General discussion

SUMMARY OF MAIN FINDINGS

The financial crisis in Europe has posed major threats to health, but also some opportunities. In Chapter 2, we trace the origins of the economic crisis in Europe and the early responses of governments, we examine the effects on health systems, and review the effects of previous economic downturns on health to predict the likely consequences of the present crisis. We then compare our predictions with available evidence on the effects of the crisis on health. There we find that while immediate rises in suicides and falls in road traffic deaths were anticipated, other consequences, such as HIV outbreaks, were not, and are better understood as products of state retrenchment. Greece, Spain, and Portugal adopted strict fiscal austerity; their economies continued to recede over the following years, and strain on their health-care systems increased. Suicides and outbreaks of infectious diseases became more common, while budget cuts have restricted access to health care. By contrast, Iceland rejected austerity in a popular vote, and there the financial crisis seemed to have had few or no discernible effects on health. Although there are many potential differences between countries that could lead to confounding, our analysis suggests that, although recessions pose risks to health, the interaction of fiscal austerity with economic shocks and weak social protection was what ultimately escalated health and social crises in some European countries. Policy decisions about how to respond to economic crises had pronounced and unintended effects on public health, yet public health voices have remained largely silent during the economic crisis.

Chapter 3 then follows with an analysis on how recession affects employment of people in ill-health. Specifically, it looks at how healthy and unhealthy persons fared in labour markets during Europe's 2008-2010 recessions and whether national differences in employment protection helped mitigate any relative disadvantage experienced by those in poor health. Two retrospective cohorts of persons employed at baseline were constructed from the European Statistics of Income and Living Conditions in 26 EU countries. The first comprised individuals followed between 2006 and 2008, n=46,085 (pre-recession) and the second between 2008 and 2010, n =85,786 (during recession). We used multi-level (individual- and country-fixed effects) logistic regression models to assess the relationship (overall and disaggregated by gender) between recessions, unemployment, and health status, as well as any modifying effect of OECD employment protection indices measuring the strength of policies against dismissal and redundancy. Those with chronic illnesses and health limitations were disproportionately affected by the recession, respectively with a 1.5- and 2.5-fold greater risk of unemployment than healthy people during 2008-2010. During severe recessions (>7% fall in GDP), employment protection did not mitigate the risk of job loss (OR=1.06, 95% CI: 0.94-1.21). However, in countries experiencing milder recessions (<7% fall in GDP), each additional unit of employment protection reduced risk of job loss (OR=0.72, 95% CI: 0.58-0.90).

Before the recession, women with severe health limitations especially benefited, with additional reductions of 22% for each unit of employment protection (AOR female =0.78, 95% CI: 0.62-0.97), such that, at high levels, the difference in the risk of job loss between healthy and unhealthy women disappeared. Employment protection policies may counteract labour market inequalities between healthy and unhealthy people, but additional programmes are likely needed to protect vulnerable groups during severe recessions.

The most comprehensive overview of the early and mid-term effects of the 2008 financial crisis in high income countries was compiled in a systematic narrative literature review in Chapter 4. It includes evidence published between January 2009 and July 2015 and includes 122 studies. The review finds that the 2008 financial crisis had negative effects on mental health, including suicide, and to a varying extent on some non-communicable and communicable diseases and access to care. Although unhealthy behaviours such as hazardous drinking and tobacco use appeared to decline during the crisis, there have been increases in some groups, typically those already at greatest risk. The health impact was greatest in countries that suffered the largest economic impact of the crisis or prolonged austerity. It concludes that the Great Recession in high-income countries has had mixed impacts on health. They were worse when economic impacts had been more severe, prolonged austerity measures had been implemented, and there had been pre-existing problems of substance use among vulnerable groups.

Chapter 5 asks if the global financial crisis and its aftermath impacted upon the performance of health systems in Europe. It investigates trends in amenable and other mortality in the EU since 2000 across 28 EU countries using Joinpoint regression, a package designed to identify regression discontinuities. It finds that amenable and other causes of mortality have declined in the EU since 2000, albeit faster for amenable mortality. There were increases in amenable mortality following the global financial crisis for females in Estonia (-4.53 annual percentage change (APC) in 2005-2012 to 0.03 APC in 2012-2014) and Slovenia (4.22 APC in 2000-2013 to 0.73 in 2013-15) as well as males and females in Greece (males: -2.93 APC in 2000-2010 to 0.01 APC in 2010-2013; females: -3.48 APC in 2000-2010 to 0.06 APC in 2010-2013). Other mortality continued to decline for these populations. Increases in deaths from infectious diseases before and after the crisis played a substantial part in reversals in Estonia, Slovenia and Greece. It concludes that amenable mortality rose in Greece and, among females in Estonia and Slovenia, while in most countries, trends in amenable mortality rates appeared to be unaffected by the crisis.

The second part of this thesis deals with specific countries where the crisis has been more pronounced. Chapters 6.1 and 6.2 focus on Greece. Greece's economic crisis has deepened since it was bailed out by the international community in 2010. The country underwent the sixth consecutive year of economic contraction in 2013, with its

economy shrinking by 20% between 2008 and 2012, and little or no growth thereafter. Unemployment has more than tripled, from 7.7% in 2008 to 24.3% in 2012, and long-term unemployment reached 14.4%. First, the chapters explore the background to the crisis, assess how austerity measures have affected the health of the Greek population and their access to public health services, and examine the political response to the mounting evidence of a Greek public health tragedy. Second, they analyse EU-SILC data to show that the proportion of individuals on low incomes reporting unmet medical need due to cost doubled from 7% in 2008 to 13.9 % in 2013, while the relative gap in access to care between the richest and poorest population groups increased almost ten-fold. In addition, austerity cuts have affected other vulnerable groups, such as undocumented migrants and injecting drug users. The study concludes that while steps have been taken to attempt to mitigate the impact of austerity, to adequately address the growing health gap would require persistent efforts by the country's leadership for years to come.

Although Portugal has also been deeply affected by the global financial crisis, the impact of the recession and subsequent austerity on health and health care has attracted relatively little attention in research. Chapter 7 used several sources of data, including the EU-SILC, which tracks unmet medical need during the recession and also before and after the Troika's austerity package. This showed that the odds of respondents reporting having an unmet medical need more than doubled between 2010 and 2012 (OR = 2.41, 95% CI 2.01–2.89) in Portugal, with the greatest impact on those in employment, followed by the unemployed, retired, and other economically inactive groups. The reasons for not seeking care involved a combination of factors, with a 68% higher odds of citing financial barriers (OR = 1.68, 95% CI 1.32–2.12), more than twice the odds of citing waiting times and inability to take time off work or family responsibilities (OR 2.18, 95%CI 1.20–3.98), and a huge increase in reporting delaying care in the hope that the problem would resolve on its own (OR = 13.98, 95% CI 6.51–30.02). Individual-level studies from Portugal also suggest that co-payments at primary and hospital level are having a negative effect on the most vulnerable living in disadvantaged areas, and that health care professionals have concerns about the impact of recession and subsequent austerity measures on the quality of care provided. The Portuguese government no longer needs external assistance, but these findings suggest that measures are now needed to mitigate the damage incurred by the crisis and austerity.

