|---|
| Cliënten | [ ] | [ ] | [ ] |
| Vertegenwoordigers van de cliënten | [ ] | [ ] | [ ] |
| Vrijwilligers | [ ] | [ ] | [ ] |
| Verzorgenden/Helpenden (junior begeleiders) | [ ] | [ ] | [ ] |
| Verpleegkundigen (senior begeleiders) | [ ] | [ ] | [ ] |
| Paramedische dienst (gedragsdeskundigen, bijv. orthopedagoog) | [ ] | [ ] | [ ] |
| Artsen | [ ] | [ ] | [ ] |
| Leidinggevende | [ ] | [ ] | [ ] |
| Hoger management / directie | [ ] | [ ] | [ ] |
| Kwaliteitsfunctionaris / Beleidsmedewerker | [ ] | [ ] | [ ] |
| Ondersteunende diensten (bijv. secretariaat of medewerker van de keuken) | [ ] | [ ] | [ ] |
| Andere medewerkers, namelijk: | [ ] | [ ] | [ ] |

**Toelichting bij vraag C.**

In deze vragenlijst onderscheiden we de resultaten, de werkwijze en het verbeteren. Geef **punten** om aan te geven in welke mate u met de volgende personen nog wel eens praat over deze drie.

**Resultaten:** Gesprekken over de gevolgen van de werkwijze.

**Werkwijze:** Gesprekken over de nieuwe manier van werken, over de zorgverlening zelf.

**Verbeteren:** Gesprekken over verbeteren, hoe dat werkt en hoe je dat kunt aanpakken.

**Punten:**
1 = nooit
2 = zelden
3 = af en toe
4 = vaak
5 = zeer regelmatig
x = weet niet

## 3. WERKEN MET NIEUWE WERKWIJZE

**Sinds de afronding van het verbeterproject is inmiddels een jaar verstreken. Dat roept de vraag op in hoeverre de zorg nog steeds volgens de nieuwe werkwijze (vanuit het project) wordt verleend. In het volgende onderdeel komen de volgende onderwerpen aan bod: de nieuwe werkwijze als routine in de organisatie, feedback en teamoverleg, vaardigheden en kennis, en het gebruik van materialen.**

**Team = groep medewerkers die samen zorg verleent binnen een afdeling.**

## ROUTINES VOOR DE WERKWIJZE

### A. GEEF VOOR DE ONDERSTAANDE STELLINGEN AAN IN WELKE MATE U HET EENS OF ONEENS BENT.

| | Zeer eens | Eens | Neutraal | Oneens | Zeer oneens | Weet niet |
|---|---|---|---|---|---|---|
| De nieuwe werkwijze wordt door iedereen ervaren als de gebruikelijke manier van werken. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| De nieuwe werkwijze is duidelijk te omschrijven. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Inmiddels hebben wij verschillende varianten in de nieuwe werkwijze voor verschillende situaties. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| De nieuwe werkwijze is moeilijk over te dragen aan collega's. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Alle betrokken medewerkers zijn goed op de hoogte van de nieuwe werkwijze. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Ieder heeft zijn eigen vorm gevonden om de nieuwe werkwijze zo goed mogelijk uit te voeren. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| De nieuwe werkwijze heeft de oude voor altijd vervangen. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Iedereen weet heel goed op welke verantwoordelijkheden en taken men aanspreekbaar is. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Ondanks dat de praktijk regelmatig afwijkt hebben we geen moeite met het volgen van de nieuwe werkwijze. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Het werk verloopt tegenwoordig altijd soepel. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Wij krijgen geen ruimte om het werk aan specifieke situaties aan te passen. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| De uitvoering wordt niet anders door allerlei zaken buiten onze controle. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| In onze afdeling zijn wij helemaal gewend aan de nieuwe werkwijze. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| De nieuwe werkwijze verandert nog voortdurend in de praktijk. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Op welke manier de nieuwe werkwijze precies wordt uitgevoerd varieert per team. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Wij kunnen zonder erbij na te denken op de nieuwe manier werken. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Afhankelijk van de situatie passen wij de uitvoering van de nieuwe werkwijze aan. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Wij hebben onze (oude) gewoonten aangepast aan de nieuwe werkwijze. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

## FEEDBACK

### B. DE VOLGENDE VRAGEN GAAN OVER HET GEVEN EN KRIJGEN VAN FEEDBACK OVER DE WERKWIJZE.

| | Zeer eens | Eens | Neutraal | Oneens | Zeer oneens | Weet niet |
|---|---|---|---|---|---|---|
| Als mijn werk niet in orde is, dan zeggen mijn collega's daar altijd wat van. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Wij houden allemaal een oogje in het zeil wat betreft de zorgvuldigheid van het werk. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Als de nieuwe werkwijze niet goed verloopt dan kaarten wij dat meteen aan bij onze teamleider. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Als collega's onderling wisselen wij nauwelijks praktische ideeën uit over de nieuwe werkwijze. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Onderling hebben we het dikwijls over wat wij kunnen doen met opmerkingen van de cliënten over de nieuwe werkwijze. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

# 3. WERKEN MET NIEUWE WERKWIJZE

Vervolg

**Toelichting bij vraag D.**
In dit onderdeel gaan wij in op vaardigheden die nodig zijn voor de nieuwe manier van werken. Dat kunnen te leren vaardigheden zijn, maar ook praktische ervaringskennis.

## TEAMOVERLEG

**C. DE VOLGENDE VRAGEN GAAN OVER HET TEAMOVERLEG. HIERMEE BEDOELEN WIJ DE VASTE BIJEENKOMSTEN VAN HET MULTIDISCIPLINAIRE TEAM BINNEN EEN AFDELING OM DE ZORGVERLENING (EN ZORGORGANISATIE) AF TE STEMMEN.**

| | Zeer eens | Eens | Neutraal | Oneens | Zeer oneens | Weet niet |
|---|---|---|---|---|---|---|
| De nieuwe werkwijze is een vast agendapunt in het teamoverleg. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| In het teamoverleg kiezen wij samen verbeterdoelen. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Met enige regelmaat (bijv. per kwartaal / halfjaarlijks) wordt de uitvoering van de werkwijze geëvalueerd in ons team. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| In het teamoverleg bekijken wij in hoeverre wij doelen voor verbeteringen gehaald hebben. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Beslissingen in het teamoverleg over de werkwijze worden vastgelegd in notulen of verslag. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

## VAARDIGHEDEN

**D. GEEF VOOR ELKE STELLING AAN IN WELKE MATE DEZE VAN TOEPASSING IS OP UW ORGANISATIE.**

| | Zeer eens | Eens | Neutraal | Oneens | Zeer oneens | Weet niet |
|---|---|---|---|---|---|---|
| De benodigde kennis en vaardigheden zijn opgenomen in vacature-eisen. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| De nieuwe werkwijze wordt zorgvuldig besproken bij het inwerken van nieuwe medewerkers. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| In onze organisatie verwachten wij dat medewerkers de nieuwe werkwijze zonder problemen kunnen uitvoeren. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Medewerkers worden regelmatig getraind in de benodigde vaardigheden voor de nieuwe manier van werken. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| De benodigde kennis en vaardigheden worden regelmatig opgefrist door activiteiten op de afdeling. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| In functioneringsgesprekken komen de kennis en vaardigheden voor de nieuwe werkwijze (ook) aan bod. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| De benodigde kennis en vaardigheden zijn opgenomen in beschrijvingen van ons takenpakket. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| In functioneringsgesprekken worden afspraken gemaakt over vaardigheden voor de nieuwe werkwijze. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

# 4. HAND-LEIDINGEN EN MATERIALEN

In de volgende vragen wordt gevraagd naar het gebruik van handleidingen in allerlei soorten en maten. Afhankelijk van het zorgproces zal er voor de nieuwe werkwijze gebruikgemaakt worden van handleidingen – er bestaan handleidingen in allerlei soorten en maten. Onder 'handleiding' verstaan wij daarom alle mogelijke schriftelijke bronnen die als naslagwerk of instructie worden gebruikt, zoals: protocollen informatiebrochures, boeken of andere documentatie, instructies, gebruiksaanwijzingen, etc.

## HANDLEIDINGEN

**A. IN VERBAND MET DE NIEUWE WERKWIJZE HEBBEN WIJ:**

|  | Ja | Nee | Weet niet |
|---|---|---|---|
| Protocollen, en / of andere documentatie over de zorg. | ☐ | ☐ | ☐ |
| Handleidingen voor de organisatorische zaken. | ☐ | ☐ | ☐ |
| Handleidingen voor instrumenten / diagnostische testjes. | ☐ | ☐ | ☐ |

Andere, namelijk: [                    ]

|  | Zeer Belangrijk | Belangrijk | Neutraal | Niet | Helemaal niet | Weet niet |
|---|---|---|---|---|---|---|
| In welke mate zijn de door u aangegeven handleidingen van belang voor de uitvoering? | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

| Handleidingen voor de nieuwe werkwijze: | Zeer eens | Eens | Neutraal | Oneens | Zeer oneens | Weet niet |
|---|---|---|---|---|---|---|
| ...zijn niet bekend bij alle medewerkers. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ...zijn voor iedereen beschikbaar. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ...zijn altijd te vinden op een vaste plaats. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ...worden gemakkelijk vervangen als ze kwijt zijn. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ...worden altijd uitgedeeld aan nieuwe werknemers. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ...worden onvoldoende herzien / verbeterd. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ...worden regelmatig gebruikt. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ...worden aangepast aan nieuwe ontwikkelingen in de zorg. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ...worden gebruikt voor (bij-)scholing. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

# 4. HANDLEIDINGEN EN MATERIALEN

Vervolg

**Toelichting bij vraag B.**

In de zorg worden dagelijks veel verschillende materialen gebruikt. Materialen zijn er dan ook in soorten en maten: een broodkar, een bloeddrukmeter, incontinentiemateriaal, een steunkous, een dienst-/werkrooster, of een overzicht van voedingsvoorschriften, en ga zo maar door. In dit onderdeel richten wij ons op de materialen behorend bij de nieuwe werkwijze.

**Toelichting bij vraag D.**

Houdt in deze vraag alstublieft de bovengenoemde materialen in gedachten.

# MATERIALEN

**B. BESCHRIJF KORT WELKE MATERIALEN EEN ROL SPELEN IN DE NIEUWE WERKWIJZE.**

_____

_____

_____

_____

**C. WANNEER JE VOLGENS DE NIEUWE WERKWIJZE WERKT, DAN MAAK JE GEBRUIK VAN:**

| | Zeer Belangrijk | Belangrijk | Neutraal | Niet | Helemaal niet | Weet niet |
|---|---|---|---|---|---|---|
| Medische instrumenten | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Diagnostische testjes | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Organisatorische instrumenten | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Verpleegplannen of zorgdossiers | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Andere, namelijk: | | | | | | |

**D. DE MATERIALEN VOOR DE NIEUWE WERKWIJZE:**

| | Zeer eens | Eens | Neutraal | Oneens | Zeer oneens | Weet niet |
|---|---|---|---|---|---|---|
| ...zijn vrijwel altijd beschikbaar. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ...zijn nooit op een vaste plaats te vinden. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ...worden waar nodig goed onderhouden. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ...zijn regelmatig kapot. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ...worden vervangen als ze kapot of kwijt zijn. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ...worden altijd te laat besteld. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ...zijn de vaste verantwoordelijkheid van bepaalde personen. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

## 5. TOEPAS-BAARHEID

**Met het oog op de verspreiding van kennis over de zorg vragen we ons af of de nieuwe werkwijze toepasbaar is voor andere afdelingen of organisaties. In dit onderdeel vragen we naar uw inschatting hierover.**

# ANDERE AFDELINGEN OF ORGANISATIES

**A. IS DE NIEUWE WERKWIJZE TOEPASBAAR VOOR ANDERE AFDELINGEN OF ORGANISATIES?**

| | Zeer eens | Eens | Neutraal | Oneens | Zeer oneens | Weet niet |
|---|---|---|---|---|---|---|
| Andere afdelingen of organisaties hoeven niets meer te veranderen. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| De nieuwe werkwijze sluit sterk aan op de manier van werken die wij hiervoor hadden. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| De werkwijze is gemakkelijker dan de vorige manier van werken – andere organisaties zouden hier ook goed mee kunnen werken. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Het in gebruik nemen van de nieuwe werkwijze is niet gemakkelijk voor de cliënten. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| De meeste zorgorganisaties hebben de benodigde materialen en instrumenten al in huis. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Als er nieuwe collega's van andere disciplines in ons team zouden komen, dan kunnen de taken gemakkelijk opnieuw worden verdeeld. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| De nieuwe werkwijze vereist heel specifieke nieuwe kennis. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| De werkwijze is gemakkelijk aan te passen. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| In de meeste organisaties zullen forse veranderingen nodig zijn voor de nieuwe werkwijze. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Voor de nieuwe werkwijze zijn nieuwe materialen nodig. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Alles wat er bij de nieuwe werkwijze komt kijken ligt tamelijk vast. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

# 6. TERUGBLIK OP HET VERBETER-PROJECT

**In dit onderdeel blikken we terug op het verbeter-project, de contacten van het verbeterteam en samenwerkingsverbanden.**

**Toelichting bij vraag B.**

Tijdens het verbeterproject is waarschijnlijk samenwerkt met allerlei personen of instanties buiten het verbeterteam. In dit onderdeel proberen we een beeld te vormen van het netwerk van het verbeterteam.

