Cooperation in Care

Integration of care in networks by steering, coordination and learning

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Cooperation in Care:
Integration of care in networks by steering, coordination and learning

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Integratie van zorg in netwerken door middel van sturing, coördinatie en leren

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CONTENTS

Chapter 1

General introduction

1.1 INTRODUCTION

Integration of care delivery is a central theme in many Western countries. This is stimulated through various developments in health care and expectations of policy makers, managers, practitioners and researchers. First of all healthcare needs are changing and costs are rising because of an ageing population. Until 2010 major increases (25-60%) are expected in different forms of cancer, cardio-vascular disease (for example stroke), chronic heart failure, diabetes, dementia, asthma, chronic obstructive pulmonary disease, and muscoloskeletal disorders [1]. In general, these are chronic conditions resulting in disabilities influencing daily activities of living. That is why it is said a different organisation of care is needed in which prevention, cure, long-term care and social services are integrated [2] [3]. Secondly, not only needs are changing but also demands. Patients are becoming clients who expect value for money. According to policy advisers patients will demand more, better, faster and coordinated care [1]. Thirdly, it is said that perspectives in health care are broadening from a biological medical model of diagnosis and treatment towards a bio-psycho-social model with a more holistic view of the patient [1] [4]. Patient care is therefore no longer based on ad hoc encounters with individual care professionals but on multi-professional teamwork, usually with professionals working for different care organisations [5] [6]. Furthermore, because of technical innovations there are increasing possibilities to organise specialist care outside the hospital [7]. This also implies that professionals in hospitals need to cooperate more with professionals in other settings. Last but not least, there is increasing scientific evidence suggesting that better coordinated care leads to more effective and efficient care [3] [8].

Integration of care is defined in this thesis as an organizational process of coordination that seeks to achieve seamless and continuous care, tailored to the patient's needs [4]. Seamless means that there are no problems in the transfer of patients between professionals and organisations. Patients receive the right care, at the right moment, at the right place, by the right professional. The adjective 'continuous' entails that there is continuity in the content of care because professionals have attuned their treatments. **Integrated care** is the state in which care is delivered seamless and continuous, tailored to the patient's needs. In the United States large regional

care organisations, called Health Maintenance Organisations (HMO), have been founded to be able to deliver integrated care. Potential benefits are reductions in cost because of economies of scale, and better coordination because all professionals and processes are part of one system. In The Netherlands this is difficult to organize. Not only is the delivery of health care highly fragmented, this is also enforced through compartmentalized financial arrangements. Alongside specialised institutions for the mentally and physically handicapped, for the elderly and for mental health care there is a clear distinction between the organization of curative services and care services [9]. Until December 2005 curative services (GPs, general hospitals, rehabilitation centres) were financed through a mixed system of social and private health insurance [10]. From January 2006 cure services are entirely financed through contracts with private insurers (both for profit and not-for profit) that are mandated to execute a basic insurance scheme for all Dutch citizens as part of a regulated market. Care services (nursing homes, home care organisations) are (still) financed through a compulsory national health insurance scheme for exceptional medical expenses (AWBZ) [10]. Given these heterogeneous financing arrangements it is problematic for cure and care organisations to share resources or to merge.

Because of these prevailing system characteristics integration of care in the Netherlands takes place mainly through networks of managers and professionals from different organisations. A **network** can be defined as more or less stable patterns of social relations between different actors (people, groups, organisations) who depend on each other to reach their goals (for example continuity in care), without the presence of a dominant actor [11] [12] [13] [14]. In a network there is always the tension of actors who want to preserve their autonomy, but at the same time need to coordinate their actions because they depend on each other to reach their goals (interdependency). Network relations imply that coordination between actors takes place on the basis of mutual benefit, reciprocity and trust [13]. These network characteristics make integration of care potentially a difficult and time-consuming process.

The problem with the integration of services is not only the existence of a high level of differentiation between the organisations that are involved but also between the professionals [15]. Integration of care means coordination between profession-

als with different specialisations, who use different methods and techniques, have a different jargon and different values, often work in different organisations with different goals, structures and cultures, and sometimes have never even met. Integration is about crossing these barriers and establishing relationships between these professionals. Burns and Pauly, who studied the development of HMO's, concluded that 'integrated care structures in America rarely integrated the actual delivery of patient care' [16] [17]. In many Health Maintenance Organisations only structures are integrated, but the processes and professionals are not better aligned. It seems that these structures are not able to fundamentally change the practice of professionals and the way in which they cooperate [16] [17]. Policy makers, managers and professionals are therefore looking for effective tools and strategies that help them implement integrated care. Although there have been many publications on the effectiveness of integration of care in general, much less is known about the specific tools and strategies that are effective [2] [3]. This is caused by the fact that the evaluation designs often used in studying integration of care are developed for clinical interventions not for organisational interventions. A review of reviews shows that the actual interventions are not always clearly described and therefore difficult to compare with interventions in other studies. Interventions also differ from setting to setting [3]. As a consequence the actual interventions often remain a black box and are difficult to compare.

In this thesis it is studied how integrated care is developed and sustained in networks. Organisational interventions (tools and strategies) are identified that can be used to stimulate integration of care. Furthermore an evaluation design is developed to study integration of care and identify effective tools and strategies. In paragraph 1.2 the concepts to study the integration of care are introduced. In paragraph 1.3 the methodological complications in studying integration of care are discussed. In paragraph 1.4 the central research questions are posed. Paragraph 1.5 discusses the designs and methods that will be used to answer the research questions. Finally in paragraph 1.6 the outline of this thesis over the various chapters is presented.

1.2 ANALYSING INTEGRATION OF CARE

For integration of care different organisational levels are involved: strategic, tactical and operational. At the strategic level decisions are made concerning long-term goals of organisations. At the tactical level decisions are made concerning the structure of an organisation. Finally the operational level is where day-to-day decisions are made concerning the primary services or products in an organisation. At all three levels managers and/or professionals from different organisations need to cooperate for integration of care. But the organisational processes and therefore the organisational interventions that are necessary are not the same at each level. That is why different theoretical frameworks are used in this thesis to analyse the development at the different levels. At the strategic level the focus is on horizontal self-steering, at the tactical level on coordination and at the operational level on learning. Consequently we also use different terminology, consistent with the terminology used in these different theoretical domains. In the introduction we stated that one of our aims is to identify tools that stimulate integration of care. As a synonym for 'tool' we will use when we discuss steering the word 'instrument', when we discuss coordination the word 'mechanism' and when we discuss learning the word 'enabler'.

For professional organisations like care organisations the conceptual distinction especially between the tactical and operational level is somewhat unclear because not only managers, but also professionals are involved in changing and introducing tasks divisions, procedures and structures. But for the purpose of introducing our theoretical concepts and clarifying the differences between them, the division between these levels is helpful.

Strategic level

The strategic level becomes more and more important for health care organisations because in many Western countries the role of the central government in health care planning is diminishing. Different authors have pointed to the transformation of the regulatory state from 'government by command into systems of self-steering' [18] [19] [20]. Some authors even speak of ' the hollow state' because governments decentralise policy planning and implementation to other organisations [21] [22]

[23]. Regulatory authority, it is widely acknowledged, is delegated downwards into complex networks which themselves form mechanisms of self-steering [24]. Also the initiative for organising and planning health care delivery is now more in the hands of managers at the strategic level of local governments, insurers, client organisations, welfare organisations and these health organisations. As a consequence the development of integrated care is not based on the initiative of a single dominant actor (for example the central government), but on the willingness and ability of different autonomous actors to cooperate in networks.

There is an increasing volume of publications about the possibilities of governments to stimulate development of networks and coordination within these networks [24]. Far less attention is paid to the possibilities of actors within these networks to develop horizontal forms of self-steering. **Horizontal self-steering** can be defined as the collective activity of organisations in a network to stimulate and direct their cooperation towards coordination. Horizontal self-steering is undertaken by representatives of these organisations at the strategic level. We are interested in how horizontal self-steering takes place and what kind of steering instruments can be used to stimulate integration of care.

Tactical level

The tactical level is relevant for integration of care because this is where structures and procedures are introduced that can help to achieve seamless and continuous care.

To identify effective organisational interventions for integration of care we need to have a clear base of comparison between different kinds of interventions. That is why this thesis focuses on identifying the coordination mechanisms behind the different interventions that help support integrated care. The mechanisms identified by Mintzberg for coordination in a single (more hierarchical) organisation will be used as a point of departure: task assignment, (direct) supervision, standardisation and mutual adjustment or lateral adjustment)[25]. These mechanisms will be operationalised in chapter 3. **Coordination** is defined as managing interdependencies between actors. It 'is a kind of dynamic glue that binds tasks together into larger, meaningful wholes' [26].

Operational level

The main problem for integration concerning the operational level is finding ways to change the practice of professionals. This has especially been a major topic of interest in the literature on the implementation of and resulting compliance with clinical guidelines. Although many clinical trials have now been conducted, meta-analyses show that there is still no definite answer how to introduce change in professional practice [27]. None of the approaches that are studied is superior for all changes in all situations. But what many of the studied approaches have in common is that it involves learning by professionals, be it through educational materials, courses, inter-active group meetings, educational outreach visits or feedback on performance. That is why we use a learning perspective to study the development of integrated care. **Learning** has to do with expanding insights and skills. It is about the acquisition of knowledge (creating or developing skills and insights), about sharing knowledge and utilizing knowledge in a new context or new situation [28]. During our research it became clear that learning plays an important part in both the development and sustainability of integrated care. It was subsequently decided to study which enablers can be used to stimulate and facilitate learning in such a network. In the literature much attention is paid to learning in organisations, which has resulted in thousands of publications in different fields [28] [29]. Much less attention is paid to learning in networks. The research that has been done mainly focuses on the role of 'trust' between the participants [30-34].

Table 1.1: Theoretical concepts

	Theoretical concepts	
Strategic level	• Horizontal self-steering • Steering instrument	• Integration of care
Tactical level	• Coordination • Coordination mechanism	• Integrated care
Operational level	• Learning • Learning enablers	• Network

Although the concepts: horizontal self-steering, coordination and learning, have a lot in common, they do focus on different aspects of integration of care. Horizontal self-steering is a concept mainly used by policy researchers to analyse how societal problems are solved through policy development and implementation in networks

[21] [24]. It helps focus the attention on how health care organisations, local governments, insurers, welfare organisations are able to organise and plan health care delivery. Especially relevant for this thesis are Dutch and German authors who try to identify management strategies and instruments for management in networks [35-37]. But these authors pay no attention to how tasks, people, units and organisations can actually be connected in daily practice for integration of care. That is why we need coordination as a concept, developed by social scientists who study structures and processes of organisations. The social sciences literature describes many different coordination mechanisms, which have a lot in common [38-44]. Mintzberg's classification is the most well known and in our opinion the best for our purpose, because he identifies different forms of standardisation (of work process, output, knowledge and skills) and standardisation is an important issue for integration of care [25]. However Mintzberg looks at coordination in a somewhat hierarchical way, while other authors pay more attention to informal and non-hierarchical coordination mechanisms [39] [43] [44]. That's why for the analyses in this thesis a few aspects will be added to Mintzberg's classification, as will be discussed in chapter 3.

In the literature on coordination little attention is paid to how people change their perspectives and consequently their practice. To explore this element of integration of care (organisational) learning is used as a concept. Broadly speaking, there seem to be two perspectives in the literature on learning: a technical perspective and social process perspective. Authors like Senge [45] and Argyris [46] are said to use a more technical (reductionist) perspective [47]. 'The technical view assumes that organisational learning is about the effective processing, interpretation of and response to information, both inside and outside the organisation' [47]. In contrast other authors like Nonaka [48] and Dixon [49] use a more social perspective. 'The social process perspective focuses on the way people make sense of their experiences at work and learn from/with each other in work settings' [47]. Although enablers identified by authors from both perspectives will be used in our theoretical framework in chapter 5, the analysis starts from a social process perspective, as will be discussed in the next paragraph.

1.3 EVALUATING INTEGRATION OF CARE

A rather reductionist (technical) perspective dominates a large part of the research agenda in health care service research. It is a perspective that sees reality as objective, singular and apart from the researcher and that takes little account of differences in perceptions of reality by different people [50]. The research design therefore most often used in intervention research about health care services is the randomised controlled clinical trial. To perform such a trial the intervention to be tested must be well specified. One of the central features of this design is randomisation. Random allocation of subjects to either the control or experimental group must ensure that the confounding factors are evenly distributed [50]. But it is a problematic design to use to evaluate integration of care. First of all, the intervention itself often remains a black box in such intervention research. Organisational interventions are difficult to standardise because they are part of a complex social setting. Replication of these interventions is also difficult because different countries have different systems and therefore different organisational characteristics. So, the effectiveness of integrated care has been demonstrated, but we don't know exactly which factors are responsible for the effects. A second problem is that integration of care is aimed at organisational changes; therefore many variables play a part (structural, cultural, psychological etc.). Randomisation only guarantees an even distribution of potentially confounding factors between experimental and control regions if a large sample of regions is involved. This makes the study potentially very expensive and difficult to run.

Even when qualitative methods are used a reductionist perspective often prevails. From this perspective participants in organisations or in a change process are regarded as rational actors with a single goal and perspective [50]. The idea is that if we are able to identify the structural characteristics of well functioning integrated care projects, we just have to copy them in other settings in order to have the same effects. The strength of a reductionist perspective is that it gives clear guidelines and tools for professionals, managers and policy makers to use. The weakness is that reality is often subjective and multiple as seen by participants in the study (social process perspective) [51]. The same guidelines and tools can therefore have no effect or even averse effects in another setting if no attention is paid to the actual process

of integration and to the fact that participants with different perspectives and goals are involved. Studies of actual work practices for example have often shown that efficiency is not only determined by structuring and sequencing tasks but especially by the capabilities of people for solving problems [52] [53] [54]. According to Sachs: 'these studies suggest workers perpetuate webs of relationships in communities and it is within these human systems that problems are discovered and resolved and work is effectively accomplished' [53].

In this thesis the aim is to identify strategies and tools to help professionals, managers and policy makers to develop and sustain integrated care, but with a social process perspective on reality in which actors have different perceptions and goals. As a consequence it is expected that problems and solutions concerning integration of care are ambiguous, because people have different perceptions of what the problem is and what possible solutions might be. Integration of care is analysed by looking at how problems are collectively defined and how solutions are constructed in a network with many different autonomous actors. Integration of care is seen as a social and political process, not as a rational planning process [51]. We are interested in how collective actions in a network take place and how they can be stimulated and guided towards integration of care.

Using this perspective implies that for identifying strategies and tools an 'in depth' analysis is needed of how integration of care actually takes place in the real life context of a network [50]. Because there are less strict expectancies concerning standardisation it is possible and relevant to evaluate projects where parties are experimenting and there is continual and complex change in the intervention [51]. The downside of using such a perspective is that it makes generalisation of results difficult (see chapter 6).

1.4 RESEARCH QUESTIONS

We know that integration of care leads to better results in terms of effectiveness and efficiency. We don't know exactly how these results can be reached and sustained [3]

[8]. That is why the aim of this thesis is to identify tools and strategies that help to develop and sustain integrated care, as a complex process involving multiple actors, with multiple goals and perspectives. Based on the discussions in the previous paragraphs we come to the following central question:

How do organisational processes and interventions support integration of care?

This question is operationalised in the following five research questions:

1. How does horizontal self-steering on the strategic level support integration of care?
2. How does coordination on the tactical level support integration of care?

The difficulty with coordination in health networks is that it involves health professionals with different professional backgrounds from different health organisations. So, how are these health professionals able to look beyond these boundaries and implement new coordination mechanisms? From literature on integrated care we know that learning plays an important part, but we don't know exactly how learning supports integrated care [3].

3. How does learning on the operational level support integration of care?

If learning on the operational level is important for developing and sustaining integrated care, it is relevant to know how the tactical and strategic level can enable learning in a network. Although much is known about learning in organisations, much less is known about learning in networks. That is why insights from literature on organisational learning will be used as a theoretical framework to see how learning can be enabled in health networks.

4. How can learning be enabled to sustain integrated care?

To answer all four previous questions we will mostly use a qualitative design. Therefore generalisation will only be possible on analytical grounds, not on statistical grounds. To be able to identify evidence based tools and strategies we need to find

a way to combine a qualitative and quantitative design. A qualitative design can be defined as ' an inquiry process of understanding a social or human problem based on building a complex, holistic picture, formed with words, reporting detailed views of informants, and conducted in a natural setting' [50]. In contrast a quantitative design can be defined as an 'inquiry into a human or social problem, based on testing a theory composed of variables, measured with numbers, and analysed with statistical procedures, in order to determine whether the predictive generalizations of the theory hold true' [50].

5. How can we develop a research design to evaluate integration of care, with the use of both qualitative and quantitative research methods?

1.5 METHODS

Given the explorative nature of our research questions and the use of a social process perspective, our research is based on empirical evaluation studies using mostly qualitative research methods. The theoretical frameworks were only roughly developed beforehand and gave much freedom for exploration. During the inquiry the theoretical frameworks were further developed to deepen the analyses of the data. This procedure also prevented researcher bias in which the researcher imposes his perspective on the setting. That is also the reason why interviews where semi-structured, as to give the respondents the opportunity to put other perspectives forward. These interviews were fully transcribed and then coded and summarised. Other quality procedures were used as well to prevent researcher bias, namely member checks and peer review. To prevent reactivity in which the researcher influences the results, data were collected from different sources and compared (triangulation). Not only were almost all participants interviewed (face to face), the researchers also took part in their meetings (participative observations), analysed relevant documents and distributed a survey among all participants in one study. That is how it was possible to provide a detailed analysis of the process of integration taking into account the perceptions of most participants.

To answer our first research question we selected a single case that can be described as a Dutch Best Practice in horizontal self-steering. The Best Practice has been selected on the basis of a national survey of the results of regional cooperation in the Netherlands [55] [56]. In the selected region all the parties concerned in the health-care system now participate for over a decade in a Regional Committee. In this Committee agreements are reached on the form in which care should be provided and where joint projects for integration of care should be implemented. We performed a case study to identify how horizontal self-steering supports integrated care. As a theoretical framework we used a typology of steering instruments developed by the Bruijn and Heuvelhof [36]. This typology was developed to describe steering instruments that governments can use for steering in networks. We use it to see how horizontal self-steering takes place and if the same sorts of instruments are used.

For our second research question about coordination we performed a multiple-case study. We focussed on the integration of care for stroke patients, because this is one of the first patient groups for which integrated care was developed in the Netherlands. To provide seamless and continuous care for stroke patients care must be integrated between hospitals, nursing homes, rehabilitation clinics, homes for the elderly and home care organisations. We selected five regions that had just started the integration of care so we could follow the developments close at hand and see how coordination takes place. We also selected a region in which care was delivered as usual, so we could compare the results. Not only did we collect qualitative data but we also collected quantitative data. A survey was distributed among all participants. Furthermore data were collected about effects and costs of integration of care for stroke patients using validated measuring tools. These results were also compared with an earlier study from 1993 (a historical cohort), before there had been any interventions in the Netherlands [57].

To answer our third research question about learning we selected one of our five regions that developed integrated care for stroke patients. We selected this region because we were able to follow an important intervention close at hand. This intervention was the development of transfer criteria for the referral of patients from the hospital to two newly developed rehabilitation units in two nursing homes. This

specific intervention is interesting because it is exemplary for integration of care. It is about crossing barriers between professionals from different organisations, to secure that the right patient is referred at the right moment to the right care provider. What makes this intervention even more relevant for our research is that many interests are involved. In our research case a conflict arose about the transfer criteria. The rehabilitation centre was namely afraid of losing clients to the new units. Such an open conflict is unusual, as most conflicts remain hidden, it offered us the opportunity to study the direct social contacts between the professionals more easily, as the differences in tasks, interests and professional backgrounds were part of this conflict.

For our fourth research question about learning enablers we focussed on all five of our regions that were working on the integration of care for stroke patients. By analysing the implementation processes we could see how learning plays a part and how it is enabled.

To answer our final more methodological research question about evaluation designs we used our experiences with the evaluation of the five projects for integration of care for stroke patients. These experiences together with notions from literature gave us the input to rethink our research design and improve it to evaluate the integration of care in another part of the care pathway for stroke patients, namely the pathway from unset of a stroke until treatment in the hospital. This part was not changed in the other five projects, but has now become especially important with the introduction of a new treatment: thrombolysis. If a patient with a blocked artery in the brain is treated within three hours from unset, there is a higher chance of survival and a diminished chance of dependency [58]. So, it is vital to improve the number of patients that receive thrombolysis. That is why the government has sponsored a trial in which a combination of quantitative and qualitative research methods are used to determine which instruments and strategies can be used to improve integration between general practitioners, ambulance services and different professionals and units in the hospital involved in stroke care.

1.6 OUTLINE OF THIS THESIS

In the coming chapters the research questions will be answered in the presented order.

In chapter 2, a case study is presented of a best practice in horizontal self-steering in health care regions in the Netherlands. Instruments from literature on governmental steering in networks (governance) are used as a theoretical framework to identify steering instruments for health networks.

In chapter 3, the development of integrated care networks for stroke patients in five regions in the Netherlands is analysed. The outcomes are compared with a control region where traditional stroke care is provided. A combination of qualitative and quantitative research methods is used to identify which coordination mechanisms, under which conditions, lead to better outcomes in terms of length of hospital stay, health effects and costs.

In chapter 4, a case study is presented of the development of a stroke service in the Netherlands (one of our five regions). Concepts from literature on learning are used as a theoretical framework to analyse how these professionals were able to cross these barriers, namely single and double loop learning, tacit and explicit knowledge, individual and collective learning.

In chapter 5, enablers for learning from literature on learning organisations are used as a theoretical framework to analyse the development of our five stroke services. The aim is to see if these enablers also play a part in learning in care networks and consequently can be used to stimulate and sustain integrated care.

In chapter 6, the dilemmas and possibilities for identifying *evidence based* tools and strategies for integrated care are discussed. The development of a continuum of care for acute stroke patients to increase the number of patients that receive thrombolysis is used as an example.

In chapter 7, the general discussion, conclusions and recommendations of this thesis are presented.

It should be noted that the chapters of this thesis are now submitted, accepted or published as independent articles in different journals. They can therefore be read independently and there may be some overlap between different chapters.

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Self-steering in regional care networks: a Dutch case study

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1. INTRODUCTION

In a number of Western countries the coordination of the supply and demand of care largely takes place at regional level [1] [2]. This means that a regional authority will be responsible for meeting the health needs of a geographically defined segment of the population. In many cases the body accepting this responsibility will be a government authority. The coordination of the supply and demand of care, however, involves an increasingly complex mix of public, semipublic and private organizations. The prospects therefore are that hierarchical control and more bureaucratic forms of governance will increasingly make way for negotiating processes between parties who are more or less one another's equals [3] [4].