Chapters 8.1 and 8.2 then focus on the Baltic States. In 2009, brief but deep economic crises profoundly affected Estonia, Latvia and Lithuania. In response, all three countries adopted severe austerity measures with the shared goal of containing rising deficits, but employing different methods. In Chapter 8.1 the impact of the economic crisis and post-crisis austerity measures on health systems and access to medical services in the three countries was analysed using the EU-SILC data on unmet medical need in 2005–2012,

applying log-binomial regression to calculate the risk of unmet medical need in the pre- and post- crisis period. Between 2009 and 2012, unmet need has increased significantly in Latvia (OR: 1.24, 95% confidence interval (CI): 1.15–1.34) and Estonia (OR: 1.98, 95% CI: 1.72–2.27), but not Lithuania (OR: 0.84. 95% CI: 0.69–1.04). The main drivers of increased unmet need were inability to afford care in Latvia and long waiting lists in Estonia. The chapter concludes that the impact of the crisis on access to care in the three countries varied, as did the austerity measures affecting their health systems. Estonia and Latvia experienced worsening access to care, largely exacerbating already existing barriers. The example of Lithuania suggested that deterioration in access is not inevitable, once health policies prioritise maintenance and availability of existing services, or if there is room for reducing existing inefficiencies. Moreover, better financial preparedness of health systems in Estonia and Lithuania provided some protection of the population from increasing unmet need due to the rising cost of medical care. Chapter 8.2 also focusses on Lithuania. Its health system was not properly prepared for the crisis because of the pre-existing inefficiencies in the inpatient sector and with primary health being limited in its role in providing appropriate curative and preventive services in the community. At the same time, Lithuania's health financing model, based on a single purchaser, with a mix of statutory health insurance revenue sources, and a counter-cyclical mechanism, offered a degree of protection as public financing for health care was affected much less than the economy in general.

WHAT THIS THESIS ADDS

This thesis presents a large body of evidence on the impact of the financial crisis on population health in Europe. The resulting economic recessions affected health system financing and investment priorities, thereby also having a profound effect on health systems, especially in countries where austerity measures were implemented.

Aim: Assess the consequences of the economic crisis of 2008 for population health

Chapter 2 shows that it could have been predicted that a financial crisis would affect population health even before the start of the Global Financial Crisis. Initially this was limited to work by health economists, such as Ruhm, who found a counter-cyclical relationship between economy and health [1, 2]. But as early as 2009, the evidence that large scale crises affected population health adversely emerged, suggesting that, in contrast, economic shocks present a large risk to population health, but there are measures which could mitigate the negative impact [3].

Five years into the crisis, the evidence of the impact on population health in specific countries was clearly discernible. The literature review (Chapter 4) details the particularly

negative impact of the crisis on mental health, including suicide, across multiple countries. More specifically, all available evidence shows worsening in at least one indicator of mental health during the recession. Housing insecurity, loss of income, including benefits, and unemployment were significant predictors of deterioration in mental health state in general, and more specifically in reporting symptoms of depression and anxiety. At the same time studies revealed some protective factors that mitigated the negative impact on mental health: high social capital, high levels of interpersonal and institutional trust.

The suicide rate has been a particularly sensitive indicator of economic and social changes. Showing substantial rises during the Great Depression in the USA in 1930s[4], and after the collapse of the Soviet Union in 1990s[5], it has also taken its toll in the Global Financial Crisis (see Chapter 2 and 4). The rise during the last of these was predicted early[3] and monitored closely[6-9], with public health academics consistently calling for introduction of measures to protect people from falling into a state of desperation [10]. The measures that mitigate the impact of recession on suicide include rises in social spending in general, and spending on employment protection policies in particular[11]. More recent evidence from the economic crisis in 2008 shows that EU countries that have higher spending (above 135 US dollars per person per year on active labour market measures) have smaller increases in suicide during periods of rising unemployment compared to countries that spend less [12]. However, lack of attention at the governmental level persisted until the international press highlighted the link between suicides and the economic crisis, using personal stories from countries with traditionally low levels of suicide, such as Greece, Spain and Italy[13, 14].

Apart from mortality from suicides, few other causes of death have been directly linked to recession, at least in the short term. Deaths from road traffic injuries have fallen – something that was also predicted using existing evidence[6] and confirmed by the literature review (Chapter 4), as well as by more recent studies [15, 16], which show that the reduction in road traffic deaths is largely due to reduction in high-risk driving (e.g. speeding, young drivers). Other mortality data have shown that in some countries the decline in amenable causes of death has been slow or even reversed since 2008 (see Chapter 5), with Greece being the only country consistently displaying a substantial negative impact of the recession. At the same time, studies show that in Greece the rate of decline in all-cause mortality has slowed [17], while in Spain, on the other hand, it has sped up [18] after the onset of the crisis. These trends, however, have to be interpreted against a background of a complex interaction of multiple factors, including recession itself, its possible lag effects, accompanying austerity in the healthcare system, and any impact on access to care, as well as the stage of epidemiological transition, with population age and morbidity profiles changing faster than health systems can adapt to deliver effective and quality care.

Beyond mortality, there was a negative impact on communicable and non-communicable disease as well as access to care in countries which introduced austerity to the health sector, particularly in Greece (see Chapter 4 and Chapter 6.1). The rise in HIV and TB in Greece, as well as rise in unmet medical need in several other countries, reflected the challenge that recession poses to health systems if they are to respond to the consequences of the crisis effectively.

The crisis has also put child health at risk. While most evidence comes from Greece, a recent analysis based on the Growing Up in Ireland Infant Cohort Study showed that reduction in welfare benefits and in parent's working hours, as well as difficulty affording basics, was associated with adverse and potentially long-lasting child health outcomes. [19]

The impact on risky behaviours, such as smoking and alcohol consumption, has been largely two-fold (Chapter 4). While population surveys in several countries showed an overall reduction in alcohol consumption during recessions, there were groups that assumed a greater risk (heavy- or binge- drinkers, people in ill-health, the unemployed). Similarly, overall smoking rates decreased across many countries, but in some unemployment was a greater predictor of smoking during the recession than before it.

The body of evidence points to a number of groups who are particularly vulnerable to the effects of the crisis on health. Those are people who lose jobs or income, those facing large personal debts or housing insecurity, those relying on social benefits and seeing reduction in their income due to austerity measures, as well as already socially vulnerable groups such as homeless people, drug users, the refugees. At a time of economic crisis, these comprise large and often overlapping population groups, whose health needs stretch beyond the remits of the healthcare systems.

Thus Chapter 3 provides an example of the mitigating role of employment protection policies for people who experience health problems. Disabled people, as well as those suffering from chronic conditions were at substantially greater risk of losing their jobs during recessions compared to healthy people in countries experiencing a severe drop in GDP. In countries where the crisis was less severe, higher levels of employment protection reduced the risk of job loss among unhealthy people. At the same time, evidence shows that health is a sector where government spending boosts the national economy, at least in the short-term.[20] Therefore the argument of investing in health is not only on a humanistic and social basis, but also on economic grounds.