In de eerste kolom staan verschillende medewerkers in uw organisatie, waarmee u of of anderen vanuit het verbeterteam te maken zouden kunnen hebben gehad. In de bovenste rij staan de verschillende manieren waarop u / uw verbeterteam wellicht deze personen kende of tegenkwam op het werk.

Probeer voor elke persoon of partij te bedenken wat voor contact er was tijdens het verbeterproject. U mag meerdere vakjes aankruisen per persoon.

# TERUGBLIK OP HET VERBETERPROJECT

**A. IN DIT ONDERDEEL BEGINNEN WE MET EEN TERUGBLIK OP UW ERVARINGEN IN HET VERBETERPROJECT.**

| | Optimaal | Redelijk | Voldoende | Onvoldoende | Niet |
|---|---|---|---|---|---|
| Hoe beoordeelt u de effectiviteit van het verbeterteam in verhouding tot de behaalde gevolgen/ resultaten? | ☐ | ☐ | ☐ | ☐ | ☐ |

| | Zeer eens | Eens | Neutraal | Oneens | Zeer oneens | Weet niet |
|---|---|---|---|---|---|---|
| Ik ben positief over mijn ervaring met het verbeterteam. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Ik ben bereid om nog een keer aan een verbeterteam deel te nemen. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| De algemene prestaties van het verbeterteam komen overeen met de verwachtingen van de verbeterteamleden. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

## B. CONTACTEN VAN HET VERBETERTEAM

Kruis 1 of meerdere vakjes (per persoon) aan

| | Geen / nauwelijks contact, n.v.t. | Sprak ik soms | Kreeg ik informatie van (e-maile / postvak) | Gaf ik zonst informatie al ik hem / haar tegen kwam | Sprak ik tijdens pauze / lunch | Gaf ik regelmatig informatie over werk | Wij spraken soms om problemen op te lossen | Verzocht op verzoek van verbeterteam | Regulier werkoverleg | Samenwerking |
|---|---|---|---|---|---|---|---|---|---|---|
| Medewerkers van de pilotafdeling | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Medewerkers van andere afdelingen | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Direct leidinggevende van de pilotafdeling | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Leidinggevende van andere afdeling | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Kwaliteitsfunctionaris of beleidsmedewerker | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Hoger management / raad van bestuur | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Andere verbeterteams in eigen organisatie | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

# 6. TERUGBLIK OP HET VERBETER-PROJECT

Vervolg

Had uw verbeterteam contacten met leden van andere verbeterteams buiten het programma / de conferenties?

| | Erg veel | Veel | Matig | Weinig | Niet | Weet niet |
|---|---|---|---|---|---|---|
| | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

Op welke wijze vonden de contacten plaats?

☐ Schriftelijk  ☐ Telefonisch
☐ Via persoonlijke e-mail  ☐ Via via contact
☐ Afspraak ergens anders  ☐ Anders, namelijk:

☐ Via het forum van Zorg voor Beter (extranet)
☐ Afspraak op bezoek in de organisatie

| | Erg veel | Veel | Matig | Weinig | Niet | Weet niet |
|---|---|---|---|---|---|---|
| In welke mate heeft het verbeterteam de bestaande sociale contacten met andere afdelingen benut voor het vasthouden van de nieuwe werkwijze? | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| In welke mate heeft het verbeterteam bestaande contacten met andere afdelingen gebruikt voor het verspreiden van de nieuwe werkwijze? | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

# SAMENWERKING MET EXTERNE ORGANISATIES

## C. KWALITEITSVERBETERINGEN

In hoeverre wordt er door uw organisatie samengewerkt met deze of andere externe organisaties aan kwaliteitsverbeteringen?

☐ Nee  ☐ Ja, met welke?

_____

_____

## D. SAMENWERKING

| | Erg veel | Veel | Matig | Weinig | Niet | Weet niet |
|---|---|---|---|---|---|---|
| Waren deze tijdens het Zorg voor Beterprogramma op de hoogte van het verbeterproject? | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Is er tijdens het verbeterproject samengewerkt met een of meer van deze organisaties? | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Is er na afloop van het verbeterproject  ook nog samengewerkt aan het vasthouden? | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Is er na afloop van het verbeterproject evt. ook nog samengewerkt aan het verspreiden? | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**Toelichting bij vraag C.**
Mogelijk werkt uw organisatie samen met andere externe organisaties. Denk bijvoorbeeld aan: de apotheek, andere zorgorganisaties, huisartsen of geheugenpoli's, stichtingen voor welzijnsdiensten als 'Tafeltje Dek Je', enz.

**Toelichting bij vraag D.**
Houdt de bovengenoemde organisatie in gedachten bij deze vragen:

# 7. HET VERBETEREN IN UW ORGANISATIE

In het verbeterproject is ervaring opgedaan met verbeteren. De vraag is of deze ook later nog van pas is gekomen voor verbeteracties in uw organisatie. In dit onderdeel gaan wij in op het gebruik van de opgedane ervaring en deskundigheid over het (methodisch) verbeteren.

**Toelichting bij vraag C.**

In de verbeterprojecten is gewerkt aan het (methodisch) verbeteren van de kwaliteit van zorg. Waarschijnlijk zijn hierbij niet alleen de methoden uit Zorg voor Beter gebruikt, maar ook eigen methoden die al bekend waren in de organisatie. In dit onderdeel vragen we naar uw ervaringen met de praktische methoden waarmee uw verbeterteam veranderingen heeft ontwikkeld. Het gaat hier dus niet over de nieuwe wijze van zorgverlening, maar juist om de manieren waarop verbeteracties worden vormgegeven.

## VERANTWOORDELIJKHEID

**A. TIJDENS HET VERBETERPROJECT HAD HET VERBETERTEAM BEPAALDE VERANTWOORDELIJKHEID EN INSPRAAK OVER DE WERKWIJZE. WAT IS ER HIERMEE GEBEURD NA AFLOOP VAN HET VERBETERPROJECT?**

| | Zeer eens | Eens | Neutraal | Oneens | Zeer oneens | Weet niet |
|---|---|---|---|---|---|---|
| Het verbeterteam heeft nog steeds de verantwoordelijkheid voor de nieuwe werkwijze. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Tegenwoordig denkt iedereen mee over de nieuwe werkwijze – niet alleen het verbeterteam. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Onze leidinggevende / management heeft nieuwe mensen aangewezen die ervoor zorgen dat de verbeteringen worden vastgehouden. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Elk team is nu zelf verantwoordelijk voor hoe de nieuwe werkwijze verder wordt ontwikkeld. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Na het verbeterproject is het verbeterteam doorgegaan met het ontwikkelen van de nieuwe werkwijze. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

## NA HET VERBETERPROJECT

**B. WAT IS ER MET HET VERBETERPROJECT EN HET VERBETEREN VAN DE WERKWIJZE GEBEURD NA HET VERBETERPROJECT?**

| | Zeer eens | Eens | Neutraal | Oneens | Zeer oneens | Weet niet |
|---|---|---|---|---|---|---|
| Na het verbeterproject waren wij nog niet klaar met verbeteren. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Na het verbeterproject is er niet veel meer veranderd aan de nieuwe werkwijze. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Er was eigenlijk geen tijd of ruimte meer om verder te verbeteren na het verbeterproject. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Bij afronding van het verbeterproject vonden wij de nieuwe werkwijze voldoende verbeterd. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Na het verbeterproject hebben wij ons gericht op het vasthouden van de nieuwe werkwijze. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| De projectmatige manier van werken van Zorg voor Beter wordt nu ook op andere zorggebieden toegepast. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

## GEBRUIK VAN DE VERBETERMETHODEN

**C. WELKE VERBETERMETHODEN WORDEN GEBRUIKT IN UW ORGANISATIE, NAAST DIE UIT ZORG VOOR BETER?**

U mag meerdere antwoorden aankruisen.

☐ Weet niet
☐ Kwaliteitskringen
☐ Andere, namelijk:

☐ pdsa-cyclus
☐ Pareto / visgraat methode

☐ HKZ model (Harmonisatie Kwaliteitsbeoordeling in de Zorg)
☐ INK model (Instituut Nederlandse Kwaliteit / EFQM)

## 7. HET VERBETEREN IN UW ORGANISATIE

Vervolg

**Toelichting bij vraag E.**

In Zorg voor Beter is aandacht besteed aan het verbeteren met behulp van de plan-do-study-act-cyclus. Centraal hierin staan het plannen, uitvoeren en testen van kleine verbeteringen om vervolgens met metingen vast te stellen wat de verbeteringen opleveren. De volgende vragen gaan over uw ervaringen met deze manier van verbeteren.

# GEBRUIK

### D. GEBRUIK VAN VERBETERMETHODEN NAAR AANLEIDING VAN HET VERBETERPROJECT/PROGRAMMA. NB NA HET VERBETERPROJECT.

| | Zeer eens | Eens | Neutraal | Oneens | Zeer oneens | Weet niet |
|---|---|---|---|---|---|---|
| De verbetermethoden worden nog steeds gebruikt in ons team. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| De verbetermethoden sluiten goed aan bij onze manier van denken. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Men is niet echt gewend aan de verbetermethoden op onze afdeling. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| De verbetermethoden passen niet bij onze manier van denken over kwaliteitsverbetering van zorg. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| De verbetermethoden zijn niet geschikt voor de veranderingen die nodig zijn in onze organisatie. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| In onze organisatie is weinig ruimte om de verbetermethoden toe te passen op andere gebieden. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Het werken met de verbetermethoden bij ons is standaard geworden. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

# PDSA CYCLUS

### E. WERKEN MET DE PDSA CYCLUS

| | Zeer eens | Eens | Neutraal | Oneens | Zeer oneens | Weet niet |
|---|---|---|---|---|---|---|
| In het verbeterproject hebben wij positieve ervaringen opgedaan met de pdsa cyclus. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Een volledige pdsa cyclus doen is lastig. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| De pdsa cyclus is niet geschikt om onze verbeterdoelen te bereiken. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| De stappen van de pdsa cyclus hebben geen duidelijke functie. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Wij hebben een eigen stijl ontwikkeld voor het verbeteren met de pdsa cyclus. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Naast de pdsa cyclus gebruiken wij ook andere verbetermethoden. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Wij zijn goed geworden in het werken met de pdsa cyclus. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Wij gebruiken de pdsa cyclus nog regelmatig. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| De pdsa cyclus is gemakkelijk toepasbaar op verschillende knelpunten. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Door het gebruik van de pdsa cyclus kunnen wij gemakkelijk overleggen over verbeteracties. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

### F. ONZE LEIDINGGEVENDE…

| | Zeer eens | Eens | Neutraal | Oneens | Zeer oneens | Weet niet |
|---|---|---|---|---|---|---|
| …zorgt ervoor dat een verbeteractie goed georganiseerd kan worden. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| …brengt medewerkers met anderen in contact zodat verbeterkennis gebruikt wordt. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| …had praktische doelen voor de afdeling om de verbeterkennis bij te gebruiken. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| …is gespitst op het benutten van de kennis en ervaringen met het verbeteren. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| …had meteen plannen om de verbeterkennis verder te gebruiken in onze organisatie. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

# 8. MEET-METHODEN

**Tijdens het verbeterproject is ook het meten van de kwaliteit van zorg als deel van het verbeterproces aan bod gekomen. In dit onderdeel kijken we naar de ervaringen met het meten van de kwaliteit van zorg.**

# ERVARINGEN MET HET METEN VAN KWALITEIT

## A. TIJDENS HET VERBETERPROJECT…

| | Zeer eens | Eens | Neutraal | Oneens | Zeer oneens | Weet niet |
|---|---|---|---|---|---|---|
| …hebben wij een goed meetsysteem opgezet. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| …konden wij de metingen goed gebruiken om de verbeteringen aan te passen. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| …waren wij tevreden over de kwaliteit van de metingen in het verbeterproject. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

## B. WELKE PLAATS HEEFT HET METEN IN UW ORGANISATIE?

Geef voor elk van de volgende stellingen aan in welke mate ze van toepassing zijn.

| | Zeer eens | Eens | Neutraal | Oneens | Zeer oneens | Weet niet |
|---|---|---|---|---|---|---|
| Door het verbeterproject hebben we beter leren meten. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Iedereen werkt goed mee aan het meten. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Wij hebben moeite met het verzamelen van de juiste gegevens. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Ook al verzamelen wij metingen, wij komen er niet aan toe er iets mee te doen. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Wij hebben de metingen opgenomen in de (elektronische) cliëntendossiers. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Wij meten belangrijke aspecten van de zorg en onze zorgverlening. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Het meten is geen belangrijke bron van informatie op onze afdeling. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| In ons werkoverleg bespreken wij meetresultaten. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Het management verzamelt de metingen. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Wij passen ons werk aan op grond van de meetresultaten. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Wij krijgen feedback van management / onze leidinggevende op de metingen. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

## C. MET RESULTATEN VAN DE METINGEN KUNNEN WIJ…

| | Zeer eens | Eens | Neutraal | Oneens | Zeer oneens | Weet niet |
|---|---|---|---|---|---|---|
| …laten zien wat wij goed doen. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| …laten zien wat er nodig is. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| …ons onderscheiden van andere afdelingen. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| …ons onderscheiden van andere organisaties. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| …laten zien wat er mis is. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

# 8. MEET-METHODEN

*Vervolg*

## Toelichting bij vraag E.

In de zorgverlening, maar ook in het verbeteren spelen sociale contacten een belangrijke rol. Voor het vasthouden en het verspreiden van kennis over zorg en het verbeteren geldt dit ook. Daarom vragen we nu naar uw contacten in de organisatie – om te zien hoe deze in verhouding staan tot de contacten van het verbeterteam.