Governments are therefore looking for ways to stimulate the development of networks [5] [6]. A network can be defined as more or less stable patterns of social relations between different actors (people, groups, organizations) who depend on each other to reach their goals (for example continuity in care), without the presence of a dominant actor [3] [7] [8] [9]. In a network there is always the tension of actors who want to keep their autonomy, but at the same time need to coordinate their actions because they depend on each other to reach their goals (interdependency). Network relations imply that coordination between actors takes place on the basis of mutual benefit, reciprocity and trust [6] [10]. Coordination is therefore regarded as more likely to occur in situations other than those where authority is used [11]. There is an increasing volume of publications about the possibilities of governments to stimulate the development of networks and coordination within these networks [3] [5] [8] [11] [12] [13]. The term 'governance' is used to describe 'the complex art of steering multiple agencies, institutions and systems which are both operationally autonomous from one another and structurally coupled through various forms of reciprocal interdependence' [13]. De Bruijn and Ten Heuvelhof have even identified specific instruments governments can use for steering in networks called second generation instruments [9].

Far less attention is paid to the possibilities of actors within these networks to develop horizontal forms of self-steering. Horizontal self-steering is the collective activity of organizations in a network to stimulate and direct their collaboration

towards coordination. Coordination 'is understood as an end-state where redundancy, incoherence and lacunae are minimized' [11]. Even though the possibility of horizontal self-steering is more and more seen as an important success factor in the coordination of health care organizations [4] [13], there are no publications about steering instruments that can be used for horizontal self-steering. In this article we therefore use the second-generation steering instruments identified by De Bruijn and Ten Heuvelhof as a theoretical framework [9]. The main question is: can these second-generation steering instruments also be used for horizontal self-steering and, if so, under what conditions are they effective in stimulating and directing collaboration in the network towards coordination?

In the professional literature thinking in terms of instruments now appears somewhat passé. Many authors have become more concerned with analyzing the process of policy formation [14]. The criticism of an instrument-based approach focuses primarily on the sometimes 'flat' use made of instruments under which these are used overly technically and rationally. Nevertheless there is a considerable need among policy-makers and managers for concrete steering mechanisms in the complex reality of policy networks. An instrument-based approach fits in well with this. This article meets that need and responds to the criticism of an instrument-based approach by instead taking a process-based approach towards the use of instruments, taking account of the differences in power, interest and perceptions among the participants.

Our analysis is based on a Dutch case study. Between 1995 and 2002 the central government in the Netherlands sought to provide provincial and local governments, care-providers, insurers and patient associations with greater joint responsibility for shaping the regional supply of care [15]. For this purpose the country has been divided up into 25 regions of around 500-600,000 inhabitants each. The aim is for these parties jointly to guarantee a manageable, coherent and effective system of facilities within these regions geared to the needs of the client or citizen [16] [17]. This type of cooperation is presented in the literature as an attractive alternative to bureaucratic, market-based or contractual forms of public management [3] [5] [8]. The national government has taken steps to promote closer co-operation among the regional parties by means of legislation and policy measures. In practice, however, the

regional parties have succeeded to only a limited extent in shaping regional supply [16] [17] [18]. The fact that so many parties were involved made it difficult for them to find common ground and then to convert that into concrete projects. This form of regionalization has, consequently, largely been dropped and coordination now takes place much more at local level, with only a few organizations seeking to coordinate their care provision. The topic does however remain relevant for health care in the Netherlands since the emphasis placed on regionalization has fluctuated since the Second World War [19]. The pendulum has now swung away from regionalization, but will presumably swing back again in due course.

Nevertheless there are examples in the Netherlands of collective steering at regional level. In this respect a national survey suggests that our research region may be regarded as an example of best practice [16] [18]. In this region all the parties concerned in the health-care system participate in a Regional Committee in which agreements are reached on the form in which care should be provided and where joint projects should be implemented (see table 1).

This regional committee now has some 120 members who, via various representative bodies (i.e. regional umbrella organizations), participate in the general meetings and working groups. The committee brings together all the relevant organizations providing care for the 500,000 people in their region. In doing so it has proved possible to strike a certain balance between the dependence arising from the desire for collective steering and the need for autonomy on the part of the participating organizations. In this article we indicate how this has been dealt with in this region. To this end we

Table 1: Examples of recent regional committee projects

Topic	Description
Monitoring of housing, care and welfare	Maintaining an overview of the supply and demand of housing, care and welfare in the region with a view to identifying possible shortages.
Regional coordination of ICT	Setting up a regional electronic patients file.
Personnel problems in the region	Drawing up emergency scenarios for crisis situations in the region.
Continuity of care processes	Making changes in the chain of emergency care in the region.

have categorized the instruments jointly employed by the parties in this region for steering purposes and analyze the circumstances in which the deployment of these instruments leads to the desired result.

2. METHODS

The Best Practice has been selected on the basis of a national inventorization of the results of regional cooperation in the Netherlands [16] [18]. The data for the analysis were gathered during two successive surveys into the development of region-alization in health care in the Netherlands. In the first place this concerns a survey of care of the elderly. In 1997 and 1998 some 25 interviews were conducted with representatives of all the participating parties in the six regions in the Netherlands (including the case study used for this article), namely the providers of care, housing or welfare, the province, the municipalities, the insurer and the patient association. Interviews were also conducted with the chairperson and executive secretary of the regional consultative structure. In addition conference papers and the relevant policy documents of the participating parties were analyzed and meetings observed. The researchers were subsequently involved in 2002 in the development of a regional vision in our research region, participating in all the meetings and holding talks with the parties concerned.

3. STEERING IN NETWORKS

For the purposes of this article, a policy network may be defined as more or less stable patterns of social relations among parties dependent on one another for achieving their goals, without any one of the parties being dominant, so that decision-making is not a monorational choice but a negotiating process [3] [7] [8] [9]. This definition brings out the two-sided nature of a policy network. On the one hand it indicates the dynamic nature of the interactions between actors acting strategically (i.e. network interactions), while on the other it indicates that these interactions are subject to (more or less) stable patterns (i.e. network institutions). The point of departure is that networks consist of

strategically-minded actors who interact with one another but that those interactions give rise to patterns that attain a certain degree of stability [20]. At issue are collective norms, values and attitudes, as well as certain power relationships and rules of interaction [7] [21]. These network institutions are therefore social constructions that are reconstructed upon each interaction and hence also capable of change [22]. Institutions are, however, characterized by just such continuity/stability. They are in other words reconstructed over an extended period during most of the interactions [21]. This continuity may in the first place be due to a certain degree of habituation, as a result of which reconstruction takes place almost unthinkingly (i.e. cognitive institutions) [23]; secondly, the actors may, through internalization, come to regard the institutions as the correct way of thinking, feeling or acting (i.e. normative institutions); and thirdly social sanctions often come into play if one of the actors fails to participate in the reconstruction (i.e. regulatory institutions) [22]. An individual actor will consequently not generally be in a position to change network institutions: that will need to be done collectively by departing, either consciously or unconsciously, from reconstruction [24]. It is from this perspective that the use of steering instruments is analyzed in this article.

4. STEERING INSTRUMENTS IN NETWORKS

De Bruijn and Ten Heuvelhof distinguish the following categories of instruments: multi-sided instruments, person-based instruments, incentives, communicative instruments and key indicators/performance indicators [9]. In the case of government steering we have a person-based instrument if an individual is appointed to the actor to be steered who seeks to bring about the desired behaviour on behalf of the government. De Bruijn and Ten Heuvelhof refer to a multi-sided instrument if the government and the actors whom the government is seeking to steer negotiate with one another and commit themselves to a particular performance [9]. An example of this is a covenant. We may refer to an incentive where the steering actor is not under any obligation as a result. An example would be a subsidy on which an actor may or may not draw. A communicative instrument is concerned with the transfer of knowledge and information in order to influence the behaviour of the actor to be steered [9]. Finally we have a key indicator or performance indicator if the government under-

takes the measurement of quantitative outcomes and also attaches consequences to such measurement. How these outcomes are achieved is up to the actors themselves. We use these categories not just for classification purposes but more especially to critically analyze the instruments and the use made of them [9].

Our analysis will reveal that the parties use comparable instruments in the case of self-steering but do so in a radically different way from the government. The instruments consequently also change in terms of content. In the sections below we describe how the instruments operate in practice and investigate whether this amounts to self-steering, i.e. collective input with a collective goal. An analysis is then conducted of the conditions under which the input of these instruments leads to the desired result, namely to the taking of collective decisions and the development of joint projects in order to shape the regional provision of care.

4.1 *Person-based instruments*

Person-based instruments were deployed in the research region right from the start in 1989. In order to support the decision-making process and to promote the implementation of agreements, the parties jointly finance the appointment of a chairperson and a number of policy staff. According to the respondents, the chairperson and the policy staff act as an important binding factor in the region (see for example the interviews with the patient association, nursing homes and other organizations, the home care association and the insurer). The chairperson chairs the meetings of the regional committee, checks the procedures and draws the attention of the parties concerned to the agreements previously reached. The chairperson is supported in her duties by policy officers, who chair meetings and provide substantive input with a view to reaching consensus among the parties more rapidly. This comes down to strategic guidance: 'forms of leadership in which the main task is not to dominate but to guide, arbitrate and facilitate' [13]. So as not to place their mutual relations under strain, the parties for example rarely hold one another to account. This applies in particular to agreements that are of collective importance but of only limited individual importance. The chairperson has more room for maneuver to play such a guiding role without placing the mutual relations under strain since she is able to speak on behalf of all the parties.

In what circumstances is the deployment of person-based instruments effective? The most important issue is independence. Since the chairperson and the policy officers steer on behalf of various parties with differing interests, the respondents consider it necessary for them to be independent with regard to both the content (i.e. to be unprejudiced) and the individual parties (i.e. to be impartial). Observations indicate that although the chairperson is regarded as unprejudiced and impartial, she does not in fact treat all the parties the same. The chairperson will for example talk more frequently with certain parties, their representatives will be given more chance to speak at meetings and their opinion appears to have a greater influence on the ultimate 'compromise' proposal the chairperson seeks to achieve. The party in question may for example carry particular weight in the region, the representative in question may be regarded as authoritative, or there may be a widely shared view that this party - e.g. the patient association - should have a significant say. Without this kind of 'partisanship' the relatively powerful parties would be unable to accept the decisions. Substantively too the chairperson and policy officers are able to come out in favour of and work towards certain preferred options without compromising their independence as long as those preferences are not controversial, particularly as far as the more powerful parties are concerned.

De Bruijn and Ten Heuvelhof note that when this steering agent is used as an instrument by the government it obtains a dual frame of reference [9]. On the one hand the agent can be more or less loyal to the government, while on the other his or her loyalty may to some extent become directed towards the actor to be steered. The way in which this loyalty is shared determines the task that the steering agent is able to fulfill. In the case of the self-steering of a network the steering agent has numerous frames of reference. Precisely because of this the agent obtains room for independent input. For effective steering, however, the division of the agent's loyalties will need to reflect the balance of power.

4.2 *Multi-sided instruments*

For the purposes of steering the network a regional vision has been drawn up for the research region. This is a multi-sided instrument with which the parties jointly set out the broad structure for the provision of care in the region (see table 1). As such it

Table 2: Examples of underlying principles in the first regional vision 1995

Mission	The regional parties will jointly ensure high-quality and effective care consistent with the demand for care
Global aims	Everyone should have equal access to the care institutions in the region. Care should be approached on an integrated basis. Care-providers thereby commit themselves to the mutual coordination of the care and to consult on the transfer of care. Care-providers are jointly responsible for the guidance and support of care-demanders on the waiting list.

forms a joint frame of reference on which the parties are required to base their future action and interactions. A covenant signed by all the representatives establishes that the regional vision provides a task-setting framework for all the parties.

Drawing up a regional vision of this kind turns out to be a time-consuming exercise since some of the representatives lack a mandate. Before being able to support decisions at regional level they need to consult their grassroots. Some parties also have difficulty in allowing themselves to be represented at regional level [25]. The region has for example around 40 residential care homes and 10 nursing homes.

The regional vision is consequently the outcome of a series of successive decision-making rounds in which relatively abstract points of departure (see table 2) are increasingly concretized, with an ever-changing composition in terms of parties and with different representatives. The abstract points of departure are further concretized in plans for certain subsectors in health care, such as the mental health service (GGZ), nursing and care. These are drawn up by fewer parties, often with changing representatives. The concrete projects are finally drawn up with the co-operation of different representatives again, namely care-providers rather than administrators and managers.

From the above description it will be clear that a multi-sided instrument such as the regional vision certainly provides no guarantee that concrete decisions are taken or that these will be implemented. Of the 40 action points in the regional vision of 1995, for example, just a third have been fully taken up, one third partially and one fifth virtually not at all (RCG 2000). Furthermore the action points have generally been described in abstract terms with, for example, no deadline or any indication of the parties who

should be involved. Such agreements are not legally enforceable, even though they have been laid down in a covenant. It may however be asked whether these agreements should be legally enforceable: cooperation in the network is a permanent process of seeking consensus and of acting jointly over an extended period. A legal tussle can be highly damaging for internal relations within the network. The covenant therefore appeals to social rather than legal sanction mechanisms. The most important incentive for the parties to abide by the agreements was provided by their reputation and the risk that they would otherwise no longer be involved in future agreements [26] [27]. According to the secretary of the regional committee, the aim was accordingly to encourage the various parties to stick to the agreements and the underlying principles. The extensive scope for participation built up a certain degree of internalization, thereby automatically making the parties more inclined to abide by the agreements.

The parties in a network are therefore able to commit themselves to agreements despite their differing interests since those agreements are reconstructed at various points and by differing actors and because the agreements are linked up by means of a covenant. In this way diversity and unity are simultaneously created. Autonomy and solidarity within a network do not therefore constitute a dichotomy of individuality versus uniformity. Actors do not have to subsume themselves in the interests of solidarity, instead, seeking opportunities to preserve their individuality wherever possible. Under the regional vision this has taken place by means of extensive feedback to the grassroots, usually by defining general underlying principles (such as approving the continuity of care) and subsequently converting these into practice by the grassroots in the different decision-making rounds.

4.3 *Performance indicators*
In order to help shape the various decision-making rounds an attempt has also been made in our research region to set up performance indicators. The regional parties do however have difficulty in expressing their views on quality in indicator form, in that they need to define precisely just what it is they wish to achieve together. With so many different parties and so many different opinions this often proves impossible. In addition there is a problem of measurement: little data is at this stage available at regional level on such matters as the demand for and supply of care.

It was therefore decided in the research region first of all to designate general quality requirements at regional level which could then be worked up into performance indicators in concrete projects. The results are then reported to the Regional Committee. This has resolved a number of the observed problems: the regional agreements are now more focused, the results are now more clearly identified, at least for the projects, the knowledge and skills of the grassroots and administrators are mobilized and their autonomy is reconstructed. The use of performance indicators can therefore be a suitable steering instrument when combined with a phased decision-making process, as in the case of multi-sided instruments.

4.4 *Communicative instruments*

Communicative instruments are used in our research region in various ways. A newsletter is for example frequently issued in order to keep the grassroots informed on new plans and progress. In addition a good deal of information is gathered in order to obtain as objective picture as possible of the situation in the region.

In the case the government steering, communicative instruments are used in particular in order to influence intentions or increase knowledge, so that actors will change their behaviour [9]. In the case of self-steering, however, this instrument is primarily used in order to encourage a shared approach towards the subject. In practice this instrument is only effective if the information is consistent with the frame of reference of the recipient(s). If the grassroots need for example to be mobilized the information offered will need to be consistent with their perceptions; otherwise it will not get across or even be taken on board. Respondents observe for example that the general underlying principles of the regional vision have no resonance whatever among those administering projects, who are much more interested in concrete action points, whereas many managers regard the underlying principles as an interesting basis for working out their strategic policy. Objective information is, in brief, only effective as a communicative instrument if it is not too far removed from each individual party.

Our research did however reveal that the requirements with respect to the validity and reliability of information vary considerably according to how controversial the

decision is. If there is a good deal of agreement at the outset concerning a decision, little if any attention is paid to the validity and reliability of the available information. As soon as a decision becomes controversial, however, opponents often find it easy to portray information as invalid or unreliable when assessed in terms of rigorous scientific requirements. This applies especially in the case of health care, a sector in which there is a strong scientific tradition, one example being the use of clinical trials. The norms of that tradition are firmly embedded in the sector and so constitute a widely shared frame of reference that can be invoked with considerable cogency. This approach does, however, impose such strict requirements that it can be very difficult to obtain information within a reasonable period and at reasonable cost. When using this instrument the parties will, accordingly, need to talk specifically about these norms and to reach a consensus on less strict norms concerning the validity and reliability of information.

4.5 *Incentives*

Finally we have seen cautious efforts in our research region to make use of incentives in order to steer the network. The policy officers and the chairperson have explored the idea of jointly releasing funds for the Regional Committee. Ultimately they decided against doing so, on the basis that deciding on the percentage that each participant would need to contribute would prove too contentious.

The care insurer on the Regional Committee does however manage financial resources for encouraging innovative health-care projects. These financial resources may be regarded as incentives, i.e. as a behavioural inducement that is not coercive [9], because the actors are at liberty not to respond to it. Care-providers with a good proposal are able to draw on these funds. In 1996 it was decided in consultation in the Regional Committee only to support projects that were consistent with the framework laid down in the regional vision. To this end criteria derived from the regional vision were discussed and adopted in the Regional Committee. The parties in the network and their grassroots then came up with proposals of their own.

5. DISCUSSION

Our analysis reveals that the parties in a network can make use of various instruments for the collective steering of care provision in a region. As a starting point, these instruments can be effectively categorized on the basis of the classification used by de Bruin and Ten Heuvelhof for government steering instruments [9]. These authors draw a distinction between person-based instruments, multi-sided instruments, incentives, communicative instruments and performance indicators [9]. However, because the instruments are employed *collectively* by the actors in the case of self-steering they are dealt with differently. In the case of *collective* steering the preservation of autonomy and relative influence is highly important. The deployment of the steering instruments is not in fact effective until there is a reconstruction of the parties' autonomy and of the balance of power within the network. In order to preserve autonomy in the case of collective decision-making, not one decision but a series of staged and linked decisions are taken when it comes to the deployment of multi-sided instruments, incentives and performance indicators. Powerful parties also have more influence in this process. An independent chairperson of the network will for example need to assign greater weight to the opinion of a relatively powerful party in practice than to that of a less powerful party if joint decisions are to be taken. Whereas the deployment of a person-based instrument by the government creates a dual frame of reference for the steering agent, namely that of the government and that of the actor to be steered, this agent will be subject to numerous frames of reference in the case of self-steering. For effective steering the actor's division of loyalty will therefore need to reflect the balance of power.

Now that the various steering instruments have been placed side by side it is notable that the instruments also complement one another. The deployment of *multi-sided instruments* induces the parties to be decision-minded. *Communicative instruments* help the parties to arrive at a common stance more quickly and also to create support among the grassroots. Incentives and performance indicators can play an important role in the implementation of the agreements. *Incentives* encourage the grassroots to reach agreements themselves and also to abide by them. The introduction of *performance indicators* enables the results of these agreements to be identified and it

becomes possible to stick to a single line in the various decision-making rounds. Performance indicators also enable the party to learn jointly from experience.

A precondition for the effectiveness of all these instruments is an effective interaction process. The deployment of a *person-based instrument* is therefore necessary as this can be aimed specifically at process mediation. In addition the parties in the network will be disinclined to correct one another explicitly when agreements are not observed, as the parties will often not wish to place mutual relations under pressure, except where they have a particularly pronounced self-interest in the agreement in question or bear explicit responsibility. A chairperson bears such responsibility. He or she can act on behalf of all the parties and will therefore be less apt to endanger the mutual relations if he or she draws the parties' attention to the agreements reached. All in all the combined input of the instruments can lead to more effective steering.

Now that we have analyzed the entire process it is notable that collective steering in a large regional network is highly complex and a matter for the long haul. While it is possible jointly to shape the provision at regional level this is by no means always efficient. On top of that there are also many issues at stake. It would therefore appear advisable for agreements to be reached at a lower level, in local, smaller networks, based around specific topics, so that fewer actors are involved and decision-making can be speeded up. Another difficulty concerning the coordination of health care bodies in networks is that decisions will not be taken that are not in the interests of the majority of the parties. In addition decisions are the outcome of compromise, meaning that radical changes will not be made quickly [6].

NOTE

[1] The basic principle is that a performance indicator consists of an indicator, a standard or target value and often also of a measurement instrument. In this regard an indicator is defined as a measurable fact that throws light on the intended result. The standard or target value specifies the quantitative value being pursued. In addition a measurement instrument will often be required in order to determine the value of the indicator. This may involve no more than the straightforward recording of data, but in some cases questionnaires or even electronic measuring instruments will be required [28].

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Chapter 3

Coordination between caregivers from different organizations: more continuity, better results

Jeroen van Wijngaarden, Wilma Scholte op Reimer, Job van Excel, Niek Klazinga & Robbert Huijsman

1. INTRODUCTION

Redesigning care processes has been high on the agenda in Dutch health care since the mid-1990s [1], since various evaluation studies have shown that better coordination of care also leads to better health outcomes [2] [3] [4]. As a result of the ageing population and the rise in the number of chronically ill patients, there is an increasing need in the Netherlands for well-coordinated health care services. This paper contributes to this by identifying the success factors in the chain approach.

Stroke patients form a group for which international research has shown that there are health benefits to be gained through better coordination [5] [6] [7]. In a CVA (cerebrovascular accident, or stroke), patients suffer a sudden blockage in a blood vessel in the brain, or a sudden rupture of a blood vessel in the brain. A CVA may manifest itself through paralysis on one side of the body and speech impediments. It is a major cause of death in the Netherlands and is also one of the most debilitating conditions, causing many CVA patients to be dependent on care for the rest of their lives. Every year in the Netherlands about 30,000 people suffer a stroke. In terms of the disease burden and the cost of care it is one of the most significant diseases. Until recently however, CVA care was fragmented, with CVA patients not receiving optimum care and often lying in an "expensive" hospital bed for a long time unnecessarily [8]. Health organizations want to change that through the development of stroke services (CVA care chains).

Coordination around this patient group is a complex issue, because several professionals and organizations are involved, all with a great deal of autonomy. In the Dutch situation the general practitioner usually refers CVA patients to the hospital for diagnosis and treatment. After the acute phase (the first two weeks) patients can (ideally) move from the hospital to a nursing home or rehabilitation centre for convalescence [8], after which some of them can return home, supported, if necessary, with home care, or they may go to a home for the elderly, but a substantial proportion will have to remain in the nursing home for the rest of their lives. The care for CVA patients calls not only for these institutions to be linked, but particularly for links to be established between the numerous caregivers involved, such as

general practitioners, nurses, carers, neurologists, psychologists/neuropsychologists, occupational therapists, physiotherapists, speech therapists, rehabilitation specialists, nursing home doctors, dieticians and social workers.

In this paper we first analyze whether the development of coordinated care ("chain care") also leads to better results in the Netherlands. Next, we are particularly interested in the mechanisms which provide for better coordination and thus contribute to better results. We have therefore carried out an evaluation study in five regions in which attempts have been made in various ways to provide more effectively coordinated care services. The regions were also compared with a region in which nothing has changed and partly compared with the results of a similar study in a historical cohort from 1993. The following research questions were central to the study:

1. What types of coordination mechanisms are used in the organization of a stroke service and what differences and similarities can be observed between the regions studied?

