

chapter one

Introduction

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A natural laboratory

Whatever way one looks at it, Europe is a continent of enormous diversity. Despite the powerful forces of globalization, there are still significant differences in attitudes, beliefs and lifestyles among the people of Norway in the north, Portugal in the west, Malta in the south, the Russian Federation in the east and all those in between. These differences are apparent in many ways, from their national cuisine, poetry and music, to their health and their wealth. Their governments are equally diverse, most obviously in terms of how they see the responsibilities of the state and the individual. However, they are, at least formally, united in the pursuit of certain shared goals relating to the well-being of their people, even if they differ in the means to achieve them.

And they do differ, often quite widely. This is apparent in the choices they have made in many policies of direct relevance to health. Some have acted resolutely to tackle the enormous toll of disability and premature death from tobacco while others have left it to individuals. Some have put in place organized systems to detect cancer early and to treat it, while others have left it to opportunistic encounters between individuals and their physicians. Some have invested in measures to make their roads safe while others have not.

This book is about the impact of these differences in health policy on population health in Europe since the early 1970s. During these years, the health of Europeans overall has improved markedly. Yet that progress has been very uneven. While western European countries have experienced gains in life expectancy at birth of 7 to 12 years, some in the former USSR have yet to recover to the levels reached in 1970. Moreover, within the different parts of Europe, countries have varied greatly in what they have achieved.

These variations are even more striking when trends in mortality from specific conditions, such as cardiovascular diseases, lung and cervical cancer or road traffic injuries (RTIs) are analysed, and they raise important questions

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about whether some countries have been more successful in their health policies than others. Do between-country differences in rates of smoking-related diseases reflect differences in the strictness of tobacco control efforts? Do differences in screening policies explain why some countries have higher cervical cancer mortality? Are lower rates of RTIs wholly or partly a reflection of more comprehensive road safety programmes?

These questions have never been systematically addressed, and because Europe provides a unique ‘natural laboratory’ in which to investigate them, this book fills an important gap. A comparative analysis of the successes and failures of health policy in different European countries is important for several reasons. First, it will identify ‘best practices’ from which other countries can learn, and which could be implemented more widely in order to improve population health throughout Europe. Second, it will make it possible to quantify what these policies have achieved and, more importantly, what they might achieve in the future. Third, it will be a basis for understanding why some countries have succeeded while others have failed to tackle the determinants of health among their people, so that others can learn from their experiences.

In the remainder of this introductory chapter we will first provide a broader context for our comparative analysis of the successes and failures of health policy in Europe by briefly describing recent trends and current patterns of health in Europe. We will summarize previous attempts to understand what role, if any, purposeful actions by governments and others have played in determining the variation. We will then set out the areas of health policy that are covered in this book and how the rest of the book will be structured.

The unequal health of Europeans

The epidemiological transition

The broader canvas against which we should study the health trends that we describe and analyse in this book is the epidemiological transition that European populations have undergone during the 20th century. The term ‘epidemiological transition’ was first coined in 1971 by Omran, and subsequently modified (Omran 1983; Olshansky and Ault 1986; Mackenbach 1994; Vallin and Meslé 2004), but it still provides a useful framework for characterizing changes in population health.

During this transition, which in different parts of Europe began between 1850 and 1920 (Riley 2001), mortality declined precipitously and life expectancy rose in a truly spectacular manner. Originally, three stages were distinguished. In the first stage, which Omran called the age of ‘pestilence and famine’, mortality was still high, particularly among children, and was mainly caused by infectious diseases. In the second stage, which he termed the age of ‘receding pandemics’, deaths from infectious diseases declined rapidly and life expectancy started to rise. In the third stage, the age of ‘degenerative and man-made diseases’, life expectancy continued to rise as a result of further declines in mortality

among the young but ultimately reached a plateau because of the simultaneous increase in cardiovascular diseases, cancers and RTIs (Omran 1971).

This long-term trend in life expectancy, which extends far beyond the period that we are covering in this book, can also clearly be observed in European data.

Figure 1.1 illustrates the situation in a few exemplary countries, and also shows some of the temporary setbacks in life expectancy coinciding with two World Wars and other dramatic historical events.

In the first decades of the 20th century, life expectancy at birth was already on the rise in countries in the western part of the European region, such as Sweden, England and Wales, Austria, and Italy, so that by 1930 their life expectancy surpassed 50 years or, in the case of Sweden, 60 years. In the eastern part of the European region, by comparison, the rise of life expectancy at birth started much later, but then rose more steeply during the 1940s and 1950s so that by 1965 male life expectancy at birth in European countries clustered in a narrow range around the age of 70. In a later extension of his theory, Omran (1983) described the more rapid declines of mortality in the eastern parts of the European region as representing an ‘accelerated model’, as opposed to the ‘classical model’ seen in the western parts of the region.