**Bedenk voor elke persoon of partij wat voor contact u heeft gehad in de afgelopen vier weken.** In de eerste kolom staan verschillende medewerkers met wie u te maken kunt hebben in uw organisatie. In de bovenste rij staan de verschillende manieren waarop u wellicht deze personen kent of tegenkomt op het werk. U mag meerdere vakjes invullen per persoon.

## D. DE RAAD VAN BESTUUR...

| | Zeer eens | Eens | Neutraal | Oneens | Zeer oneens | Weet niet |
|---|---|---|---|---|---|---|
| ...had concrete doelen om de verbeterkennis te gebruiken in de organisatie. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ...heeft goede ideeën om de verbeterkennis in de organisatie door te geven. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ...maakte zich hard voor het doorgaan met verbeteren na afloop van het verbeterproject. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ...zorgde dat in andere afdelingen ook verbeteracties zijn gestart op basis van onze verbeterkennis. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ...moedigde aan dat de leden van het verbeterteam hun kennis doorgaven aan anderen. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ...ondersteunde activiteiten voor het verspreiden van verbeterkennis. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ...staat open voor inbreng van onze leidinggevende over verbeteracties. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

## E. SOCIALE CONTACTEN

**Kruis 1 of meerdere vakjes (per persoon) aan**

| | Geen / nauwelijks contact / n.v.t. | Sprak ik soms | Kreeg ik informatie van (e-mail, post etc.) | Gaf ik informatie aan (e-mail, post etc.) | Sprak ik tegen/ liep ik hem/ haar tegen het lijf | Sprak ik tijdens de pauze / lunch | Gaf ik regelmatig informatie over werk | Wij spraken soms om probleem op te lossen | Overlegden op eigen verzoek | Werkoverleg in het team | Samenwerking |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Collega's van eigen afdeling | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Medewerkers van ondersteunende diensten | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Direct leidinggevende | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Kwaliteitsfunctionaris / beleidsmedewerker | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Hoger management / raad van bestuur | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Medewerkers van andere afdelingen | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

# 9. INTERESSE VOOR DE WERKWIJZE EN DE GEVOLGEN

**Voor verspreiding is kennisuitwisseling van belang. In dit tweede deel gaan we in op de kennisuitwisseling over de werkwijze en de gevolgen in uw organisatie.**

**De volgende vragen hebben betrekking op het belang van de nieuwe werkwijze en de gevolgen voor andere afdelingen.**

**Toelichting bij vraag C.**
Zojuist hebben we gevraagd naar het belang voor andere afdelingen. Nu draaien we de vraag om: waren andere afdelingen geïnteresseerd in de nieuwe werkwijze en / of de gevolgen?

## A. BELANG VOOR ANDERE AFDELINGEN

| | Zeer | Belangrijk | Neutraal | Niet | Helemaal niet | Weet niet |
|---|---|---|---|---|---|---|
| In hoeverre is de nieuwe werkwijze van belang voor andere afdelingen? | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| In hoeverre zijn de gevolgen van de nieuwe werkwijze van belang voor andere afdelingen? | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

## B. IN WELKE MATE ZIJN DE NIEUWE WERKWIJZE EN DE GEVOLGEN VAN BELANG VOOR DE VOLGENDE PERSONEN IN ANDERE AFDELINGEN?

| | Zeer | Belangrijk | Neutraal | Niet | Helemaal niet | Weet niet |
|---|---|---|---|---|---|---|
| Cliënten | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Cliëntenvertegenwoordigers | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Vrijwilligers | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Verzorgenden / Helpenden (junior begeleiders) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Verpleegkundigen (senior begeleiders) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Paramedische dienst (gedragsdeskundigen, bijv. orthopedagoog) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Artsen | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Leidinggevende | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Hoger management / directie | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Kwaliteitsfunctionaris en / of Beleidsmedewerker | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Ondersteunende diensten (bijv. secretariaat of medewerker van de keuken) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Andere medewerkers, namelijk: | | | | | | |

## C. INTERESSE VAN ANDERE AFDELINGEN

| | Erg veel | Veel | Matig | Weinig | Niet | Weet niet |
|---|---|---|---|---|---|---|
| Hebben andere afdelingen interesse getoond in de gevolgen? | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

## D. WIE VAN DE VOLGENDE PERSONEN VAN EEN ANDERE AFDELING HEEFT ER INTERESSE GETOOND IN DE RESULTATEN?

Kruis één of meerdere antwoorden aan:

☐ Cliënten
☐ Vrijwilligers
☐ Artsen
☐ Hoger management / directie

☐ Vertegenwoordigers van de cliënten
☐ Verpleegkundigen (senior begeleiders)
☐ Leidinggevende
☐ Ondersteunende diensten (bijv. secretariaat of medewerker van de keuken)

☐ Verzorgenden / Helpenden (junior begeleiders)
☐ Paramedische dienst (gedragsdeskundigen, bijv. orthopedagoog)
☐ Kwaliteitsfunctionaris en / of Beleidsmedewerker

☐ Anderen, namelijk:

**324** | Additional files

# 9. INTERESSE VOOR DE WERKWIJZE EN DE GEVOLGEN

Vervolg

## E. INTERESSE VOOR DE GEVOLGEN VOOR DE CLIËNTEN

In welke mate hebben andere afdelingen interesse voor de gevolgen voor de cliënten?

| | Nauwelijks | Weinig | Matig | Veel | Heel veel |
|---|---|---|---|---|---|
| | ☐ | ☐ | ☐ | ☐ | ☐ |

Er was vooral interesse voor (u mag meerdere aankruizen):

☐ welzijn van cliënten
☐ tevredenheid van de cliënten
☐ gezondheid van cliënten
☐ cliëntgerichtheid van de zorg
☐ veiligheid van cliënten
☐ klachten over de zorg

## F. INTERESSE VOOR DE GEVOLGEN VOOR DE MEDEWERKERS

In welke mate hebben andere afdelingen interesse voor de gevolgen voor de medewerkers?

| | Nauwelijks | Weinig | Matig | Veel | Heel veel |
|---|---|---|---|---|---|
| | ☐ | ☐ | ☐ | ☐ | ☐ |

Er was vooral interesse voor (u mag meerdere aankruizen):

☐ enthousiasme over de werkwijze
☐ ervaringen met de Doorbraakmethode
☐ uitdaging in het werk
☐ tevredenheid van de medewerkers
☐ de verdeling van taken
☐ professionele ontwikkeling

## G. GEVOLGEN VOOR DE ORGANISATIE

In welke mate hebben andere afdelingen interesse voor de gevolgen voor de organisatie?

| | Nauwelijks | Weinig | Matig | Veel | Heel veel |
|---|---|---|---|---|---|
| | ☐ | ☐ | ☐ | ☐ | ☐ |

Er is vooral interesse voor (u mag meerdere aankruizen):

☐ het imago van de afdeling
☐ mogelijkheden om afdelingsresultaten bij te sturen
☐ betrokkenheid bij de organisatie
☐ helderheid over verantwoordelijkheden
☐ tevredenheid van externe partijen over onze afdeling

## H. GEVOLGEN VOOR HET RENDEMENT

In welke mate hebben andere afdelingen interesse voor de gevolgen voor het rendement van het werk?

| | Nauwelijks | Weinig | Matig | Veel | Heel veel |
|---|---|---|---|---|---|
| | ☐ | ☐ | ☐ | ☐ | ☐ |

Er is vooral interesse voor (u mag meerdere aankruizen):

☐ productiviteit
☐ tijdsbesparing
☐ werkdruk
☐ kostenbesparing binnen onze organisatie
☐ gebruik van materialen (doelmatig)
☐ kostenbesparing buiten onze organisatie

# 10. VERSPREIDING VAN DE WERK-WIJZE EN DE GEVOLGEN

**Toelichting bij vraag E.**
**Materialen:** alle benodigdheden bij de uitvoering van de nieuwe werkwijze, zoals benoemd in onderdeel 4 (variërend van steunkous tot diagnostische test). Zie ook bladzijde 9, de toelichting bij vraag B.

1 2 3 4 5 6 7 8 9 **9** 10 11 12

## A. OP WELKE MANIER ZIJN WERKWIJZE EN DE GEVOLGEN BEKENDGEMAAKT IN UW ORGANISATIE?

Kruis aan welke manieren hiervoor zijn gebruikt – meerdere antwoorden mogelijk:

☐ Informeel, via de wandelgangen
☐ Mededelingenprikbord
☐ Mondelinge communicatie in werkoverleg / andere bijeenkomst
☐ Via een andere weg, namelijk:

☐ E-mail
☐ Intranet

☐ Via nieuwsbrief of nieuwsblad van de organisatie
☐ Via de website van de organisatie

## B. DE GEVOLGEN VAN DE NIEUWE WERKWIJZE ZIJN BEKEND GEMAAKT...

| | Zeer eens | Eens | Neutraal | Oneens | Zeer oneens | Weet niet |
|---|---|---|---|---|---|---|
| ...in presentaties (bij overleggen of andere gelegenheden). | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ...in het jaarverslag en / of andere rapporten. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ...tijdens besprekingen / werkoverleggen. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ...in bijscholingsactiviteiten. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

## C. OM DE NIEUWE WERKWIJZE TE VERSPREIDEN ZIJN...

| | Zeer eens | Eens | Neutraal | Oneens | Zeer oneens | Weet niet |
|---|---|---|---|---|---|---|
| ...presentaties gehouden tijdens werkoverleggen. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ...klinische lessen, workshops of andere vormen van (bij-)scholing georganiseerd. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ...gastbezoeken georganiseerd voor medewerkers van andere afdelingen. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

## D. ZIJN ER EVENTUEEL OOK SPECIALE ANDERE ACTIES ONDERNOMEN VOOR DE VERSPREIDING?

Kruis aan welke van toepassing zijn – beide zijn mogelijk het geval.

☐ Over de gevolgen. Welke actie(s)?

☐ Over de nieuwe werkwijze. Welke actie(s)?

## E. IN DE ORGANISATIE / BIJ ANDERE AFDELINGEN:

| | Zeer eens | Eens | Neutraal | Oneens | Zeer oneens | Weet niet |
|---|---|---|---|---|---|---|
| ...worden handleidingen van de nieuwe werkwijze gebruikt. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ...zijn waar nodig andere afdelingen getraind in de vaardigheden voor de nieuwe werkwijze. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ...wordt ondertussen de kennis en vaardigheden over de zorginhoudelijke kanten van de nieuwe werkwijze ook gebruikt. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ...is uitgelegd welke materialen nodig zijn voor de nieuwe werkwijze. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ...wordt gewerkt met dezelfde materialen voor de nieuwe werkwijze. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

# 10. VERSPREIDING VAN DE WERKWIJZE EN DE GEVOLGEN

Vervolg

## F. ONZE LEIDINGGEVENDE…

|  | Zeer eens | Eens | Neutraal | Oneens | Zeer oneens | Weet niet |
|---|---|---|---|---|---|---|
| …heeft gezorgd dat andere afdelingen weten van onze resultaten. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| …heeft actie ondernomen om te zorgen dat de er in andere afdelingen ook zo wordt gewerkt. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| …denkt mee over acties voor het verspreiden van de nieuwe werkwijze. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| …werd om advies gevraagd voor het invoeren van de nieuwe werkwijze in andere afdelingen. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| …zorgt voor activiteiten voor het uitwisselen van kennis en ervaringen met de nieuwe werkwijze. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

## G. DE RAAD VAN BESTUUR…

|  | Zeer eens | Eens | Neutraal | Oneens | Zeer oneens | Weet niet |
|---|---|---|---|---|---|---|
| …werd op de hoogte gehouden te over de nieuwe werkwijze. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| …had geen oog voor de voorwaarden nodig voor het vasthouden van de werkwijze. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| …is niet goed geïnformeerd over de resultaten met de nieuwe werkwijze. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| …denkt mee over hoe de resultaten vastgehouden kunnen worden. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| …heeft verspreidingsactiviteiten voor de nieuwe werkwijze goed ondersteund. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| …was betrokken bij de uitvoering van verspreidingsactiviteiten. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| …zette zich in voor het bekend maken van de resultaten in de hele organisatie. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| …ondersteunde dat de andere afdelingen dezelfde resultaten nastreven. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

## 10. VERSPREIDING VAN DE WERKWIJZE EN DE GEVOLGEN

Vervolg

**Toelichting bij vraag I.**
Geef voor elke groep aan hoe goed zij op de hoogte zijn over de nieuwe werkwijze en de gevolgen.