2. To what extent do these changes in the organization of health care lead to better results in terms of continuity of care, length of hospital stay, health benefits and cost, and what differences are there between the regions?

3. What types of coordination mechanisms have been found and under what conditions to contribute to better results in terms of continuity of care, length of hospital stay, health benefits and cost?

First of all we elaborate on the central concepts, i.e. the care chain and coordination mechanisms; we then turn to the methods, followed by the results and analysis and, finally, the discussion.

2. CARE CHAINS

The chain concept originated in business and is used to refer to a production process in which several organizations are involved successively and the production is tailored to the customer's demand. *A chain links the processes needed for the production and supply of products and services according to the demands of the customer* [10].

The coordination of care around a number of patient groups also calls for a chain approach, because they have to deal successively with various caregivers and institutions. Shortell refers here to clinical integration: *the extent to which services are coordinated across people, functions, activities and sites over time so as to maximize the value of care delivered to patients* [11]. CVA patients are the first group for which a chain approach has been used in the Netherlands. The CVA chain or stroke service is defined by the Netherlands Heart Foundation as follows:

a regional care chain of caregivers who jointly as a network guarantee integrated, professional and coherent care and treatment for CVA patients at all stages of the illness. The members of the network jointly bear the responsibility for the efficient transfer of patients between services and the quality of the chain as a whole [12].

Achieving continuity in the care process is central to a chain approach. The aim is for the right patient to receive the right care at the right time and in the right place. In effect, it therefore revolves around three themes: patient logistics, information logistics and coordination of care content. Patient logistics refers to the organization of patient transfers between caregivers and institutions, so that the right patient is in the right place at the right time. However, in order to be able to provide the right care, caregivers also need the right information from each other in time about the course of the patient's illness (for example, patient characteristics, diagnosis, previous treatment). The organization of this transfer of information is referred to as information logistics. In order to achieve continuity in care in practice, the contents of the care provided will also have to be coordinated between caregivers: coordination of care content.

The expectation of our research regions, partly based on international research [5], is that better continuity will lead to a number of positive outcomes. Firstly, shorter hospital stays, because improved patient logistics will mean that patients will no longer have to wait so long to be transferred to a follow-up institution. This may also lead to a reduction in the cost of the entire care provision for CVA patients, because hospital care is more expensive than care provided by other organizations in the chain. Finally, health benefits are expected in terms of a better quality of life and fewer disabilities among CVA patients.

3. COORDINATION MECHANISMS

In order to achieve continuity of care the coordination will have to be improved. The concept of coordination is defined differently by academics from various fields with differing perspectives. However, coordination always has some connection with dependence and links. Parts of a machine or computer, people or organizations are for one reason or another dependent on each other to achieve results. Links are therefore established between these actors, parts and subsystems [13]. One of the basic principles of coordination is that it contributes to the prevention of duplicated work, waste and fragmentation [14]. The following definition of coordination is therefore used in this study: *the management of interdependencies between actors.* Taking this definition as the departure point, coordination can take place by reducing the interdependence or by employing mechanisms so as to enable coordination between actors. In addition, the social sciences literature describes many different coordination mechanisms [15] [16] [17] [18] [19] [20], but Mintzberg's classification is in our opinion the clearest [21]. In view of the phenomenon we are studying, we have added a few aspects to his classification. Mintzberg also employs a management perspective in which he looks at coordination in a somewhat hierarchical way. We stress that various coordination mechanisms can also be introduced and used in a non-hierarchical (lateral) way. Moreover, we find that, in addition to formal forms of coordination, there are also informal forms. We therefore distinguish two continua: hierarchical versus lateral and formal versus informal coordination. In hierarchical coordination, coordination is imposed by one of the actors. In lateral forms, there is coordination among equals. Formal coordination, unlike informal coordination, is based on official, structured agreements. Combining the two continua results in four possible coordination approaches (see Figure 1).

Now that coordination has been characterized in detail, the coordination mechanisms will be explained. Following Mintzberg these mechanisms are distinguished respectively: task assignment, (direct) supervision, standardization and mutual or lateral adjustment.

The interdependencies are reduced by means of ***task assignment*** [21]. Several activities are brought under one actor, as a result of which the dependency on the other
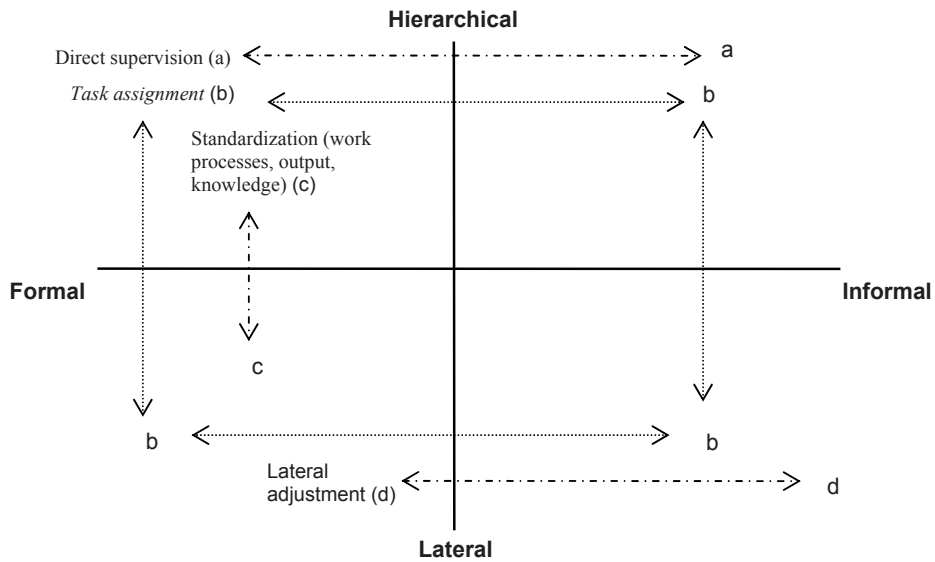
Figure 1: coordination mechanisms in a diagram

actors is reduced. Task assignment can be established hierarchically, but can also come about through mutual consultation (lateral), and can be informal or formal in nature. In ***direct supervision***, 'coordination is established as a result of a person's assuming responsibility for the work of others, giving them instructions and monitoring the performance of the work' [21]. In principle, this mechanism can be put into practice either formally or more informally, in the form of informal leadership, and can therefore fall under two of our quadrants (see Figure 1). In addition, Mintzberg distinguishes three forms of ***standardization*** as coordination mechanisms. Firstly, *standardization of the work process*, which involves specifying or programming the content of the work. Secondly, *standardization of output,* which involves recording the results, but following which the input can also be standardized. Depending on the results of their work, suppliers then know to which party in the chain they can supply. Finally, Mintzberg distinguishes *standardization of knowledge and skills,* which means that in a training course prior to the work people are familiarized with their own role and the division of roles, as a result of which coordination occurs almost automatically. These three forms of standardization are all formal in nature, but can be deployed both hierarchically or in mutual coordination (lateral) and therefore also fall under two quadrants. As a final mechanism, Mintzberg distinguishes mutual adjustment. According to his definition this means coordination by means of the

"simple" process of informal communication. This mechanism accordingly only falls under one of our quadrants - informal/lateral – and therefore, in our view, mistakenly ignores a number of variants. Other authors argue that lateral adjustment means lateral forms of communication [15], also called a 'group mode' of coordination [19], in which actors achieve coordination through mutual consultation. In addition, they distinguish both informal and more formal forms, from informal communication through the creation of teams and the establishment of formal communication times to the appointment of liaison officers [22]. We sum this up by the concept of **lateral adjustment.**

4.   METHODS

The model used in this study is shown in table 1.

Table 1: Research model

Coordination →	Continuity in the care process →	Outcomes
Task assignment	Patient logistics	Cost
Direct supervision	Information logistics	Length of hospital stay
Standardization	Coordination of care content	Quality of life
Work process		Disability
Input/output		
Knowledge and skills		
Lateral adjustment		

The assumption is that better coordination through the introduction of certain co-ordination mechanisms will lead to greater continuity in the care process, which will ultimately lead to better outcomes. The study was carried out in six regions (Delft, Haarlem, Nijmegen, Hilversum, Amsterdam West, Leiderdorp), in five of which (not in Leiderdorp) there had been various interventions in order to improve CVA care. For the study into the length of hospital stay, the results were also compared with an earlier study from 1993 (a historical cohort), before there had been any interventions in the Netherlands [9].

Research question 1: Coordination mechanisms in the chain

In order to list the coordination mechanisms that are used to improve the continuity of care in the different regions, documents were analyzed (meeting papers, project proposals, reports), meetings were attended and interviews were conducted with representatives from the various occupational groups in all participating organizations. Using this data, the regions were awarded scores on the use of the various coordination mechanisms. These scores were then submitted to the various researchers who were involved in the monographs in the research regions. Based on their comments, the scores were adjusted, where necessary, and finally fixed.

Research question 2: Continuity of care, bed blocking, health benefits and cost

In order to determine whether the changes in the research regions have actually led to better continuity in the care process, a survey was conducted after the interventions (see Table 1) among all occupational groups involved in all participating organizations in all six regions. The survey asked the groups how they evaluated the current transfer of information (information logistics), patient transfer (patient logistics) and the coordination of care content. It then asked whether there had been improvements in these areas as a result of the interventions. In order to limit the number of questions, it was decided to ask only the hospital and the nursing home staff for their opinion of the current coordination of care content between these two institutions. A total of 497 surveys were distributed (response = 226, 45%). The non-response analysis showed that no groups of caregivers or institutions were structurally underrepresented. The non-response was shown to be caused by a sometimes rather poor distribution of the surveys within institutions and a lack of time among caregivers. Thus, there is no reason to doubt the representativeness of this sample.

It was also recorded how long patients were rightly or wrongly in hospital. For 598 patients spread across the regions it was recorded how long they stayed in hospital and from what point it was established by the doctors that patients were in hospital for a non-medical reason, because they were waiting to be transferred to follow-up care (at home supported by home care or in an institution). The survey then looked at what the quality of life of patients was six months after the CVA and to what extent they were disabled [23]. Finally, the average cost of the care per patient was

Table 2: Research methods

	N	Areas	Measuring tool	Analysis technique
Continuity	226 (45% response)	Information logistics Coordination of care content Patient logistics	Survey (not validated)	One-way analysis of variance with a LSD test p.05
Length of hospital stay	598 Historical cohort 154	Reasons for hospital stay: 1) medical reasons 2) waiting	Score list drawn up by Van Straten [25]	Multiple linear and logistic regression analysis p0.1
Health benefits	598	Quality of life Disability	EuroQol 5D Ranking scale	Logistic regression analysis (95% confidence interval)
Cost	598	Direct costs Coordination costs	Cost centre method [26]	One-way analysis of variance with a LSD test p.05

determined, taking into account both the direct medical costs and the indirect costs of consultation and coordination [24]. The constraint that no zero measurement was possible was to a large extent overcome by comparing the results of the effects study from the regions with a stroke service against those from a region in which there were no interventions (Leiderdorp). For the length of hospital stay, a comparison was also made with figures from an earlier study from 1993, in which 154 patients were followed [9]. Furthermore, caregivers were also asked in the survey whether they had also seen an improvement compared with the former situation.

Research question 3: the effect of coordination
In order to determine which type of coordination mechanism contributes to better results, the results of research questions 1 and 2 were compared. In addition, the differences and similarities from the best scoring regions were together compared and contrasted with those from the lower scoring regions.

5.   RESULTS AND ANALYSIS

5.1 *Research question 1: Coordination mechanisms in the stroke service*

Table 2 shows to what extent the regions employ different coordination mechanisms in order to improve the continuity of care for CVA patients.

Table 3: The use of coordination mechanisms in different chains

	Delft	Nijmegen	Haarlem	Hilversum	Amsterdam	Leiderdorp
Task assignment	++	0	0	++	+	–
Direct supervision	–	–	–	–	–	+
Standardization						
• Work process	+	+	0	0	-	–
• Output or input	0	0	0	0	0	–
• Knowledge and skills	+	+	0	0	+	0
Lateral adjustment	++	0	0	++	++	–

–   a mechanism is not used or is hardly used

0   limited use

+   is used

++ used a lot

Box 1 contains a description of the regional profiles.

Box 1:   Regional profiles

Delft

In Delft one hospital, one of the region's three nursing homes, one home care organization and one rehabilitation centre were involved in the care chain. Delft also has the most comprehensive stroke service of our research regions. Improvements have been made within and between all links in the chain. In addition, there has been a reassignment of tasks, under which in the hospital, in the nursing home and in home care, particular caregivers and teams of caregivers have been focusing specifically on care for CVA patients. Relatively speaking, there is a great deal of standardization. Particularly during the first three days in hospital, the work process is standardized. In addition, admission criteria in hospital and in the nursing home have been made more explicit (standardization of input) and standard transfer forms have been developed for all caregivers. There is also some standardization of knowledge and skills taking place for nursing by making a single treatment concept (NDT) central, in which all nurses in the hospital, nursing home and home care must be trained. The bringing into line of language and treatment approach enables nurses to coordinate better with each other. A lot of attention is paid to lateral adjustment in this region, particularly within the hospital and the nursing home through the introduction of a multidisciplinary CVA team, which also holds weekly consultations. In addition, a liaison point has been set up in the persons of three transmural CVA nurses who maintain contact between the hospital, nursing home and home

care, and also participate in all multidisciplinary consultations there (they do not go into the rehabilitation centre). Respondents also observe that establishing the stroke service has increased the informal contact between the organizations involved.

The role of direct supervision as a coordination mechanism has actually become less important as a result of the establishment of the stroke service. Whereas in the past the doctors instructed nurses and called in paramedics, this now takes place based more on standards and by means of multidisciplinary consultation. This development is taking place in all research regions with the exception of Leiderdorp. In Delft and in Nijmegen a project leader has been added to the entire chain. However, the role of the project leader is mainly one of initiator and intermediary, with final decisions being made in consultation. Finally, an important characteristic of Delft is that sufficient capacity has been created on the basis of calculations for the initial care of all CVA patients in the nursing home, and that a priority arrangement applies to all CVA patients in home care.

Haarlem

Haarlem is a complex region with two hospital organizations in three locations, but with only one nursing home in the stroke service. This means that not all CVA patients who come out of hospital and who have been included by us have ended up in the improved care chain.

In Haarlem the initiative for the project lies particularly with this nursing home, with the nursing home doctor acting as project leader, but also with home care. It is also in these two organizations that the majority of changes have been implemented. During our study standardization was carried out mainly with respect to the care process in the nursing home, and the content and timeliness of the information transfer between the organizations. Lateral adjustment was promoted mainly within the nursing home, through the establishment of a CVA department with a specialist team, and between the nursing home and home care by developing joint rehabilitation care in the home. There was relatively less involvement from the hospital in the whole project.

Nijmegen

In Nijmegen there are actually two chains, in each case between one hospital and one nursing home, which have been set up in a similar way. In both chains only one home care organization and one rehabilitation centre are involved. In this region the emphasis is also to a large extent on improving the care in, and the link to, the nursing home, through standardization of the nursing transfer and, later, also the paramedical transfer. In addition, the focus is mainly on CVA patients who can be rehabilitated, not on CVA patients who will be chronically dependent on a nursing home. Extra beds have been created for them in the nursing homes.

In this region, there has been a great deal of standardization, although less than in Delft. During the inclusion period, work in the hospitals was carried out to a large extent according to national CVA guidelines, but was only partly protocolled, if at all, although further standardization of knowledge and skills is underway through a broad introduction of the NDT treatment concept.

Lateral adjustment had already occurred in the hospital through multidisciplinary consultation, but such consultation has now also been introduced in the nursing homes. In addition, separate CVA teams have been formed in the two nursing homes. Furthermore, there is now regular telephone contact between nurses in the nursing home and the hospital with regard to the referral of patients, and consultations are held with the neurologist (but not yet with the rehabilitation doctor) once every four weeks.

Finally, in this region a follow-up outpatients' department has been set up in both hospitals, which all CVA patients can visit within a few weeks of being discharged.

Amsterdam West

In Amsterdam West only one hospital and one nursing home have actually been involved in the changes in CVA care. There was no project leader. Moreover, only the first steps towards a chain had been taken at the time of this study. Only at the end of the inclusion period were protocols starting to be used in the hospital and transfer starting to be standardized. The emphasis in this region is on lateral links, both formal and informal, within and between the nursing home and the hospital. Within the nursing home, a separate department has been set up with a few beds where all CVA patients in need of a nursing home can be rehabilitated for up to 14 weeks. In this department, a team has been set up which meets in multidisciplinary consultation each week. Furthermore, there is multidisciplinary consultation in the hospital, which is also attended by the nursing home doctor, the social worker or the team leader from the nursing home. Thanks to these structures, the respondents feel that the informal contact between the hospital and the nursing home has also increased considerably.

Hilversum

Halfway through the inclusion period there were many changes in the Hilversum stroke service between one hospital and one of the two nursing homes. From that time, the number of beds was increased in the nursing home for CVA patients in need of a nursing home, with these patients receiving rehabilitation care for three months. Furthermore, different forms of standardization are taking place in, for example, hospital treatment and diagnosis during the first 72 hours, the transfer of information to the nursing home and the rehabilitation centre, and the NDT training for a number of nurses in the hospital and the nursing home. Lateral links between the hospital and the nursing home, in particular, were strengthened during this period. The social worker has a liaison function owing to the fact that she works in both institutions and keeps an eye on transfers. She also acts as project leader for the improvement of CVA care.

The nursing home doctor participates weekly in the multidisciplinary consultation in the hospital and once every two weeks the neurologist and the neurological nurses participate in the multidisciplinary consultation in the nursing home. Finally, for a time (due to shortages) a few paramedics also had a liaison function, since they treat patients both in the hospital and during the first few weeks in the nursing home. Thanks to these intensive links, the rehabilitation treatment which had started in the hospital was also immediately carried through in an almost identical way by the other paramedics in the nursing home.

Leiderdorp

At the time of inclusion, Leiderdorp was experiencing major problems and had not yet made a start on setting up a chain. In the hospital, the department was full of waiting CVA patients and a halt had therefore been called even for "difficult" CVA patients. There was hardly any standardization. Patients could be transferred from the hospital to three different nursing homes, with which there was relatively little contact. Lateral links were therefore limited, particularly between the organizations.

Results of research question 1

In the development of chain care for CVA patients in our research regions, a clear shift is taking place in the way in which coordination takes place. Whereas in the past

coordination was more hierarchical in nature, we are now seeing that it is becoming lateral. Direct supervision, in which the doctor traditionally decides what happens, is giving way to forms of lateral adjustment, with coordination taking place through mutual consultation with other disciplines, and also to forms of standardization, for example, of transfer, training and treatment. These standards (often protocols) are not imposed hierarchically, but rather are largely drawn up collectively by the disciplines (from several institutions). Furthermore, a reassignment of tasks is taking place, as a result of which the number of actors involved is reduced and less coordination is necessary. An example is that the chain often includes just one nursing home, with a single department specializing in CVA care.

There are distinct differences between our research regions. Delft, Hilversum and Amsterdam West all make great use of the task assignment and lateral adjustment mechanisms, in particular within and between the hospital and the nursing home. In Haarlem lateral adjustment is used mainly in the nursing home and between the nursing home and home care. In Nijmegen this mechanism is primarily employed within the institutions. In Delft and Nijmegen there is a great deal of standardization, in particular standardization of the work process and of knowledge and skills. Hilversum only started this process later in the inclusion period and Amsterdam only at the end. In Haarlem, the transfer of information in the chain has been standardized, but standardization takes place mainly within the nursing home.

5.2 *Research question 2: Continuity, bed blocking, health benefits and cost*

Continuity
Table 4 gives the scores for each region for the different aspects of continuity.

Delft scores better than the other regions in most areas. Only in terms of the coordination of care content have the staff from the rehabilitation centre, in particular, not seen any major improvements, as a result of which Delft scores rather lower than the other regions in this area. Hilversum also scores well in many areas. The caregivers in Amsterdam, Hilversum and Delft think that the changes have led to a clear improvement in patient logistics in terms of the speed at which the diagnosis, therapy and treatment are started and patients are moved between institutions. The

Table 4: Results of caregiver survey on continuity

	Delft (a)	Haarlem (b)	Nijmegen (c)	Hilversum (d)	Amsterdam (e)	Leiderd. (f)	F Group	N
Good patient logistics	2.2[bcef]	2.9[adc]	2.6[abd]	2.3[bcef]	2.8[ad]	2.9[ad]	7,192	197
Patient logistics improved	1.4[bc]	2.1[ade]	1.8[ade]	1.3[bc]	1.4[bc]		10,186	181
Good information logistics	1.2	1.2	1.2	1.2	1.3		171	180
Information logistics improved	1.6	1.8	1.8	1.7	1.8		1,245	162
Good coordination of care content between hospital and nursing home	1.4[bcf]	2.2[a]	2[a]	1.8	1.9	2.6[a]	2,981	107
	1.8	2	1.7	1.7[f]	2	2.4[d]	1,209	59
Coordination of care content has improved	1.7	1.8[d]	1.6	1.4[b]	1.6		1,553	174

- The lower the average score per subject (subjects are not mutually comparable on this), the better the result of the region concerned.
- Above the average scores for each region a letter is used to indicate with which regions it differs significantly ($<p.05$).
- There are two scores for the coordination of care content between the hospital and the nursing home. The first score is the opinion of the caregivers in the hospital, and the second score is that of the caregivers in the nursing home.
- Only a few questions were put to the caregivers in Leiderdorp, because no changes have yet been implemented there.

caregivers in Haarlem and Leiderdorp are the most critical of patient logistics and the coordination of care between the hospital and the nursing home. In Nijmegen there was particular criticism of patient logistics.

In all regions most caregivers do in fact have a positive opinion of the coordination of care content between the hospital and the nursing home, and particularly of the transfer of information, but only in Hilversum and Delft do a majority of caregivers also have a positive view of patient logistics. If we look at the effect of the interventions in these areas, we find that more than 70% of the respondents think in each case that patient logistics has improved slightly as a result of these interventions. In Delft, Hilversum and Amsterdam the figure is even higher than 95%. Information logistics has in each case improved, according to more than 20% (in Delft 40%, Hilversum 33%). Coordination of care content has improved according to more than 76%. It

should be noted that the questions on the improvement of information logistics were aimed directly at the personal experiences of the respondent, whereas the questions on the improvement of patient logistics and coordination of care content were formulated more generally for the chain, which may partly explain the differences in scores.

Cost and quality of care

Table 5 gives the regions' scores on admission length and waiting days in hospital, average cost of the care provided per patient, and the relative chance of a favorable outcome in terms of quality of life and disability.