Overall, this thesis shows that, to date, the short-term impact of the recession on health has largely been negative and manifested in worsening mental health, including suicide, as well as in increasing unmet healthcare need. The negative impact of rising suicide rates on overall mortality is partially off-set by falling deaths from road traffic injuries. One major positive effect of the recession – manifesting in reductions in exposure to certain risky behaviours in the general population – takes years to translate into changes

in mortality, and often coincides with other drivers of health, and is, therefore, extremely difficult, if not impossible, to quantify. Of course, we also do not need a recession to reduce smoking and alcohol consumption: behaviour-related ill-health is preventable through effective inter-sectoral policies which aim to protect population health, such as tobacco and alcohol control measures. Therefore, changes in all-cause mortality coinciding with recessions need to be interpreted in the context of wider epidemiological and health systems changes. Changes in amenable mortality, on the other hand, especially those pointing to reversals in longstanding declining trends, are a cause for concern, but further study using disaggregated data is necessary to establish whether deterioration in health could be the result of worsening of access to or quality of care during the crisis.

Aim: Assess the impact of the crisis on health systems, and identify responses that help countries to maintain stability and promote resilience

Reports of the aftermath of the crisis, cited in the introduction to this thesis, have shown that high level policy makers in some countries, and internationally, have been driven by ideological rather than economic arguments. Moreover, they have often failed to protect the health sector, with their efforts to constrain spending sometimes being at a cost to population health. In some countries, such as Greece, Ireland Portugal, Latvia, the pressure came from international organisations. As shown in Chapter 2, the approach to the health sector in Greece and Portugal was particularly influenced by the Troika, which not only did not allow the countries to invest in health, but severely diminished the ability of health systems to respond to the existing needs of the population by placing severe time and budget limitations.

Most countries, however, relied on their health systems being prepared to withstand the increase in demand coupled with fiscal pressures. The study on how health systems responded to the crisis, presented in Chapter 2 and updated in Thomson et al [21] outlines three key areas experiencing changes (health system funding, health coverage and health service delivery) and presents a range of policy responses seen across Europe.

Health systems in virtually all countries of the EU have felt the crisis – but to a varying extent. For example, in France, Germany, Sweden, Austria, Malta, Belgium and Poland, the growth in per capita spending has slowed markedly between 2008 and 2012, compared to 2007-2008, but always exceeded at least 1% year on year growth. In some others (UK, the Netherlands, Finland, Slovakia) growth has almost halted – to below 1%. The rest of the EU countries experienced a decrease in spending at least once over the five-year period, with several of them (notably Ireland, Portugal, Latvia, Greece, Croatia) seeing cuts of more than 10% in at least one year.[21]

The data from the survey presented in Chapter 2 and updated in Maresso et al [22] demonstrate how the approach to fiscal constraint can vary in different national settings. First, where health budgets are derived from social health insurance, which depends on

employment contributions, the existence of countercyclical mechanisms (e.g. Lithuania) and financial reserves (e.g. Estonia, Czech Republic) can provide additional funding to cushion the impact of the fall in social health insurance contributions. Second, the gap in financing can also be covered through deficit financing (e.g. Portugal) as well as increasing government budget transfers (e.g. Germany). Third, a number of measures, such as changes to social health insurance contributions (e.g. increase in rates or ceilings, enforcing revenue collection, earmarking taxes) can provide a degree of protection. However, in order to safeguard health budgets effectively, some of these measures need to be in place by the time of the onset of the crisis, as they require long-term measures.

Health coverage across the EU member states is nearly universal, however the economic crisis has put this achievement under considerable strain in some of the worst-affected countries. While the unintended consequence of a rise in employment resulted in the loss of comprehensive health coverage for over two million people in Greece (see Chapter 6.2), countries like Spain, the Czech Republic, Ireland, Cyprus and Slovenia specifically excluded population groups (based on income or residence status) to find short term savings from reducing entitlement to health services.[21] In Spain, legislation introduced through a royal decree (thus bypassing the Parliament) has shifted the coverage from universal to employment-based, thus revoking access to publicly funded care for hundreds of thousands of undocumented migrants (with limited exemptions, such as emergency, maternity and paediatric care). The decentralised nature of the Spanish administration meant that some regions sought to limit the effects of the decree, while others applied it in full, leading to large differences in access to healthcare among undocumented migrants.[23] At the same time, many European countries took measures to protect access to the most vulnerable groups, e.g. the long-term unemployed in Estonia, children from low-income families in Austria).

In respect to services included in the publicly-financed benefits package, there were few changes directly related to the crisis, mostly relating to pharmaceuticals. However, the crisis was seen as an opportunity to redefine the minimum benefits package in Greece and Portugal, and encouraged progress in making changes to the scope of publicly provided services informed by systematic Health Technology Assessment (HTA) mechanisms.

In contrast to population coverage and scope of services, the area of financial protection experienced wide-spread changes across the EU, including both expansion and reduction of user charges. At the time of the economic crisis, faced with growing demand for services, an increase in user fees was seen by some policy makers as means to compensate for shrinking public budgets while, at the same time, deterring excess use of services. Often the same countries had decreased user charges in other areas and/or strengthened financial protection for specific vulnerable groups. For example, in Greece user charges were increased in primary, outpatient and inpatient care, but low-

ered for some diagnostic tests; in Portugal user charges in primary care were increased, but exemptions from user charges were expanded. However, available evidence on application of user charges highlights the complexity of the right policy design: if user charges are to be implemented, and the evidence in support of them is extremely weak, then they should be applied selectively, using a value-based approach, and avoiding placing unfair burden and penalty on patients. At the same time, such policy needs to incorporate strong measures of financial protection for people on lower incomes and regular service users (e.g. chronic patients).

Changes to health service delivery (including planning and purchasing) in response to the crisis were often related to the pre-existing drive for increasing efficiency in the health system. Complex cost-saving measures, such as changes to provider payments, greater use of HTA to inform service delivery, and re-adjusting skill-mix were often overshadowed by simpler budget cuts (largely administrative and on investment, but also to public health programmes, primary and secondary care services), as well as reduction in spending on workforce (through lowering wages or staff numbers).

The crisis was seen as opportunity for many countries to reduce pharmaceutical costs, particularly in Eastern European countries, where pre-crisis pharmaceutical expenditure growth was faster.[24] The introduction of cost-containment measures with rapid effects was therefore necessary. Responses included price reductions, internal and external reference pricing, price-volume, budget impact and other risk-sharing agreements. Other measures seeking to bring savings in the long-term were related to shift towards evidence-based delivery and involved changes to prescribing (guidelines, monitoring, e-prescribing, prescribing by international non-proprietary name), as well as an emphasis on generic substitution. However, there were cases where reforms either did not achieve the expected effect in terms of the scale of savings (e.g. Ireland), or had a negative impact on access to medicines as a result of product withdrawals from the market (e.g. Greece), increased parallel exports (Greece and Romania), and pharmacy closures (Portugal).

At this stage the evidence on how the impact of the crisis on health systems translates into the impact on population health outcomes is scarce. In Chapter 5 this is analysed using amenable mortality - one of the key measures of health systems performance. Overall amenable mortality trends in Europe continue to decline, although there is evidence that the scope for further improvement in terms of mortality is diminishing, especially in countries with already very low rates.[25] Nevertheless, the analysis in Chapter 5 shows that health systems in high-income countries largely managed to absorb the economic shock and redistribute available resources in a way that the quality and effectiveness of care, as measured by amenable mortality, was not affected. Greece, however, here too stood out as a notable exception, as amenable mortality rates have increased in recent years.