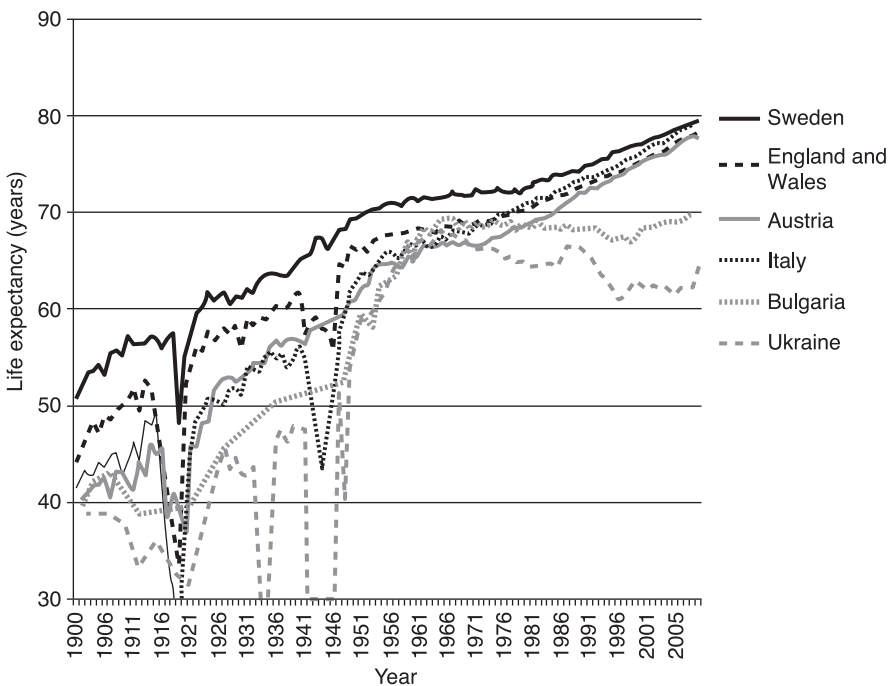


Figure 1.1 Trends in male life expectancy at birth in Sweden, England and Wales, Austria, Italy, Bulgaria and Ukraine, 1900–2008

Source: Human Life-Table Database (2012) except Ukraine (Vallin et al. 2002)

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Figure 1.1 also shows that the period of stagnation of life expectancy that corresponds with Omran's third stage did not last long in the western part of the European region and was succeeded by a period of renewed mortality decline that started around 1970, justifying the date selected for the analyses in this book. This renewed increase of life expectancy resulted from declines in mortality from cardiovascular diseases, injury and several other causes; it has been called a 'fourth stage' of the epidemiological transition in which mortality gradually shifts to higher ages (Olshansky and Ault 1986). Others prefer to distinguish different transitions (Mackenbach 1994) and to call this an entirely new transition, in which cardiovascular diseases may gradually be replaced as main causes of death by health conditions of old age such as mental and neurological diseases and 'frailty' (Vallin and Meslé 2004; Meslé and Vallin 2006).

What is certain is that this renewed increase of life expectancy has not been shared equally between countries, and that life expectancy has diverged again. While life expectancy at birth increased during the 1970s and 1980s in the western parts of the European Region, it stagnated and even declined somewhat in the eastern part of the region, until it finally started to rise again in the 1990s (Central and Eastern Europe) or even later (the former USSR). As a result of these diverging developments, life expectancy varies tremendously within Europe (Fig. 1.2).

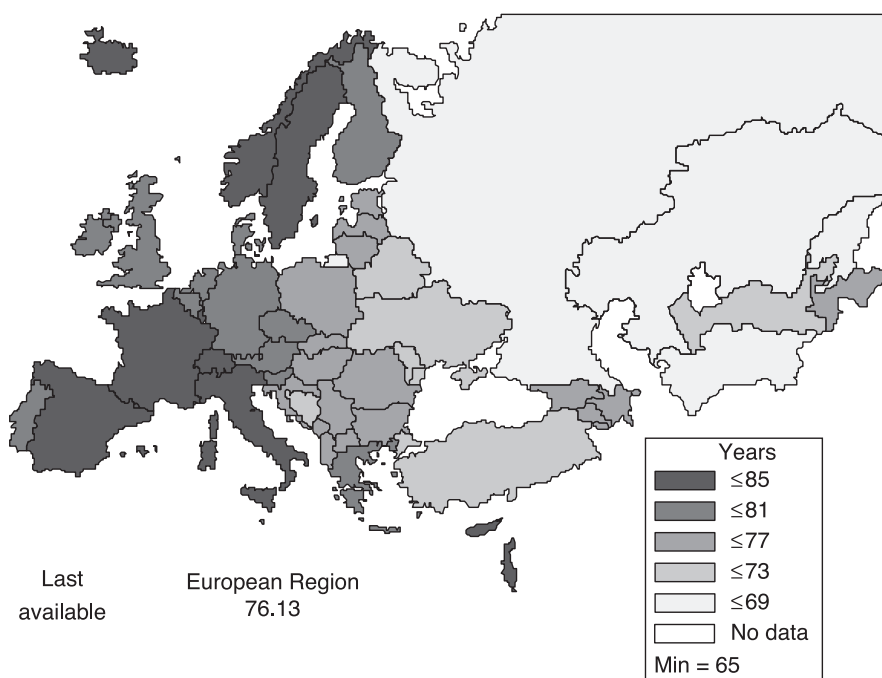


Figure 1.2 Geographical variations in life expectancy at birth in Europe, both genders, in quintiles ca. 2008

Source: WHO Regional Office for Europe 2012

Disease-specific patterns

Chronic diseases are now the main cause of death in Europe, the most significant among them being ischaemic heart disease, cerebrovascular disease and cancer. Over the period 1970–2010, standardized mortality rates for ischaemic heart disease and cerebrovascular disease have fallen uniformly in many but not all European countries.

There are a number of reasons for this fall in mortality rates, not all fully understood. They include reductions in risk factors, such as better diets and lower rates of smoking, as well as better treatment and, particularly for cerebrovascular disease, control of hypertension. Cerebrovascular disease was a condition for which there was no effective treatment until the late 1950s. An additional factor, most prominent in the former USSR but likely to play some role in vulnerable populations in other countries, is hazardous alcohol consumption, now recognized as an important cause of sudden cardiac death (Tomkins et al. 2012). However, the precise contribution of these factors varies over time and from place to place (Ford and Capewell 2011). As a result of these disparate developments, current levels of mortality from ischaemic heart disease and cerebrovascular disease now differ widely within Europe (Fig. 1.3).