The table shows that, on average, it is in Delft that patients spend the least time in hospital. This is thanks, in particular, to the fact that the number of days that they have to wait to move on to follow-up care is relatively short. Only 5% of the total number of days spent in hospital are waiting days, whereas in the other regions it is

Table 5: Length of hospital stay, health benefits and cost [23] [24] [27]

	Delft (a) n=151	Haarlem (b) n=111	Nijmegen (c) n=149	Hilversum (d) n=94	Amsterdam (e) n=73	Leiderd (f) n=20	Historical Cohort n=154
Admission time in hospital	median 11	median 21	median 21	median 18	median 14	median 35	median 20
	min-max (1-86)	min-max (0-193)	min-max (0-182)	min-max (0-178)	min-max (0-182)	min-max (0-182)	min-max (1-138)
% waiting days	5	40	38	28	23	80	36
EuroQol[1] OR (95%)	4.4[f] (2.4-7.2)	1 (0.2-3.4)	1.1 (0.4-3.8)	3.1[f] (2.0-7.9)	1.6 (0.8-4.1)	1	
Disability[2] OR (95%)	3.2[f] (1.8-5.0)	0.7 (0.3-1.1)	1.9 (0.4-4.2)	3.2[f] (1.9-7.1)	1.0 (0.2-3.9)	1	
Cost[3]	13164[bc]	16786[acd]	20232[abde]	12508[bc]	14870[c]	16071	

1. Gives the chance of a favorable outcome per patient in the region concerned, on a score which measures quality of life in comparison with a patient in the Leiderdorp region. The higher the score the better.
2. Ditto for disability.
3. Average cost per patient in euros. Above the average scores for each region a letter is used to indicate with which regions it differs significantly (<p.05).

more than 20%, and in Leiderdorp it is as high as 80%. Patients in Hilversum and Delft also spend on average less time in hospital than in the historical cohort and the percentage of waiting days is lower. With a median of 21, Haarlem and Nijmegen score rather lower than the historical cohort and the percentage of waiting days is also higher. They do however score higher than Leiderdorp, where patients often have to wait a long time to be transferred.

Both on the EuroQol (quality of life) and on the score for disability, the chances of a patient having a positive score are significantly better in Hilversum and Delft than in Leiderdorp. For the other regions there are no significant differences compared with Leiderdorp.

The cost of the total care provided to CVA patients is on average lowest in Hilversum, followed by Delft and Amsterdam (see Table 4), although the differences between these regions are not significant. The care in these regions is on average cheaper than in Leiderdorp, where no changes have been implemented. However, the difference is not significant, because the number of observations in Leiderdorp was too small (n=20). Both Delft and Hilversum differ significantly from Haarlem and Nijmegen. The difference between Amsterdam and Nijmegen is also significant, because Nijmegen is the most expensive region.

Results of research question 2
We conclude that better results can also be achieved in the Netherlands by setting up a stroke service (CVA care chain), but that not every approach leads to positive results. Only in the Delft and Hilversum regions have substantially better results been achieved in terms of health benefits, length of hospital stay (particularly Delft) and cost.

5.3 *Research question 3: the effect of coordination*
In order to answer research question 3, the characteristics of Delft and Hilversum (based on research question 1) were compared with those of the other regions.

Results of research question 3

A major similarity between Delft and Hilversum is that they have made substantial improvements to the links within and between the hospital and nursing home. Unlike Haarlem and Nijmegen (and obviously Leiderdorp), they have concentrated on all CVA patients who are transferred to nursing homes. Following a reassignment of tasks, all these patients move from the hospital to a specialist department in the nursing home, where they receive the first-phase rehabilitation care. The lines between caregivers within and between the hospital and the nursing home are very short, thanks to the introduction of lateral adjustment as a coordination mechanism in the form of multidisciplinary consultation and liaison points. This means that patients are referred quickly. Although a similar approach has been adopted in Amsterdam West, this region still scores markedly lower than Delft and Hilversum. The difference with Hilversum and Delft is that there was still hardly any protocolled care in Amsterdam during the inclusion period. In Delft and (somewhat later in the inclusion period) also in Hilversum the work processes in the hospital and the nursing home were standardized. In both regions, certainly during the first three days following the CVA, the care follows a strict protocol. The similarity between Delft and Hilversum is therefore that, particularly along the line between the hospital and the nursing home, they employ a combination of three mechanisms to improve coordination: task assignment, standardization of work processes and lateral adjustment. This approach has led to greater continuity in the care provided to CVA patients (better information logistics, better patient logistics, better coordination of care content) and, ultimately, to better results in terms of the length of hospital stay, health benefits and cost.

6. DISCUSSION

Our study makes clear that, when it comes to coordination, CVA chains deliver better results through a combined use of task assignment, lateral adjustment and standardization of work processes. In our view, lateral adjustment, in particular, is a strong coordination mechanism. In addition, changes in the assignment of tasks play a facilitating role by reducing the number of actors involved. This makes it easier to

arrange direct contact between the remaining participants. The additional importance of standardization seems to be that a number of crucial tasks become so routine that they no longer require any consultation. The consultation can therefore concentrate on the variable aspects of the care process.

So what makes lateral adjustment such an effective mechanism? In our opinion, this is connected with two characteristics of a care chain: the non-hierarchical nature, thanks to the participation of relatively autonomous organizations and professionals, and the interdependence of the participants [28] [29]. The non-hierarchical nature means that the responsibility for coordination is placed on the individual caregivers. Thanks to direct contact between caregivers more permanent attention is paid to coordination, even at the times when they do not see each other, since they are regularly reminded of the need for it by each other. Furthermore, coordination now no longer takes place with an unknown person, but with someone with whom there is a lot of contact, which means that coordination assumes a personal slant. Thus, there is less of a barrier to seeking contact even outside the formal coordination times so as to enable problems to be solved quickly. This is shown by the following quotation from a neurologist from Delft:

It is important that people know each other. If our hospital is overflowing with patients, we just get on the telephone and ask the people in home care or in the nursing home if they can perhaps free up a place somewhere. You could not do that so quickly if you did not know the people. People therefore have to meet in consultation regularly (neurologist, Delft).

The dependence in the chain appears on the face of it to be serial: one caregiver transfers the patient to another. Task assignment, standardization and, possibly, direct supervision would then suffice as coordination mechanisms [30]. However, due to the complexity, changeability and sometimes unpredictable nature of the illness, the dependence is in actual fact mutual, which makes extra coordination mechanisms, such as direct contact, necessary. The complexity of the illness (as with many illnesses for which a chain approach is adopted) means that knowledge and skills are spread across various professionals and organizations, while the care in the chain must be delivered in the most integrated way and with the least interruption possible. For many CVA patients the course of their illness is reasonably predictable, but

the relevant patient characteristics vary considerably and there are also patients the course of whose illness is unpredictable. Direct contact is therefore crucial to ensure an optimum exchange of information between caregivers. The transfer of information by means of standard forms, for example, is firstly one-way communication: the sender gives information to the receiver. In direct contact, information can also be given back: for example, has enough written information been transferred? Has the right patient been transferred in the right way and how is the patient progressing? In this way, the sender can also reflect upon his or her own actions and possibly make improvements. In addition, it is not only information which is exchanged in direct contact, but also knowledge. In this way, caregivers learn to look at the patient's care needs in a more integrated way and they are better able to involve other caregivers at the right moment. Finally, lateral adjustment is an extremely flexible mechanism, which makes it possible to respond to changing conditions. These factors ensure that lateral adjustment is *the* mechanism for forming an effective chain not only for CVA patients, but probably also for other patient groups.

This analysis does not claim to provide a development plan for a chain, since further aspects come into play, such as financing and management. However, we have identified the mechanisms which can help to create continuity in the care process. We can also learn something about the development of chains from this analysis. In the area of integrated care many articles were published in American non-academic management journals during the 1990s, which stressed the need for autonomous health care organizations to be merged into a single, large health care organization [31], as this would lead to better coordinated, more efficient and more effective provision. Encouraged by such articles, large regional health care organizations (HMOs) were established, mainly in America. More recent publications, however, have shown the negative side of such a large-scale integration process. Change has been found to involve a great deal of pain and difficulty through the resistance of the organizations, suborganizations and professionals involved, who want to maintain their autonomy. Many integration efforts fail as a result and, even if integration is successful, the process is extremely costly and by no means leads to the desired results every time [31] [32]. In addition, it is striking that the existence of various organizations seems to be viewed as a weakness in health care, whereas in business, the increasing size

of organizations is viewed negatively because it leads to rigidity [33]. Our study shows that, with the introduction of simple coordination mechanisms, a relatively loose body of organizations and caregivers can be turned into a flexible self-guiding network, in which the actors largely maintain their autonomy, the continuity of care is improved and the patient is better off.

The results of this study must be interpreted with a degree of caution. Inherent in this type of research is that no randomization was possible, with regard either to the regions or the patients, although in terms of the health benefits, adjustments were made for a number of characteristics (age, gender, ADL on admission). Secondly, the study took place unblinded; the caregivers and managers involved were aware of the study. This may have affected the result favorably, particularly in the regions where there was intervention. Furthermore, the number of regions is limited. The advantage of this, however, is that the regions could be portrayed in great detail and also from several angles. The soundness of this study lies particularly in the consistency between the various research results (Delft and Hilversum did better in almost every area) and in the theoretical basis which has been set out in this discussion. We can not make any claims of generalizability (n=6) on statistical grounds with regard to the main conclusion, either for other regions or for other clinical pictures. We do think, however, that a claim of generalizability can be made on logical analytical grounds. The explanation for the results is not to be found in the characteristics of the clinical picture or in those of a specific region but, in particular, in the fact that a chain is a network of relatively autonomous caregivers and organizations, which are dependent on each other for providing good care. These characteristics also apply to other regions and to chains for other clinical pictures. We therefore believe that the conclusions drawn from this study are also highly relevant to other chains.

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Chapter 4

Learning to cross boundaries: The integration of a health network to deliver seamless care

Jeroen D.H. van Wijngaarden, Antoinette A. de Bont & Robbert Huijsman

1. INTRODUCTION

Better coordinated care, it is widely acknowledged, leads to more efficient and effective care [1] [2] [3] [4]. Health care, however is characterised by an enormous high level of differentiation (between professionals, units, organisations) and a low level of integration. To be able to deliver more efficient and more effective care either differentiation has to be reduced or integration increased [5]. 'Since differentiation (*specialisation*) is not only the very essence of this system, but also a source of its great strength, it is the level of integration that shall have to be increased' [5]. Integration of care can be seen as an organisational process that seeks to achieve seamless and coordinated care, tailored to the patient's needs, and based on a holistic view of the patient [6].

In the United States large regional care organisations, called Health Maintenance Organisations (HMO), have been founded to be able to deliver integrated care. Potential benefits are reductions in cost because of economy of scale, and better coordination because all professionals and processes are part of one system. However, According to Burns and Pauly, who studied these integration processes, 'integrated care structures rarely integrated the actual delivery of patient care' [7] In many Health Maintenance Organisations only structures are integrated, the processes and professionals are not better aligned. It seems that these structures are not able to fundamentally change the practice of professionals and the way in which they collaborate [7] [8]. But in many countries there are now successful examples of integrated care, where professionals still work in separate organisations [1]. These integrated care networks are able to coordinate care services across people, functions, activities and sites over time [9].

So, instead of taking a management perspective and looking at structures as many authors do (for example [5] [9]), we should focus on the health professionals, to see how they are stimulated to change their practice and collaborate. For this paper we analysed the development of such an integrated care network for stroke patients in the Netherlands in which professionals from different organisations were able to improve coordination and deliver more seamless and continuous care.

According to Anthony [10], who analysed the referral relationships in the US between the primary care provider and other providers, direct communication between health professionals improves integration of care. These professionals give each other more information and conform better to established rules and norms (structures) between them. Direct communication is stimulated by the existence of informal relationships between health professionals, says Anthony [10]. According to Cott [11] such informal relationships are based on proximity. Individuals are more likely to interact if they are situated close to each other (*physical proximity*), work on the same tasks (*task proximity*), in the same formal organisational unit (*formal, organisational created proximity*), already established social contacts with each other (*social proximity*), and have a similar professional background (*professional proximity*) (see also: Farris [12]). Relevant for the latter are similarity of techniques, values, mental images, status and jargon [13]. The problem in establishing integrated networks, however, is that there are many boundaries between health professionals [1]. Direct communication between professionals is often lacking [5] [11] [14], because these professionals work in different organisations, on different locations, have different professional backgrounds (jargon, techniques, values, status), perform related but different tasks, and many of them have never even met. So, how are health professionals able to look beyond the boundaries of their own profession and organisation and establish an integrated network for the delivery of a continuum of care?

To answer this question we analysed the development in the Netherlands of an integrated network for stroke patients, called stroke service. Our case study is a stroke service in a specific region in the Netherlands. The Dutch government gave this region a grant to experiment with the development of a stroke service. The aim was to see if the same positive results that were generated in other countries by reorganizing stroke care could also be reached under the specific conditions in the Dutch Health Care organisations. We were asked to evaluate the process [15].

We focus our analysis on one specific intervention, namely the development of transfer criteria for the referral of patients from the hospital to two newly developed rehabilitation units in two nursing homes. This specific intervention is interesting because it is exemplary for integration of care. It is about crossing barriers between

professionals from different organisations, so the right patient is referred at the right moment to the right care provider. What makes this intervention even more relevant for our research is that many interests are involved. In our research case a conflict arose about the transfer criteria. The rehabilitation centre was namely afraid of losing clients to the new units. Although such an open conflict is unusual, as most conflicts remain hidden, it offered us the opportunity to study the direct social contacts between the professionals more easily, as the differences in tasks, interests and professional backgrounds were part of this conflict.

2. METHODS

We did a case study and used multi methods. Our case study is about the development of a stroke service in the Netherlands. Involved are two hospitals, two nursing homes a rehabilitation centre, and a home care organisation. The development of the stroke service took place in seven workgroups in which professionals from all participating organisations were represented. A project leader coordinated the project.

First, we analysed all the minutes from the two work groups involved in changing the referral process. Next, we interviewed all the health professionals that were a member of these workgroups. Also the managers (members of the project group) from the two participating hospitals, the two nursing homes and the rehabilitation centre were interviewed. Some of these managers and health professionals were interviewed twice; once at the beginning and once at the end of the project phase, which lasted two years (1999-2000). Futhermore, the project coordinator was interviewed twice, and we also had regular contact with him during the project. In total 24 interviews for this single case were done. All the interviews were audio taped and transcribed.

3. THEORETICAL FRAMEWORK

Network learning can be defined as the capacity or processes within a network to maintain or improve performance based on experience. Learning has to do with

the acquisition of knowledge (creating or developing skills and insights), with sharing knowledge and utilizing knowledge in a new context, or new situation [16]. In this article, we will study the development of an integrated network as a learning process. Learning is a relevant perspective for at least two reasons. First, learning is an important mechanism for changing the way professionals work [17]. As we said integration will only increase if professionals change their practice and collaborate. It is difficult for others (like managers) to change the work of professionals. Health care professionals have a lot of autonomy and are able to resist top down implementation of changes [18] [5] [19]. With learning as a change mechanism, professionals are able to give direction to the change process, which will stimulate acceptance and compliance. We therefore expect that learning plays an important part in the development of an integrated network. Second, from publications on integrated care we know that knowledge sharing, feedback and therefore learning also plays an important part in sustaining integrated care [1]. Especially so in a network, where tasks, competencies and goals of the professionals and organisations are changing in time [20]. Learning fits well with such a dynamic process.

In the literature on learning a distinction is made between single and double loop learning. Single loop learning can be described as "doing what we do better", it involves detecting and correcting problems without changing the underlying values. It is associated with incremental changes, not with big turnovers. Double loop learning is about 'reframing' the problem, looking at it from a different perspective, changing the underlying values [21] [22]. Building a stroke service in the Netherlands should be seen as a process of single loop learning. It involves 'building bridges' between professionals and organisations, not reframing the care process. Most health professionals and organisations still have the same domains and perform the same tasks; only the coordination between them is improved.

Another important distinction is between individual and collective learning. In contrast with individual learning, collective learning takes place through a dialogue between different members. Information about performance is diffused and experiences and results are discussed and collectively interpreted [22]. Collective or shared

interpretations become part of the structure (procedures, tasks, policy) or culture of the organization (or network).

In health care there is much emphasizes on what can be called explicit knowledge. It is the kind of knowledge that can be codified in protocols, rules and guidelines (structures). However, implicit (tacit) or personal knowledge is assumed to be as important as explicit, formal knowledge. This kind of knowledge comes with experience and is not always, and cannot always be made explicit [23] [24]. That is why learning also takes place through repetition and socialization; that is, by observation and imitation [25].

4. STROKE CARE IN THE NETHERLANDS

One of the problems hospitals in the Netherlands experience is bed blockage. Especially stroke patients stay too long in the hospital. Stroke patients should only have to stay in the hospital during the acute phase of the disease (up till 10 to 14 days at the most). However, the average period of stay in most Dutch hospitals is over 20 days. Some patients stay up till 12 months due to bed blockage. With an ageing population this problem can only get worse if no measures are taken. That is why in different regions hospitals contacted home care organisations, nursing homes and rehabilitation centres to improve referral for stroke patients by creating a stroke service [15].

In the Netherlands stroke patients are treated on a specialized neurology ward in a hospital (which is not the same as a stroke unit). Care on this ward is provided by neurologists, a nursing staff, physiotherapists, speech and language therapists, occupational therapists, rehabilitation physicians and (neuro) psychologists. Together the health professionals in the hospital operate as a multi-disciplinary team, which means they work parallel to each other and try to coordinate their activities [26]. The neurologists, who are in charge of the medical procedures, are usually not employed by the hospital but work as independent contractors. Rehabilitation physicians are mostly employed by the hospital. In some regions (like in our study case) they work both in the hospital and the rehabilitation centre, and are employed by the latter. That is why they are an important link between these two organisations.

A large group of patients go home after their (late) discharge and receive community care, or go to a home for the elderly. About 10%[1] of all stroke patients (mostly patients younger than 65) go to a rehabilitation centre, where they follow an intensive program on a specialized stroke rehabilitation unit, before they go home. This centre employs a nursing staff, physiotherapists, speech and language therapists, occupational therapists, rehabilitation physicians and (neuro)psychologists, but no neurologists. In most centres these health professionals try to work as an inter-disciplinary team, which means rehabilitation is partly a joined activity [26].

About 30% of all stroke patients go to a nursing home after being discharged from the hospital. These homes are somewhat different from nursing homes in the other countries like because they have full medical service. They employ nursing home physicians who are in charge of the care process and the referral of patients. They also have a nursing staff, physiotherapists, speech and language therapists, occupational therapists, rehabilitation specialists and sometimes psychologists. In the past, stroke patients were mostly referred to a general ward in a nursing home where most stayed for the rest of their life.

Rehabilitation centres and nursing homes in the Netherlands have staff, equipment and facilities, all specifically for long term care or rehabilitation. Care in a nursing home (206 euro a day) is also cheaper than hospital care (337 euro a day) [27]. These are the strong points of the Dutch system. But because of the involvement of so many health professionals and institutions the system is more susceptible to fragmentation and coordination problems. Bed blockage is one of the consequences, and not only for stroke patients. That is why there are many initiatives in the Netherlands for integrating care (for example COPD, heart failure, diabetes, hip fractures).

5. RESULTS

5.1 *Problems that required learning*

Fragmented goals and ideas

At the start of this particular project, the idea of a stroke service was fragmented and could not be controlled centrally. Our first interviews showed that all participating organisations in our research region operated in a different context, had different problems, and had different goals and reasons for taking part. There was no network, no collective and many boundaries between the health professionals. The principle aim of the project was, as it was formulated in the assignment of the project coordinator:

Bringing about a continuum of care for stroke patients between the regional providers of care, which facilitates referral, faster and more extensive diagnosis and treatment, the introduction of an advice function and the creation of care after stroke aimed at treating psychological and social problems experienced at home. This must result in better quality of life for stroke patients and optimal usage of the present capacity for care (1-9-'98).

But every participant had his own ideas about what a stroke service would look like. The rehabilitation centre initiated the development by contacting the two hospitals in this region. The centre was interested in implementing a data-system (with neural network technology) to generate information for research about stroke rehabilitation. This system could only work if it was implemented in a stroke service (interview 21-6-'99). The two hospitals, the neurologists told us, had just contacted two nearby nursing homes to solve the problem with bed blockage of stroke patients, (interview 10-8-'99 & 31-10-'99). The nursing homes were interested, according to two of their managers (interview 7-1-00), because they had difficulties with finding staff. If the nursing homes could be more involved in rehabilitation, potential employees would be more inclined to work there.

Every participant defined the problems for a continuum of care for stroke patients differently. The project coordinator started his job by asking both the health pro-

fessionals and managers in every organisation which problems they experienced in delivering integrated care. He said in an interview:

…everybody defined the project in a different way, namely based on their own scope. These interpretations were pretty diverse… that is when I thought, I must make sure that all professionals speak the same language, and have the same goals in mind (interview 26-4-'99).

Learning a similar language and aligning goals was in his perspective needed as a way to cross boundaries between professionals and organizations. In other words, similarity of mental images and jargon were important [13].

The project coordinator decided to form work groups with health professionals from all the participating organisations. What he basically did was setting up the scene for collective learning [22]. In these workgroups professionals who work for different organizations, who have different tasks and different professional backgrounds and had hardly any social contact with each other, met every two weeks. For the first time they had to cooperate and work on the same task. The project coordinator initiated seven workgroups consisting of health professionals from the participating organisations. One workgroup was responsible for improvements in the acute phase (hospital care), a second for introducing a rehabilitation unit in the two nursing homes, a third for improving home care, a fourth for introducing care after stroke, a fifth for improving information for patients, a sixth for improving information logistics, and a seventh workgroup was responsible for better organizing rehabilitation at home. He let these workgroups discuss the perceived problems, work out solutions and try out these solutions.

Inability to make all knowledge explicit
For the development of the rehabilitation units in the two nursing homes, the participants found explicit referral criteria necessary. To develop such codified knowledge, implicit (tacit) or personal knowledge had to be transformed. Tacit knowledge, however, cannot always be made explicit [23] [24].

The first steps in developing referral criteria for the rehabilitation units in the two nursing homes were taken by two nursing home physicians. They made up a list of relevant criteria, like among other things:

patients need to be in a state of recovery, with the expectancy for further recuperation within 3 to 6 months (so they can go home) (11-6-'98).

But the health professionals and a manager in the rehabilitation clinic opposed to this list of criteria. In a letter to the project coordinator two rehabilitation physicians and the director stated:

From the notes concerning the referral criteria, we felt that the nursing home physicians have the idea that at the start of the project they will receive a different (healthier) patient population for rehabilitation. From a logistic point of view this is probably not desirable. Such a shift in population would mean empty beds in the rehabilitation centre (letter 11-11-'98).