The crisis did not affect European countries equally, nor were their health systems equally well-prepared to withstand its effects. The shock presented by the economic crisis highlighted several areas where health system resilience was lacking.[21, 26] First, the health system needs to be adequately funded, as cuts made to already underfunded systems increase further strain on healthcare resources, jeopardizing access to and quality of services. Second, comprehensive health coverage and low levels of out-of-pocket payments are also a pre-requisite in health systems' ability to absorb shocks, as economic crises tend to exacerbate gaps in coverage, particularly within the most vulnerable groups. Third, countercyclical mechanisms (e.g. built-in formulas to stabilise revenue within health and social welfare budgets accounting for economic fluctuations) and the ability to accumulate reserves provide additional, albeit short-term, capacity to maintain spending. Fourth, information about cost-effectiveness of different healthcare services is crucial in providing the evidence for decision making in relation to defining and financing benefits package and service provision. Fifth, expertise in areas, which need to and can be reformed effectively is important when tackling relevant areas where efficiency can be improved instead of producing savings by adopting cuts across the board. Finally, the role of political factors – the will and ability to tackle areas of inefficiency, and the capacity to mobilise revenues for the health sector – is key in ensuring the implementation of changes.

The first three above mentioned areas build adequate, equitable and stable foundations within a health system. They establish predictability of financial flows, sufficient level of resources, and promote equitable service provision as well as ensuring financial protection for the most vulnerable groups. These are the areas that can and need to be continuously strengthened in times preceding the crisis. The fourth and fifth areas relate to choices and decisions that are made in response to the crisis. For example, saving (or cuts) made in the wrong areas can be counterproductive if they result in cost-increasing substitution or increased access barriers (e.g. patients going to accident and emergency department instead of primary care). In addition, non-selective cuts may lead to reduction in provision (e.g. smaller scope of services or fewer staff), which in turn only increases pressures on the system at a time of rising demand. At the same time, making savings can produce efficiency gains (e.g. through better procurement or cost-reducing substitutions), but this requires knowledge and expertise. However adequate and targeted financing, even during times of fiscal constraints, can deliver long-term efficiency gains through investment in public health and prevention programmes, shifting services out of hospital settings, introducing HTA and eHealth, strengthening planning and procurement mechanisms, and making changes to skill mix.[21]

From a health policy perspective, the differing country responses demonstrated that there are options. Where the right mechanisms are in place, health spending does not need to fall, and where it falls, cuts can be targeted towards services with least cost-effectiveness. However, the availability of these options depends on initial health

systems design, absence of gaps, ability to mobilise resources, expertise, and political will. Box 1 examines in further detail experiences in and responses by governments in Greece, Portugal, Estonia, Latvia and Lithuania.

Box 1. Country cases – learning from successes and failures

Experiences from Greece, Portugal and the Baltic States described in Part II of this thesis offer valuable lessons drawing on the countries' response to the crisis.

The cases of Greece and Portugal examine in detail the pressures on health system, including that of international lenders. Greece and Portugal entered economic adjustment with the view that the bailout process will be painful in the short-term, but soon would lead to economic recovery. Instead, recessions in both countries were much deeper and longer than expected [27], [28]. It is clear now that the economic burden underpinning the EAPs in Portugal and Greece was underestimated, and this has further been confirmed by the IMF correction of its fiscal multipliers.[29] Despite that recognition, the demands to carry out deep and fast reforms in healthcare remained in place. Chapters 6.1, 6.2 and 7 show the unmet need due to cost both in Greece and Portugal has risen markedly, indicating that the ongoing reforms have failed to protect people from facing increasing barriers to accessing care, despite the declarative measures to ensure access for vulnerable groups.

Greece has been a particularly notable case, as a weakened and systemically underfunded health system struggles to meet growing population health needs, exacerbated by prolonged periods of high unemployment and loss of income, as well as the refugee crisis. The arbitrary cuts to health funding immediately highlighted the weakest points – lack of comprehensive health coverage and weaknesses of communicable disease control (Chapter 6.1). A focus on steep reduction of pharmaceutical spending lead to interruptions with drug supplies and the need for patients to pay for medicines out of pocket. More recent evidence documents the decline in patient-reported quality of care [30]. Similarly, in Portugal, the rise in unmet need due to cost is a consequence of the shift of financial burden of care to patients. Despite widening of the population groups exempt from out-of-pocket payments, the rise in user charges across primary and specialist care has a prohibitive effect on patients [31].

It is important to note, however, that both the Greek and Portuguese health systems were facing major challenges even before the crisis. In the former, these included fragmentation, high out-of-pocket payments, large inefficiencies, and extremely weak primary care.[32] The crisis, including through the conditions of the EAPs, have forced Greece to centralise its social health insurance, introduce information and management systems and improve monitoring, transform provider payment mechanism and reduce pharmaceutical spending [33]. In August 2016 key legislation was introduced to provide health coverage for 2.5 million people who lost it through unemployment. While primary care is still lacking, first steps are being made in forming primary care networks under regional authorities. However the key issue – that of adequate funding, remains unresolved [34].

Portugal experienced similar challenges before the crisis, including inefficiencies, particularly due to high reliance of specialist care, high pharmaceutical expenditure as well as imbalances in human resource distribution[35]. The EAPs focus on containing pharmaceutical expenditure was largely successful and enabled Portugal to reduce spending on drugs [36]. Other achievements included addressing long-standing health system debts, commitment to strengthen primary care and implementing modern information systems. [31]

At the opposite end of Europe – in the Baltic States – the impact of the economic crisis in 2008 and 2009 was also devastating – with a sharp drop in GDP of 15-20% over one to two years[37]. Despite many similarities in economic development prior to the crisis, the health systems of Estonia, Latvia and Lithuania were affected differently. In 2008-2010 public expenditure on health per capita fell by 20% in Latvia, but by 7% in Lithuania and by 6% in Estonia.[21] The drop in spending in Estonia and Lithuania have been cushioned by accumulated reserves in the former and counter-cyclical social health insurance funding formulae in the latter, while in Latvia the health sector faced disproportionate cuts[22]. Chapter 8.1 shows the rise in unmet need in Estonia and Latvia during the crisis, but not Lithuania. Notably, of the three countries Lithuania was the only one, which pledged to protect access to healthcare as part of the response (see Chapter 8.2). Latvia, on the contrary, introduced series of measures, including a sharp rise in user fees, to compensate for the loss of public funding. Estonia found a third way, whereby it prioritised specific programmes as well as introduced rationing by extending waiting times. It is not surprising, therefore, that in immediate aftermath population survey shows rise in unmet need due to cost in Latvia, and due to waiting times in Estonia.