## BEKENDHEID VAN DE GEVOLGEN

**H. GEVOLGEN KUNNEN OP VERSCHILLENDE WIJZE WORDEN GEBRUIKT. NU RIJST DE VRAAG OP WELKE MANIEREN DAT IN UW ORGANISATIE IS EN MOGELIJK NOG STEEDS WORDT GEDAAN.**

| | Zeer eens | Eens | Neutraal | Oneens | Zeer oneens | Weet niet |
|---|---|---|---|---|---|---|
| Andere afdelingen streven onze prestaties (ook) na. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Andere afdelingen behalen inmiddels vergelijkbare prestaties wat betreft de kwaliteit van zorg. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Onze resultaten worden 'als norm' gebruikt in nieuwe verbeterprojecten op andere afdelingen. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Medewerkers van andere afdelingen gebruiken de beschikbare informatie over gevolgen. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Samenvattend: Zijn de veranderingen in de zorg voor cliënten die uw team heeft ingevoerd verspreid naar andere afdelingen van uw organisatie? | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Vindt u dat de veranderingen in de zorg voor cliënten effectief zijn ingevoerd in de andere afdelingen van uw organisatie? | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**I. HOE GOED ZIJN DE WERKWIJZE EN GEVOLGEN VERSPREID NAAR ANDERE AFDELINGEN / DE HELE ORGANISATIE?**

| | Zeer eens | Eens | Neutraal | Oneens | Zeer oneens | Weet niet |
|---|---|---|---|---|---|---|
| Cliënten | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Cliëntenvertegenwoordigers | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Vrijwilligers | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Verzorgenden / Helpenden (junior begeleiders) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Verpleegkundigen (senior begeleiders) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Paramedische dienst (gedragsdeskundigen, bijv. orthopedagoog) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Artsen | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Leidinggevende | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Hoger management / directie | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Kwaliteitsfunctionaris en / of Beleidsmedewerker | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Ondersteunende diensten (bijv. secretariaat of medewerker van de keuken) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Andere medewerkers, namelijk: | | | | | | |

# 11. VERSPREIDING VAN HET VERBETEREN

Door te verbeteren heeft het verbeterteam ook kennis over manieren om het verbeteren aan te pakken opgedaan. Deze ervaring en deskundigheid kan mogelijk elders in de organisatie van pas komen. De volgende onderdelen gaan over het uitwisselen van ervaring en deskundigheid met het verbeteren naar aanleiding van het verbeterproject.

**Verbeteraanpak**
Hiermee bedoelen wij de manier waarop in het verbeterproject is gewerkt met bepaalde verbetermethoden.

**Belang**
In dit onderdeel richten we ons op het belang (en de belangstelling) voor de ervaring en deskundigheid van de leden van het verbeterteam voor andere afdelingen.

*handleidingen of andere informatie over verbeteren

1 2 3 4 5 6 7 8 9 10 **11** 12

## A. BELANG

| | Zeer eens | Eens | Neutraal | Oneens | Zeer oneens | Weet niet |
|---|---|---|---|---|---|---|
| De verbeteraanpak is van belang voor andere afdelingen. | □ | □ | □ | □ | □ | □ |
| De meetmethoden (voor de nieuwe werkwijze) zijn van belang voor andere afdelingen. | □ | □ | □ | □ | □ | □ |
| Andere afdelingen binnen uw organisatie waren zeer geïnteresseerd in de verbeteraanpak. | □ | □ | □ | □ | □ | □ |

## B. WIE VAN DE VOLGENDE PERSONEN VAN EEN ANDERE AFDELING HEEFT ER INTERESSE GETOOND IN UW ERVARINGEN MET DE VERBETERAANPAK?

Kruis één of meerdere antwoorden aan:

□ Cliënten
□ Verpleegkundigen (senior begeleiders)
□ Leidinggevende
□ Ondersteunende diensten (bijv. secretariaat of medewerker van de keuken)
□ Vertegenwoordigers van de cliënten
□ Artsen
□ Hoger management / directie
□ Vrijwilligers
□ Verzorgenden / Helpenden (junior begeleiders)
□ Paramedische dienst (gedragsdeskundigen, bijv. orthopedagoog)
□ Kwaliteitsfunctionaris en / of Beleidsmedewerker

□ Anderen, namelijk:

## C. VERSPREIDING VAN DE MEETMETHODEN

| | Erg veel | Veel | Matig | Weinig | Niet | Weet niet |
|---|---|---|---|---|---|---|
| Hebben andere afdelingen van uw organisatie interesse getoond in de metingen? | □ | □ | □ | □ | □ | □ |
| Hebben andere afdelingen van uw organisatie de metingen en / of meetmethoden toegepast? | □ | □ | □ | □ | □ | □ |
| Konden andere afdelingen goed met de meetmethoden uit de voeten? | □ | □ | □ | □ | □ | □ |
| In de hele organisatie worden onze maten (indicatoren) voor de nieuwe werkwijze gemeten. | □ | □ | □ | □ | □ | □ |

| | Zeer eens | Eens | Neutraal | Oneens | Zeer oneens | Weet niet |
|---|---|---|---|---|---|---|
| We hebben onze ervaring en kennis over verbeteren vastgelegd voor andere afdelingen. | □ | □ | □ | □ | □ | □ |
| Medewerkers van andere afdelingen gebruiken de beschikbare informatie over verbeteren. | □ | □ | □ | □ | □ | □ |
| Materialen* voor de verbeteraanpak worden in de hele organisatie gebruikt. | □ | □ | □ | □ | □ | □ |
| Onze kennis over het betrekken van de cliënt is gebruikt in nieuwe verbeteracties. | □ | □ | □ | □ | □ | □ |
| Leden van het verbeterteam worden ingezet als adviseur voor verbeteracties in de organisatie. | □ | □ | □ | □ | □ | □ |

## 11. VERSPREIDING VAN HET VERBETEREN

Vervolg

**OM DE VERBETERAANPAK TE VERSPREIDEN…**

Geef aan hoe vaak de volgende activiteiten plaats hebben gevonden in het afgelopen jaar:

| | |
|---|---|
| …is verteld / gepresenteerd in overleggen. | [ ] keer |
| …zijn workshops of andere scholingsactiviteiten georganiseerd. | [ ] keer |
| …zijn afspraken gemaakt met nieuwe verbeteraars / -teams om kennis uit te wisselen. | [ ] keer |
| …zijn gastbezoeken georganiseerd met medewerkers van andere afdelingen. | [ ] keer |

Zijn er ook speciale andere acties ondernomen om de verbeterkennis te verspreiden?  ☐ Nee  ☐ Ja, welke?

**ANDERE AFDELINGEN**

| | Zeer eens | Eens | Neutraal | Oneens | Zeer oneens | Weet niet |
|---|---|---|---|---|---|---|
| Andere afdelingen konden goed met de verbeteraanpak uit de voeten. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Andere afdelingen hebben positieve resultaten geboekt met de verbeteraanpak. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Andere afdelingen hebben de verbeteraanpak toegepast om verbeteracties te plannen, te testen en in te voeren. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

Op welke onderwerpen zijn nieuwe verbeteracties met de verbeteraanpak uit Zorg voor Beter toegepast?

# 12.
# ACHTERGROND INFORMATIE

**Om de gegevens van alle verbeterteams goed te kunnen verwerken vragen we ten slotte naar enige persoonsgegevens. Hierdoor kunnen we gegevens van de eerder ingevulde vragenlijsten combineren. Uw antwoorden worden echter uitsluitend gebruikt in anonieme vorm.**

Wat is uw geboortedatum?  [  ]-[  ]-[  ] (dag - maand - jaar)

Wat is uw geslacht?  ☐ man  ☐ vrouw

**WAT IS UW HUIDIGE FUNCTIE?**

☐ zorg-, alpha-, verpleeghulp
☐ adl-assistent
☐ verpleegkundige
☐ woonbegeleider
☐ diëtist
☐ bewegingstherapeut
☐ huisarts

☐ manager
☐ verzorgende
☐ werkplaatsmedewerker
☐ fysiotherapeut
☐ groepsleider
☐ verpleeghuisarts
☐ arts voor verstandelijk gehandicapten

☐ helpende / zorgassistent
☐ activiteitenbegeleider
☐ ergotherapeut
☐ teamleider
☐ revalidatiearts
☐ orthopedagoog

☐ anders, nl.

**HOEVEEL UUR WERKT U PER WEEK?**

☐ minder dan 8 uur
☐ 23 tot 29 uur

☐ 8 tot 15 uur
☐ 30 tot 36 uur

☐ 16 tot 22 uur
☐ 37 uur of meer

**HOE LANG WERKT U AL IN DEZE ORGANISATIE?**

☐ minder dan 2 jaar
☐ 6 - 10 jaar

☐ 2 - 3 jaar
☐ meer dan 10 jaar

☐ 4 - 5 jaar

# ZEER HARTELIJK BEDANKT VOOR HET INVULLEN VAN DEZE VRAGENLIJST.

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

# Summary

Increasingly attention is being paid to sustainability and spread which are used as part of the organizational strategy in care organizations. The main reason for this lie in profound reforms in healthcare systems concerning the quality and transparency of care which are being implemented in many countries. The policy reforms require substantial adaptations from health organizations to realize sustainable changes. This applies in particular to long-term care, a sector that faces the challenging demands of graying and growing populations alongside cost reductions. For this reason, the term 'sustainability' in healthcare generally refers to (re-)designing the healthcare system with an eye for the short and long run while at the same time paying attention to social and economic considerations. This is for instance visible in the use of various notions for care quality, such as: affordable care, appropriate care, client-centered care, safety of care, et cetera. In the field of healthcare and in this dissertation, there appear to be two uses of the term 'sustainability'. On the first place, it refers to developments of the health system at large, at the level of care sectors. These usually concern analysis on the meso and macro level. On the second place, the term 'sustainability' applies to the sustainability of quality improvements within care organizations. In this use, sustainability is studied at the micro and meso level. Please note that in this setting of research, both notions do not encompass ecological or environmental considerations. These two uses of 'sustainability' relate to one another: sustainability of quality improvement at the local level influences, and could contribute to, the sustainability of the health system. In this dissertation we predominantly focus on the second kind of 'sustainability': we study improvement processes at the micro- and meso level.

This dissertation was set out to explore sustainability and spread in a large-scale quality improvement program in the Dutch long-term care sector called 'Care for Better', addressing the meso-micro level interplay between improvement process, project and care organization. In **Chapter 1 "Introduction"**, we sketch the contours of these research themes. The general theoretical literature on these subjects and specifically in the context of long-term care is inconclusive on several vital questions. The need for quality improvement in healthcare goes hand in hand with a need for knowledge and understanding of quality improvement and sustainability processes in this field. By providing a theoretical account, this dissertation aims to contribute to the growing insights in these themes. To this end, we integrated insights in quality improvement literature with organization theory perspectives. The main research questions are: How can we understand sustainability and spread of quality improvements in healthcare? More specifically: how can we describe the interplay between improvement project and

organization, and the dynamics in the aftermath of improvement processes with regard to the long-term effects of quality improvements in healthcare organizations ?

**Chapter 2, "A theoretical account of sustainability and spread"** highlights the current insights in scholarly literature concentrating on three themes: quality improvement processes, sustainability and spread. From this review we have learned that quality improvement literature tends to suffer from certain gaps. We suggest that these might be related to the current discourse on innovation which is shaped by the paradigm of diffusion theory. In consequence, many evaluation studies are strongly focused on implementation processes and little attention is being paid to for sustainability and spread. Literature that specifically deals with sustainability was very rare but we also observed a recent increase in publications on this topic. However, the main focus in this stream of research is on implementation and anchoring, depicting the dynamics during and in the aftermath of improvement projects as 'unnatural' and problematic. With regard to spread, we found a contrasting status quo: especially in evaluation research there is an abundance of studies on spread of innovations that center on a variety of 'things' that can be spread: ICT systems, policy, guidelines, care treatments, medication, best practices and so on. The discourse on spread is closely related to the discourse on improvement projects or programs and likewise is also permeated by the diffusionist paradigm.

From a theoretical point of view, current literature does not acknowledge the dynamic quality of improvement processes. Moreover, it fails to address some of the questions that are specific for service or operational innovation of care practices. This type of innovation entails multifaceted and often complementary changes in the structure, systems and procedures in organizations to alter services. To gain insight in these types of innovations, an organization theoretical perspective could be helpful. To this end, we have developed a framework for sustainability and spread that integrates routine theory and Scandinavian institutionalist theory.

In our view, sustainability entails processes of routinization and institutionalization that are part of the improvement process and can be investigated in their own right. Routinization refers to the ongoing development of routines for a changed work practice. Institutionalization refers to the ongoing development and provision of supporting conditions for all the elements in the routines for a changed work practice. A changed work practice can be described as sustainable when both processes have been given sufficient attention. Effective sustainability means that actors in the organization are mobilized to contribute to routinization and institutionalization when this is needed. When sustained, further mobilization should not be necessary if relevant reproductive procedures are in place. This means that sustainability is conceived as an ongoing accomplishment that requires at least reproductive procedures in combination with, when necessary, incidental further mobilization.

Spread is understood as a complex of processes of imitation and editing in which senders and receivers are mobilized in relationship to the targeted quality theme. While senders will focus their efforts on translating their messages and materials to enroll other actors, receivers are mobilized to frame and reframe these messages and materials to adapt them to their local setting and adapt their setting to accommodate the use of new working methods. Effective mobilization will thus not only result in editing processes, but mobilized receivers will also combine processes of intervention development and implementation with the editing and translating processes. Effective spread involves a mixture of isomorphic pressures within the organization that lever how receivers are influenced to engage and imitate other wards or locations.

To summarize, in Chapters 1 and 2 we described the background of our theoretical perspective. Both sustainability and spread are theorized from a process perspective because we aim to further our understanding of the intraorganizational dynamics in the processes related to sustainability and spread. With this dissertation we hope to contribute to the growing insights in quality improvement in long term care. Secondly, it is our aim to further develop the process organizing perspective. More specifically, we want to learn more about how this perspective can be applied to investigate quality improvement in health on a meso-micro level. Third, this dissertation seeks to contribute to organization theory and the knowledge on emergence and institutionalization of practices. By combining practice theory and Scandinavian institutional theory in relationship with the concepts of sustainability and spread, we aspire to integrate and expand the current explanations of organizational change recognizing some of the complexities of operational innovations. In our view, such theorization may be in particular valuable to understand change in healthcare and the public sector at large, because these provide more complex services.