So, the process started with the two most closely involved physicians trying to make the referral criteria for their rehabilitation unit explicit. This is not easy for this particular patient population. It is difficult to determine whether a patient is fit enough to follow the more intensive rehabilitation program in the rehabilitation centre or needs to rehabilitate more slowly in a nursing home. As we can see from different studies on referral of patients, who have comparable conditions, to a rehabilitation facility: 'variability in access cannot be adequately explained by clinical factors related to the individual, with non-clinical factors, also contributing to variation. Place of treatment and the distribution of rehabilitation services often influence variations. More importantly a range of opinions and interpretations of potential and outcome result in highly selective processes that determine where people go after injury' [28] [29] [30] [31] [32]. Thus referral is not only based on hard clinical facts about a patient, but the context is relevant, as are expectations of health professionals about possible recovery. Moreover, many of these criteria stay implicit (knowledge). So, even though criteria are used for referral, professionals still have to exercise discretionary judgment [33]. Especially these implicit, non-clinical criteria in our case

made it difficult for the rehabilitation physicians to determine which patient group exactly the nursing home physicians had in mind. That is probably why they used the word "feel" in their letter to the project coordinator. They did not really know; they assumed. They tried to read between the lines to see what implicit criteria were used. To fill in the blanks it seems they thought about what the nursing homes had to gain. Knowing that the nursing homes were interested in rehabilitation, they thought that the nursing homes would try to enter their domain.

Note: there was hardly any communication between the nursing homes and the rehabilitation centre up till then. The nursing home physicians never even talked to these rehabilitation physicians, because it did not seem necessary. They had separate domains. Nursing homes focused mainly on long term care and hardly on rehabilitation. As a consequence the rehabilitation physicians did not know exactly how nursing home physicians work and think and could only speculate.

After the project leader received the letter of the rehabilitation physicians he decided it was necessary to make the development of the criteria a collective responsibility. First, he asked the workgroup Acute phase. Participants are the project coordinator, two neurologists (from the two hospitals), a (neuro) psychologist and a rehabilitation physician (one of the writers of the letter). Second, the workgroup rehabilitation unit was involved, with the project coordinator, the two nursing home physicians, a rehabilitation physician (the other writer), two senior nurses; one heading the nursing staff in the hospital and the other in the nursing home, and a senior therapist; head of the therapists involved in stroke care in the rehabilitation centre. The two rehabilitation physicians were asked to make a draft for the criteria. They could use the criteria that were already developed in the adjoining region as an example. Their list would then be discussed in the two workgroups. After a couple of meeting, the two rehabilitation physicians came up with the following list of criteria:

Criteria for referral to the rehabilitation centre
- *relatively* young, vital patients
- *fairly* capable to learn, and able to cope with a fast pace of rehabilitation
- with a *relatively* positive prognosis
- concerning *more or less* complex goals
- expected discharge within *approximately* three months, with or without informal care.

Criteria for referral to the rehabilitation units in the nursing homes
- older, less vital patients with more co-morbidity
- able to learn and take part in rehabilitation, but with the need for a slower pace of rehabilitation
- some (functional) recovery is expected or the prognosis is unclear
- expected discharge within six to twelve months: with a maximum stay on the rehabilitation unit of six months (minutes 26-1-'99).

When we look at the criteria we see many words like *fairly, more or less, expected, relatively*. These words appeal to the experience (implicit knowledge) of health professionals, not to hard clinical facts. The criteria for example do not state that patients must be younger than 65 to qualify for referral to the rehabilitation centre. Instead they say a patient should be relatively young and vital. To be able to make this judgment a health professional must have experience with other patients and make a comparison. Based on these experiences he must have some sort of mental template of the average patient who needs to rehabilitate in a rehabilitation centre. Even the decision to refer patients to a nursing home is based on a comparison with this mental template, because the criteria state that they are older, less vital, with the need for a slower pace of rehabilitation than patients who go to the rehabilitation centre.

The project leader expected the criteria to be made more explicit and better codified. Also the workgroup Acute Phase concluded more explicit criteria could be established, namely criteria based on hard clinical facts. That, however, was not the case for the workgroup Rehabilitation Unit. Based on the list of referral criteria made by the rehabilitation physicians the workgroup rehabilitation unit concluded it was not possible to formulate explicit criteria. That is why they argued that other disciplines should play a more important part in the decision process. Their combined experience (implicit knowledge) would help to assess better where a patient should go. They presented their plans during a conference with all the participants from all the workgroups. Striking is that the list of criteria for referral the workgroup Rehabilitation Unit presented was the exact same list the nursing home physicians developed at the very beginning of the project. Yet the meaning of these criteria changed for the health professionals from the rehabilitation centre. They were not seen anymore as an attempt by the nursing homes to steal their patients, but as relevant criteria for the referral of patients to the rehabilitation units. Also the procedure was different.

In contrast to the first proposal, now the rehabilitation physician is to be consulted by the neurologist whenever a patient is eligible for rehabilitation (Action plan 9-4-'99).

5.2 *How were the problems resolved?*

Individual and Collective learning

So how were these professionals able to cross the barriers and formulate these referral criteria. During the first meeting the barriers were well in place. It was a meeting in which the physicians of the two work groups were asked by the project coordinator to come together and start up the development of the referral criteria. They decided first to define in general terms which patient population it concerned

…the same population of stroke patients that is now referred to a nursing home, but without the need for long term care. In other words: the "best" patients of the group that is already being referred and who have the possibility for a better prognosis. There is no intension to refer patients to a nursing home who at the moment are being referred to the Rehabilitation centre (minutes 12-01-'99).

When we look at the minutes, it seems that this meeting was about the rehabilitation physicians marking their domain, it was not an open dialogue about referral criteria. In every sentence concerning the relevant patient population the boundaries are reaffirmed. In the first sentence it states: *The same population of stroke patients that is now referred*. In the second sentence it says: *the group that is already being referred*. To make sure there can be no misunderstanding the last sentence is: *There is no intension to refer patients to a nursing home who at the moment are being referred to the Rehabilitation centre.* Moreover, the list of criteria that was already made by the nursing home physicians is not mentioned.

It was only after some meetings that the members of the workgroup rehabilitation really began to discuss the referral criteria. Than it soon became clear that there are many misunderstandings. One of the discussions revolved around the word *complex*. Both the rehabilitation physicians and the nursing home physicians claimed they

were best equipped to take care of *complex* patients (with complex goals). It took a while before they realized they defined *complex* in different ways. For the rehabilitation physicians a patient is complex if he needs a combination of therapies to be able to rehabilitate. Many health professionals must become involved and they have to coordinate their work. That is why it is complex. But for a nursing home physician, complexity means a patient has different health problems. For example, a patient also has diabetes, is blind or suffers from depression. This is complex, because the physician must look at all of these different problems. A nursing home physician is educated and has more experience to deal with the latter kind of complexity. The staff at the rehabilitation centre seems best equipped to handle the first kind of complexity because of their expertise in rehabilitation and the more inter-disciplinary way in which they work.

Only after they agreed upon the meaning of the word *complex*, the members of the workgroup were able to agree upon the proposed list. The minutes state:

After some discussion everybody agreed about the criteria and the distinction that they make between referral to the rehabilitation centre and the rehabilitation unit (26-01-'99).

During this meeting of the work group Rehabilitation Unit a real dialogue did take place: a confrontation between the different interpretations of the participating health professionals. In this open dialogue about referral criteria health professionals began to learn to understand each other better. They began to cross the professional distance (*professional proximity*). In the context of the referral of patients, a *complex patient* is now defined as someone who needs a combination of therapies to rehabilitate.

In this dialogue the health professionals also taught each other more about how they work and think. They had to explain to one and other, probably for the first time, why they believe they are better equipped to care for certain patients. These discussions therefore help professionals to form a mental picture of what goes on in other organisations and which patients should therefore be referred.

Learning from experience

Until now learning involved developing skills and insights and sharing knowledge in a new context. Yet, network learning, defined as maintaining or improving perfor-

mance based on experience did not occur yet in our case. But that changed when the rehabilitation units opened. From the beginning the list of criteria developed by the work group Rehabilitation Unit was used for the referral of patients. However, very few patients were referred to the rehabilitation units of the nursing homes. That is why after a few months the physicians from one nursing home, one hospital and the rehabilitation physician agreed upon a broader interpretation of the criteria, so more patients would be referred to the new unit. In the meantime the project coordinator had organized to collect figures about the flow of patients throughout the entire care pathway. He decided to ask the involved physicians to come together to discuss this information. During this discussion the physicians argued that less patients are usually hospitalised in the summertime. Moreover, in this region more patients are referred to a rehabilitation centre than in other regions. Last but not least, they observed that patients might not want to go to the rehabilitation unit because it is sometimes presented to them by the health professionals in the hospital as a second best option, in comparison with the rehabilitation centre. After discussing the data about the patient flow they agreed upon the following:

the rehabilitation unit will also treat patients with an unclear prognosis: that is, patients that might yet need long term care, or patients that probably need long term care but could benefit from rehabilitation (news letter 27-9-'99).

A few months later the units experienced new problems, but this time because of bed blockage (in the unit). Again the physicians came together and discussed these problems, using the information about patient flows. They concluded the problems were caused on the one hand by bed blockage in the homes for the elderly, so patients had to wait for further referral. On the other hand more patients had to wait because they needed long term care after all and all the long term care units were full. Thus they decided that patients who might need long term care, can only be referred to the rehabilitation unit if it means that other patients in the hospital do not have to wait longer than two weeks for referral. Striking is that they also agreed that from then on, the neurologists would consult the nursing home physicians about which patients can be referred.

6. DISCUSSION

The health professionals in our case learned to look beyond the boundaries of their own profession and organisation and establish an integrated network for the delivery of a continuum of care. Before the project started, organisations tried to solve problems on their own. There was little communication between the health professionals from different organisations. At the end of the project we showed how health professionals from one hospital and one nursing home had already informally discussed the problem of empty beds in the rehabilitation unit and changed the referral procedure, before the project coordinator even got into action. Furthermore, when a patient is now referred, both the rehabilitation physician and the nursing home physician are consulted. We also see that the neurologists and the rehabilitation physicians are going to the nursing homes once a month for consultation. The network of professionals has clearly become more integrated.

A kind of collaboration became possible that did not seem possible before. Not only are the referral criteria, developed by the nursing home physicians, accepted, but these physicians are now even consulted if a patient should be referred. Striking is furthermore, that health professionals in referring patients not only take account of clinical facts, but also look more explicitly at coordination and efficiency. This is something managers have often tried to achieve without success. By giving these health professionals the information and the responsibility to be able to collectively improve patient logistic, they became more aware of the importance of organisational aspects. Because they are themselves part of the process, they are also better able to interpret this information and take relevant actions. At the end of the project phase all respondents agreed that integration of care for stroke patients had increased.

How did health professionals learn to look beyond the boundaries of their own profession and organisation and establish an integrated network for the delivery of a continuum of care? In health care in the Netherlands it is almost customary to try to cross these boundaries by standardization of knowledge, through the introduction of protocols, criteria, or rules. The development of the HMO's in the United States was also mostly about introducing structures. But studies of actual work practices have often shown that efficiency is not so much determined by structuring and sequencing

tasks as by the capabilities of people for solving problems [34] [35] [36]. According to Sachs: 'these studies suggest workers perpetuate webs of relationships in communities and it is within these human systems that problems are discovered and resolved and work is effectively accomplished' [34].

Also in our research case, improving the referral process was in the first place about formulating criteria. There seemed to be a firm believe, especially among physicians and the project coordinator, in the possibility of codifying knowledge about referral. But during the process in which health professionals from different organisations collectively discussed these criteria, tried them out and interpreted the results (collective learning), they began to realize that it is not possible to only depend on these criteria. They could not make them so explicit that they would guarantee integration of care. That is an important reason why there seems to have grown an appreciation for sharing information and using each other's expertise through direct communication. So, they learned not to depend on standardization of knowledge alone, but to use other sources of information and other forms of transferring knowledge. This of course is not a total revelation for these professionals, but it seems through the learning process the importance of direct communication has become more visible [23] [24]. We have seen the same developments in discussions about improving information logistics. This also started with standardizing transfer sheets, but soon it was agreed that at least the nursing staff from the different organisations should also call each other and give addition information about a patient who is being transferred.

When, however, we analyse the development process from a learning perspective we also see that there is more going on than just the development of criteria. During this process, in different ways, knowledge is created, shared, and utilized. As we have seen professionals begin to learn each others jargon and even a collective jargon is created. Furthermore they learn more about the way other professionals and organisations work and think. This brings into focus the mental pictures professionals have of other organisations and professionals, and of the average patient who should be referred. Now individual health professionals are better able to judge whereto and when to refer a patient. Because of this knowledge the dialogue between the professionals also improves, they are better able to understand each other. Suchman (see also [37]) calls

this 'shared background knowledge'. She says 'every occasion of human communication is embedded in, and makes use of, an unarticulated background of experiences and circumstances' [24]. The fact that more background knowledge is shared between the health professionals in our region does not mean that they will always agree, but it will stimulate a more open dialogue, with fewer blanks to fill in.

So, the most important result of the learning process were the social relations that have been established between health professionals from different organisations, stimulating both formal and informal communication. As we have discussed in the introduction, different authors state that these contacts are at the heart of a care continuum [5] [10] [11] [14]. Health professionals are now also looking at patient care more from a network perspective. They are more aware of the possibilities in other organisations, they discuss problems with health professionals from other organisations, and the transfer of patients is now a more collective responsibility.

NOTE

[1] About 15 to 20% of all stroke patients die in the hospital.

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Learning enablers in care networks for developing and sustaining integrated care

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1. INTRODUCTION

In recent years, health care related literature has paid increasing attention to the implementation of integrated care, as evidence suggests that better coordination among health professionals leads to more efficient and effective care [1] [2]. Coordination plays a central role because integrating care is an organisational process that seeks to achieve seamless and continuous care, tailored to the patient's needs, and based on a holistic view of the patient [3]. Integrating care is difficult, however, because it often involves coordination in a care network of different professionals from different organizations. The environment in which these organizations and professionals operate is both complex and dynamic, due to the variability in organizational characteristics, in professional backgrounds of the different care givers, the variability in patient characteristics, the complexity of the techniques used and the many (continuously changing) regulations that play a part [4].

Because of these complex and dynamic circumstances, different publications on integrated care networks emphasise the importance of learning by focusing on the role of knowledge, feedback and education [1] [2]. In an earlier publication in Health Policy we showed that, through a (collective) learning process, health professionals are able to look beyond the boundaries of their profession and organisation to establish a more integrated network for the delivery of a continuum of care [5]. Learning has to do with the acquisition of knowledge (creating or developing skills and insights), with sharing knowledge and utilizing knowledge in a new context, or new situation [6]. Learning in integrated care networks can be defined as the capacity or processes within the network to acquire, share and utilize knowledge as to maintain or improve performance [6].

Although learning is said to play an important part in developing and sustaining integrated care, little attention is paid to how learning can be enabled in a care network with multiple organisations [7]. Those publications about learning in multiple organisational settings that do exist focus primarily on the role of trust between participants [8] [9] [10] [11] [12] [13]. Much more is known about learning in single organisations – since 1990 a vast amount of articles and books has been published on

this subject. Contributions to understandings of organisational learning have come from academics working in the field of psychology, management science, strategy, production management, sociology and cultural anthropology [14]. Especially interesting for this paper is a body of literature that has focussed on the creation of learning organisations. This literature has a multidisciplinary view, it is action orientated, and it is geared toward creating an ideal type: an organisation in which learning is maximized [14] [15]. Explicit attention is paid to identifying enablers for learning in single organisations. An enabler can be described as an instrument that facilitates and stimulates, in this case, learning in organisations. But what about learning in care networks – can insights from literature on learning organisations also be used to enable learning in care networks with the involvement of professionals form different organisations? This is the leading question in this paper.

To answer this question, we use the results of a multiple case study of the development of five integrated care networks for stroke patients (stroke services) in the Netherlands. The first part of this study, in which the effectiveness of the interventions was evaluated, was published earlier [16] [17] [18], but we will summarize these results in this article. The second part of the study concentrated on identifying factors that stimulate and/or hinder the development and sustainability of integrated care networks [16]. When the importance of learning became evident, it focused the analyses. From a selection of key publications on learning organisations, we identify seven enablers, which are then used as a theoretical framework to analyse the development of the five integrated networks for stroke patients. This will not be used as a rigid framework to explain what happened, but as a heuristic devise that throws new light on the observations [19]. It is not our intention to quantify the availability of these enablers in our regions to measure if they influence outcome. We want to analyse the actual use of these enablers – to see if, and how, they play a part in developing and sustaining integrated care. That is why we perform a more qualitative assessment of these enablers. When we know how these enablers work we may be able to develop more quantitative measures for future research. Although we have to realise that these enablers operate in a complex social setting and positive outcomes are therefore not guaranteed.

2. METHODS

We did a multiple case study, at the beginning of which all regions were planning to, or working on, building a stroke service with the involvement of general practitioners, a hospital, a nursing home, a rehabilitation clinic and a home care organization. In box 1 the characteristics are described of stroke care in the Netherlands.

Box 1: Characteristics of stroke care in the Netherlands

When someone has a stroke in the Netherlands, they usually first contact the general practitioner, who operates as a gatekeeper in our system. Most patients are then referred as soon as possible to a hospital, where they are treated on a specialized neurology ward. Care on this ward is provided by neurologists, a nursing staff, physiotherapists, speech and language therapists, occupational therapists, rehabilitation physicians and (neuro) psychologists. Stroke patients should, in theory, only have to stay in the hospital during the acute phase of the disease (up till 10 to 14 days at the most) [35]. However, in practice the average period of stay in most hospitals is over 20 days and some patients stay up to 12 months due to bed-blocking. In the Netherlands, a large group of patients either go home after their (late) discharge and receive community care or go to a home for the elderly.

About 10% of all stroke patients (mostly patients younger than 65) go to a rehabilitation centre, where they follow an intensive program on a specialized stroke rehabilitation unit, before they go home [6]. This centre employs a nursing staff, physiotherapists, speech and language therapists, occupational therapists, rehabilitation physicians and (neuro)psychologists, but no neurologists. About 30% of all stroke patients go to a nursing home after being discharged from the hospital [17]. These homes have full medical service. They employ nursing home physicians who are in charge of the care process and the referral of patients. They also have a nursing staff, physiotherapists, speech and language therapists, occupational therapists, rehabilitation specialists and sometimes psychologists. In the past, stroke patients were mostly referred to a general ward in a nursing home, where most stayed for the rest of their life. Now, specialised rehabilitation wards are also being created in nursing homes for patients who are not able to follow the intensive rehabilitation program in the rehabilitation centre.

The challenge of integrating stroke care is not only due to the large number of participants. Until now, the participating organizations have also been subject to different financial regulations, because for curative care (GPs, hospitals, rehabilitation centres) 65% of the population is insured by sickness funds and 35% by private insurers [36]. But, for long term care, there is a compulsory national health insurance scheme, which makes it harder to share resources between these organizations. Rehabilitation centres and nursing homes in the Netherlands have staff, equipment and facilities, all specifically for long term care or rehabilitation. Care in a nursing home (206 euro a day) is also cheaper than hospital care (337 euro a day) [37]. But, because of the involvement of so many health professionals and institutions, the system is more susceptible to fragmentation and coordination problems. Bed blocking is one of the consequences, and not only for stroke patients. That is why there are many initiatives in the Netherlands for integrating care (for example COPD, heart failure, diabetes, hip fractures).

We looked for relevant contrasts between our regions that could affect the results [19]. We selected three regions where only one hospital and one nursing home were involved and two regions with more hospitals and/or nursing homes. We selected stroke services that had a different focus: one region was also changing the content of care in all involved organizations, three other regions focused especially on coordination between hospital and nursing home and the improvement of care in these specific organisations, and one region focused especially on the link between, and the content of care in, the nursing home and home care.

We followed the development of these stroke services during the entire project phase (18 months). The data collection was not specifically aimed at collecting data about learning. We concentrated on identifying factors that stimulate and/or hinder the development and sustainability of integrated care networks. When the importance of learning became evident, we developed a theoretical framework to re-analyse our data, which consisted of 'thick' descriptions of the development process in all of our regions. For our data collection we did individual interviews with 65 professionals (doctors, nurses and therapists) and managers, from all participating organizations, who where selected because they took part in the different workgroups for the development of the stroke service. Interviews took place in two rounds, at both the start and the end of the project phase. At the beginning of the project, the respondents were asked about their goals and expectations. At the end, they were asked to describe the changes, the change process and their involvement, factors that in their opinion stimulated or hindered the development and their respective opinions of the results. The interviews were semi-structured and all interviews were audio-taped and transcribed. We took part as observers in some of the workgroup meetings in each region and we also analysed minutes and other relevant documents of all the workgroups. Based on these data, case descriptions were made of every region that were then sent to the respondents for comment.

When the project phase was over, questionnaires (497 in total) were distributed among all participants. The participants were primarily asked if specific goals were reached. 226 questionnaires were returned, a 45% response rate [18]. The analyses of all the data were peer-reviewed by fellow researchers at the institute and their comments were also processed in writing the final analysis.

3. ORGANIZATIONAL LEARNING

Because no systematic reviews have been published on learning organisations, a selection of books and/or articles is used to develop the theoretical framework.

Organizational learning is studied from different perspectives. Easterby-Smith and colleagues [7] make a distinction between authors who study organizational learning either as a technical or as a social process.

'*The technical view assumes that organisational learning is about the effective processing, interpretation of and response to information, both inside and outside the organisation* [7]'. Learning is regarded as a rational process in which people will use available information to gain the best results for the organisation. The focus is on removing obstacles that hinder the free flow of information, thereby looking mainly at explicit information (or knowledge) about performance. In other words, it is basically about rationalising the processing of information.

'*The social perspective focuses on the way people make sense of their experiences at work and learn from/with each other in work settings* [7]'. Not only explicit or codified information is relevant for learning, but also more tacit forms of experience; knowledge which is taken for granted, and hence, is difficult to articulate explicitly [20]. For effective performance, people cannot rely on formal instructions alone, much learning also takes place through repetition and socialization; that is, by observation and imitation [21]. The social perspective states that, in practice, learning is not so rational. The same information can have different meanings for different people – its meaning is constructed and this construction is mostly part of a (social) process in which different people are involved. From a technical perspective, such political processes are seen as disruptive and should therefore be overcome. From a social perspective, politics are an inevitable and integral part of any social process.

We define organizational (or network) learning as the capacity or processes within an organization (or network) to acquire, share and utilize knowledge in order to maintain or improve performance [6]. Many authors state that organizational learning is the same as collective learning [22] [23] [24]. Collective learning takes place through a dialogue between different members [22]. Collective or shared interpretations become part of the structure (procedures, tasks, policy) or culture of the organization

(or network). In our view, however, both individual and collective capacities and processes are relevant to maintain or improve the performance. Although organizations and networks must have conditions that stimulate both individual and collective learning processes, we only call this organizational (or network) learning if it is aimed at improving the performance of the organization (or network).

In developing this theoretical framework, we selected four books that have become part of the canon of organizational learning theory. Two of these books (by Argyris [25] and Senge [26]) use, according to Easterby-Smith and colleagues [14], a more technical view, the other two a more social view (Nonaka [21] and Dixon 22]). We also scanned recent publications (published between 2000 and 2004) and selected two publications that explicitly formulate enablers for learning in organizations. The article by Popper [23] uses a more technical perspective, leaning heavily on publications by Argyris [25], than the book by Garvin [27] who uses a more social perspective, looking at cultural and political influences on learning. In table 1 the results of our search are presented. It is striking that, even though all of these authors claim to base there findings on interaction research in different cases, said cases are only sometimes used as an illustration. Easterby-Smith therefore states that there is in research about learning organisations 'a particular shortage of studies that attempt to induce theory from existing practice, use a small sample of in depth cases, focus on micro-practices within organizational or trans-organizational settings and study processes leading to learning outcomes' [7]. With this study we hope to contribute in filling in this shortage.