STRENGTHS AND WEAKNESSES

In addition to its strengths, such as the coverage of a wide range of European countries, this thesis also has a number of weaknesses. First, as it has been demonstrated in many studies examining the impact of the crisis on mortality, it is hard to establish a causal relationship between the economic cycle and mortality, without factoring in the epidemiological transition, health sector capabilities, and lag effects of behavioural factors. Second, while it has been highlighted that some population groups are more vulnerable to the effects of the crisis, these groups can vary by country, and can often be hidden in the overall statistics used in this thesis. Third, due to lack of data some major effects of the crisis on health are difficult to establish. This is particularly true for morbidity and care seeking. Thus, suicide often becomes a proxy for mental health and self-reported unmet healthcare need becomes a proxy for difficulties in accessing care. Fourth, EU-SILC data, particularly its health component, were used to assess the impact of the crisis on health and access to care. The survey itself is subject to the usual limitations of a population survey, such as self-reporting, representativeness, data quality and completeness, [38] while a proxy of unmet need for medical examination was used to measure barriers to accessing care. The latter is a measure particularly vulnerable to miss-interpretation as it can only capture perceived unmet need. However, the follow-up question allow to distinguish between health system-related barriers (such as cost, waiting time or travel distance) and person-related factors (such as delay in seeking care, lack of time, fear and others).

To counteract many of these challenges, this thesis employs detailed country case studies. This enables one to examine specific country contexts and explore various health indicators which are more relevant for countries most affected by the crisis. In addition, in the interpretation of findings I distinguish the impact of the recession on health from the impact of the recession on health systems, as these two key mechanisms interacting together ultimately determine whether population health has been affected.

CONCLUSIONS AND IMPLICATIONS FOR POLICY AND RESEARCH

This thesis shows that the impact of an economic crisis on health can be substantial, especially if it is exacerbated by severe austerity measures. The implications of recession, such as unemployment and loss of income, on individuals themselves had a largely negative impact on health, particularly mental health, across multiple countries. Depression, anxiety, and suicide have increased, while changes in other indicators of health status vary across countries and depend on the population group studied. Inequalities tend to exacerbate as those who are unemployed, experiencing income or housing insecurity,

or people already in ill-health are more sensitive to effects of recession. Effects on health tend to be worse when economic impacts are more severe, prolonged austerity measures are implemented, and there are pre-existing problems of substance use among vulnerable groups.

On the positive side, smoking and alcohol consumption, as well as deaths from road traffic injuries have reduced among the general population, as predicted. However vulnerable groups (e.g. heavy drinkers, the unemployed) experienced deterioration in risk behaviours.

Responses of health systems in European countries varied, with some demonstrating how health sectors can build resilience to withstand economic shocks. The key factors included adequate financing and coverage, low out of pocket payments, use of knowledge and expertise as well as HTA to make investment choices based on cost-effectiveness, as well as political will.

Access to care has worsened in some countries in Europe. However, in general, health systems managed to withstand the temporary fall in public expenditure on health without major effects on quality and timeliness of services. Many countries adapted by targeting well-known areas in improving efficiency, while some increased the financial burden for patients by raising user fees. Few countries reduced health insurance coverage, but some did so explicitly in response to the crisis (e.g. Spain), whereas in Greece this was due to underlying weakness in the health insurance system. At the same time, several countries attempted to protect the most vulnerable groups by expanding existing exemption groups. In several countries the impact of cuts on health system was cushioned by existing counter-cyclical mechanisms and savings.

Greece became the most notable case, where the economic crisis has brought out major challenges to both population health and the Greek health system. In addition, lack of action on critical aspects of care, such as communicable disease prevention, mental health strengthening, availability of good quality primary care and timely access to specialist services and pharmaceuticals produced major challenges to population health status.

This analysis of effects and responses to the financial crisis demonstrates that policy makers have choices. First, it is important to focus on building right financial mechanisms which enable health systems to withstand recessions. Those involve counter-cyclical funding formulas, accumulating reserves, having ability to mobilise funding. Second, maintaining adequate workforce and infrastructure are crucial to cope with increasing demand. Third, a crisis exacerbates vulnerabilities and inequalities, therefore it is important to ensure access to services for most vulnerable groups. Fourth, before implementing austerity, short-term savings need to be weighed against long-term priorities and informed by evidence.

In many countries the crisis was used as an opportunity to introduce changes that were long-planned but never implemented due to lack of political will or support. While in some cases this was a trigger to address major underlying health system weaknesses (e.g. inefficiency, fragmentation), the process of implementation requires adequate time frames, financial and workforce capacity, information and consistent political support. Moreover, the changes need to be in line with national goals, values and priorities, and communicated in a transparent way. Finally, tackling the impact on population health during the crisis requires a multi-sectoral approach, as much of the underlying factors are beyond the control of a health system.

This thesis presents the short-and mid-term impacts of the economic crisis in the countries most affected. Future research could focus on the effects of the long-term austerity measures on population health, as well as on quality of and access to healthcare.

It is also important to note the wider potential impact of the financial crisis on global health. Political ideologies used the crisis as a pretext to shrink the role of the state and impose austerity. Poverty, inequality, and disfranchisement of large population groups in the crisis aftermath triggered the rise of a far-right ideology across Europe [39]. While there is no certainty on the full extent of the role of the recession in such global events as the Arab spring in the Middle-East [40], Brexit in Europe [41], or electoral losses of the Democratic Party in the United States [42], it is clear that these events keep affecting population health profoundly across the world through Syrian conflict, dismantling of core European values, and loss of financial and political support of the key player – the US – in areas such as climate change, maternal and child health. Therefore now, ten years from the start of the crisis, it is time to look back, learn the lesson and ensure that mechanisms to protect people from the devastating consequences of decisions to implement austerity are in place.

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SUMMARY

The Financial Crisis that arose in 2008, spreading to affect almost all parts of the world, was the result of a range of deeply-rooted economic developments, including deregulation of the financial sector, creation of incentives encouraging excessive risk-taking, and accumulation of risky assets by banks. The damage to the world economy was enormous, and the total cost is incalculable. The Gross Domestic Product (GDP) of the European Union (EU) fell by 4.3% in 2009, with a second dip of 0.4% in 2012. Under pressure from major international organisations including the International Monetary Fund (IMF), the European Union, and the European Central Bank, many European countries adopted austerity measures. Economic shocks on this scale and depth had profound impacts on national, including health systems, budgets. There were a number of countries in the EU where the crisis had a much more profound impact on the economy. Economies of those in the Baltic region – Estonia, Latvia and Lithuania have managed to recover quickly. Others, including Greece and Portugal, had to be bailed out by international lenders under their conditions.

European countries offer a unique opportunity to study the effects of the financial crisis. They are united by similar values and cultures; prior to the crisis they were in similar economic situations, and as members of the European Union, they are subject to the same supra-national legal and regulatory systems. Yet their health policies remain largely a matter of national responsibility, as governments retain competence for organisational structures, governance arrangements and levels and modes of funding and coverage. These differences mean that they vary in their ability to withstand shocks, such as an economic crisis. The specific aims of the thesis are as follows: to assess the consequences of the economic crisis of 2008 for population health; to assess the impact of the crisis on health systems and identify responses that help countries to maintain stability and promote resilience.