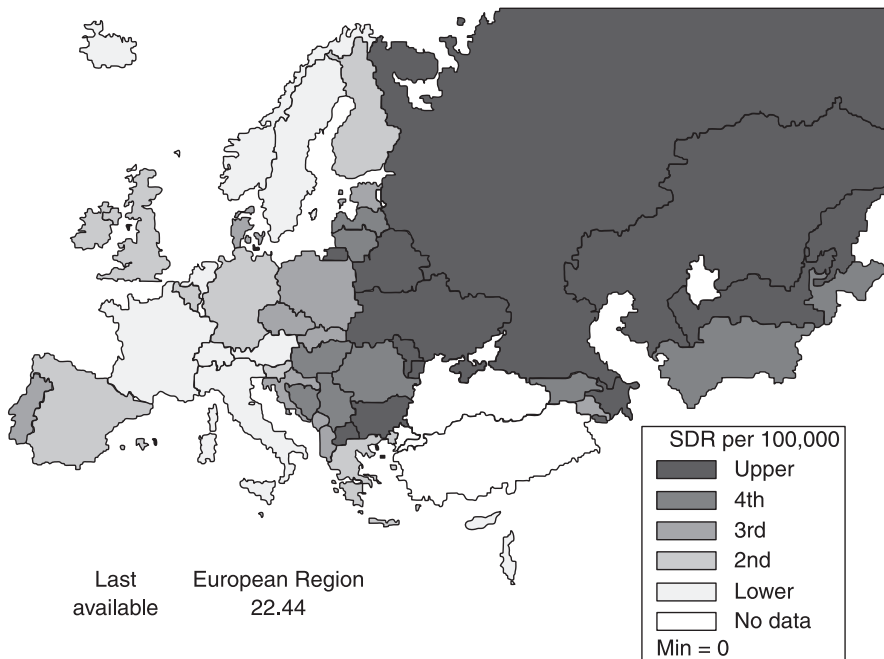


Figure 1.3 Geographical variation in mortality from cerebrovascular disease in Europe, both genders aged 0–64 years, in quintiles, ca. 2008

Source: WHO Regional Office for Europe 2012

Note: SDR, standardized mortality rate

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Cancer gives rise to a much more complex picture. Although cancer is often treated as a single disease, it is in reality simply a description of a biological process affecting many different parts of the body, in many different ways, all differing greatly in their aetiology and susceptibility to treatment. Like ischaemic heart disease and cerebrovascular disease, death rates overall are falling, but this conceals some very different trends among men and women in different parts of Europe.

Much of this variation results from differing timing of the smoking epidemic (Thun et al. 2012). The industrial production of cigarettes, accompanied by progressively sophisticated marketing, encouraged a situation in which, by the middle of the 20th century, smoking among men in many parts of Europe was ubiquitous. Women in western Europe followed this trend, but only after a delay of several decades, while cultural norms meant that, until the late 1980s, smoking among women in what was then the USSR remained rare. This has since changed dramatically with the entry of the transnational tobacco companies (Gilmore and McKee 2004). The consequences have been successive waves of smoking-related cancers across Europe, now fortunately declining among men in most countries as the smoking epidemic has begun to recede, but still rising among women. These cancers arise not only in the lungs but also in the larynx, oesophagus, kidney and bladder, while smoking also increases the risk of cancers at other sites, including the cervix.

In contrast, there has been a steady decline in deaths from stomach cancer across Europe throughout the past century, reflecting at least in part improvements in hygiene and, specifically, a decline in infection with the bacterium *Helicobacter pylori* (Sonnenberg 2010). However, some cancers are steadily increasing in incidence, such as cancer of the breast, now the most common in women in most countries (except where it is displaced by lung cancer). The reasons are thought to include better nutrition and, therefore, more rapid growth before puberty (Berkey et al. 2011), changes in patterns of child bearing (Hirte et al. 2007), and increased consumption of alcohol among women (Seitz et al. 2012).

Given the diversity in causes of cancer, patterns vary markedly. Death rates from lung cancer remain high in some western European countries compared with the eastern regions, a consequence of the still low rates among women in the east, while deaths from cervical cancer are much higher in the east (Figs 1.4 and 1.5).

Other non-communicable diseases are of major importance in many parts of Europe. They include diabetes mellitus, with increases in both type 1, believed to result from an infection with a virus in genetically susceptible individuals (Patterson et al. 2009), and type 2, caused primarily by increased levels of obesity (Gonzalez et al. 2009). Death rates from chronic obstructive pulmonary disease are generally declining, but in western Europe they still vary by a factor of more than 10, with the highest rates in Denmark, a country where smoking rates remain high.

Death rates from cirrhosis also vary greatly. There is a band of countries in south-eastern Europe with particularly high rates, stretching from Slovenia through Hungary and Romania to the Republic of Moldova and Ukraine (Fig. 1.6). However, overall, rates are declining, although in some cases only in

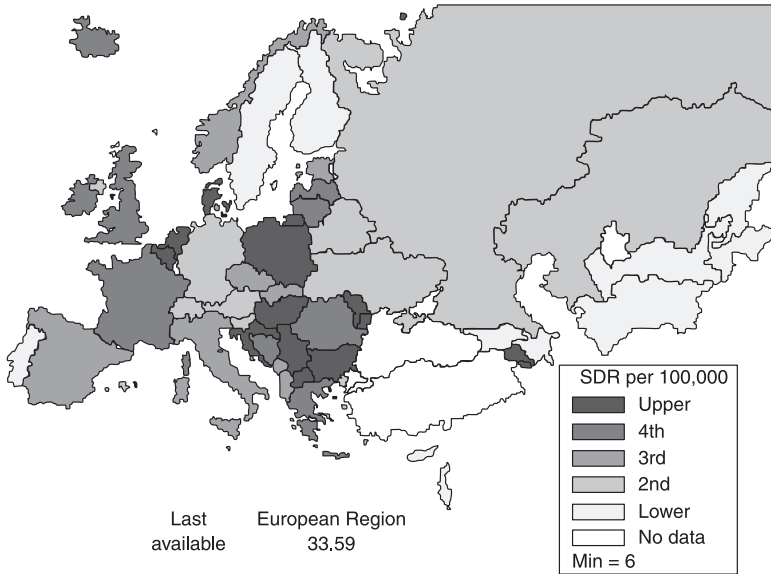


Figure 1.4 Geographical variation in mortality from trachea/bronchus/lung cancer in Europe, both genders, all ages, in quintiles ca. 2008