We used these publications to construct a list of enablers, selecting only those enablers that were mentioned by at least two authors. This resulted in the following list of seven enablers:

1. A shared vision about a desirable future state.
2. Procedures for generating information about performance.
3. Communication channels for diffusion and (collective) interpretation of information.
4. Decentralized responsibilities for implementing changes and experimentation.

Table 1: enablers of organizational learning

Argyris [25]	Senge [26]	Nonaka [21]
1. Ideologies associated with learning, such as total quality, continuous learning, excellence, openness, and boundary crossing. 2. Information systems that provide fast, public feedback on the performance of the organization as a whole and of its various components; 3. Mechanisms for surfacing and criticizing implicit organizational theories of action, cultivating systematic programs of experimental inquiry; 4. Measures of organizational performance; 5. Systems of incentives aimed at promoting organizational learning; 6. Flat, decentralized structures.	1. Building shared vision: the practice of unearthing shared "pictures of the future" that foster genuine commitment; 2. Personal mastery - the skill of continually clarifying and deepening our personal vision; 3. Mental models; the ability to unearth our internal pictures of the world, to scrutinize them, and to make open to the influence of others; 4. Team learning: the capacity to "think together" which is gained by mastering the practice of dialogue and discussion; 5. Systems thinking: being able to see the whole of the system, instead of only the parts.	1. Develop a vision on the knowledge domain of the organization; 2. Create opportunities for (intensive) interactions; 3. Engage in experiments (leave room for creativity, flexibility and tolerate mistakes); 4. Employ innovators from different backgrounds, and stimulate them; 5. Create an organization consisting of different layers to create and accumulate knowledge; 6. Middle managers must bridge the gap between abstract visions of the top and everyday practice, to stimulate creativity (hierarchies, task groups, culture/technology/vision); 7. Engage in direct communication with clients about the product or service.
Dixon [22]	**Garvin [27]**	**Popper [23]**
1. Information and expertise that are distributed; 2. Egalitarian values (requiring freedom, equality and respect); 3. The organization size and physical arrangement support frequent interaction between subsystems; 4. Processes and skills that facilitate organizational dialogue.	1. A broad base of contributors and data-sources; 2. A process of sharing diverse perspectives and points of view; 3. A willingness to embrace contradictory, unexpected findings; 4. A process of conflict and debate that tests prevailing views; 5. The provision of timely accurate feedback; 6. Incentives that encourage new approaches; 7. The creation of space for learning; 8. A sense of psychological safety.	1. Valid information: complete, undistorted and verifiable information; 2. Transparency: the willingness to hold oneself and one's actions open to inspection in order to receive valid feedback; 3. Issue orientation: is the evaluation of information strictly on its merit without regard to irrelevant attributes such as the social standing of the source or recipient; 4. Accountability: holding oneself responsible for one's actions and their consequences and for learning from these consequences.

5.   Learning skills: The ability of organizational members to individually and collectively (through dialogue and discussion) analyse and improve their performance.

6.   Incentives for innovative actions and improvements, instead of punishments for mistakes.

7.   A *learning culture:* This can be described as a culture in which members are continuously trying to learn from experience, are willing to experiment, and collect, share and discuss information (and knowledge) about their performance. Key values are trust, cooperation, transparency, accountability and equality.

4.   ENABLING NETWORK LEARNING IN HEALTH CARE

In all of the regions, the development of the stroke service took place in different workgroups, with professionals from all relevant organisations participating. The projects were coordinated by a project leader who reported to a steering group that consisted of managers from all of the participating organisations. We studied the developments using the seven enablers as a framework – to see if, and how, they play a part in learning in an integrated care network.

- *A shared vision of a desirable future state*

Researchers on learning organisations argue that it is necessary to have a shared vision for collective learning processes; for our purposes, a shared image of what a better functioning network looks like [21] [26]. But, how can we expect a shared vision with so many actors involved who have different goals and ideas?

At the start of the project, in each research case, there was a project plan with goals about continuity in care for stroke patients. When we asked what the plans meant, however, we heard many different interpretations.

At the start, I talked to all relevant participants and asked them what the project implied for them; what they expected. Striking was that everybody had their own definition, based on their own place in the care chain (project leader region b).

For professionals in the hospital, improving continuity of care was about the reduction of bed-blocking (patient logistics), while in the nursing homes it was about improving the transfer of information (information logistics). There was no shared vision of a desirable future state. Moreover, many professionals in the hospital and the rehabilitation centre did not agree with the goal that stroke patients should be referred to a nursing home or home care more quickly after treatment in a hospital. They questioned the abilities of the health professionals in these organizations to deal with sicker patients. In reality, the hospital professionals knew very little about the possibilities and capabilities of home care organizations and nursing homes.

Although every organization had its own priorities and different health professionals did not agree with some of the consequences, the notion of continuity of care inspired these regions to identify and discuss those problems that, in their view, had something to do with continuity of care, as well as to try out new ways of organizing and seeing what worked. At the end of the project we did a survey among the health professionals and most of them agreed that the continuity of care was improved. So, even though the formulated vision may not have been completely shared from the start, when we look at all the consequences, we see that it was shared as a general direction for the network and it inspired people to learn. From the interviews we know that the image of a well integrated network was more shared at the end of the project, as was the view on the importance of certain measures that were (or should be) taken. Still, the participants found different aspects of the network more relevant and the images were also not completely aligned. It seems that even in an integrated care chain there is room for different perspectives.

- *Procedures for generating information about performance*

When the participants in our projects talked about performance, the emphasis was on clinical information about patient outcomes using almost trial-like designs. Knowing how complicated collecting this data would be, the project coordinators postponed discussing the options.

Different means of gathering information were used in order to see if their interventions were successful. Some regions initialised surveys, while other regions had health professionals keep a record about how often they received information in

time and how complete that information was. Most regions, though, depended on representatives of the different organizations to give a general appreciation of the interventions based on their experience. Regarding patient logistics, regions started collecting information about the patient flow in the network. That means every organization had to collect information about how long patients stayed in their institutions and how long they had to wait for transfer. This information was interpreted in different work groups in order to determine which steps should be taken to improve continuity further.

When the projects ended the appreciation for sharing different forms of information seemed to have grown. The focus was no longer so much on collecting only hard clinical information about outcomes, but much more on generating different forms of (softer) information about the care process.

• *Communication channels for diffusion and (collective) interpretation of information*
Researchers on learning organisations claim that for both individual and collective learning to take place information about performance and experience needs to be diffused in the network [22] [25] [27]. Also, learning can only be collective if members meet each other and discuss information and experiences [21] [25] [27]. From a technical perspective the focus would be on explicit information, but from a social perspective tacit information/knowledge is also relevant.

Before the projects in our regions, communication channels between the different organizations hardly existed. Most health professionals had never spoken with their colleagues from other organizations. There was no feedback on results from professionals further down the care pathway. Professionals only had a vague idea of how professionals in other organisations work and think. Problems were 'solved' within individual organizations, not within the network. In several regions hospitals started their own long term care units, or rehabilitation units, because of waiting lists for nursing homes. In the nursing homes, diagnostic procedures were simply repeated if information was not transferred from the hospital. All problems were analysed and solved from an individual or organizational perspective and not from a network perspective.

This situation dramatically changed during the projects. Not just because there were information systems installed and protocols for the transfer of patients and in-

formation, but mostly because these systems and protocols were developed in work-groups with professionals from all the participating organizations. As we discussed in our previous publication in Health policy, professionals in these workgroups both shared their perspectives on how continuity in care can be created and learned how other professionals think about and look at the care process. It gave these professionals the opportunity to create a mental image of the network (network perspective), such that they were better able to judge what effects their individual actions would have on continuity in the care process. When we asked the respondents about success factors to create continuity in care, they mostly talked about knowing each other and knowing what happens in other organizations. Thus, because they participated in these workgroups, informal communications channels were created and participants shared both explicit and tacit information to develop a network perspective.

You see, I had never been in the nursing home or in the rehabilitation centre… But now I have and I know what happens there, and I know what I talk about when I refer a patient (therapist hospital region d).

• *Decentralized responsibilities for implementing changes and experimentation*
For learning, it has been suggested by researchers on learning organisations, it is important that people have the possibility and responsibility to implement changes and perform experiments [21] [27]. Professionals have a lot of autonomy in organizing their own work [28] [29]. If, however, there are consequences for capacities and finances, they must consult with middle managers. In most hospitals in the Netherlands, it is the physician who decides if other professionals should be involved in the care process for individual patients. He or she also decides when patients are discharged and to where patients should be referred. Therefore, other professionals have fewer possibilities for experimenting and for implementing change. Decentralization of responsibilities, therefore, seems to be relevant at different levels: from managers to professionals and from physicians to other caregivers.

During the project phase, responsibilities were decentralised from managers to professionals. Professionals had more freedom to experiment with new ways of organising the care process and using available resources. But, in each of the regions, this was only temporary. After the project phase is over, the newly developed process will become the new standard, whereby there is much less room for experimenting.

A more permanent change in these regions was the decentralisation of responsibilities between physicians and other health professionals. In all of our regions, the idea that patient care and referral of patients should be a more collective responsibility was crucial and the focus points were the weekly multidisciplinary meetings. Sometimes the physicians did not participate, and in other organizations these meetings were mostly about the physicians informing the other health professionals but hardly involving them in discussions and dialogue. This was especially true in hospitals and was the reason that their multidisciplinary meetings were reorganized: physicians were asked to take part; however, in order to create more equality, these meeting were headed by a nurse or another health professional, rather than by a physician. Additionally, the content of the meetings changed: instead of being purely about medical content, they shifted toward more information about rehabilitation and possible referral of patients. On this issue different professionals have relevant knowledge, meaning that it was also possible to introduce a more consensual decision making process. So, during the projects decentralisation of responsibility took place from managers to professionals, and from physicians to other health professionals. Only the decentralisation of responsibility from the physicians to other professionals was permanent.

More than before, rehabilitation is a central part of the multidisciplinary meeting and not so much medical aspects…Therefore the doctor has less input and the other participants more (neurologist region b).

The doctor used to chair the multidisciplinary meetings and then it was a purely medical meeting. Now a nurse chairs the multidisciplinary meeting, therefore other professionals have more influence (nurse region c).

• *Learning skills*

It takes years of learning to become a professional and to remain a professional means having to keep up with the latest developments and learn about new techniques and insights [29] [30]. But for health professionals, learning is mostly an individual activity, not a collective one. That is why they seem to be less skilled in dialogue and discussion. This is another reason why multi-disciplinary meetings in hospitals and

nursing homes, but also in some of the workgroups in our regions, were sometimes more about informing each other then about discussions.

The key is interdisciplinary consultation…often in hospitals everyone is busy with a patient and then we see each other once a week to tell what we are doing…we should really participate in a dialogue in which we do a systematic problem analyses and formulate common goals…it is about collectively deciding in which direction to go, talking to each other like equals and deciding what the main problem is and which steps to take first (rehabilitation physician region b)

- *Incentives for innovative actions and improvements*

According to Skritantie learning starts with self-doubt: *doubt that current methods of organizing or operating are as perfect as they could* be [31]. For collective learning to take place, problems and mistakes must be openly discussed to see how they can be solved and prevented. This also indicates the need to take risks by trying out new things, even though these may turn out to be a waist of time.

The problem in health care, according to Waldman [32], is that there is hardly any room for doubt. *No practitioner wants to admit that his or her knowledge is less than perfect, and no patient wants to hear this.* Furthermore, *the current, medico-legal environment provides powerful disincentives for admitting lack of knowledge, for reporting a suboptimal or unexpected result, or for openly acknowledging an error* [32].

When we look at our regions, the professionals don't seem to have many problems with expressing doubt about continuity in care. They openly discuss and report problems. This is probably because they don't express doubt about their own knowledge, but about a collective ability to coordinate. This is a shared responsibility and problems can easily be blamed on system characteristics like fragmentation and specialisation. The capacity to coordinate is also much less at the heart of professionalism [29]. When a professional doubts his own knowledge, it seems he casts doubt on his own professionalism. That is not the case when he doubts a collective ability to coordinate.

But there is also another reason why innovation and experimentation are generally not part of the normal procedures in care organisations. Professionals are more and more stimulated to standardise and protocol their activities. Professionalism is becoming the equivalent for following guidelines. Organising a stroke service, for a major part, also involves standardising procedures. We see in the research regions that during a project phase these normal rules do not seem to apply. People seem to feel relatively free to try out new things, to make mistakes and to learn from these mistakes. Because a specific time period, concerning specific subjects, is labelled as a project, it becomes a safe haven for experimentation.

- *A learning culture*

Learning in health care usually only seems to be important when it involves clinical practice or direct patient care and only as something that professionals do individually. Learning does not seem to be associated with improving the organization of care. It is also not seen as a collective process. Yet, during the development of the stroke services, the participants from different organisations are expected to participate in a collective learning process. This means they must be willing to look at their own performance and share and discuss relevant information with professionals and managers from other organisations (cooperation, accountability and transparency) [33] [34].

At first different professionals saw the project of developing a stroke service not so much as a learning experience but as an opportunity to tell what all the other organisations do wrong. Professionals from different organisations also had different views of what continuity of care is. But in the process of discussing the different problems, they were able to see the consequences of their actions for others and learned how they themselves could help to improve performance. It seemed all participants had something to learn and to gain, while stimulated the exchange of information and, thereby, the learning process.

What makes it a stroke service is that we consult each other and therefore, more than we used to, know the views of other professionals; the philosophy behind the treatment… over

the walls of your organisation you talk with others about how to solve specific problems (rehabilitation physician region b).

But that does not mean there was complete trust and equality. Especially the physicians from the hospital and the rehabilitation centre had the most influence when information was interpreted and decisions where made. Also, not all relevant information was shared. Nonetheless, because the participants learned how other organisations and professionals work and think they were better able to interpret incomplete information. Furthermore, because more informal information channels were developed, there was the bigger change that withheld information still found its way to the other participants.

5. DISCUSSION

All of our cases were able to improve at least continuity of care, patient logistics and partly information logistics. However, only two of our regions showed significant improvements in quality of life and reduction in costs [5] [16] [17]. Still, the majority of the participants experienced an improvement in continuity of care (76%) and patient logistics (70%). Information logistics according to most respondents only improved between the hospitals and the nursing homes. The two regions that performed best were the first of all the regions with the most complete stroke service. In the hospital, the nursing home and the rehabilitation center stroke units were installed for intensive multidisciplinary rehabilitation of stroke patients. The integrated network in these regions also consisted of fewer participating organizations and professionals then in the other regions; only one hospital was involved, one nursing home, one rehabilitation center and one home care organization. This reduced complexity and made it easier to install communication channels for diffusion and (collective) interpretation of information. Professionals from different organizations started to take part in each other's multidisciplinary meetings and some professionals even started working in more than one organization in the network. Because it was easier to improve and maintain continuity in care in these regions, care was more integrated:

delivered more seamlessly and continuously, better tailored to the patient's needs, and based on a more holistic view of the patient.

In this study we show that enablers identified in literature on learning organisations play an important role in the learning process for integrating a care network. But, this is only a valid conclusion if we look at learning from a social perspective, not from a technical perspective.

A shared vision of a desirable future state plays a part in stimulating learning in care networks. Although it need not be a very concrete vision and need not be shared when we look at all the consequences, it should still give a general direction and thus inspire people to participate in a collective learning process.

Procedures for generating information about performance are important, but cannot just be put into place. By making the development of these procedures itself part of a collective learning process, more attainable procedures will be installed with more attention paid to 'softer' forms of information. Furthermore, *communication channels* play a part - not only information systems for the diffusion of explicit information, but also forums where people meet in person, where collective learning takes place and implicit information is shared. These forums must have the *responsibility delegated to implement changes and to experiment*. We see that an *incentive for these innovative actions and improvements* is not just making information available or giving money, but the creation of 'safe havens' by labelling situations as projects, trainings or experiments, so people feel safe to take risks.

Even in health care with its high skilled professionals, *learning skills* have to be attained – not so much individual skills, but collective skills in dialogue and discussion [7]. Collective learning takes practice and it would be beneficial if professionals or groups of professionals were trained in taking part in discussions and dialogues. Learning is further stimulated by a *learning culture* in which these professionals from different organisations are willing to learn from and with each. We can see in our regions that engaging in a collective learning process within project groups seems to stimulate the development of the relevant values for a learning culture, which further stimulates actual learning. But it seems unrealistic to expect total equality, openness, accountability and trust in a network, which authors like Popper [23] seem to expect from a true learning organization. Care networks like stroke services are characterised

by the fact that participants share some interests but not all. Politics, therefore, always play a part and participants will not always be willing to share relevant information. Still, by taking part in collective learning processes they will be better able to attain information and interpret incomplete information.

Learning needs for integrated care are ongoing

Organising the development of an integrated care network as a collective learning process seems to be an important step in installing these enablers and in creating a learning care network. But after the project phase, workgroups are cancelled in most regions and with those, the opportunity for collective learning and exchanging information, and often, also, the freedom to experiment. What happens now when new problems occur or when professionals leave or enter the network? Therefore, learning in care networks also requires programs and investments in people and structures that go well beyond the scope of temporary projects. When the project phase is over and the initiators and sponsors turn their energy to the next project, many integrated care networks depend only upon protocols and standardised transfer of information to keep the network integrated, meaning that there remains very little room for collective learning and for sharing tacit knowledge. Ultimately, there is a high risk of disintegration. This, alone, should be a strong incentive to foster learning as integral part of a care network.

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Chapter 6

Towards an effective and efficient care pathways – the example of thrombolysis in acute ischemic stroke

Jeroen van Wijngaarden, Maaike Dirks, Diederik Dippel, Mirella Minkman and Louis Niessen

1. INTRODUCTION

Over the past decade, services providing a seamless continuum of care for stroke patients have been introduced. Evidence suggests that these services are both effective and efficient [1] [2] [3] [4] [5]. In many European countries these services consist of stroke units in hospitals, of rehabilitation facilities and community care organisations. In these networks health professionals and organisations coordinate their work to make sure patients receive the appropriate care, in time and in appropriate settings. However, the pathway from onset of a stroke to treatment in a hospital is mostly far from seamless. Many stroke patients are admitted too late for appropriate treatment, or not at all. With the increasing effectiveness of acute stroke unit care and of thrombolysis it is vital that this situation changes. If patients with an acute ischemic stroke receive thrombolytic therapy within three hours they have an increased chance of recovery and good outcome [6]. More patients should be treated this way. We therefore need to identify and use available tools and implementation strategies to create an effective and efficient continuum of care for acute stroke patients [7] [8].

In this paper, we summarise the evidence in favour of a beneficial effect of intravenous thrombolysis, we explore the barriers for the delivery of this treatment, we suggest ways to overcome these barriers, and discuss an approach to measure improvements in the organisation of stroke care.

2. WHAT IS THE EVIDENCE FOR THE EFFECTIVENESS OF THROMBOLYSIS?

The NINDS-rtPA trial is the only phase III trial of thrombolysis for acute ischemic stroke that showed an unequivocal positive result [9]. In this study, patients were treated with intravenous alteplase within three hours from onset of symptoms. Other trials showed no comparable results, partly because of difficulties with the design and choice of outcome parameters, perhaps also because of a longer (6hr) time window, and higher doses of thrombolytic agent [10].

Wardlaw and colleagues included all published randomised controlled trials of thrombolysis in a Cochrane review [10]. They concluded that thrombolytic therapy, administered up to six hours after ischemic stroke, significantly reduced the proportion of patients who were dead or dependent at the end of follow-up at three to six months. However, they noted a substantial heterogeneity of effect. In the subgroup of patients who were treated within 3 hours of stroke onset, thrombolytic therapy appeared to be more effective in reducing dependency with no statistically significant adverse effect on death, and no appreciable heterogeneity in effect. International consensus now exists among stroke researchers and clinicians that thrombolytic treatment with rtPA, administered within three hours after onset of the symptoms of a stroke, is safe and effective[11.] It can save 1 out of 10 stroke patients from death or dependency [10].

Although the overall positive effects of thrombolysis are evident, the effect in the individual patient remains difficult to predict. About 6 percent of treated patients suffer symptomatic and often fatal haemorrhage as a consequence of treatment [6]. How prognostic variables such as stroke severity, ischemic stroke subtype and risk factors for haemorrhagic complications should affect treatment decisions concerning thrombolysis is not entirely clear.

3.   THE PROBLEM: UNDER-PERFORMANCE OF THROMBOLYSIS SERVICES IN ACUTE STROKE

In spite of the evidence and the existing consensus on the effectiveness of intravenous thrombolysis for acute ischemic stroke, only a limited proportion of stroke patients receive thrombolytic treatment in most hospitals. A survey in Cleveland, Ohio showed that of all admitted patients with acute stroke, only 2% were eventually treated with thrombolysis [12]. A study in 11 hospitals in the Netherlands showed similar results [13] [14].

Admission delay may be an important factor, but it does not fully explain why the proportion of patients treated with thrombolysis is so low. It has been suggested that

Table 1: Top three obstacles ranked by vascular neurologists in 12 centres in the Netherlands. (Baseline survey, 2004)

Patients call too late for professional help	10
GP's consult neurologists too late	7
GP's do not consult neurologists at all	6
Ambulance is too slow	4
Lab results are too late	3
ER procedures are too slow	3
Contra-indicators for treatment	4
CT abnormalities	3
Risks of treatment are too large	1
CT not available outside office hours	1
Skilled personal not available	3
Shortage of Su or IC beds	3
Colleagues have difficulties with thrombolysis	3
Financial constraints	3
No neurologists available outside office hours.	3

more than 25% of all admitted stroke patients could be candidates for thrombolytic treatment. Nevertheless, in most hospitals, only 1 to 8% of all stroke patients are treated [13] [14]. These figures suggest that both outside and inside the hospital there are barriers and hindrances for quick referral and management of these patients. In a recent survey among neurologists in 12 hospitals, we identified 15 potential barriers and hindrances (table 1) [14] that confirmed earlier findings [13].

4.   WHAT ARE THE SPECIFIC BARRIERS AND HINDRANCES FOR A CONTINUUM IN STROKE CARE?

The factors that are associated with delayed admittance and delay in in-hospital management are associated with non-delivery of thrombolysis. Several factors play a part both outside and inside the hospital. These barriers and hindrances will be described chronological: from onset to needle.

Outside the hospital

First of all the general public is not always aware of the symptoms of a stroke and calls too late for professional help. If they do call a general practitioner, neurologists may be consulted too late, or not at all by different GP's. Many GP's still visit their

stroke patients to check whether there is an indication for hospital admission. This takes up precious time. Some even wait to see if the symptoms clear up to determine if it was 'just' a minor stroke (or TIA). Next, transport may be slow, because personnel in the emergency incident room or paramedics are not able to identify an acute stroke or are not aware that these patients need to be transported to a hospital with a stroke unit, as soon as possible ('a1 or code red status'). They may not know which hospitals in the region have a stroke unit and perform thrombolysis, or a system for efficient allocation of emergency stroke beds may be lacking in a region.