This thesis is a compilation of scientific reports united by the common theme of the impact of the financial crisis, recession, and austerity policies on population health and health systems. It provides an overview of existing literature as well as original analyses of health sector policies, population surveys and mortality data in selected European countries. The core of this dissertation consists of two parts. Part I consists of four chapters, focussing on the general impact of the crisis across Europe. Chapter 2 provides the background to the financial crisis, a review of literature on the association between recessions and health, presents initial responses of countries within the WHO European Region, and outlines the content of the Economic Adjustment Programmes in Greece and Portugal. Chapter 3 is an analysis of longitudinal data, asking whether employment protection policies played a mitigating role, allowing people in ill health to remain employed during the recession. Chapter 4 is a narrative literature review on the effects

of the crisis on health in selected countries up to 2015. Chapter 5 is a time series analysis of amenable mortality data across Europe, asking whether trends have changed with the onset of the crisis. Part II contains country-specific studies, from Greece, Portugal and the Baltic States (Lithuania, Latvia and Estonia). This part highlights their differing circumstances, while analysing the impact of specific policies on population health and health systems. Finally, a general discussion of the findings from papers presented in this volume will summarise the lessons learned and will present policy options.

I find that the financial crisis in Europe has posed major threats to health, but also some opportunities. Although recessions pose risks to health, the interaction of fiscal austerity with economic shocks and weak social protection was what ultimately escalated health and social crises in some European countries. Overall, the short-term impact of the recession on health has largely been negative and manifested in worsening mental health, including suicide, as well as in increasing unmet healthcare need. The negative impact of rising suicide rates on overall mortality is partially off-set by falling deaths from road traffic injuries. One major positive effect of the recession – manifesting in reductions in exposure to certain risky behaviours in the general population – takes years to translate into changes in mortality, and often coincides with other drivers of health, and is, therefore, extremely difficult, if not impossible, to quantify. Of course, we also do not need a recession to reduce smoking and alcohol consumption: behaviour-related ill-health is preventable through effective inter-sectoral policies which aim to protect population health, such as tobacco and alcohol control measures. Therefore, changes in all-cause mortality coinciding with recessions need to be interpreted in the context of wider epidemiological and health systems changes. Changes in amenable mortality, on the other hand, especially those pointing to reversals in longstanding declining trends, are a cause for concern, as they may indicate worsening of access to or quality of care during the crisis.

The crisis did not affect European countries equally, nor were their health systems equally well-prepared to withstand its effects. Greece became the most notable case, where the economic crisis has brought out major challenges to both population health and the Greek health system. In addition, lack of action on critical aspects of care, such as communicable disease prevention, mental health strengthening, availability of good quality primary care and timely access to specialist services and pharmaceuticals produced major challenges to population health status.

The shock presented by the economic crisis helped to identify several areas that can help to strengthen health system resilience. These are 1) adequate funding, 2) comprehensive health coverage and low levels of out-of-pocket spending, 3) presence of countercyclical mechanisms or reserves to protect funding in the short-term, 4) ability to invest in cost-effective services, 5) expertise to direct reforms, and 6) political will. From a health policy perspective, the differing country responses demonstrated that

there are options. Where the right mechanisms are in place, health spending does not need to fall, and where it falls, cuts can be targeted towards services with least cost-effectiveness. However, the availability of these options depends on preparedness in the aforementioned six areas.

This thesis presents the short-and mid-term impacts of the economic crisis in the countries most affected. Future research could focus on the effects of the long-term austerity measures on population health, as well as on quality of and access to healthcare.

SAMENVATTING

De financiële crisis die in 2008 ontstond en zich verspreidde naar bijna alle delen van de wereld was het resultaat van een reeks diepgewortelde economische ontwikkelingen, waaronder de deregulering van de financiële sector, het creëren van stimulansen om buitensporige risico's te nemen en de accumulatie van risicovolle activa door banken. De schade aan de wereldeconomie was enorm en de totale kosten zijn niet te overzien. Het bruto binnenlands product (bbp) van de Europese Unie (EU) daalde in 2009 met 4,3%, met een tweede daling van 0,4% in 2012. Onder druk van grote internationale organisaties, waaronder het Internationaal Monetair Fonds (IMF), de Europese Unie en de Europese Centrale Bank stelden veel Europese landen bezuinigingsmaatregelen in. Economische schokken op deze schaal en van deze diepte hadden grote gevolgen voor nationale begrotingen, waaronder de budgetten voor gezondheidssystemen. In sommige landen van de EU had de crisis een groter effect op de economie dan in andere landen. De economieën van landen in de Baltische regio, bijvoorbeeld Estland, Letland en Litouwen, hebben zich snel hersteld. Andere, waaronder die van Griekenland en Portugal, moesten door internationale kredietverstrekkers, en onder hun voorwaarden, worden gered.

Europese landen bieden een unieke gelegenheid om de effecten van de financiële crisis te bestuderen. Zij worden gekenmerkt door soortgelijke waarden en culturen, zij bevonden zich voorafgaand aan de crisis in vergelijkbare economische situaties, en als leden van de Europese Unie zijn zij onderworpen aan dezelfde supranationale wet- en regelgevingen. Toch blijft hun gezondheidsbeleid grotendeels een zaak van nationale verantwoordelijkheid, aangezien overheden de bevoegdheid hebben behouden voor de organisatiestructuur, de regeling van de governance, en de mate en manieren van financiering en kostendekking. Deze verschillen betekenen dat landen variëren in hun vermogen om schokken te weerstaan, zoals die van een economische crisis. De specifieke doelstellingen van dit proefschrift zijn als volgt: het beoordelen van de gevolgen van de economische crisis van 2008 voor de volksgezondheid; het beoordelen van de impact van de crisis op de gezondheidssystemen; en het identificeren van responsen die landen helpen de stabiliteit van hun gezondheidssystemen te handhaven en veerkracht te bevorderen.

Dit proefschrift is een samenbundeling van wetenschappelijke rapporten die als gemeenschappelijk thema hebben de impact van de financiële crisis, de recessie en het bezuinigingsbeleid op de volksgezondheid en gezondheidssystemen. Het geeft een overzicht van de bestaande literatuur en een aantal oorspronkelijke analyses van gezondheidsbeleid, bevolkingsenquêtes en sterftegegevens in geselecteerde Europese landen. De kern van dit proefschrift bestaat uit twee delen. Deel I bestaat uit vier hoofdstukken die zich richten op de algemene impact van de crisis in Europa. Hoofdstuk 2

beschrijft de achtergrond van de financiële crisis, geeft een overzicht van literatuur over het verband tussen recessies en gezondheid, presenteert eerste responsen van landen binnen de Europese regio van de WHO en schetst de inhoud van de economische aanpassingsprogramma's in Griekenland en Portugal. Hoofdstuk 3 is een analyse van longitudinale gegevens en onderzoekt of het beleid voor ontslagbescherming een verzachtende rol speelde door mensen met een slechte gezondheid tijdens de recessie in staat te stellen aan het werk te blijven. Hoofdstuk 4 is een verhalende literatuurstudie over de effecten van de crisis op de gezondheid in geselecteerde landen tot 2015. Hoofdstuk 5 is een tijdreeksanalyse van (door goede zorg) te voorkomen sterfgevallen in Europa en onderzoekt of trends in vermijdbare sterfte zijn veranderd sinds het uitbreken van de crisis. Deel II bevat land-specifieke studies, in het bijzonder uit Griekenland, Portugal en de Baltische staten (Litouwen, Letland en Estland). Dit deel van het proefschrift belicht hun verschillende omstandigheden en analyseert de impact van specifiek beleid op volksgezondheid en gezondheidssystemen. Het proefschrift wordt afgesloten met een algemene beschouwing waarin de geleerde lessen worden samengevat en beleidsopties worden gepresenteerd.