Source: WHO Regional Office for Europe 2012

Note: SDR, standardized mortality rate

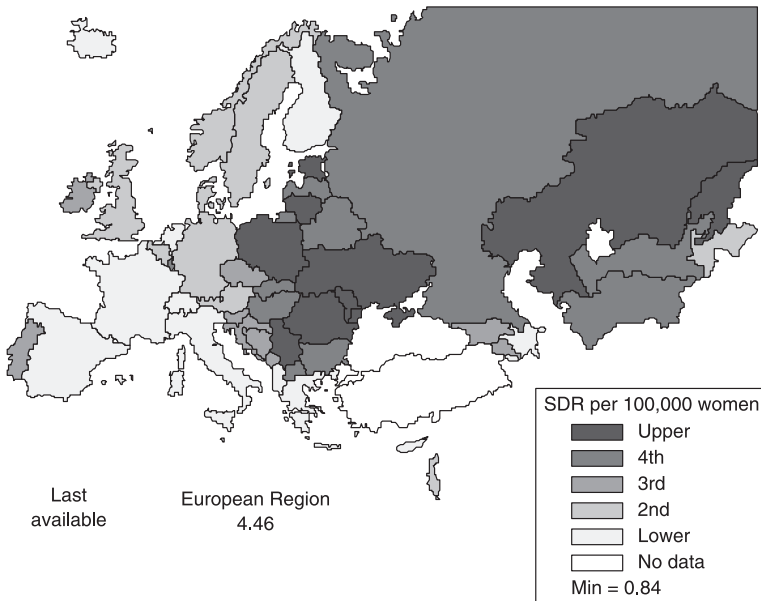


Figure 1.5 Geographical variation in female mortality from cervical cancer in Europe, all ages, in quintiles, ca. 2008

Source: WHO Regional Office for Europe 2012

Note: SDR, standardized mortality rate

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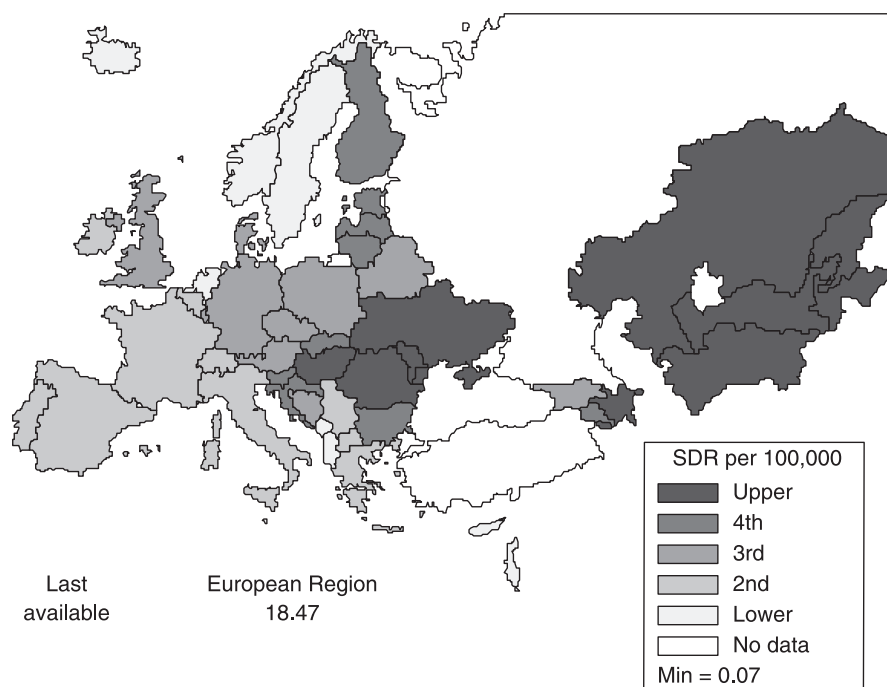


Figure 1.6 Geographical variation in mortality from chronic liver disease and cirrhosis in Europe, both genders, all ages, in quintiles ca. 2008

Source: WHO Regional Office for Europe 2012

Note: SDR, standardized mortality rate

the very recent past, and there have been some sustained declines in countries where rates were once high, such as France.

So far, this description has focused on mortality, largely because of the limited amount of data on disability. Yet this gives only a partial picture of the overall burden of disease. In particular, it underemphasizes the toll of ill health caused by mental illness, even though this is estimated to account for 20% of the total burden of disease in Europe. The one measure of mental illness that is available in most countries is the death rate from suicide, although, as will be discussed later in this book, this is subject to a number of limitations, often arising from the stigma that is attached to suicide in many societies. Notwithstanding these limitations, there are wide variations within Europe in death rates from suicide (Fig. 1.7), as for other causes of death, with the highest rates in the countries of the former USSR.

Injuries are the fourth most common cause of death in Europe and one of the leading causes of death in childhood. Indeed deaths from injury in childhood display one of the steepest gradients between east and west of any cause of death. All of these deaths are entirely preventable. Many deaths from injury occur on the roads. As we will see later in this book, some countries have made enormous progress in reducing these deaths, through a combination of improved transport