Hospital procedures and medical judgment

In the hospital ER procedures can be slow and diagnostics may take a lot of time (lab tests, CT, ECG) when stroke patients have no priority over other patients. Beds may not be available or a ct-scan may not be available outside office hours. When patients do arrive in time and all procedures in the hospital are performed swiftly, some neurologists may be conservative in judging patient's eligibility for thrombolysis. Medical decision-making under conditions of uncertainty with a strict time constraint can be demanding. Anticipation on regret and disappointment are common psychological barriers for rational decision-making. In such cases doctors may prefer a conservative treatment [15]. On the other hand contra-indications for thrombolysis may themselves be too strict, and they may be used as an excuse not to give thrombolytic treatment to a patient, because it is not convenient at that moment. Finally, in case patients are judged to be eligible for treatment, trained staff is not always available for intensive neurological monitoring on the stroke unit or there is no financial coverage for this expensive treatment.

5.   WHY IS A SUCCESSFUL SERVICE DIFFICULT TO SET UP?

In summary, because of the involvement of many health professionals and the priority use of many resources, thrombolytic treatment is difficult to organise in an appropriate way. Neurologists or stroke-specialists have to start doing things they have never done before on such a scale: they have to convince professionals and managers of the effectiveness of thrombolysis and of the need to change procedures and

resource allocation. Regional collaboration between hospitals may also be required. In-hospital logistics have to be adapted, and this involves many departments and individuals. Improving thrombolytic therapy is therefore not only a medical issue anymore but also an organisational question. We know that thrombolytic treatment is safe, effective and efficient for some patients, now we have to determine the best way to organise a thrombolysis service on a regional, institutional and inter-professional level.

6. HOW TO IMPROVE IMPACT?

To improve the number of treated patients the EUSI executive committee argues that different measures should be taken [16] [11]. First of all a broad campaign aimed at the general public, but also aimed at health professionals should be launched (Table 2). The committee stated: 'Teaching the public about symptoms and signs of stroke is one of the highest priorities of public medical education' [16]. Health professionals need to learn that they are 'important and competent partners in the team providing acute stroke care' [16]. Second, protocols and other agreements have to be put into place to make sure stroke patients get priority treatment, and all relevant steps are taken. Thirdly, the infrastructure must be available, namely staff, financing and medical resources (Table 2). The Cochrane review on obstacles in implementation [17] showed that contra-indications may be limited and need to be defined better.

In the medical debate, not much is said about how to implement these changes in an effective and efficient way. We know from a substantial body of literature [8] [18] that the organisational factors are important contributors for successful improvement of the quality of medical care and the functioning of stroke units [1] [4] and, hence in the improvement of the impact of thrombolysis. We stress that at this moment, these factors should therefore be an important part of the stroke research agenda.

Table 2: Organisational factors in continuum of care for thrombolysis in stroke

Tools	Actors	Indicators
Extramural		
Agreements and protocols	General practitioners	Coverage in percentage
	Triage nurses in GP-service	Ibid
	Ambulance personnel	Ibid
	Emergency incident room	Idid
Training and information supply	General public	Coverage in percentage
	General practitioners	Ibid
	Ambulance personnel	Ibid
Infrastructure	Hospitals	No of ambulance services and no of hospitals in region
	Ambulance service	Average time to reach the hospital by ambulance
Intramural		
Agreements and protocols	Staff emergency service	Presence of treatment & communication protocols
	Staff priority ECG	
	Staff priority CT	Ibid
	Staff priority lab-results	Ibid
	Allocated beds	Ibid
	Neurologists	Ibid
Training and information supply	Emergency nurses	General training or information packages on stroke care 'dummy runs'
	Nursing staff of general and neurology departments	Training/information packages to perform thrombolysis 'dummy runs'
	Staff radiology department	Information supply concerning thrombolysis-related procedures
Infrastructure	Medical staff for thrombolysis treatment	No of neurologists and assistants Hours a week that all resources are available for thrombolysis

7.   AN ONGOING DUTCH TRIAL

In an ongoing Dutch study we try to incorporate all these relevant factors. For this study we randomly allocated 12 Dutch hospitals to an experimental or a control group. The purpose of this study is: 1) to enhance the implementation of thrombolysis in Dutch general hospitals, 2) to identify success factors and obstacles for implementation of thrombolysis, 3) to evaluate the effect of a high intensity implementation strategy in the experimental group to normal implementation (laissez-faire) in our the group, 4) to assess the cost-effectiveness of thrombolysis in routine daily Dutch

neurological care settings, taking into account the costs of implementation. For this study a toolbox with improvement actions is developed, to be used by the vascular eurologists from the experimental regions, who will function as change agents. An implementation strategy is selected to assist these change agents.

Possible interventions to promote higher impact

The toolbox consists of material to educate GP's and ambulance personal, material to base local protocols on and material to educate health professionals to deal swiftly with contra-indicators and indicators for thrombolysis. Because contra-indications may themselves be too strict they will be adjusted, by means of a 30-member Delphi panel consisting of international experts. The indications and contra-indications for thrombolysis in the Dutch guideline for acute stroke care are similar to the exclusion and inclusion criteria for the NINDS-rTPA study [9] These exclusion criteria have not been tested prospectively, and probably are too restrictive. Advise for revision of local protocols will be made available early to the six experimental regions and later; along regular channels, to our six control regions. The experimental regions will be asked to discuss the new protocol and reconsider their local protocol.

Implementation strategy

Evidence about implementation strategies shows that in order to change the behaviour of professionals it will not suffice to simply provide educational material. Combined and multifaceted interventions seem to be more effective in improving physician behaviour and the quality of medical care [18]. Implementation must include discussions of evidence, local consensus, feedback on performance (by peers), reminders and making personal and group learning plans [8]. These aspects are part of an implementation strategy we chose for our study, which is based on the Breakthrough Series (BTS) developed by the Boston Institute for healthcare Improvement [19]. The Breakthrough model is a multifaceted implementation strategy with emphasis on mutual learning among peer groups, educational meetings, measurement and feedback of results. Other elements like the use of opinion leaders, reminders and educational outreach visits are also incorporated to increase effects. The focus of the strategy is implementation (spread and adaptation) of evidence-based medicine and good practices in health care organisations.

The intervention

At the start of the implementation phase each centre will be asked to form a team consisting of a leading vascular neurologist and a nurse from the neurology department. Their first task is to define the top three bottlenecks in implementing thrombolysis in their region. For each bottleneck they are asked to set up an improvement plan for change [20]. Also, a specific aim must be chosen, formulated in terms of an ambitious and achievable percentage of thrombolysis. During the project period of two years, three meetings are organised in which all six hospitals participate. Between these meetings participating neurologists and nurses implement changes according to their step-by-step plan. An expert panel will give feedback on these plans. Then the centres implement the changes, while monitoring the results measured as the percentage of thrombolysis. During joint meetings neurologists and staff nurses discuss and exchange information about the progress of the implementation process, and try to find solutions for obstacles. Implementation specialists and experts form best practices will support these meetings. During the entire project the participants are in contact with each other and the members of the expert panel. These contacts are supported by an interactive website with access to the toolbox.

8. HOW TO ASSESS THE EFFECTIVENESS OF ORGANISATIONAL INTERVENTIONS?

The paradigm of intervention research is randomised controlled clinical trial with a single well-described intervention. But because the implementation to expand thrombolysis is aimed at organisational changes many variables play a part. Allocation of the intervention is at the institutional level, and randomization only guarantees an even distribution of potentially confounding factors between experimental and control regions if a large sample of institutions are involved. This makes the study expensive and difficult to run. A second problem is that the intervention itself often remains a black box. Organisational interventions are difficult to standardize because they are part of a complex social setting. For example: many clinical trials have been carried out that demonstrate the effectiveness of stroke units or stroke services compared to usual stroke care. But it is still difficult to determine which part of a stroke

service actually helps to improve performance, because no stroke service is the same. Replication of these interventions is also difficult because different countries have different systems and therefore different organisational characteristics.

To overcome these problems and to determine how to improve thrombolytic treatment we use a cluster-randomized controlled trial design with other qualitative and quantitative research methods [21]. The traditional cluster-design is used to select the participants in the trial. Randomization takes place at the hospital level, with pairwise stratification for prior thrombolysis rate. The primary outcome is the delivery of thrombolysis or not, at patient level. At hospital level, it is the proportion of patients who received thrombolytic treatment, as a fraction of all admitted stroke patients. Next, we identified the organisational characteristics that are expected to have a direct effect on the primary outcome: delivery of thrombolysis or not. These characteristics are quantified and measured before and after the implementation phase of the trial and tested in the final multiple logistic regression model, that includes patient characteristics and independent predictors of the delivery of thrombolysis, and an indicator- variable to cover regional characteristics: the 'situation score'. For this purpose, all regions receive a 'baseline score' at the beginning and at the end of the project. In order to assess the relative contribution of some of the implementation actions, (changes in) (subsets of) the situation score can be related to the outcomes i.e. thrombolysis rate. In Table 2 the organisational characteristics we use to determine the 'situation score' in our trial are presented. The variables were categorized first by distinguishing between intramural (within the hospital) and extramural (outside the hospital) variables. These were subdivided into three categories. The first category contains all agreements or protocols about procedures involving stroke patients. The second category includes all forms of information or training, so relevant actors (public, caregivers, paramedical workers and others) know how to act. Both the first and the second category involve all actors who play a role in the pathway between "onset to needle". The third category is the infrastructure. It contains service characteristics of the region. Extramural infrastructure is subdivided in the average time it takes an ambulance in the region to reach a hospital and the number of ambulance services and hospitals in the region (complexity of the region). Intramural infrastructure is subdivided in the number of neurologists that work in the hospital (complexity of

the hospital) and how many hours a week all provisions are available in the hospital to perform thrombolysis (trained personal, material, finance).

Because not all relevant organisational characteristics and aspects of the intervention can be quantified, qualitative research methods must be used to interpret the results of the quantitative analyses. We asked our participants to keep a diary of the interventions they do. We also take part in their meetings. Based on the data from the diary and the meetings, topics will be identified that are used to interview participants both in the experimental and control regions. The results will be used to make profiles of the characteristics of, and the developments in our regions during the implementation phase. Based on these profiles differences and similarities between our regions can be identified, that can be used to interpret the results of the quantitative analyses.[22]

9.   FROM TRIAL TO IMPLEMENTATION STRATEGY FOR CARE PATHWAYS

For several years already it is known that thrombolytic treatment can be effective and efficient and that it needs a functioning integrated pathway to increase it's application. In our country we are identifying effective and efficient tools to enhance implementation. Now we like to invite researcher and health professionals from other countries to shift research focus from clinical trials to implementation trials to evaluate available tools and implementation strategies to support the further development of modern effective and efficient continuum of care in acute stroke.

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Chapter 7

General discussion, conclusions and recommendations

1. INTRODUCTION

We know that integration of care leads to better results in terms of effectiveness and costs [1] [2]. However, there is a lack of evidence about the organisational processes and interventions by which these results can be reached and sustained [1]. In this thesis the integration of care was analysed at different organisational levels: strategic, tactical and operational. Because the organisational processes and interventions are not the same at these different levels, different theoretical frameworks were used for the analyses. At the strategic level the focus was on horizontal self-steering. At the tactical level the focus was on coordination and at the operational level a learning perspective was used. The aim was to identify insights and tools that help develop and sustain integration of care. The central question of this thesis is:

How do organisational processes and interventions support integration of care?

This main question was divided into five research questions, each of which has been addressed in a separate chapter of this thesis. In the next paragraphs the main conclusions will be restated by answering these research questions. By answering the last research questions the methodological aspects of this thesis are also considered. Finally the implications of our findings for practice, policy and research are discussed.

2. HORIZONTAL SELF-STEERING

The first research question was: *How does horizontal self-steering on the strategic level support integration of care?*

In the analyses it was shown that the actors in the case studies in our research used several instruments to develop integrated care. These instruments are comparable to the instrument categories governments use in a network [3]. However, because the instruments are employed collectively, they are dealt with differently.

First: the parties in the case study collectively introduced steering agents, namely a chairperson and a policy staff. For these steering agents to be effective they had to

be seen as 'impartial' and 'unprejudiced' by the parties. But that does not mean they had to treat all the parties the same. For effective steering the division of the agent's loyalties needed to reflect the balance of power between the parties.

These steering agents played an important part in making sure all the partners upheld their agreements without compromising their relationships. So as not to place their mutual relations under strain, the parties rarely held one another to account. This applied in particular to those agreements that were of collective importance but of only limited individual importance. The chairperson or policy staff had more room for maneuver to play such a guiding role without placing the mutual relations under strain since they were able to speak on behalf of all the parties.

Second: parties also drew up formal agreements, like a covenant. However it was difficult for parties to commit themselves because the actors on different levels in the network had much autonomy and consequently the representatives had a limited mandate. The use of a formal agreement for horizontal self-steering also provided no guarantee that concrete decisions were taken or that these would be implemented. Decisions were often formulated in abstract terms so there was room for maneuver during the implementation process. That is why not just one decision was taken but a series of staged and linked decisions in different decision making rounds with different representatives. That is one reason why even when a covenant has been signed the agreements were not legally enforceable.

It may also be asked whether these agreements should be legally enforceable, as is often argued for in debates about government steering. Cooperation in the network was a permanent process of seeking consensus and of acting jointly over an extended period. A legal tussle can be highly damaging for internal relations within the network. A covenant therefore appeals to social rather than legal sanction mechanisms. The most important incentive for parties to abide by the agreements was provided by their reputation and the risk that they would otherwise no longer be involved in future agreements.

Incentives were also used to stimulate the grassroots to cooperate and to initiate projects in line with the task framework developed by their representatives. The difficulty in using this instrument for horizontal self-steering was that the representatives not

only needed to agree about the task framework, but also about the percentage that each partner would need to contribute to the 'subsidy'.

A government may develop performance indicators to measure quantitative outcomes and also attach consequences to such measurement. How these outcomes are achieved is up to the actors themselves [3]. In the case of horizontal self-steering performance indicators were used to connect the different decision making rounds. Because the grassroots had a lot of autonomy and relevant knowledge, the development of indicators in our case also took place in these different decision making rounds. The representatives formulated important quality issues and these were operationalised in quality indicators by the grassroots and used for reporting to the representatives about improvements. This way it became possible to stick to a single line in the various decision-making rounds.

Finally, transfer of knowledge and information was used in order to influence the behaviour of the parties. This was done to encourage a shared approach towards a subject. For example, information was used to inform and involve the grassroots. In addition, information was gathered in order to obtain an objective picture to stimulate agreement between the parties. This helped the parties to arrive at a common stance more quickly and also to create support among the grassroots. In practice this instrument was only effective if the information was consistent with the frame of reference of the recipient(s).

There has been much debate about instrument-based approaches. It is said that instruments are often presented over-technically and rationally and are therefore not effective [4] [5] [6]. Our research shows that instruments are being used in real practice and seem to stimulate integration of care. But these instruments for self-steering are used differently, for different purposes than is stipulated in classical literature [6] [7]. They are mainly used to stimulate interactions. For example indicators are not used to standardise output but to connect different decision-making rounds. Secondly: steering agents are introduced not to dominate but to guide, arbitrate and facilitate. Even formal agreements are not set in stone, but are a point of departure for further interaction. These instruments are only effective

until there is both a reconstruction of the parties' autonomy and of the balance of power within the network.

Although we observed that horizontal self-steering is possible and can lead to integration of care, we also observed that it is a very time consuming process, especially on a regional level because many actors need to get involved at different levels and there is no guarantee that this will result in concrete improvements. Furthermore, because decisions are based on consensus there are more stimulants to keep the status quo than there are to innovate. At the positive side the participants are focussed on cooperation and on providing the necessary integrated care for patients in a specific region.

3. COORDINATION

The second research question was: *How does coordination on the tactical level support integration of care?*

In studying coordination we used the classification scheme developed by Mintzberg for coordination mechanisms [8]. But in view of the phenomenon we studied, we had to add a few aspects to his classification. Mintzberg employs a management perspective in which he looks at coordination in a somewhat hierarchical way. We stress that various coordination mechanisms can also be introduced and used in a non-hierarchical (lateral) way. Moreover, in addition to formal forms of coordination, we found also informal forms of coordination. We therefore distinguished two axes with opposite end-points: hierarchical versus lateral and formal versus informal coordination. Hierarchical coordination is imposed by one of the actors. In lateral forms, there is coordination among equals. Formal coordination, unlike informal coordination, is based on official, structured agreements.

The coordination mechanisms that were used for integration of care were direct supervision, standardisation of the work process, standardisation of output, standardisation of knowledge and skills and lateral adjustment (through direct communica-

tion). It was shown that in the regions that were able to improve effectiveness and reduce costs, lateral adjustment in which actors achieve coordination through mutual consultation, was the most important mechanism in delivering seamless and continuous care. It is about creating and maintaining a network of relationships between professionals. Coordination now no longer took place with an unknown person, but with someone with whom there was a lot of contact, which meant that coordination assumed a personal slant. Thus, there was less of a barrier to seek contact even outside the formal coordination times so that it enabled problems to be solved quickly. Lateral adjustment is also an extremely flexible mechanism, which made it possible to respond to changing conditions and variability in the care process and in patient characteristics.

The additional importance of standardisation seemed to be that a number of crucial tasks become so routine that they no longer required any consultation between professionals. The consultation could therefore concentrate on the variable aspects of the care process. Therefore different standards were introduced in most of our regions (by the professionals themselves). For stroke care, particularly during the first three days in hospital, the work process was standardised. In addition, standard transfer forms were developed for all caregivers. There was also some standardisation of knowledge and skills taking place for nursing by making a single treatment concept (NDT) central. In the integration of care for stroke patients we also saw a reassignment of tasks, as a consequence the number of actors involved were reduced and less coordination was necessary. An example is that often just one nursing home, with a single department specialising in stroke care participated.

It seems direct supervision had a small part to play for integration of care because of the more or less equal relations between the partners. In direct supervision, 'coordination is established as a result of a person's assuming responsibility for the work of others, giving them instructions and monitoring the performance of the work' [8]. We observed that during the developments the relations became more equal even within the involved organisations. Direct supervision, in which the doctor traditionally decides what happens, gave way to more lateral forms of coordination. But as a result of these equal relations we expected, based on our observations on horizontal

self-steering, that the parties in a network would be reluctant to correct one another explicitly when agreements are not observed. This is indeed what happened in one of our best performing regions. A few months after the project phase was over the project leader resigned and within a few weeks the performance started to deteriorate. Specifically, the length of hospital stay started to increase. It seems partners in integrated care networks are also disinclined to correct one another and a network manager is needed to uphold the agreements.

At the start of the projects in the research regions, many managers but also professionals held a rather reductionist perspective on integrated care chains. They saw an integrated care chain as a modular system, in which modules (organisations, professionals) can be replaced at any given moment without disrupting integration. The claim was that coordination is mainly based on clear standards about the transfer of patients and information. If these standards are in place, patients can choose any combination of professionals or care organisations and care will be integrated. Our research shows that this is a too narrow view on integrated care. Integrated care relies for an important part on relationships between professionals. These relationships facilitate communication and information exchange. An integrated care chain is not a modular system but a network of professionals.

4. LEARNING

The third research question was:

How does learning on the operational level support integration of care?

When an integrated care chain is seen as a modular system, people expect that all the knowledge professionals need to be able to provide seamless care can be made explicit and put into protocols. However we know from literature that in referral relations, informal relationships play an important part, because more tacit information is transferred this way [9] [10]. Still professionals seemed to expect this is not necessary in referral of stroke patients between hospitals and nursing homes or rehabilitation clinics because there is a lot of explicit information available about

patients, based on standardised diagnostic instruments. But our research on integration of care shows this not enough, as we could see from the development of transfer criteria between a hospital and a nursing home (chapter 5). Referral in this case is not only based on hard clinical facts about the patient, but the context is relevant as well, as are the expectations of health professionals about possible recovery. Much of the relevant knowledge was therefore difficult to codify and stayed implicit (tacit knowledge). Only by collectively discussing which criteria would be necessary and discussing the results, were the involved professionals from different organisations able to share this implicit knowledge. Professionals learned how other professionals work and think and how their tasks are related. That is why they were better able to judge when and where to refer a patient, which information to transfer and how to create continuity in care. So, instead of looking at the care process from an organisational or professional perspective, they developed a mental image of the network: a network perspective.

Professionals also began to realize that it is not possible to only depend on these criteria. They could not make them so explicit that they would guarantee integration of care. That is an important reason why there seems to have grown an appreciation for sharing information and using each other's expertise through direct communication. So, they learned not to depend on standardisation of knowledge alone, but to use other sources of information and other forms of transferring knowledge. This of course is not a total revelation for these professionals, but it seems through the learning process the importance of direct communication has become more visible.

An important barrier for relationships between these professionals to develop and for sharing knowledge was the use of language. These professionals have different backgrounds, work in different organisations, and therefore use a different jargon. This led to misunderstandings and even conflicts as we could see from the discussions about the transfer criteria in chapter 5. One of the discussions revolved around the word complex. Both the rehabilitation physicians and the nursing home physicians claimed they were themselves best equipped to take care of complex patients (with complex goals) and therefore could not agree about the transfer criteria. It took a while before they realised they defined complex in different ways. Only after they

agreed upon the meaning of the word, the members of the workgroup were able to come to an understanding. Learning each others jargon or developing a collective jargon is therefore an important step in developing integrated care.

Striking furthermore was, that at the end of the project health professionals in referring patients not only took account of clinical facts, but also looked more explicitly at coordination and efficiency. This is something managers have often tried to achieve without success. By giving these health professionals the information and the responsibility to be able to collectively improve patient logistic, they became more aware of the importance of organisational aspects. Because they are themselves part of the process, they were also better able to interpret this information and take relevant actions. At the end of the project phase all respondents agreed that integration of care for stroke patients had increased.

In the Netherlands we see that in different regions insurers, managers but also professionals try to stimulate integration of care by just copying protocols and transfer criteria from successful regions. Our research shows that successful integration of care is not based on using the right protocol, but on collective learning processes that happen while professionals discuss procedures and results to make (for example) protocols. In these learning processes both explicit and tacit knowledge is exchanged. Stimulating integration of care is therefore about enabling collective learning.

5.   LEARNING ENABLERS

The fourth research question was:

How can learning be enabled to sustain integrated care?

Because there are only a few publications on learning in networks, we used literature on learning organisations. From this literature seven enablers for learning were identified [11-16]. The seven enablers are:
- A shared vision about a desirable future state,
- Procedures for generating information about performance,

- Communication channels for diffusion and (collective) interpretation of information,
- Decentralized responsibilities for implementing changes and experimentation,
- Learning skills,
- Incentives for innovative actions and improvements, instead of punishments for mistakes,
- A learning culture.