The following two chapters served to develop our conceptual approach and methodological operationalization. In **Chapter 3,** "**A framework and measurement instrument for sustainability of changed work practices in long-term care**", we report a study on the development and validation of the framework and measurement instrument for sustainability of changed work practices. In this chapter we explain how sustainability of changed work practices can be understood in terms of organizational routines. In line with this, we reformulated the concepts routinization and the institutionalization of a work practice. To be more concrete, routinization concerned: 1) the evolution and the stabilization of the principles in the organizational routines in the changed work practice, 2) the adjustment of the organizational routines given the experiences in practice and the evolution of variations in practice for different situations, and 3) the reflections on the organizational routine becoming more articulate: professionals can give each other feedback and can be critical to themselves about their actions, i.e. they can optimize their own performance in different settings and talk

about it. In relationship to this concept, Institutionalization comprised the arrangements of supporting conditions for organizational routines, i.e. aspects directly related to the organizational routine are also in order, such as 1) making sure that the required skills are developed and trained, 2) making useful documentation available and keeping it up to date, making sure that professionals turn to relevant documents in their work, 3) making useful practical materials are available and keeping them in order or replacing these when broken, and 4) organizing formal structural forms of reflection about a work practice (on the practical-operational level as well as on the strategic level).

Based on the framework, several scales were designed for which data were collected in former improvement teams in a follow-up data collection at least one year or more after the projects had finished. The scales were validated based on formal psychometric analysis of the measurement model using structural equation modeling. The analyses have resulted in the construction of a long version and a short version. In general, routinization and institutionalization were rated moderately positive, indicating that the former improvement teams were working on routinization and institutionalization of the changed care practices. The findings illustrate the internal validity of the instrument and substantiate that the dimensions – and their sub dimensions – reflect different yet related aspects of sustainability of changed care practices. Distinguishing between routinization and institutionalization may be fruitful also in relation to other forms of sustainability.

**Chapter 4** "**A measurement instrument for spread of quality improvement in healthcare**" consists of a validation study of a measurement instrument for spread of changed work practices and their results. Our literature review revealed that after a project, spread within the organization is generally measured by asking about intentions and plans. Moreover, because no valid instrument is available to assess it, empirical evidence on spread on the long run is lacking. This applies in particular to spread within organizations after a pilot improvement project. We thus aimed to develop a valid measurement instrument for spread of quality improvement in healthcare after interventions have been implemented.

To align the measurement of spread with the sustainability model, four dimensions were distinguished. Two key distinctions are proposed for the measurement instrument. Firstly, we distinguish spread of a changed work practice from spread of results or outcomes. Secondly, we distinguish spread practices and processes from their effects in terms of 'effective' spread. Spread practices comprise the work that needs to be done to change work practices and spread the results throughout the organization. Effective spread involves both the extent to which the knowledge, skills, and materials for a changed work practice are available and used beyond the pilot site, and the extent to which results are known and spread beyond the pilot site.

The four scales were tested in former improvement teams as part of the follow-up data collection. In general, spread was rated less satisfactory compared with sustainability, suggesting that spread lagged behind. Psychometric analysis using structural equation modeling and principal component analyses yielded positive results on the item level and the intended four-factor model was confirmed. Finally, from our findings we also learned that as expected sustainability and spread are related but cannot be equated.

The following three chapters center on the QI process in connection with different aspects of subsequent sustainability. In **Chapter 5**, "**Measuring in the improvement process for sustainable change**", we first analyze the relationships between end-of-project effectiveness and subsequent sustainability of changed work practices in terms of routinization and institutionalization. In addition to the questions regarding effectiveness and sustainability, this study explored to what extent measurement practices during the improvement process contribute to later sustainability of changed work practices. Many improvement methods involve repeatedly assessing intervention effectiveness from process and/or outcome measures. This is no surprise, as measurements are increasingly popular to make practices transparent. Also, measurements hold the promise to offer a better grip, i.e. one that is more systematic and less biased, on a range of problems and situations in organizations.

In a prospective design, data were collected at the end of the improvement projects on measurement practices and two effectiveness variables: perceived (project) effectiveness as well as objective effectiveness based on the prevalence of quality problems. Second, questionnaire data on routinization and institutionalization of the changed work practices were collected (at least) one year afterwards. Our findings showed that the relationship between effectiveness and later sustainability is not a given. While effectiveness in terms of outcomes was associated with routinization, a relationship with institutionalization was not affirmed. The relationship between perceived effectiveness of a project and both sustainability dimensions was also not corroborated. In other words, it appears that the processes and conditions for effectiveness may be different from those for sustainability. Another conclusion from this study was that measurement practices at the end of the project were indeed related to later sustainability. A possible explanation for this relationship is that measurement practices mediate, and in effect often are part of, the development and corresponding routinization of a changed practice.

**Chapter 6**, "**Stumbling on fresh tracks? Routinization and institutionalization of fall prevention practices in long-term care**", centers on improved fall prevention practices. In this study we wanted to explore sustainability as an ongoing process and to investigate to what extent developments of changed work practices were associated with developments in outcomes. While several scholars have called for a process perspective, recommending researching how and why a sequence of events unfolds

over time in a particular way, to our knowledge, such studies were not available in the context of quality improvement of healthcare; let alone in the discussion of sustainability. However, such perspective could be very important for sustainability, because literature has shown that after implementation often changes are made both in a practice as well as in the organizational context. In other words, sustainability entails dynamics and evolves. Unfortunately, information on the extent, nature or impact of such adaptations for sustainability is lacking. Moreover, such developments in practices might be contingent with or shaped by developments in other organizations in the larger context of the organizational field. These questions were addressed by combining two analyses of improvements with regard to fall prevention practices with indicator data obtained from the national prevalence survey (NPS: in Dutch LPZ). The data at hand comprised outcomes, process and structure indicators for fall prevention at client level in a large number of Dutch care organizations for the years 2007-2009.

The main focus of our analyses was to track the development of changed work practices after implementation of improvements in care. The first part of this study compares fall prevention indicators over a period of three years in organizations participating to the fall prevention project of the 'Care for Better' program with other organizations who did not participate. At the level of outcomes, initially the participating organizations had substantial fall-related quality problems. In 2009 the participating organizations reported substantially lower fall rates than at the start in 2007 and differences with the nonparticipating organization diminished. The participating organizations had many structures in place to start. Most interventions concerned the provision of fall preventive measures to clients, while the organizational structures (f.e. a care protocol) remained more or less identical. After three years, the differences between organizations both in the program as well as nonparticipating organizations have decreased. We described these developments as signaling isomorphism in the field. During that same period, there are some other developments that contributed this isomorphism: such as the introduction of an updated guideline, and the Norms for Responsible Care. One could say that the quality of fall prevention in this period became 'fashionable' and this contributed to the sustainability of the fall prevention projects.

The second part of this study offers three case studies to describe the developments in fall prevention practices in three organizations who participated in the fall prevention project; also using the national measurement of care problems indicator data. For each of the cases, additional data on sustainability were collected in the care teams in the pilot sites (i.e. not in improvement teams). The first case provides an example of strong quality improvement and balanced development of sustainability – both routinization and institutionalization were evaluated moderately positive. These developments were also visible in the developments in the outcome, structure and process data. In the second case, it seems that only partial sustainability was realized and there were signs of

decay: the institutionalization seemed to lag behind and the indicator-data also revealed some signs of backsliding. The third case demonstrated a lack of sustainability: classic backsliding. While some changes are visible in the processes, in the outcomes after three years more falling problems are reported. It is likely that adverse organizational conditions affected the performance in fall prevention in this care organization.

The changes in the improvement projects served to strengthen existing care practices and complement existing structures. Moreover, we realized from these findings, that not only the practice needs to be embedded in the organization, also the project and the QI process require some level of embedding in the organization to obtain access to resources, support and decision power which funnels back into the routinization and institutionalization of the specific theme (i.e. falling). This is an important interplay between project, pilot ward and organizational context that sets the stage for sustainability. Moreover, materials were seen to play some important roles in the fall prevention practices themselves and their routinization/institutionalization as well as in the improvement practices related to these.

**Chapter 7, "On early birds and late bloomers *Construing improvement capacity profiles for improvement teams*",** furthers our research of sustainability and spread in relationship with the interplay between project and organizational context. More specifically, this study focused on variation in improvement capacity of the improvement teams, i.e. team level context factors that are closely related to the functioning of an improvement team. Since longitudinal studies on long-term effects of QI are generally lacking, there is no evidence yet that clarifies how variation in the team level context may be associated with variation in sustainability of changed work practices, spread to other departments within the organization and continuous improvement. In this study we used latent class modeling techniques to develop team profiles using data on the team level context collected at the end of the project and data from the follow-up data collection, regarding routinization, institutionalization, the four spread scales and three scales for continuous improvement.

Firstly, in the LCA modeling, three clusters of improvement teams were identified. Secondly, we explored how the clusters and the team profiles were associated with sustainability, spread and continuous improvement. The clusters of teams with high scores in skills, team leader strategy and support and resources from the organization were ahead of all the other teams and this difference was also felt in the long run. These teams stood out in terms of spread and continuous improvement. Furthermore, the results have unveiled substantial variation in effects in weaker performing teams. This indicates that some teams continue their improvement work and achieve moderately positive levels of sustainability in spite of initial low capacity for improvement. It also indicates that the process after a project is not linear – again we observe that sustainability and spread cannot be guaranteed after a project and involve dynamic processes

with various results, such as projectification, lack of continuation after a project, or sequential forms of improvement resulting in 'now-for-real' projects and late-bloomer effects. These findings underscore the importance of the interplay between organization and improvement process.

The final part of the dissertation serves to integrate the findings across the studies presented. In **Chapter 8**, "**Resonating Results? A Sketch of the dynamics for Sustainability in the Care for Better program**", we take stock of the effects of the Care for Better improvement projects in a broader sense. The main questions are: *how and to what extent have the participating care organizations in the Care for Better improvement projects realized sustainable changes in their care practices*? *And how can we understand these microlevel effects vis-à-vis organizational conditions and developments in the wider environment?*

To answer these questions we integrated the findings to identify themes across all the empirical chapters in combination with findings from reports on the program and other observations about the projects, the team and long-term care organizations in general.

Across the different analyses, we found that sustainability of the changed work practices that were developed in the improvement projects is evaluated positively but these results at the local level are also somewhat mixed as well as evolving. Moreover, we saw that the projects served different functions and hence variation in effects of sustainability (and spread) are to be expected. With regard to spread within the organization, our results indicate that in general spread has been lacking. In relationship to this we reiterate that the focus in the program was on intervention development and implementation in pilot sites; i.e. not on spread to other departments. As to the approaches to spread, it appeared that the methods learned in the program were not applicable to design spread strategies. Moreover, spread seems to require very different strategic activities as opposed to routinization and institutionalization at the local level. Analysis of organizational functioning and sustainability and spread showed that internal organizational capacity is instrumental to sustainability and spread. Furthermore, external sources of sustainability lever certain internal processes and structures. In short, the organization has to be adapted to enable the improvement process—that is: *mobilized* to develop effective forms of collective action for the improvement process. In relationship to this we noted that mobilization for spread was a relatively new experience for most participating organizations.

Some specific factors investigated were leadership and measuring practices in the long run—after the projects. Leadership should do more than chart the course – it should also articulate how to stay on course and make sure that tactics are executed accordingly. Leadership should be connected directly to the quality problem and the improvement process at hand. Moreover, measurement systems and related monitoring practices are relevant for both routinization as well as for institutionalization. While for

spread these are not of direct importance. Rather, spread processes benefit from involving high level management to strengthen connections between wards or locations. There are thus differences in how leadership can effectively contribute to sustainability and spread.

The interplay between organizational context and sustainability and spread is also affected by the coupling of practices. For one, the improvement projects required (re-) coupling some practices that may have been de-coupled beforehand. For example, improved registration of incidents means that measurement practices are recoupled to the care practices and only then, they are more likely to feed back into reflections on the care practices in a ward or location. Lack of internal coupling of care and / or organizational practices is called fragmentation. Fragmentation may limit possibilities for sustainability as well as for spread. Finally, high level management involvement is needed to deal with issues related to fragmentation. This poses a challenge for organizations with low capacities in this respect.

Next, we studied the interplay with the program. In the first phase, the programs' dominant focus was on best practices, intervention development and implementation. This may have inadvertently invoked some neglect of sustainability and spread. In the second phase, the focus was on management development, assimilation (i.e. implementation in an organization as a whole), knowledge management with regard to QI at the sectoral level, and linkages with care education systems. In brief, the focal points in the program shifted and this probably enhanced the conditions for sustainability and spread.

Finally, sustainability and spread in the Care for Better improvement projects were affected by the interplay with the wider institutional environment. To start we emphasize that the sector at large has experienced turbulent times and this is ongoing. From 2000 onwards, various policy reforms targeting the redesign of the system have been designed and implemented. All in all, the wider environment confronts care organizations with a complex change agenda that requires strong organizing. However, this is paradoxically where some of the main problems are experienced: in the everyday organizing. There is thus a tension built-in in the desire to change the long-term care sector: since any improvement effort also confronts and exposes lack of organizing and requires improvement at that level.