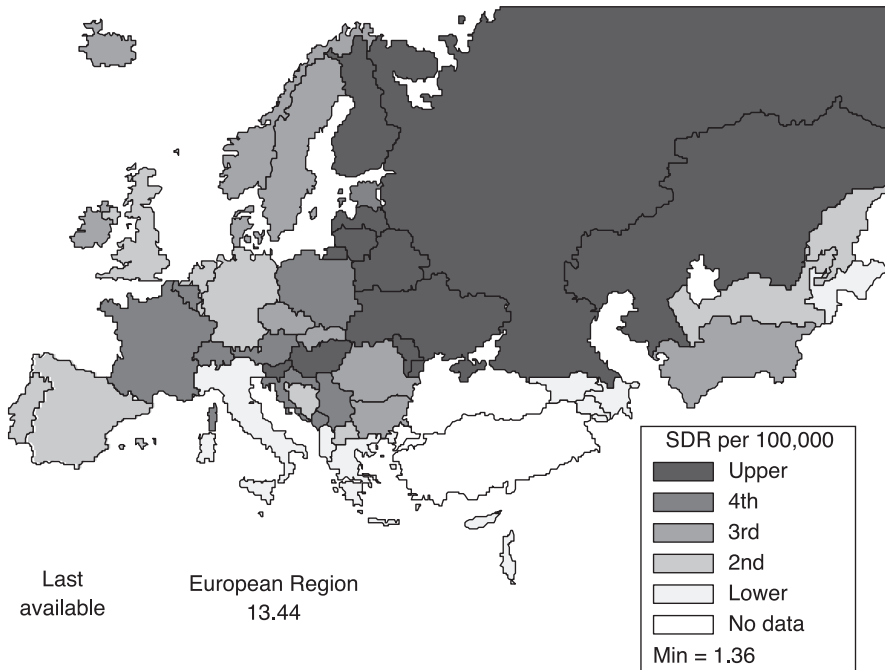


Figure 1.7 Geographical variation in mortality from suicide and self-inflicted injuries in Europe, both genders, all ages, in quintiles, ca. 2008

Source: WHO Regional Office for Europe 2012

Note: SDR, standardized mortality rate

infrastructure, safer vehicles and enforcement of legislation on speed and drunk driving. Others, for a variety of reasons, have failed to do so (McKee et al. 2000; van Beeck et al. 2000). The east–west divide in injury mortality is stark, but some countries in western Europe also have relatively high rates (Fig. 1.8).

Most unintentional injuries occur around the home. Again, substantial gains have been made in recent decades in improving safety. Dangerous toys, such as those with sharp edges or parts that can be swallowed easily, have been withdrawn from sale in most countries. Yet many dangers remain, such as those from unguarded play areas, unsafe electrical installations and inadequate lighting. As with injuries on the roads, there is still a wide geographical variation.

Although the epidemiological transition has seen remarkable declines in infectious diseases over the past century, the struggle between humans and microorganisms continues. On several occasions in recent decades, bacteria, viruses and the vectors that transmit them have taken advantage of opportunities that have arisen. These include the wars in the Balkans in the 1990s and the social and economic turmoil that accompanied the dissolution of the USSR (Suhrcke et al. 2011), as well as the creation of incubators for tuberculosis in overcrowded and poorly maintained prisons (Stuckler et al. 2008). These events allowed diseases once considered defeated, such as diphtheria, to re-emerge.

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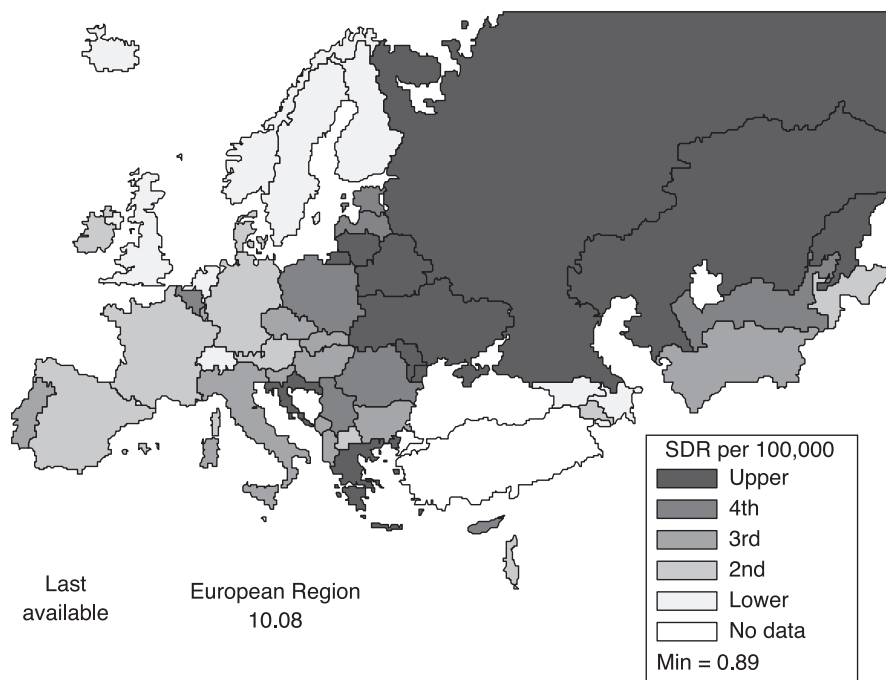


Figure 1.8 Geographical variation in mortality from road traffic accidents in Europe, both genders, all ages, in quintiles, ca. 2008

Source: WHO Regional Office for Europe 2012

Note: SDR, standardized mortality rate

They also include the failure to manage the use of antibiotics in health care facilities, leading to the emergence of antibiotic resistance.

So far, this analysis has looked at deaths from specific causes. It is also informative to look at deaths associated with the processes of giving birth and being born. Historically, this was an extremely dangerous process. Much can go wrong, and a failure to recognize complications and to deal with them swiftly can easily lead to the death of the mother and the child (Richardus et al. 2003). Once again, Europe has seen great successes in recent decades. Maternal death in some countries is now extremely rare, particularly when compared with the still very high rates in many other parts of the world. However, in some parts of Europe, there is still considerable room for improvement. This is most obviously the case in the countries of the former USSR, but there are also unacceptably high rates in some western European countries. Similar variations can be seen with neonatal mortality (Fig. 1.9), although the available data may underestimate the scale of the problem in some countries of the former USSR because of weaknesses in birth registration (Badurashvili et al. 2001).

In the next section we examine some of the reasons that have been proposed to explain why some countries enjoy better health than others.