Ik constateer dat de financiële crisis in Europa grote bedreigingen voor de gezondheid heeft opgeleverd, maar tevens enkele kansen. Hoewel recessies risico's voor de gezondheid inhouden, was uiteindelijk de wisselwerking tussen fiscale bezuinigingen, economische schokken en zwakke sociale zekerheid de oorzaak van crisissituaties in het gezondheids- en sociale domein in sommige Europese landen. Over het algemeen is het effect van de recessie op de volksgezondheid op de korte termijn grotendeels negatief geweest en manifesteerde dit zich in een verslechtering van de geestelijke gezondheid, waaronder zelfmoord, als ook in een toename van onvervulde behoefte aan gezondheidszorg. De negatieve impact van stijgende zelfmoordcijfers op de totale mortaliteit wordt gedeeltelijk gecompenseerd door dalende sterftecijfers door verkeersongevallen. Een belangrijk positief effect van de recessie - een reductie in risicogedrag in de algemene bevolking - leidt pas na jaren tot veranderingen in de mortaliteit en valt vaak samen met andere factoren die de gezondheid bepalen, waardoor het moeilijk is dit positieve effect te kwantificeren. Uiteraard is er geen recessie nodig om roken en alcoholgebruik te verminderen: een slechte gezondheid voortkomend uit ongezond gedrag is te voorkomen door effectief intersectoraal beleid dat gericht is op het beschermen van de volksgezondheid, zoals maatregelen gericht op het beperken van alcohol- en tabaksgebruik. Om bovenstaande redenen moeten veranderingen in totale mortaliteit die samenvallen met recessies worden geïnterpreteerd in de context van bredere epidemiologische veranderingen en veranderingen in gezondheidssystemen. Echter, veranderingen in de (door goede zorg) te voorkomen sterftecijfers, en vooral veranderingen die wijzen op omkeringen in reeds lang dalende trends, zijn zorgwekkend omdat

zij kunnen wijzen op een verslechtering van de toegang tot of de kwaliteit van zorg tijdens de crisis.

De crisis heeft uiteenlopende gevolgen gehad voor verschillende Europese landen en ook hun gezondheidsstelsels waren niet in gelijke mate voorbereid om de gevolgen hiervan te weerstaan. Griekenland was het meest opvallende geval, waar de economische crisis grote consequenties heeft gehad voor zowel de volksgezondheid als het Griekse gezondheidssysteem. Bovendien heeft het gebrek aan actie op cruciale onderdelen van de zorg, zoals de preventie van overdraagbare ziekten, versterking van de geestelijke gezondheidszorg, beschikbaarheid van hoogkwalitatieve eerstelijns zorg en tijdige toegang tot gespecialiseerde diensten en geneesmiddelen, geleid tot een grote problemen voor de volksgezondheid.

De schok van de economische crisis heeft bijgedragen aan het identificeren van factoren die belangrijk zijn voor de veerkracht van een gezondheidssysteem. Dit zijn 1) voldoende financiering, 2) een uitgebreide dekking van de gezondheidszorg en een laag niveau eigen bijdragen, 3) de aanwezigheid van anticyclische mechanismen of reserves om de financiering te beschermen op de korte termijn, 4) het vermogen om te investeren in kosteneffectieve zorg 5) deskundigheid om hervormingen door te voeren, en 6) politieke wil. De uiteenlopende reacties van landen op de financiële crisis toont aan dat er opties zijn op het gebied van gezondheidsbeleid. Waar de juiste mechanismen aanwezig zijn hoeven zorguitgaven niet omlaag te worden gebracht, en waar zij moeten dalen, kunnen bezuinigingen worden gericht op diensten met minimale kosteneffectiviteit. De beschikbaarheid van deze mechanismen hangt echter af van paraatheid op de bovengenoemde zes gebieden.

Dit proefschrift presenteert de korte en middellange termijn effecten van de economische crisis in de meest getroffen landen. Toekomstig onderzoek zou zich kunnen richten op de lange termijn effecten van bezuinigingsmaatregelen op de volksgezondheid en op de kwaliteit van en toegang tot gezondheidszorg.

ACKNOWLEDGEMENTS

The completion of this doctorate thesis marks an amazing milestone for me, but the years of work on it were even more remarkable – both professionally and personally, and largely due to all those people I would like to thank here.

First of all, thank you to my PhD supervisors – Professor Johan Mackenbach and Professor Martin McKee. Johan, thank you for trusting me to embark on this venture in the first place; for all your patience, advice, thoroughness, and for your clear and timely guidance. Martin, I really cannot thank you enough. To put it simply, I would not have done it if it had not been for you. But it is not just about the thesis – I would not have been who I am today if it had not been for you – and I am incredibly grateful to you for continuously inspiring me to achieve and showing me that there is just one direction – "onwards and upwards"!

I am very grateful to all my colleagues who contributed to writing the papers included in this dissertation. Particular thanks go to Helena Legido-Quigley – for preparing me for what's ahead, for enthusiasm and encouragement, honesty and integrity. And also to Vladimir Gordeev (my paranimph) – for the many (many!) therapeutic conversations, and for making me smile when things got unbearably hard. Thanks are also due to Alexander Kentikelenis, Aaron Reeves and David Stuckler –both for the joint fruitful collaboration and for their other in-depth work on the impact of the crisis, which was vital in shaping much of this thesis.

I would also like to thank Anne Wijtzes – who kindly agreed to be my second paranimph and stand by me during the defence ceremony without even knowing me, shared her experience, and translated the thesis summary into Dutch.

I am very grateful to the inner doctoral committee – Professors Patrick Bindels, Erik Schut and Koos van der Velden – for their time in reviewing the thesis, for valuable comments and for approving the thesis for the defence. And to the members of the wider assessment committee who took part in the defence ceremony.

I would like to thank all the staff working at the European Observatory on Health Systems and Policies as well as at the Centre for Global Chronic Conditions (former ECOHOST) at the London School of Hygiene and Tropical Medicine. Your day in and day out presence, advice, skills and knowledge enabled me to carry out this and other work. And it is a great fun to hang out with all of you anyway!

Finally, enormous thank you goes to my family and close friends – for all your care, positive influence and invaluable help. I am very lucky to have you. Very special thanks to my Mum – for always supporting me selflessly and tirelessly with everything you can and way beyond; for being the example of making things possible and for passing on the genetic thirst for learning. And to my Dad – for your persistent enquiries that would not let me stop, for your great sense of humour, and for teaching me to be calm and

focussed. To my son Nicholas – you were born in the middle of it all and gave me incredible inspiration and sense of purpose. To my partner Sergey – for your love, warm hugs and reassurance, and for having confidence in me.

ABOUT THE AUTHOR

Marina Karanikolos was born in Klaipeda, Lithuania, in 1982. She grew up there and attended Žaliakalnio and M.Gorkio secondary schools. In 2000 Marina embarked on studying for two undergraduate degrees – Public Health in Klaipeda University and Law in the Baltic Russian Institute (now Baltic International Academy), and graduated successfully from both in 2004. Studying for two degrees simultaneously opened up an exciting multidisciplinary world where fields, subjects, ideas, teaching and research methods were vastly different but often complemented each other.