The dissertation ended with a discussion/conclusion in **Chapter 9, "Organizing sustainability and spread"**. In this dissertation we have studied sustainability and spread in a large-scale quality improvement program Care for Better in the Dutch long-term care sector, centering on the micro-and meso-level interplay between improvement process, project and care organization. To this end, we have developed a theoretical account of sustainability and spread by integrating quality improvement literature with organization theory perspectives: the DRI-IME framework. This framework can be ap-

plied to describe how care practices develop over periods of time within wards as well as how they are spread trans-locally, across the organization.

Moreover, this dissertation provides a theory-based operationalization for collecting questionnaire data on sustainability and spread; and explored some alternative methods for field research in the context of quality improvement evaluation, such as a quantitative case study on fall prevention; and extending cross-sectional designs combined with latent class analysis techniques.

To end this summary, we highlight the main conclusions from this dissertation, followed by our main recommendations.

A first key point in our observations is that the most of the improvement projects experienced quite dynamic and diverse aftermaths with regard to both sustainability of changed care practices, as well as regarding spread within the organization. Secondly, project effectiveness and even making plans for sustainability and spread may be important but cannot guarantee a straightforward process with regard to sustainability and spread. The projects serve to frame and organize the improvement process. It appears that sustainability and spread often receive low priority in this project frame and as a result, they seem to be left rather ambiguous for a rather long time. Moreover, we argue that sustainability and spread entail some related but also some distinct processes of mobilization at the local level. In particular, the interplay between team level context factors for improvement capacity is associated with these mobilization processes and the ultimate effectiveness of quality improvement.

With regard to the 'Care for Better' program, this evaluation research has revealed substantial progress in quality improvement: a substantial contribution to the transition of the long-term care sector in terms of care quality as well as in terms of their capacity for improvement. At the same time, we have also seen some mixed results in terms of lack of sustainability and lack of spread. These mixed results may be in part explained by the way in which the program framed the improvement projects and by the dynamics in the wider environment of the long-term care sector, which comprise both strong sources of external sustainability as well as various sources of distraction of improvement efforts.

Recommendations for policy are as follows. Firstly, based on our DRI-IME framework, we contend that creating more space for early onset of sustainability —routinization and institutionalization— as well as spread during a project will in the end contribute to secure more lasting effects. Secondly, at the policy level, we recommend to reflect on the knowledge management and dissemination between programs and policy instruments at the field level to strengthen sustainability and, in particular, the spread within larger organizations or even in regional networks of care organizations. Thirdly, seeing the importance of the organizational functioning for sustainability and spread, one could argue that improving the business administrative capacity in care organizations can be a quality goal in itself. Upon designing improvement programs as part of health policy,

one could determine what level of improvement capacity is required(or should be recommended) to participate effectively to a given quality program. This could be helpful to prevent wasting and to optimize the use of public resources. Fourth, recognizing the fact that achieving substantial and sustained improvement may take three to five years, policy instruments, such as quality programs, but also regulatory instruments, may be designed to accommodate and detect sequential improvement at the organizational level. In line with this, they could allow more space for editing of spread packages for the spread within organizations.

Recommendations for research including the following. Firstly, we contend that we need problematize and move beyond the concepts of diffusion and implementation to progress theoretically. In fully assessing quality improvement, we need to shift the research agenda to include sustainability and spread. In line with this, the scope in evaluation studies should also change: from projects, teams and programs, to field level developments and cross program effects, preferably analyzed from the organizational point of view. This will require novel research designs for example, times series in combination with mixed methods, such as case studies based on qualitative and quantitative data. In doing so, we can gain insight in the interplays and mechanism of multiple and ongoing improvements in organizations rather than assessing the effectiveness of single projects. Moreover, quality improvement is not only a matter of *people* collaborating in programs, projects and organizations, also the symbolic and physical role of *materials* both in care practices as well as in improvement practices deserve further study. Finally, future research could explore literature on institutional complexity in relationship to strategizing and dynamic capabilities to extend our insights in mobilization processes for sustainability and spread from the organization theoretical point of view.

# Nederlandse samenvatting

De afgelopen jaren is de aandacht voor duurzaamheid in de zorg toegenomen. Tegenwoordig zijn borging en verspreiding van kwaliteitsverbeteringen veelal onderdeel van de organisatiestrategie van zorginstellingen. De belangrijkste reden hiervoor zijn de veranderde eisen op het gebied van kwaliteit en de transparantie van de zorg, met name ten aanzien van zeggenschap en veiligheid van patiënten. In reactie hierop is een groot aantal landen bezig verschillende veranderingen te implementeren in hun gezondheidszorgsystemen.

De veranderingen in het overheidsbeleid vergen aanzienlijke aanpassingen van zorgorganisaties om duurzame veranderingen in de dagelijkse zorg te realiseren. Dit geldt ook voor de langdurige zorg. De langdurige zorg heeft te maken met een toenemende zorgvraag als gevolg van vergrijzing en bevolkingsgroei in het algemeen. De toegenomen zorgvraag maakt echter ook kostenbeheersing noodzakelijk.

Mede daarom betekent duurzaamheid ('sustainability') in deze context vooral: het inrichten van het zorgsysteem met het oog op de korte én lange termijn in sociale én economische termen: betaalbare zorg, respectvolle zorg, veilige zorg, cliëntgerichte zorg en passende zorg. De term sustainability betekent in dit veld en in dit proefschrift in de eerste plaats: duurzame kwaliteitsverbeteringen in de zorg. Hierbij denken we aan ontwikkelingen op meso- en macroniveau in het veld. In de tweede plaats wordt de term sustainability vooral gebruikt voor borging van verbeteringen binnen zorgorganisaties; op micro- en mesoniveau. Verondersteld wordt dat borging op lokaal niveau bijdraagt aan het scheppen van de randvoorwaarden voor duurzame kwaliteitsverbetering in de zorg. De term refereert dus zowel aan kwaliteitsverbetering in het systeem van de zorg als binnen zorginstellingen.

Dit proefschrift gaat over borging en verspreiding van kwaliteitsverbeteringen, met een focus op zorgorganisaties. We hebben deze onderzocht als onderdeel van een grootschalig verbeterprogramma voor de Nederlandse langdurige zorgsector 'Zorg voor Beter' dat van 2005 tot 2012 liep. De focus lag hierbij op het samenspel tussen project en de zorgorganisatie in verbeterprocessen, dat wil zeggen op meso-micro niveau.

Met dit proefschrift hopen we ten eerste een bijdrage te leveren aan de groeiende inzichten in duurzame kwaliteitsverbetering in de langdurige zorg. Ten tweede is ons doel om het proces-organisatieperspectief verder te ontwikkelen.

In het inleidende **hoofdstuk 1** introduceren we de belangrijkste thema's aan hand van de wetenschappelijke literatuur. Hoewel er veel onderzoek wordt gedaan naar het verbeteren van kwaliteit is de literatuur over het samenspel tussen project en zorgorganisatie nog niet uitgekristalliseerd en zijn belangrijke vragen blijven liggen. Er is meer inzicht nodig in de processen die borging en verspreiding mogelijk maken. Dit proefschrift

wil aan dit inzicht bijdragen door theorievormend onderzoek. Dit proefschrift levert een nieuw theoretisch perspectief op door literatuur over kwaliteitsverbetering in de zorg te integreren met organisatietheorie. De onderzoeksvragen luiden als volgt: Hoe kunnen zorgorganisaties hun verbeteringen borgen en verspreiden binnen de organisatie? Hoe kunnen we het samenspel tussen verbeterproject en organisatie en de dynamieken die betrekking hebben op lange termijn effecten van verbeteringen in zorgorganisaties beschrijven? Dit eerste hoofdstuk beschrijft de achtergrond van het onderzoek en brengt in kaart wat er bekend is over het verbeteren van kwaliteit, borging en verspreiding in de zorg. Ten slotte wordt ook het 'Zorg voor Beter' programma voor de langdurige zorg, dat het object van onderzoek is in dit proefschrift, nader toegelicht.

In het tweede **hoofdstuk** presenteren we het door ons ontwikkelde theoretisch kader om borging en verspreiding te beschrijven en verklaren. Hiervoor verdiepen we ons in de verbeterliteratuur om een aantal conceptuele problemen hierin te verhelderen. Een belangrijke conclusie van dit hoofdstuk is dat het gebruik van diffusietheorie het denken over kwaliteitsverbetering nog steeds sterk beïnvloedt en ook nadelen kent. De grote nadruk op implementatie in verbeterprocessen lijkt hand in hand te gaan met het onderschatten, en draagt daarmee bij aan het verwaarlozen, van borging en verspreiding. Dit is onder andere zichtbaar in het ontwerp van evaluatieonderzoek naar verbeterprojecten, waarin tot vrij recent nauwelijks ruimte werd gereserveerd voor het onderzoeken van borging en verspreiding na een verbeterproject. Aan de andere kant is ook duidelijk dat de thema's duurzaamheid, borging en verspreiding steeds meer aandacht krijgen. Borging lijkt het minst onderzocht—en dat heeft onder meer te maken met de statische opvatting van 'verankering' na implementatie. Daarentegen is verspreiding juist een veelvuldig onderzocht thema. De bevindingen uit deze literatuur zijn echter lastig te integreren omdat er zoveel verschillende 'dingen' worden verspreid: ICT-systemen, beleid, protocollen, zorgbehandelingen, etc.. Ook in dit discours valt op dat diffusietheorie het denken lijkt te domineren en daardoor vallen bepaalde aspecten van verspreiding systematisch buiten beeld of worden onderschat.

Een eerste belangrijk minpunt hieraan is dat in dit perspectief de interventie en verbeterde zorgpraktijk statisch worden voorgesteld waardoor de dynamische aspecten van borging en verspreiding onderbelicht—en onderschat—worden. Ten tweede is het verspreiden van een product niet een op een te vergelijken met het verspreiden van een complexe dienst. Het laatste gaat gepaard met diverse, elkaar aanvullende veranderingen in de structuren, systemen en procedures in organisaties. Daarom stellen we dat een organisatietheoretisch perspectief op zijn plaats lijkt om dit type verbetering te onderzoeken. Om de dynamieken theoretisch te doorgronden, beschrijven we de processen voor borging en verspreiding aan hand van aannames uit Process Organization Theory.

Met deze uitgangspunten hebben we een theoretisch kader ontwikkeld voor borging en verspreiding, in samenhang met elkaar, gebaseerd op routinetheorie en institutionele theorie. In dit kader stellen we dat borging deel is van het verbeterproces en twee aanvullende processen omvat: routinisering en institutionalisering. Routinisering verwijst naar de verdere ontwikkeling van routines voor een veranderde werkpraktijk. Institutionalisering verwijst naar de verdere ontwikkeling en de versterking van organisatorische voorwaarden voor alle elementen in de routines voor een veranderde zorgpraktijk. Beide processen zijn nodig voor borging. Effectieve borging vergt tevens dat actoren in de organisatie worden gemobiliseerd om bij te dragen aan routinisering en institutionalisering. Theoretisch gezien vergt borging tevens dat er voor de vernieuwde zorgpraktijk bepaalde reproductieve procedures zijn vormgegeven in de organisatie waardoor verdere mobilisatie niet nodig is. Dit betekent dat borging wordt opgevat als een dynamische conditie, die voortdurend ontwikkeling en onderhoud vergt door het installeren van reproductieve procedures in combinatie met, indien nodig, verdere mobilisatie.

Vanuit dit perspectief wordt verspreiding van een vernieuwde zorgpraktijk gezien als een combinatie van (wat wordt genoemd) imitatie- en redactieprocessen. Deze verspreidingsprocessen vergen niet alleen de mobilisatie van zenders, maar juist ook van ontvangers. Aan de ene kant werken zenders aan het vertalen van hun boodschappen en materialen om andere actoren te informeren en betrekken bij het verbeteren. Aan de andere kant moeten ontvangers worden gemobiliseerd om de boodschappen in te passen in hun denkkaders, de materialen aan te passen aan hun omgeving, en hun omgeving aan te passen om een vernieuwde werkwijze mogelijk te maken. Verspreiding door de ontvangers leidt in dit opzicht dus niet alleen tot redactiewerk—dat wil zeggen: aanpassing van een vernieuwde werkwijze aan de lokale context—maar vereist ook zowel het ontwikkelen van interventies en activiteiten voor de implementatie. Vanuit institutionele theorie gezien is effectieve verspreiding alleen mogelijk als de (mobilisatie-)activiteiten binnen de organisatie voldoende samenhangend zijn.

In de volgende twee hoofdstukken zetten we onze conceptuele benadering en methodologische operationalisering uiteen. In het derde en vierde hoofdstuk ontwikkelen en valideren we een meetinstrument voor respectievelijk de borging en de verspreiding van kwaliteitsverbetering in organisaties. In **hoofdstuk 3** zetten we uiteen hoe de borging van de gewijzigde werkpraktijken kan worden begrepen in termen van organisatorische routines. In lijn met deze theorie herdefiniëren we de concepten routinisering en institutionalisering met betrekking tot zorgpraktijken. Onder routinisering verstaan we de ontwikkeling, aanpassing en de stabilisatie van organisatorische routines in de veranderde werkpraktijk in reactie op de ervaringen in verschillende praktijksituaties. In verhouding tot dit concept routinisering, omvat het concept institutionalisering het

verzorgen en tot stand brengen van belangrijke ondersteunende voorwaarden voor de veranderde organisatieroutines.