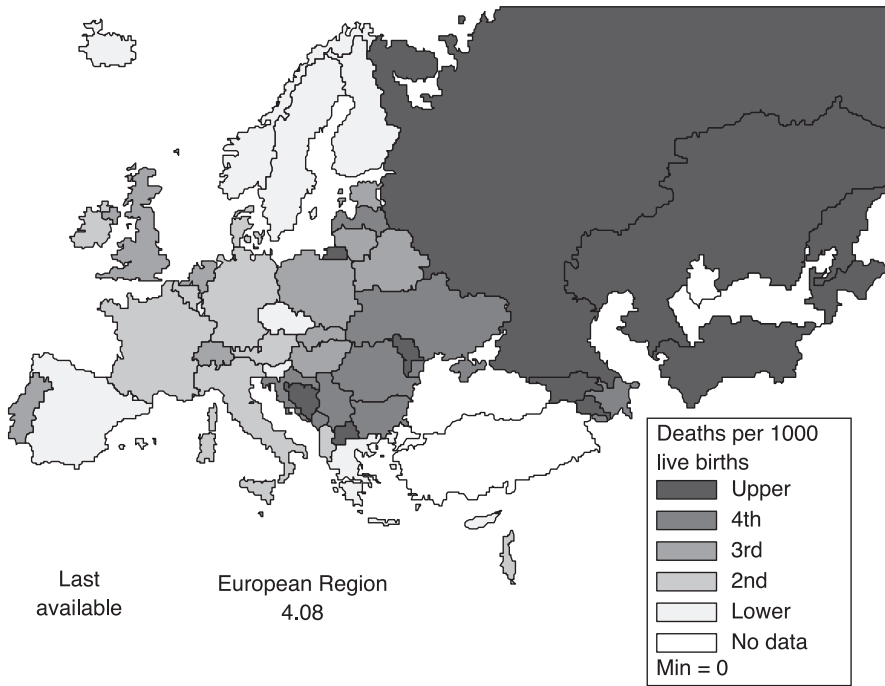


Figure 1.9 Geographical variation in neonatal mortality in Europe, both genders, in quintiles ca. 2008

Source: WHO Regional Office for Europe 2012

Explaining European health patterns

Economic factors

Research that has sought to explain between-country differences in life expectancy or mortality from specific causes often starts from the observation that aggregate health outcomes tend to be closely correlated with national income, typically measured by gross domestic product (GDP). This was first described systematically by Preston, who in a seminal paper showed that during the 20th century there has always been a strong cross-sectional relationship between GDP and life expectancy (Preston 1975). In global comparisons, the relationship is steeper at lower than at higher levels of GDP, and this can also be observed in Europe in 2008, although even a straight line would do reasonably well in summarizing this relationship (Fig. 1.10). Moreover, studies on the evolution of mortality over time have shown an association between economic growth and mortality from many different causes, such as cardiovascular diseases, cerebrovascular disease, cancers, disorders of infancy and motor vehicle injuries (Brenner 1987).

Some of the trends and variations in mortality described earlier in this chapter were undoubtedly driven by economic development. The western

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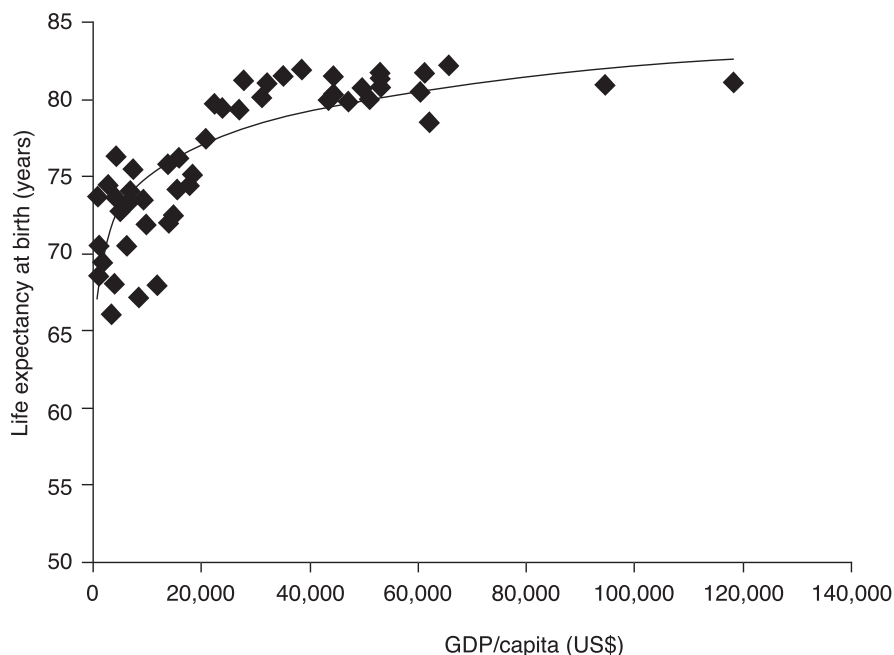


Figure 1.10 Association between gross domestic product (GDP in US\$) and life expectancy at birth in Europe, 2008

Source: WHO Regional Office for Europe 2012

part of the European region experienced almost continuous economic growth, while many countries in the eastern part experienced economic stagnation in the 1980s, a result of the failure of the communist economic model and outright economic decline in the 1990s, exacerbated by forced restructuring of the economy (Stuckler et al. 2009).

This relationship between national income and life expectancy must, however, be an indirect one, because as Preston already showed, the relationship has shifted upwards over time. At a given level of national income, life expectancy was higher in 1960 than in 1930, implying that only part of the rise in national life expectancies between 1930 and 1960 could be explained by the rise of national incomes (Preston 1975). Similar upward shifts have been seen more recently (Bloom and Canning 2007).

The explanation is that the mechanisms that link economic development to improved health outcomes are only partly dependent on average income levels. Sanitary measures that were at one time attainable only for countries with the highest levels of development have spread to other countries even before these countries reached the same income levels, because the knowledge was freely available and the required technical equipment became cheaper over time (Preston 1975; Mackenbach 2007). The same is likely to be true for the health policies of today.

As this book focuses on the role of collective human agency in explaining health variations within Europe, we will now briefly review some of the

previous studies looking at the impact of policy variations on health outcomes. These studies can be divided in two groups: studies that focus on specific health outcomes from which policy impacts are inferred indirectly, and studies that directly relate policy exposures to health outcomes. We will limit ourselves to studies that have looked at a broad range of health outcomes; where relevant, disease-specific studies will be reviewed in subsequent chapters.