Marina's career in Public Health began in the NHS in London in 2004 during the time of the London-wide "MMR catch-up campaign", where parents were encouraged to vaccinate children who had missed immunisation. As the campaign co-ordinator for two of the inner London boroughs, Marina became interested in the intricacies of interactions between multiple health system actors, including young patients and parents, doctors and nurses, public health professionals and the wider public. She then researched this topic further in her Master's thesis in Public Health at King's College London, examining the medical, ethical and legal dilemmas of individual rights and freedoms and public good. Marina's further work in the NHS involved providing health intelligence to inform needs assessments, health impacts, population health monitoring and NHS service reconfiguration and planning at local and regional levels.

Since 2010 Marina has been working at the European Observatory on Health Systems and Policies based at the London School of Hygiene and Tropical Medicine. There she has performed research and knowledge-brokering in a range of areas, including assessment and international comparisons of health systems performance, population health monitoring, and the impact of the financial crisis on population health and health systems in Europe. The latter presented such a cause for concern, and stimulus for prompt research, that the international experience of the effects of the crisis became the subject of this thesis.

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Hanefeld J, Mayhew S, Legido-Quigley H, Martineau F, **Karanikolos M**, Blanchet K, Liverani M, Yei-Mokuwa E, McKay G, Balabanova D. (2018) Towards an understanding of resilience: Responding to Health Systems Shocks. Health Policy and Planning doi: 10.1093/heapol/czx183

Karanikolos M, Adany R, McKee M. (2017) The epidemiological transition in Eastern and Western Europe: a historic natural experiment. European Journal of Public Health 27:4 pp 4-8

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Kentikelenis A, **Karanikolos M**, Williams G, Mladovsky P, King L, Pharris A, Suk J, Hatzakis A, McKee M, Noori T, Stuckler D. How do economic crises affect migrants' risk of infectious disease? A systematic-narrative review. EJPH 2015 doi:10.1093/eurpub/ckv151

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Kentikelenis A, **Karanikolos M**, Papanicolas I, Basu S, McKee M, Stuckler D. Effects of Greek economic crisis on health are real. BMJ. 2012 Dec 21;345:e8602; author reply e8608. doi: 10.1136/bmj.e8602.

McKee M, **Karanikolos M**, Belcher P, Stuckler D. Austerity: a failed experiment on the people of Europe. Clinical Medicine 2012 12(4) 1-5

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PHD PORTFOLIO

Name: Marina Karanikolos

Erasmus MC Department: Public Health

PhD Period: 2012-2018

Promotor: Prof. Dr. Johan P Mackenbach

Co-promotor: Prof. Dr. Martin McKee

1. PHD TRAINING	Year	Workload (Hours / ECTS)
Courses		
Integrity in Science (Erasmus MC, Rotterdam)	2016	8 hours
Communicating science to public (LSHTM)	2016	8 hours
Media training (LSHTM, London)	2013	8 hours
Dissertation supervision (LSHTM, London)	2012	8 hours
Small groups teaching (LSHTM, London)	2012	8 hours
Advanced use of Stata (LSHTM, London)	2012	40 hours
Seminars and workshops		
Sharing Information and Evidence with Policy Makers (pre-conference workshop, EUPHA, Stockholm)	2017	8 hours
Suicides, mental health and economic crisis (Suicide and Work in the Globalised Economy, Wellcome Trust workshop, London)	2016	8 hours
Policy focus group on health systems performance assessment indicators (quality of care) in the EU (workshop, European Commission, Brussels)	2015	8 hours
Economic crisis, health systems and health in Europe: impact and implications for policy (preconference workshop, EUPHA, Milan)	2015	8 hours
Policy dialogue on reducing avoidable mortality in England (workshop, Department of Health, London)	2014	8 hours
Health Policy in the shadow of financial and economic crisis – Impact on healthcare systems in Greece, Ireland and Portugal (workshop, Bielefeld University)	2013	8 hours
The impact of the crisis on health systems in Europe (authors workshop, WHO Barcelona Office)	2013	16 hours
The impact of the crisis on Greece, Spain, Portugal (workshop, School of Public Health, Lisbon)	2012	16 hours
ECOHOST seminar series (organising seminars, LSHTM, London)	2012-2014	20 hours
Presentations		
The unequal health of Europeans: successes and failures of polices (Innovation in Care Conference, Brussels)	2017	1 ECTS
Amenable mortality in the EU28 (Best Abstract Award prize, abstract presentation, EUPHA, Vienna)	2016	1 ECTS
Health and Health System after austerity in Greece (plenary, Sandwell Health and Other Economic Summit, Birmingham)	2016	1 ECTS

Financial crisis, unmet need and access to care in Estonia, Latvia and Lithuania (HSPR seminar series, LSHTM, London)	2015	1 ECTS
Access to care in the Baltic States: did crisis have an impact? (abstract presentation, EUPHA, Milan)	2015	1 ECTS
Not that different or just not measurable? The contribution of health care to changes in population health outcomes in the four UK countries before and after devolution (poster presentation, The Lancet Public Health Science, in association with EUPHA, Glasgow)	2014	1 ECTS
Improving health worldwide: strengthening research capacity (poster presentation, LSHTM Annual Symposium, London)	2014	1 ECTS
Impact of the financial crisis on health system, efficiency and health in Lithuania (Annual Conference of the Lithuanian National Health Insurance Fund, Vilnius)	2014	1 ECTS
The impact of the financial crisis on health and health systems in Europe (Lithuanian Presidency of the Council of the European Union 2013 Conference "Sustainable Health Systems for Inclusive Growth in Europe", Vilnius)	2013	1 ECTS
Labour market inequalities, employment protections, and health disadvantage in Europe before and after economic recession - multilevel cohort analysis (abstract presentation, EUPHA, Brussels)	2013	1 ECTS
The crisis, austerity and health in Europe (The European Social Observatory and European Trade Union Institute forum, Brussels)	2013	1 ECTS
The effect of economic crisis and austerity on mental health and services in Europe (plenary lecture, Berlin School of Mind and Brain)	2013	1 ECTS
The response of European health systems to the financial crisis, with special reference to Greece (plenary, National Council for Quality and Prioritization in Health Care Services, Oslo)	2013	1 ECTS

International conferences

10th European Public Health Conference, Stockholm	2017	1 ECTS
European Health Forum, Gastein	2017	1 ECTS
9th European Public Health Conference, Vienna	2016	1 ECTS
8th European Public Health Conference, Milan	2015	1 ECTS
Lithuanian Presidency of the Council of the European Union 2013 Conference "Sustainable Health Systems for Inclusive Growth in Europe", Vilnius	2013	1 ECTS
6th European Public Health Conference, Brussels	2013	1 ECTS
WHO Conference on Health Systems and the Economic Crisis, Oslo	2013	1 ECTS
European Health Forum, Gastein	2012	1 ECTS

2. TEACHING	Year	Workload (Hours / ECTS)
Thesis supervision for Masters in Public Health (LSHTM)	2013-2016	80 hours
Deputy module organiser, exam marking – Health Systems (DL) (LSHTM)	2013-2014	80 hours
Lectures, seminars, exams marking (LSHTM)	2012 - 2017	60 hours