Op basis van het theoretische model en kader hebben we verschillende schalen ontworpen waarvoor we gegevens hebben verzameld in de voormalige verbeterteams. Hiervoor hebben we een follow-up datacollectie gehouden ten minste één jaar of langer na afloop van de 'Zorg voor Beter' projecten. De schalen werden gevalideerd op basis van formele psychometrische analyse met behulp van structural equation modeling.

Op basis van deze analyses hebben we een lange versie en een korte versie geconstrueerd. In het algemeen beoordeelden de leden van de voormalige verbeterteams routinisering en institutionalisering gematigd positief, wat aangeeft dat de voormalige verbeterteams inderdaad werkten aan de routinisering en institutionalisering van de gewijzigde zorgpraktijken. De bevindingen bevestigen de interne validiteit van het instrument. De dimensies - en hun subdimensies - weerspiegelen verschillende aspecten van borging die samenhangen maar ook afzonderlijk hun waarde hebben. Met name het onderscheid tussen routinisering en institutionalisering kan bruikbaar zijn ook in relatie tot andere vormen van borging van zorgpraktijken, zoals op het niveau van zorguitkomsten, maar ook met het oog op het doorgaand verbeteren en het verbeteren van andere zorgpraktijken.

**Hoofdstuk 4** beschrijft dan de validatie van een meetinstrument voor de verspreiding van de gewijzigde werkmethoden en de resultaten daarvan. Uit onze literatuurstudie is gebleken dat na een verbeterproject in een verbeterprogramma, verspreiding binnen de organisatie over het algemeen wordt gemeten door te vragen naar de voornemens en plannen.

Ons voornaamste doel was om een theoretisch bruikbaar meetinstrument te ontwikkelen voor de verspreiding van een verbeterde zorgpraktijk binnen een organisatie, juist na het experimenteren en implementeren in een pilot-afdeling. Daarbij was de intentie dat dit instrument zou kunnen worden gebruikt om over een steekproef van de deelnemende organisaties in het 'Zorg voor Beter'-programma te evalueren wat er is gedaan aan verspreiding binnen die organisaties.

Om de meting van verspreiding af te stemmen op het model voor borging worden vier dimensies onderscheiden in verspreiding. De vier schalen zijn getest in de voormalige verbeterteams als onderdeel van de follow-up datacollectie. Psychometrische analyse met behulp van structurele modellen en principale component analyses leverde positieve resultaten op itemniveau en bevestigden het beoogde vier-factorenmodel. Dit duidt op de validiteit van het meetinstrument. In het algemeen beoordeelden de voormalige verbeterteams de verspreiding minder bevredigend dan borging. Van onze bevindingen hebben we geleerd dat zoals verwacht borging en de verspreiding gerelateerd zijn, maar we hebben ook gezien dat ze niet kunnen worden gelijkgesteld met

elkaar. Dat is een belangrijke conclusie, omdat er vaak wordt gedacht dat uit borging verspreiding vanzelf volgt of andersom.

De volgende drie hoofdstukken gaan in op verbeterprocessen in verband met de verschillende aspecten van borging. In **hoofdstuk 5** beginnen we met het onderzoeken van de relatie tussen effectiviteit van de projecten en de daaropvolgende borging van gewijzigde werkpraktijken (in termen van routinisering en institutionalisering). In aanvulling op de vragen over de effectiviteit en duurzaamheid, onderzochten wij in dit hoofdstuk tevens in hoeverre meetpraktijken tijdens het verbeteringsproces bijdragen aan latere borging. Veel verbetermethoden leunen sterk op het meten van de mogelijke effecten van interventies. Dat is begrijpelijk, want metingen zijn steeds populairder als middel om kwaliteit zichtbaar en transparant te maken. Daarbij geven metingen een gevoel van controle over ingewikkelde processen.

We hebben deze relaties onderzocht met een prospectief ontwerp gebaseerd op data aan het begin en aan het einde van het verbeterproject in combinatie met de data uit de follow-upstudie. Er zijn twee effectiviteitsmaten gebruikt: waargenomen effectiviteit van het verbeterproject met een vragenlijstschaal en effectiviteit in de uitkomsten van het verbeterproject. Borging is gemeten met het meetinstrument voor routinisering en institutionalisering. De resultaten lieten zien dat de relatie tussen effectiviteit en latere borging niet vanzelfsprekend is. Terwijl effectiviteit in termen van uitkomsten werd geassocieerd met routinisering, bevestigden de data tegen de verwachting in niet een relatie met institutionalisering. De relatie tussen de waargenomen effectiviteit van een project en de beide dimensies van borging werd ook niet bevestigd. Het lijkt erop dat borging van veranderingen andere werkwijzen en voorwaarden vereist van de organisatie dan het doen van een verbeterproject. Een andere conclusie van deze studie was dat latere borging zoals verwacht wel samenhangt met meetpraktijken aan het einde van het project. Een mogelijke verklaring voor deze relatie is dat meetpraktijken gebruikt worden om te bemiddelen maar ook om de kwaliteit te blijven monitoren. Daardoor dragen ze in feite vaak al bij aan de routinisering en institutionalisering van een veranderde zorgpraktijk.

**Hoofdstuk 6** draait om verbeteringen in valpreventie. In deze studie wilden we borging verkennen als een continu proces, in plaats van als een eindfase van een project. We wilden ook te weten komen of en hoe de ontwikkeling van de veranderde valpreventiemethoden in verband staan met de uitkomsten: het aantal en type valincidenten. Academici uit de organisatiewetenschappen veronderstellen dat een proces-perspectief nuttig kan zijn om verbeterprocessen te begrijpen. De vraag is: Hoe ontwikkelen veranderde werkpraktijken zich over de loop van de tijd na een project?

Hoofdstuk 6 behandelt deze vraag door het combineren van twee analyses van de verbeteringen met betrekking tot valpreventie. Deze analyses werden gedaan met data van de Nationale Prevalentie-meting voor de Zorg (LPZ). De gegevens omvatten uit-

komst, proces en de structuurindicatoren voor valpreventie op cliëntniveau in een groot aantal Nederlandse zorgorganisaties voor de jaren 2007-2009. De voornaamste focus van onze analyses was om de ontwikkeling van gewijzigde werkpraktijken te volgen na de implementatie van verbeteringen in de zorg. Het eerste deel van hoofdstuk 6 vergelijkt valpreventie-indicatoren over een periode van drie jaar in organisaties die deelnamen aan het valpreventieprogramma van 'Zorg voor Beter' met andere organisaties die dat niet deden.

In 2009 meldden de deelnemende organisaties aanzienlijk minder valincidenten dan bij de start in 2007 en waren ook de verschillen met niet-participerende organisaties—die al minder valincidenten hadden—kleiner geworden. De voornaamste veranderingen in valpreventie waren te zien in het gebruik van valpreventieve maatregelen voor individuele cliënten, terwijl de structuren min of meer identiek zijn gebleven. Na drie jaar zijn de verschillen tussen organisaties, zowel binnen het 'Zorg voor Beter'-programma, evenals met niet-participerende organisaties afgenomen. We beschrijven deze ontwikkelingen als tekens van gelijk-gerichtheid in het veld: de valpreventiepraktijken gaan steeds meer op elkaar lijken, ze worden vergelijkbaarder. In diezelfde periode zijn er een aantal andere ontwikkelingen die hieraan bijdragen, zoals de invoering van een bijgewerkte richtlijn voor valpreventie en de Normen voor Verantwoorde Zorg. Men zou kunnen zeggen dat valpreventie als kwaliteitsthema in deze periode in de mode kwam en dat dit heeft bijgedragen aan de borging van de valpreventieprojecten.

Het tweede deel van hoofdstuk 6 onderzoekt de borging van de valpreventiepraktijken in drie zorgorganisaties die hebben deelgenomen aan het valpreventieprogramma in 'Zorg voor Beter'. Hierbij werd ook gebruikgemaakt van de LPZ-gegevens. Voor elk van de cases zijn aanvullende gegevens verzameld over borging in de zorgteams in de pilotafdelingen. De eerste casus toont een voorbeeld van een sterke verbetering van de kwaliteit en een evenwichtige ontwikkeling van borging; zowel routinisering als institutionalisering werden gematigd positief geëvalueerd door de voormalig verbeterteams. Deze ontwikkelingen waren ook al zichtbaar in de trends in de uitkomst-, structuur- en procesgegevens. In de tweede casus lijkt het erop dat slechts gedeeltelijke borging wordt gerealiseerd en er waren ook negatieve tekens: de institutionalisering leek achter te blijven en uit de indicator-gegevens bleek ook dat de resultaten op de lange termijn neigen tot verslechtering. De derde casus liet een klassiek beeld zien van terugvallende prestaties. In het project worden positieve resultaten geboekt, maar die vooruitgang verdwijnt na afloop van het project. Hoewel een aantal veranderingen zichtbaar is in de processen, worden na drie jaar zelfs meer valproblemen gemeld dan voor het project. Het is waarschijnlijk dat ongunstige organisatorische omstandigheden van invloed zijn geweest op de ontwikkelingen in valpreventie in deze zorg organisatie.

Naar aanleiding van onze resultaten benadrukken we dat een verbeterproces een zekere mate van inbedding in de organisatie vereist. Duurzaam verbeteren is geen

eenrichtingsverkeer vanuit een verbeterproject maar vergt om wisselwerking tussen het verbeterproject, afdeling en de rest van de organisatie. Bovendien bleek uit de resultaten dat materialen een belangrijke rol spelen voor borging.

**Hoofdstuk 7** vervolgt dan ons onderzoek naar borging en verspreiding in relatie tot de wisselwerking tussen het project en de organisatorische context. Meer specifiek was dit onderzoek gericht op onderlinge verschillen in de 'verbetercapaciteit' van verbeterteams, namelijk de omgevingsfactoren op teamniveau die nauw verband houden met het functioneren van een verbeterteam. Hoewel er allerlei studies zijn naar omgevingsfactoren, hebben die tot nog toe weinig oog gehad voor de lange termijn effecten van een verbeterproject. Daardoor is tevens onduidelijk hoe onderlinge verschillen in de contextfactoren op teamniveau —de 'lokale verbetercapaciteit'— samenhangen met verschillen in de borging van de gewijzigde werkpraktijken, verschillen in de verspreiding naar andere afdelingen binnen de organisatie en verschillen in de mate waarin er continue verbetering plaatsvindt op een kwaliteitsthema.

In deze studie hebben we gebruik gemaakt van latente-klassemodellen ('LCA') om profielen te ontwikkelen van de verbeterteams. Hiervoor hebben we gegevens gebruikt die zijn verzameld aan het einde van het verbeterproject over variabelen met betrekking tot de 'lokale verbetercapaciteit'. Daarnaast zijn de gegevens uit de follow-up datacollectie gebruikt.

We identificeerden in de LCA-modellering drie clusters van verbeterteams, waarvoor drie teamprofielen in verbetercapaciteit zijn berekend. Ten tweede hebben we onderzocht hoe deze clusters en de bijbehorende teamprofielen gerelateerd waren aan de borging, verspreiding en continue verbetering. De clusters van teams met hoge scores op gebied van de teamvaardigheden, strategie van de teamleider, en steun en middelen van de organisatie hadden een duidelijke voorsprong op alle andere teams en dit verschil werd ook zichtbaar op de lange termijn. Deze teams blonken uit in verspreiding en continue verbetering. Bovendien laten onze resultaten aanzienlijk verschillen zien onder de zwakker presterende teams. Binnen de teams met een zwakkere verbetercapaciteit zijn sommige teams druk bezig om hun verbeterwerk voort te zetten en zij bereiken dan ook gematigd positieve niveaus van borging, ondanks hun initiële lage capaciteit voor verbeteren. Er zijn ook teams waar de zwakke verbetercapaciteit samenhangt met latere zwakke borging en zwakke verspreiding, en deze teams zijn nauwelijks bezig met continue verbeterpraktijken.

Deze resultaten laten zien dat deelname aan een project in een programma niet zonder meer leidt tot borging en verspreiding. Het verloop na een project hangt sterk samen met de lokale verbetercapaciteit en kan niet worden gezien als een lineair proces. Het is een samenstel van dynamische processen die kunnen leiden tot heel verschillende resultaten. Het verbeteren valt soms stil. Er wordt soms wel verder gewerkt aan borging en/of verspreiding, maar niet altijd. Vanuit ons theoretisch kader worden deze

beschreven als gevolg van 'projectificatie', sequentieel verbeteren resulterend in 'nu-echt' projecten en laatbloeier-effecten. Deze bevindingen onderstrepen het belang van de wisselwerking tussen organisatie en verbeteringsproces.

In het laatste deel van het proefschrift reflecteren we op de bevindingen uit de empirische hoofdstukken in het licht van het theoretisch kader zoals beschreven hoofd-stuk 2. In **Hoofdstuk 8** maken we de balans op van de effecten van de 'Zorg voor Beter'-verbeterprojecten in bredere zin. De belangrijkste vragen zijn: in welke mate en hoe hebben de deelnemende zorgorganisaties in de Zorg voor Beter verbeterprojecten duurzame veranderingen in hun zorgpraktijken gerealiseerd? En hoe kunnen we deze effecten op microniveau begrijpen vis-à-vis organisatorische voorwaarden en de ontwik-kelingen in de bredere institutionele externe omgeving?