Indirect studies

If one can identify specific health outcomes that are likely to be influenced mainly by a particular policy, then one can use trends or geographical variations in these outcomes to infer the contribution of a particular policy even without explicitly linking outcomes to policy exposures.

One example of this approach can be found in the area of 'amenable mortality'. Several decades ago it was proposed that rates of mortality from certain causes that are amenable to medical care could be used as indicators of the effectiveness of health care. This gave rise to the concept of 'avoidable' or 'amenable' mortality, originally developed by Rutstein et al. (1976) for application in a clinical context, and operationalized for application at the population level by Holland and colleagues (Charlton et al. 1983; Charlton et al. 1987; Holland 1990). Causes of death that are often used in these analyses include tuberculosis, other infectious diseases, Hodgkin's disease, testicular cancer, cervical cancer, cerebrovascular disease, appendicitis and maternal and perinatal mortality. Some of these causes are amenable to prevention, others to treatment.

In advanced industrialized countries, including those in the western part of the European region, mortality from most of these conditions has declined strongly over time in the period covered by this book (Nolte and McKee 2003, 2004, 2008). The declines have also been used to estimate the contribution of improvements in health care to total mortality decline during the 20th century (Mackenbach 1996).

Similarly, variations between countries in rates of mortality from amenable conditions have been interpreted as indicating differences between countries in the performance of their health systems (Nolte and McKee 2003, 2004, 2008). However, they show only weak relationships with health care supply or expenditure (Mackenbach et al. 1990; Mackenbach 1991; OECD 2010). Nevertheless, they do suggest that some of the observed variations in mortality within Europe result from variations in the performance of health care systems.

Declines in amenable mortality have been much smaller in the eastern part of the region, and current levels of amenable mortality are considerably higher, suggesting that part of the health disadvantage in that part of Europe is a reflection of deficiencies in health care (Jozan and Prokhorskas 1997; Andreev et al. 2003).

Another example of an indirect approach can be found in a range of studies looking at the contribution of specific risk factors to trends in mortality or variations in mortality across countries. Because some of these variations in risk factors reflect the success or failure of policies to tackle them, such analyses can be used to generate hypotheses on the population health impact of these policies.

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One of the earliest attempts to do this used data from the World Health Organization (WHO) MONICA study, undertaken in 38 populations from 21 countries between the mid-1980s and 1990s. Although this was the most exhaustive survey of the risk factors for cardiovascular diseases to date, it contained limited information on treatment. Nonetheless, it concluded that preventive measures to reduce exposure to risk factors had made a substantial contribution to the observed decline in cardiovascular mortality over the period of the study. Subsequent work has used increasingly sophisticated models with much more detailed data (Capewell et al. 1999). Examples involve work using the IMPACT model (Ainsworth et al. 2011) and, more recently, the DYNAMO model (Kulik et al. 2012). The IMPACT model has now been applied to data from many countries worldwide. Although the relative contribution varies, it identifies both reduction in risk factors and expansion of effective treatment as playing important roles (Unal et al. 2003; Aspelund et al. 2010; Bandosz et al. 2012). An example of a study of geographical variation is the Intersalt study, showing an association between salt intake and blood pressure, both among individuals and across countries (Elliott et al. 1996). Collectively, these studies suggest that part of the variation in mortality in Europe results from risk factors amenable to health policy.

Direct studies

Studies that have sought to examine the relationship between policies and population health outcomes directly have largely focused on three different policy areas: political regimes, social policies and health care policies. Research on political regimes has looked primarily at two different aspects: democratic versus authoritarian rule and the political composition of governments.

Democracy may be important for health for several reasons, for example because a democratic government is held accountable for its actions and there may be stronger mechanisms for selecting competent and honest people (Besley and Kudamatsu 2006). A recent overview of 20 studies of the effect of democratic government on population health outcomes shows that most, but not all, found a positive association, with various controls for other determinants (Klomp and de Haan 2009). As many of these studies include a wide range of countries with a similarly wide range of political regimes, including many low-income countries, it is unclear whether the smaller variation in degrees of democracy observed in Europe today may actually contribute to the observed differences in health.

Political composition of governments may be equally relevant. It is often thought that social democratic governments are more committed to the expansion of the welfare state and to other social policies that are conducive to health (Borrell et al. 2007). One analysis did indeed find a correlation between cumulative years of government by 'pro-redistributive parties' on the one hand and infant mortality and life expectancy on the other hand, but this study did not control for confounding factors (Navarro et al. 2003, 2006). Another has found an association between the proportionality of the electoral system and both infant mortality and life expectancy, suggesting that, as proportional

voting systems encouraged the election of coalitions, the resulting governments are more likely to represent the interests of all members of society and not just one section (Wigley and Akkoyunlu-Wigley 2011). It is unclear, at the current state of our knowledge, whether one should expect an important contribution of political composition of governments to the explanation of inequalities in health within the European region.

Other research has looked at the effectiveness of governments, often captured in a range of measures of the quality of governance. For example, one study has demonstrated a positive association between good governance and health outcomes in a sample of 101 countries, but it used structural equation modelling to show that this is mediated through the effect of governance on income and the quality of the health system (Klomp and de Haan 2008).

An area of policy that has attracted a lot of interest recently is that of social or welfare policies. Within Europe, countries differ significantly in their approach to these policies. The differences have been summarized in the form of three (sometimes four) different 'welfare regimes': a Nordic or social democratic, an Anglo-Saxon or liberal, and a continental or Christian-democratic regime (Esping-Andersen 1990); to these three a Mediterranean or family-based regime has sometimes been added (Ferrera 1996).