We have shown that these learning enablers are also relevant for learning in networks. But this conclusion is only valid if we don't regard learning as a purely rational process as some scientists do [17]. Learning as we've seen is not only about rationalising the processing of information. Because people have different interests and perspectives, the same information has different meanings to different people. Its meaning is constructed and this construction is part of a social process. Enabling learning is about facilitating these social processes so people are willing and able to collect, share and collectively discuss, interpret and use information. That is why the introduction of communication channels is not only about information systems or the diffusion of explicit information. But it involves creating forums where people meet in person, where collective learning takes place and implicit information is shared. Furthermore learning in networks especially requires the skills for taking part in dialogues and discussions. But it also requires incentives for people to take innovative actions, namely by labelling situations as projects, trainings or experiments, so they feel save to take risks. Because of the involvement of so many participants a shared vision cannot be a very concrete vision and need not be shared when we look at all the consequences. It should give a general direction and inspire people to participate in a collective learning process.

Professionals on the operational level play an important part in the introduction of these enablers. In our case studies we saw that because of their involvement in developing procedures for generating information about performance other informal means of sharing more tacit information were introduced that were very important for integration of care. But the tactical level shall often need to give the first push when it involves the introduction of these procedures, of communication channels,

and of learning skills. Even the strategic level will need to get involved with the introduction of a learning culture, incentives, decentralisation of responsibilities and especially with the introduction of a shared vision. Professionals need to know that these enablers are not just temporarily available because learning is an integral part of the long-term goals of the organisations.

6. EVALUATING INTEGRATED CARE

There have been many clinical trials that have demonstrated the effectiveness of integration of care compared to usual care [1] [2]. But it is still difficult to identify exactly which interventions and intervention strategies help to improve performance [1]. That is why the following research question was formulated:

How can we develop a research design to evaluate integration of care, with the use of both qualitative and quantitative research methods?

To evaluate the implementation of integrated care qualitative methods and designs were mostly used in this thesis as point of departure. This qualitative strategy was best suited to get an 'in depth' understanding. Integration of care could now be studied from a social process perspective taking into account the different perceptions and goals of participants and the different levels on which professionals and managers participate in integration of care. It made it possible to identify which tools and strategies are used and how these tools and strategies function in different contexts with different participants and in situations where there is continual and complex change in the intervention. We were able to show the importance of informal relations, collective learning and tacit knowledge. For example in chapter 2 horizontal self-steering was studied. If we had simply compared all the regions in the Netherlands, counted which instruments they used and compared this with for example the number of projects for integration of care they had, we probably would not have found any correlation. Our research shows that the effectiveness of the instruments is not only in their availability but in how they are used and perceived. The same goes for learning enablers and coordination mechanisms.

But when we studied integration of care for stroke patients we wanted to be able to compare the interventions in a multi-case study design with quantitative data on effectiveness and costs. To make this possible two steps had to be taken. First of all because different regions perform different kinds of interventions, we had to find a common denominator. That is why instead of focussing on specific interventions we focussed on coordination mechanisms that support integrated care. The second step was to identify which mechanisms were used in the different regions. This could not be done by simply counting. A qualitative description and analysis of how integration of care took place in these different regions was necessary to list these mechanisms and assign a score. Using this score made it easier to compare the results in different cases with our data on effectiveness and costs. That is how it was possible to identify the coordination mechanisms that support integration of care. Still we employed a qualitative analysis to compare the results, mainly because the number of observations did not allow for statistical multilevel techniques.

To explore the influence of learning we also used a qualitative design in chapter 4 and 5. That is how we were able to see the influence of collective learning and sharing tacit knowledge. These characteristics of integration of care are very difficult to quantify. First of all because respondents are not always aware of what they've learned, especially when it involves tacit knowledge. Secondly, because it is very difficult to operationalise learning if the research subjects work in totally different circumstances in which different kinds of knowledge are relevant.

The problem with using a qualitative design is that generalisation is only possible on analytical grounds, not on statistical grounds. That is why in addition to the qualitative (multi) case studies performed for this thesis we also took up the challenge to incorporate research questions on the processes around the integration of care in a broader trial on the effectiveness of thrombolysis. For this we had to make the organisational interventions explicit or measurable via a qualitative approach. Data collection on the nature and development of the intervention had to be captured as part of the enrolment of the trial. Power analysis showed that a minimum of 12 settings was required to answer our organisational questions in a statistical meaningfull way. Using this design we are better able to open the black box and generalize our findings.

7.   IMPLICATIONS FOR POLICY AND PRACTICE

In the Netherlands we see that in different regions insurers, managers and professionals expect they can stimulate integration of care by just copying the arrangements made in other areas, like protocols and transfer criteria. No attention is paid to the arrangements already made in these regions and the communication networks that may already exist. Informal links are cut in favour of protocols and because there is hardly any contact between professionals from different organisations there are no opportunities for collective learning and for developing social networks. As a result care becomes even less integrated. Because transparency is so important in health care there is also more and more emphasis on standardisation of knowledge and measuring results. The danger is that there is no room for sharing tacit knowledge and softer forms of information about performance for developing and sustaining integrated care. The findings in this thesis show that integration of care is only partly about introducing protocols in which knowledge is made explicit. Integration of care is mainly about creating optimal conditions for collective learning and building networks of relationships between professionals.

When we look at the future of integrated care there is still much to be done. In most countries integration of care has just started with a few patient categories in some parts of the country. Still, attention already seems to shift to other areas and with it, money and resources for research and implementation. The focus is now on transparency and quality indicators [18] [19]. This will hopefully make it possible for clients and insurers to compare the quality of different care chains and it may stimulate the partners in a network to innovate and improve. The downside is that it now leaves health care organisations and professionals on their own in developing integrated care arrangements.

Many health care systems in Western countries are in a period of transition [20]. To improve efficiency and effectiveness politicians and policy-makers are experimenting with market mechanisms and with networked modes of management to replace the more hierarchical and bureaucratic methods traditionally used. Often we can even find elements of all these three modes: government control in parts of the system and at the same time stimulation of both competition and collaboration

[21] [22]. The question is what the effects will be on integrated care? In chapter two we looked at the possibilities for horizontal self-steering on a regional level within a network mode of management. We argued that horizontal self-steering at this level is possible with the use of different steering instruments. But we also observed that it is a very time consuming process, because many actors need to get involved at different levels and there is no guarantee that this will result in concrete improvements. That is why horizontal self-steering may be more effective on a more local level. Furthermore, because decisions are based on consensus there are more stimulants to keep the status quo than there are to innovate. At the positive side the participants are focussed on cooperation and on providing the necessary care for patients in a specific area.

We have also discussed that an integrated care chain is not a modular system in which the parts can be changed at any given moment. There are substantial transaction costs involved. This inhibits competition within existing care chains. Competition will therefore probably mostly play a part between different care chains or before the development of a care chain. In the case of a stroke service for example, different nursing homes can compete for the opportunity to form a stroke service with a specific hospital. That is why health care organisations can be part of different care chains with different organisations. After the development of a care chain, competition will possibly stimulate partners in these chains to keep improving effectiveness and efficiency and not to settle for the status quo. It can also stimulate participants to look for new partners if they turn out not to be able to deliver more efficient and effective forms of integrated care with their current partners. But there are other risks in introducing a competitive market. One of the risks is that health organisations may be less inclined to cooperate with each other to form care chains, because they are also competitors in other areas. For example, home care organisations compete with nursing homes that are planning to deliver some home care services. Another risk is that health care organisations will be less willing to share information about successful innovations and improvements. Learning in health care can be hindered. Whatever combination of bureaucratic control, market mechanism and network mode of management is used, a system is needed in which organisations in health care are stimulated to deliver integrated care for the population they serve. Because

every country develops its own mix of mechanisms, policy makers must become aware of the incentives they built into the system and how this stimulates or hinders integration of care.

In the Netherlands a major barrier for integration of care is our compartmentalised financial system. From January 2006 Curative services (GP's, general hospitals, rehabilitation centres) are entirely financed through contracts with private insurers, while Care services (nursing homes, home care organisations) are financed through a compulsory national health insurance scheme for exceptional medical expenses (AWBZ) [23]. Given these heterogeneous financing arrangements it is problematic for cure and care organisations to share resources and therefore to install collective arrangements (like a chain manager) or to redistribute resources to other parts of the chain. To stimulate integration of care these financial barriers should be lifted by introducing a system where money follows the patient and not the other way around. For example a fixed budget can be made available based on diagnosis and treatment that must cover the entire care trajectory of specific patient categories (transmuraal DBC). Quality indicators (structure, process as well as outcome indicators) should be part of the arrangement to ensure care is also delivered seamless and continuous.

8. IMPLICATIONS FOR RESEARCH

Within health care a quantitative paradigm dominates the research agenda. From this perspective, research is about testing predetermined hypotheses and theories, using questionnaires or instruments to identify cause and effect relations. These hypotheses and theories stem from the literature and remain fixed throughout the study. The goal is to test and verify them [24]. Within this paradigm the dominant design for health care research is the randomised controlled clinical trial. We're not denying that RCT's are important for health care. They have proven their relevance in identifying effective medical interventions. But it is not the ideal design for all research questions. Especially when little is known about a specific phenomenon, qualitative methods need to be used to formulate theories and hypotheses.

The quantitative paradigm is so dominant that qualitative studies are hardly published in high-ranking health research magazines. You can't even find the results of most qualitative studies in the Medline or the Pubmed database. In our experience reviewers also have the tendency to judge a qualitative publication based on criteria from the quantitative paradigm. They expect a straight line of evidence from cause to effect (especially when you talk about instruments). But causal lines are mostly long and not very clear. More particularly, in the field of integrated care organisational processes are highly complex, involve many different people and organisations and are context-bound. That is why the goal of qualitative studies is often to describe and analyse the complexity of a phenomenon, identify patterns and formulate hypotheses; not to find evidence for effectiveness [24] [25].

Consequently qualitative studies are mostly published in specialist magazines that are hardly read by quantitative researchers. That may be the reason why the findings and insights from qualitative analyses seem to be scarcely used as input for quantitative research like RCT's. Especially when organisational changes are evaluated, the consequence can be that research seems to go around in circles. For example: many clinical trials have been carried out that demonstrate the effectiveness of stroke units or stroke services compared to usual stroke care [26-28]. But it is still difficult to determine which part of a stroke service actually helps to improve performance, because no stroke service is exactly the same when we only look at the concrete interventions that are done. Some stroke services focus for example on the introduction of liaisons, where others introduce multidisciplinary meetings. On the surface these interventions seem totally different and therefore not comparable. But when we use insights from qualitative research on organisations, we can see that the same kind of pattern, namely the same coordination mechanism, lays underneath them. These insights can therefore help to compare different kinds of stroke services in an RCT to identify evidence-based interventions.

This thesis shows that by using a combination of methods and research designs much more can be learned about integrated care. Also the use of different methods within one design can lead to more insights. That is why it is important for researchers to be more aware of other research traditions, to get acquainted with their results and

findings, and ideally to join forces more often. Because enough research questions concerning integration of care remain to be answered. In this thesis we studied integration between cure and care organisations. But for the quality of life of chronically ill patients, welfare and housing should also be part of the arrangements. Are the tools and strategies we've identified relevant to involve these organisations? Furthermore we've studied integration in a pathway in which patients are treated consecutively by professionals from different organisations. But some patient categories need to be treated alternatively by professionals from different organisations. How can this kind of integration be supported? We've also shown how professionals who work across the care pathway stimulated integration of care. But there must be more possibilities for task differentiation to support integration of care. As we said integration is also influenced by incentives that are built in the system. But we still need to identify which systems or system characteristics hinder or stimulate integration of care. These are relevant questions that need to be answered to further support integration of care.

Improving the quality and effectiveness of health care is not only a clinical issue, it is often an organisational issue. To evaluate health care services we therefore need research designs that are capable of dealing with complex interventions by using a combination of methods and perspectives. I hope this thesis stimulates and contributes to the development of such designs.

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Samenvatting

Integratie van zorg vormt een centraal vraagstuk in de gezondheidszorg in veel Westerse landen. Integratie van zorg kan worden gedefinieerd als een organisationeel proces van coördinatie gericht op het bereiken van continuïteit in de zorg, afgestemd op de behoefte van de patiënt. Het doel is om de zorg zowel inhoudelijk als qua logistiek af te stemmen, zodat de patiënt op het juiste moment, op de juiste plaats, de juiste zorg krijgt en er continuïteit is in de behandeling. Integratie is een complex vraagstuk omdat de zorgverlening door specialisatie van hulpverleners en organisaties steeds meer is gefragmenteerd. Veel patiënten krijgen daarom te maken met een groot aantal verschillende hulpverleners, die vaak ook nog in verschillende organisaties werken. Integratie van zorg vindt daarmee plaats in een netwerk van autonome partijen (hulpverleners, managers, organisaties) die met elkaar moeten afstemmen om hun doelen te bereiken, zonder dat één van de partijen de leiding heeft. Integratie is een belangrijk vraagstuk omdat er inmiddels veel bewijs is dat het zowel tot betere gezondheidseffecten als lagere kosten kan leiden. Wat we echter nog niet precies weten is welke organisatorische processen en interventies bijdragen aan integratie van zorg en het behoud daarvan.

Het feit dat we wel weten dat integratie van zorg effectief is, maar nog niet precies weten welke organisatorische interventies en processen daarbij een rol spelen komt met name door het onderzoeksontwerp dat veelal wordt gebruikt. Het betreft vaak een zogenaamde klinische trial. Één van de nadelen van dit ontwerp is dat vooral organisatorische interventies niet altijd goed beschreven en geanalyseerd worden, omdat er ten onrechte van wordt uitgegaan dat deze op een gestandaardiseerde manier zullen worden uitgevoerd. In dit proefschrift wordt gezocht naar mogelijkheden om met een beter onderzoeksdesign te komen voor de evaluatie van integrale zorg.

Het doel van dit proefschrift is om organisatorische processen en interventies (strategieën en instrumenten) te identificeren die de integratie van zorg ondersteunen. Daarbij richt de analyse zich met name op integratie van zorg voor patiënten die volgtijdelijk te maken krijgen met hulpverleners uit verschillende organisaties. Specifiek is gekeken naar de zorg voor mensen met een CVA ofwel een beroerte. Deze patiënten komen meestal eerst in een ziekenhuis terecht, waarna ze veelal zorg nodig hebben van hulpverleners in een revalidatiekliniek, verpleeghuis, verzorgingshuis of

thuiszorg. Voor de integratie van deze zorg zijn managers en hulpverleners op zowel strategisch, tactisch als operationeel niveau betrokken. Daarom komen al deze niveaus aan bod in dit proefschrift.

In hoofdstuk 2 van dit proefschrift wordt geanalyseerd op welke manier processen op het strategisch niveau van organisaties kunnen bijdragen aan integratie van zorg. Het kenmerkende van het strategische niveau is dat daar de lange termijn doelen worden vastgesteld van organisaties. Daarbij is gekeken naar de mogelijkheden van managers van verschillende organisaties om gezamenlijk te stimuleren dat hun medewerkers op tactisch en operationeel niveau verschillende vormen van samenwerking aangaan. In de literatuur wordt in dit kader gesproken over horizontale zelfsturing. Het gaat om de mogelijkheden van partijen in een netwerk om tot gezamenlijke sturing te komen. In het onderzoek wordt aangetoond dat partijen verschillende instrumenten inzetten om tot horizontale zelfsturing te komen, namelijk het gezamenlijk aanstellen van een voorzitter, het maken van formele afspraken, het afspreken van prestatie-indicatoren, het inzetten van prikkels die hun achterban stimuleren om te werken aan bepaalde doelen en het verzamelen en verspreiden van informatie om de achterban op één lijn te krijgen. Daarbij worden in dit proefschrift verschillende randvoorwaarden geïdentificeerd waaronder deze instrumenten effectief zijn en bijdragen aan integratie van zorg. Het betreft duidelijk andere randvoorwaarden dan veelal in de literatuur worden genoemd. Bijvoorbeeld moet bij de inzet van deze instrumenten rekening worden gehouden met de bestaande machtsverhoudingen in het netwerk. Tevens moet er ruimte voor medewerkers op andere niveaus zijn om inbreng te hebben, vanwege de grote mate van autonomie die zij veelal hebben en vanwege hun deskundigheid. Daarmee wordt duidelijk dat horizontale zelf-sturing mogelijk is en bij kan dragen aan integratie van zorg. Echter horizontale zelfsturing is een langdurig proces, met name op regionaal niveau, waarbij veel actoren op verschillende niveaus betrokken moeten worden en er geen garantie is dat het leidt tot concrete resultaten. Omdat besluitvorming is gebaseerd op consensus zijn er ook meer prikkels om de status quo te behouden, dan om te innoveren. Daar staat tegenover dat de deelnemers wel gericht zijn op samenwerking en op het leveren van integrale zorg voor cliënten in de regio.

In hoofdstuk 3 wordt de blik gericht op het tactische niveau, waarbij wordt gekeken hoe coördinatie integratie van zorg ondersteunt. Op het tactische niveau in organisaties worden met name de besluiten genomen met betrekking tot de structuur van de organisatie. Vijf projecten zijn geëvalueerd, die bezig waren met de integratie van zorg voor CVA-patiënten. Daarbij is onder meer gekeken naar gezondheidsuitkomsten bij patiënten en naar kosten. Geanalyseerd is welke coördinatie-mechanismen bijdragen aan betere resultaten. Uit de analyse komt naar voren dat zowel direct toezicht, standaardisatie van werkprocessen, standaardisatie van output, standaardisatie van kennis en vaardigheden als laterale aanpassing een rol spelen. Echter, laterale aanpassing waarbij hulpverleners afstemming bereiken door wederzijds overleg blijkt het belangrijkste mechanisme te zijn voor integratie van zorg. Hierdoor ontstonden informele netwerken van hulpverleners die onderling snel relevante kennis en informatie uitwisselen, waardoor de zorg beter wordt afgestemd. De projecten waar veel aandacht was voor laterale aanpassing bereikten dan ook de beste resultaten in termen van gezondheidseffecten en kosten.

In hoofdstuk 4 wordt aandacht besteed aan het operationele niveau. Op het operationele niveau van een organisatie worden de dagelijks beslissingen genomen over de primaire dienstverlening of producten van een organisatie. Een belangrijk vraagstuk met betrekking tot integratie van zorg dat op dit niveau speelt is onder welke voorwaarden hulpverleners in staat en bereid zijn om hun werkwijze te veranderen en tot afstemming te komen met hulpverleners uit andere instellingen. Daarbij is in dit proefschrift gekeken welke rol leren speelt bij het afstemmen van zorg tussen hulpverleners. Met name collectieve leerprocessen waarbij hulpverleners gezamenlijk informatie over het zorgproces uitwisselen en bediscussiëren, blijken om verschillende redenen van belang te zijn. Daarbij gaat het bijvoorbeeld niet alleen om het expliciteren van kennis in protocollen en regels, maar ook om het uitwisselen van kennis die moeilijk expliciet te maken is, zoals de werkwijze van hulpverleners in andere instellingen, het jargon dat zij gebruiken en hun visie op de zorg. Door collectieve leerprocessen leren hulpverleners om niet alleen vanuit het perspectief van hun eigen beroepsgroep of organisatie naar de zorg voor een patiënt te kijken maar ook vanuit een netwerkperspectief. Zij ontwikkelen een mentaal beeld van hoe het gehele zorgtraject eruit ziet en kunnen daarmee beter bepalen hoe de zorg afgestemd

kan worden, op welk moment een patiënt moet worden doorverwezen en wat voor informatie daarbij moet worden overgedragen.

Omdat leren zo'n belangrijke rol speelt bij integratie van zorg wordt in hoofdstuk 5 geanalyseerd welke instrumenten kunnen worden ingezet om leren in een netwerk te faciliteren en te stimuleren. Daarbij worden zeven instrumenten geïdentificeerd, namelijk een gedeelde visie over een gewenste toekomst, procedures om informatie te genereren over prestaties, communicatiekanalen voor het verspreiden en collectief interpreteren van informatie, gedecentraliseerde verantwoordelijkheden voor het implementeren van veranderingen en voor experimenteren, leervaardigheden, prikkels om innovatieve acties te stimuleren en een leercultuur. Belangrijk is echter dat leren niet gezien moet worden als een puur rationeel proces gericht op informatie verwerking, zoals verschillende auteurs doen. Omdat mensen verschillende belangen en perspectieven hebben, selecteren, interpreteren en gebruiken zij informatie verschillend. Het faciliteren en stimuleren van leren draait daarom om het faciliteren en stimuleren van sociale processen zodat mensen bereid en instaat zijn om informatie te verzamelen, te verspreiden en collectief te bediscussiëren, te interpreteren en te gebruiken. Daarom draait bijvoorbeeld het introduceren van communicatiekanalen niet alleen om informatiesystemen en het verspreiden van informatie. Het gaat met name ook om het creëren van fora waar mensen elkaar ontmoeten, waar gezamenlijk geleerd wordt en waar verschillende vormen van kennis worden verspreid.

Tot slot wordt in hoofdstuk 6 en in de conclusie geanalyseerd welk onderzoeksdesign geschikt is voor het evalueren van integratie van zorg. In dit proefschrift worden met name kwalitatieve methoden gebruikt om integratie van zorg te analyseren. Deze kwalitatieve aanpak maakt het mogelijk om een diepte-analyse te maken van organisatie processen waarbij zowel de aanpak als de doelen continu veranderen en waarbij mensen ook verschillende doelen en perspectieven hebben. Echter, generalisatie is daarmee alleen mogelijk op basis van logica, maar niet op basis van statistische analyses. Vervolgens is daarom bekeken of een combinatie van methoden bruikbaar is voor het evalueren van projecten voor integratie van zorg. Het gaat dan om projecten waarbij er wel een redelijke mate van consensus bestaat over het hoofddoel, maar waarbij de interventie complex en variabel is. Hiervoor is op basis van literatuur en

eigen onderzoek een aanpak ontwikkeld, waarbij zowel kwalitatieve als kwantitatieve methoden worden gebruikt. Door middel van kwalitatieve methoden worden de interventies en de relevante organisatorische aspecten beschreven en vervolgen voor zover mogelijk gekwantitificeerd. Methoden uit het kwantitatief onderzoek worden gebruikt om de onderzoekssubjecten (bijvoorbeeld organisaties of patiënten) te selecteren en om de uitkomstmaten te bepalen en te meten. De uitkomsten van het kwalitatief onderzoek worden meegenomen als onderdeel van de statische analyse en om uiteindelijk de resultaten beter te kunnen interpreteren. Dit onderzoeksdesign wordt inmiddels toegepast bij de evaluatie van een project waarbij de zorg in het begin traject van de keten voor CVA-patiënten beter wordt afgestemd, zodat patiënten sneller behandeld kunnen worden en in aanmerking komen voor een nieuwe effectieve behandeling, genaamd trombolyse.

Dit proefschrift geeft daarmee inzicht in processen die een rol spelen bij integratie van zorg op zowel strategisch, tactisch als operationeel niveau, reikt instrumenten aan om integratie van zorg te stimuleren en te ondersteunen en reikt tevens een onderzoeksdesign aan om integratie van zorg te evalueren.

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