Om deze vragen te beantwoorden, integreren we de bevindingen uit de empirische hoofdstukken met bevindingen uit de verslagen over het 'Zorg voor Beter'-programma en andere observaties of bronnen over de projecten, de verbeterteams en langdurige zorgorganisaties in het algemeen. De analyse is georganiseerd in vier thema's: 1) re-sultaten op gebied van borging en verspreiding, 2) de rol van het functioneren van de organisatie en de context, 3) de rol van het programma en de gebruikte verbetermetho-des, en 4) de rol van de bredere institutionele context en ontwikkelingen in de sector.

Uit de diverse empirische studies is gebleken dat de veranderde zorgpraktijken over het algemeen ook zijn geborgd, zij het in verschillende mate. Daarbij hebben we ook gezien dat de zorgpraktijken kunnen ontwikkelen en veranderen door verloop van tijd. Ook is het niet bij alle deelnemende teams gelukt om naar tevredenheid te borgen. Deze verschillen hangen samen met de insteek van de verbeterprojecten. We veronderstellen dat een verbeterproject verschillende functies kan hebben voor een organisatie. Om deze reden zijn verschillen op het gebied van borging en verspreiding te verwachten, ook al hebben teams op het oog aan hetzelfde programma en hetzelfde project meegedaan. Met betrekking tot verspreiding in de organisatie, hebben we geconstateerd dat ver-spreiding in veel mindere mate is bewerkstelligd. In relatie tot deze bevinding herhalen we dat de focus in het verbeterprogramma en zijn methoden lag op ontwikkeling van interventies en op de implementatie in pilotafdelingen. Met andere woorden, er was veel minder aandacht voor verspreiden naar andere afdelingen. De verbetermethoden die werden aangeleerd in het programma boden waarschijnlijk te weinig houvast voor het ontwikkelen van strategieën voor verspreiding. Bovendien lijkt verspreiding heel verschillende strategische activiteiten te vereisen in tegenstelling tot routinisering en institutionalisering op lokaal niveau.

De analyse van het tweede thema (organisatorisch functioneren in relatie tot borging en verspreiding) toonde aan dat de interne organisatorische capaciteit van groot belang is voor zowel borging als verspreiding. Daarnaast bleek ook dat er externe bronnen van borging zijn die werken als een hefboom op bepaalde interne organisatieprocessen en

-structuren. Theoretisch gezien draait het om de mate van mobilisatie: een organisatie moet zich aanpassen (lees: bepaalde capaciteiten hebben) om collectieve actie voor het verbeteren te kunnen genereren. Naar aanleiding van onze resultaten stellen we dat de mobilisatie voor verspreiding een vrij nieuwe ervaring was voor de meeste deelnemende organisaties.

We hebben ook enkele specifieke factoren onderzocht met het oog op de lange termijn effecten van verbeteren, namelijk de rol van leiderschap/bestuur en het meten van zorgpraktijken. Hieruit bleek dat de leiding meer moet bieden dan strategieontwikkeling. Er is ook leiderschap nodig om op een bepaalde koers te blijven en ervoor te zorgen dat de operationele activiteiten uitgevoerd worden in lijn met de strategie. Een betrokken leider is altijd wenselijk, maar voor effectief verbeterwerk moet leiderschap zoveel mogelijk rechtstreeks aansluiten op het kwaliteitsprobleem en het verbeterproces. Processen voor verspreiding daarentegen profiteren meer van betrokkenheid van het topmanagement om verbindingen tussen afdelingen of locaties te versterken. Leiderschap kan op verschillende manieren bijdragen aan borging en verspreiding. Daarnaast concluderen we dat meetsystemen en de bijbehorende kwaliteit-monitoringpraktijken relevant zijn voor zowel routinisering evenals voor institutionalisering. Voor verspreiding zijn deze niet van direct belang.

Het samenspel tussen de organisatorische context en borging en de verspreiding wordt ook beïnvloed door de koppeling en afstemming van de verbeterde zorgpraktijken met verwante praktijken in de organisatie. In de eerste plaats vereisen verbeterde zorgpraktijken het (opnieuw) koppelen van sommige praktijken die eerder ontkoppeld zijn geraakt. Bijvoorbeeld: als meetpraktijken worden verwaarloosd, dan raken ze ontkoppeld van de zorgpraktijk. Een betere registratie van incidenten betekent dat de meetpraktijken opnieuw worden gekoppeld aan de zorgpraktijken 'aan het bed' en alleen dan kunnen ze zinvol worden gebruikt voor reflecties op de zorgpraktijken in een wijk of locatie. Gebrek aan interne koppeling van de zorg en/of organisatorische praktijken heet interne fragmentatie. Fragmentatie kan mogelijkheden voor borging alsook voor de verspreiding beperken. Tot slot onderstrepen we dat management betrokkenheid op hoog niveau nodig kan zijn om om te gaan met kwesties met betrekking tot fragmentatie. Dit vormt een uitdaging voor organisaties die veel last hebben van interne fragmentatie, zoals bijvoorbeeld in fusie-organisaties.

Vervolgens bestudeerden we de interactie met het 'Zorg voor Beter'-programma. In de eerste fase lag de nadruk op het invoeren van *best practices*, interventie-ontwikkeling en implementatie. Dit kan onbedoeld hebben bijgedragen aan de relatieve verwaarlozing van organisatieprocessen voor borging en de verspreiding. In fase 2 werd het accent verschoven naar *management development*, opschalen van kwaliteitsprojecten, kennismanagement met betrekking tot verbeterkennis en -kunde op sectoraal niveau, en samenwerkingen met aanbieders van zorgonderwijs. Kortom, de speerpunten bin-

nen het programma verschoven en dit leverde waarschijnlijk een versterking van de voorwaarden voor de borging en de verspreiding.

Hoofdstuk 8 eindigt met een analyse van de wisselwerking tussen de bredere institutionele omgeving en de lokale borging en verspreiding binnen zorgorganisaties. Om te beginnen benadrukken we dat de sector als geheel turbulente tijden heeft meegemaakt en deze turbulentie is nog niet afgenomen. Vanaf 2000 zijn diverse beleidswijzigingen ontworpen ten behoeve van de herinrichting van het systeem voor langdurige zorg. Al met al confronteert de omgeving zorgorganisaties met een complexe veranderagenda die veel eisen stelt aan de capaciteiten van zorgorganisaties. Echter, dit is precies waar enkele van de belangrijkste problemen liggen: in de dagelijkse organisatie. De wens om de zorg op lange termijn te veranderen staat op gespannen voet met het functioneren van zorgorganisaties: werken aan verbeteren confronteert met en onthult gebreken in het dagelijks organiseren en vereist daarmee tegelijkertijd ook onmiddellijke verbetering op het niveau van algemeen organisationeel functioneren.

Het proefschrift eindigt met een discussie/conclusie in **Hoofdstuk 9**. Een eerste belangrijk punt in onze observaties is dat een verbetering niet af is na afloop van een verbeterproject. Er zouden dan nog allerlei ontwikkelingen plaats moeten vinden met betrekking tot zowel de borging van de gewijzigde zorgpraktijken als hun verspreiding binnen de organisatie. Ten tweede concluderen we dat projecteffectiviteit en het maken van plannen voor duurzaamheid en de verspreiding van belang zijn, maar deze garanderen geenszins een lineair voortgangsproces met betrekking tot borging en verspreiden. De projecten dienen doorgaans om het verbeteringsproces te kaderen en te organiseren. Het blijkt dat borgen en verspreiden vaak een lage prioriteit krijgen in de projecten. Ten derde constateren we dat borging en verspreiding enkele verwante, maar ook een aantal verschillende processen van mobilisatie op lokaal niveau met zich meebrengen.

We concluderen ook dat er aantoonbare vooruitgang is geboekt in kwaliteitsverbetering op de geselecteerde kwaliteitsthema's in Zorg voor Beter. In die zin heeft het programma een substantiële bijdrage geleverd aan de transitie van de zorgsector op de lange termijn, zowel op het gebied van kwaliteit van zorg als in het versterken van de capaciteit voor verbetering. Tegelijkertijd hebben we ook gemengde resultaten gezien wat betreft het gebrek aan borging en gebrek aan verspreiden. Deze gemengde resultaten zijn voor een deel te verklaren door de wijze waarop het programma de verbeterprocessen heeft gekaderd en door de dynamiek in de institutionele omgeving van de zorgsector.

Aanbevelingen voor beleid luiden als volgt. Ten eerste benoemen we dat meer aandacht voor borging (routinisering en institutionalisering) en voor verspreiding tijdens een project uiteindelijk zal bijdragen aan meer duurzame verandering van zorgpraktijken.

Ten tweede raden we aan om op beleidsniveau aandacht te geven aan kennismanagement en -overdracht tussen programma's en tussen programma's en andere

beleidsinstrumenten om mobilisatieprocessen voor borging te versterken en in het bijzonder de processen voor verspreiding van verbeteringen binnen grotere organisaties of regionale netwerken.

Ten derde, met het oog op borging en de verspreiding, is het organisationeel functioneren sterk van belang. Men zou men kunnen stellen dat het verbeteren van de bedrijfskundige en managementcapaciteit in zorgorganisaties een kwaliteitsdoel op zich kan zijn. Op beleidsniveau moet worden bepaald welke mate van verbetercapaciteit een voorwaarde is (of zou moeten zijn) om deel te nemen aan bepaalde verbeterprogramma's. Dit is nodig om verspilling tegen te gaan en het gebruik van publieke middelen te optimaliseren.

Ten vierde, als we erkennen dat het bereiken van een aanzienlijke en duurzame verbetering drie tot vijf jaar kan duren, dan moeten we ook de beleidsinstrumenten, zoals kwaliteitsprogramma's, maar ook regulerende instrumenten, ontwerpen met dat oogmerk. Dit is nodig om tegemoet te komen aan een lang verbeterproces en om sequentiële verbetering op organisatieniveau te monitoren. In lijn met deze optiek, zouden beleidsinstrumenten meer ruimte kunnen laten voor het bewerken van *best practices* in 'verspreidingspakketten' voor de verspreiding binnen organisaties.

Voor vervolgonderzoek noemen we de volgende aanbevelingen. Ten eerste stellen we dat theorievorming gebaat is bij het kritisch beschouwen van de huidige concepten in het denken over verbeteren, zoals diffusie, assimilatie en implementatie. Willen we meer inzicht in duurzame verbetering vergaren, dan moeten processen voor borging en interne verspreiding sterker deel uitgaan maken van de onderzoeksagenda.

In lijn met deze aanbeveling moet het bereik van evaluatiestudies ook veranderen: van enkelvoudige projecten, teams en programma's, naar meervoudige ontwikkelingen in het veld of regionaal niveau, en naar kruisbestuivingseffecten van gelijktijdig of opeenvolgende programma's, bij voorkeur onderzocht vanuit organisatorisch oogpunt. Dit vergt nieuwe onderzoeksontwerpen, bijvoorbeeld evaluatieonderzoek door tijdreeksanalyse in combinatie met andere methoden van onderzoek, zoals mixed methods case studies. Op deze manier kunnen we inzicht krijgen in de wisselwerkingen en de mechanismen van meervoudige en voortdurende verbeteringen in organisaties; in plaats van inzicht in de effectiviteit van afzonderlijke projecten.

Naast dit alles, raden we aan om meer aandacht te geven aan de rol van materialiteit; praktische materialen, documenten, instrumenten, ICT-systemen en software, communicatiemiddelen, etc.. Kwaliteitsverbetering is niet alleen een kwestie van mensen die samenwerken in programma's, projecten en organisaties; ook materialen dragen bij aan de effectiviteit van verbeterprocessen. De symbolische en fysieke rol van materialen, zowel in zorgpraktijken als in verbeterpraktijken, vergt verder onderzoek.

Ten slotte zou toekomstig onderzoek zich kunnen richten op literatuur over institutionele complexiteit in relatie tot de strategievorming en de dynamische capaciteiten van

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Writing a dissertation is the not the result of my singular agency, rather, as the eager reader by now may have learned, it involves a complicated, *trans-local action net*, with many actors with shared observations and thoughts, creating connected actions —mostly writing— and admittedly a lot of inter-collegial consultation, i.e. talking, and friendship.

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# Biography

Sarah Slaghuis was born on January 11, 1977 in Heino in The Netherlands. She studied psychology with a major in quantitative research methodology at the University of Amsterdam between 1996 and 2003. She developed an interest in knowledge construction, work practices, creativity and learning when she was writing her thesis on cognitive processes in design for a Dutch technology research institute, TNO (dept. of technical humanities). She soon realized that this interest required moving beyond the scholarly boundaries of psychology. Sarah was able to pursue her interests further through her teaching at the Institute for Interdisciplinary Studies of the University of Amsterdam in the period 2003 - 2007. The courses in which she taught included: Interdisciplinary perspectives on human agency, Science and Skepticism, and Genomics & Society.

In 2007, Sarah started at the Institute for Health Policy and Management (iBMG) as a junior researcher. Her main task was to explore sustainability and spread in the 'Care for Better' quality improvement program for long-term care as part of the large-scale evaluation research commissioned by a Dutch healthcare research institute ZonMw, executed by iBMG. In her dissertation research, she could extend her insights in knowledge construction, work practices and learning from an interdisciplinary perspective on organizing using many different strands from the social sciences. At iBMG Sarah served as teacher in various courses such as Organization Theory, Change & Improvement Management, and Quantitative Research.

Currently, she works for the Rotterdam Business School for Applied Sciences as a senior lecturer in Research Methodology. Aside from her work in research and teaching, she practices Tai Chi both as a trainee and as a teacher. She lives in Rotterdam together with her partner Koos Maasdijk.