The Nordic welfare states can be characterized by three common features: they are comprehensive, institutionalized and universalistic. As most Nordic countries also have high life expectancy, researchers have asked whether the two are indeed related. A recent analysis of 17 countries, including many in Europe, found that social spending and universalism, controlling for GDP, were related positively to life expectancy. In more detailed analyses, they found that generosity in family policies was associated with lower infant mortality, and that generosity in basic pensions lowers old age mortality (Lundberg et al. 2008; Kangas 2010). While these and similar analyses of aggregate health measures such as total mortality provide indications of potentially relevant relationships, they do not elucidate the mechanisms underlying them, and it, therefore, remains unclear whether the associations represent causal effects.

The most frequently investigated relationship, however, is that between health care and population health indicators. One of the earliest studies, by Cochrane and colleagues (1978), sought associations between health system 'outputs', such as mortality at different ages and maternal deaths, and 'inputs', grouped into social and economic factors, lifestyle factors and health system inputs. They found some intuitive results, such as more nurses per head of population being associated with lower maternal and infant mortality, but also some counterintuitive ones, such as more doctors being associated with higher mortality at younger ages.

Since then, many similar studies have been undertaken. However, many include samples of countries worldwide and, given the lack of data on adult mortality outside developed countries, they have used measures of infant, maternal and under-five mortality as their measures of health outcome. These analyses also include countries with a much larger range of variation in resources than is seen in Europe. The studies also vary considerably in terms of the sophistication with which they have taken account of data limitations and methodological challenges. Many show a strong association between the

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density of qualified health workers and health outcomes, typically showing a closer association with maternal mortality than with child mortality (Anand and Barnighausen 2004).

Fewer studies have looked for associations in developed countries. Hitiris and Posnett (1992) found a small negative association between health expenditure and crude mortality rates, but they controlled for few other factors. A more detailed study found that higher health expenditures in western European countries were associated with lower infant and female mortality and, at any given level of expenditure, countries with tax-based health systems achieved lower infant mortality rates than those with social insurance (Elola et al. 1995). Other studies in individual countries also found associations between health expenditure and health outcomes (Collins and Klein 1980; Forbes and McGregor 1984). However, all these studies had limitations, including a failure to account for what expenditure could buy in terms of health system inputs. A more complex analysis, undertaken by the Organisation for Economic Co-operation and Development (OECD), disentangled many of the determinants of health and, while finding that sociodemographic factors such as education levels and national income were the most important drivers of potential years of life lost (PYLLs), it also found a significant association with health expenditure, but only for females (Or 2000). It was suggested that this reflected the differing pattern of causes of death between men and women, with the former being dominated by injuries and violence that were less amenable to medical care.

Collectively, these studies suggest that some of the differences between European countries in population health indicators may be related to varying political conditions, social policies and levels of health care expenditure. As these may all be associated with the health policies that are the focus of this book, they should be taken into account when we search for the health impact of these policies.

The scope of this book

The variations in health trends described earlier in this chapter raise important questions. Many countries in Europe have seen their health situation improve dramatically over the past decades, but to what extent did this result from purposeful action to improve health, or was it a side-effect of improvements in living conditions and health behaviours that came about spontaneously? Some countries have seen equally dramatic setbacks. To what extent were these the result of deteriorating living conditions or health behaviours, or a breakdown of previously successful programmes to tackle health risks? And to the extent that these favourable or unfavourable health trends reflect the success or failure of health-related policies, why do some countries perform better than others?

These are the types of question that this book has addressed. More systematically, this book has the following aims, to:

- assess the extent to which different European countries vary in the implementation of health policies that are known to be effective

- assess the extent to which differences between European countries in implementation of health policies have had an impact on trends and levels of relevant health outcomes
- identify 'best practices' of health policy, and indicate opportunities for further health gains by implementing these 'best practice' policies throughout Europe
- identify determinants of successes and failures of health policy, and derive guidance for policy-makers on how to achieve optimal results.

We define health policies as 'decisions, plans and actions that are undertaken to achieve specific health goals within a society'. It is irrelevant whether these policies originate within or outside the health care sector, or whether they are initiated by public or private institutions. The defining characteristics of the 'decisions, plans and actions' are that they explicitly aim to prevent or ameliorate health problems, or to reduce exposure to well-known health risks, and that they are taken on a population-wide basis ('within a society').

Importantly, unlike the often cited definition of the WHO ('decisions, plans, and actions that are undertaken to achieve specific health care goals within a society' (World Health Organization 2012)), our definition does not limit health policy to actions that imply initiation by, or delivery of, health care. We conceptualize health policy as including policies on health care but having a much broader scope.

In this book we have limited ourselves to health policies that are based on primary or secondary prevention. We considered that there is already an abundance of international comparisons of health care policy, focusing on differences between countries in how health care systems are organized and how health care is financed, to which we have ourselves contributed a substantial amount. Readers seeking more information on this topic may find the web site of the European Observatory on Health Systems and Policies (2012) a useful starting point. We believe that it will be more useful to focus on how countries differ in policies that aim at preventing health problems, because this is an area that is studied much less often and yet may be of equal or greater relevance for improving population health outcomes.

We will deal with both methods of primary prevention (aiming to avoid the occurrence of disease by reducing exposure to health risks or by strengthening individuals' ability to cope with these health risks) and methods of secondary prevention (aiming to avoid the progression of disease to a symptomatic stage, by diagnosing and treating disease in early stages before it causes significant morbidity). Other terms that we will sometimes use to distinguish between different approaches of prevention are health protection (methods that provide passive protection against health risks and do not involve individuals' active participation) and health promotion (methods that enable people to increase control over their health and its determinants).

This book will cover 11 areas of health policy that have been identified in preliminary analyses as having contributed to major population health gains in at least some European countries. These are tobacco; alcohol; food and nutrition; fertility, pregnancy and childbirth; child health; infectious diseases;

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hypertension detection and treatment; cancer screening; mental health; road safety; and air pollution.

For each of these areas, similar analyses have been carried out using the following general approach. First, reviews were carried out to search and grade scientific evidence on the effectiveness of potentially relevant policies. Second, data were collected on the actual implementation of these policies in different European countries, and analyses were made of the impact of these policies on health outcomes. Sometimes these analyses could cover a range of countries and allowed an assessment of the statistical association between policy implementation and policy outcomes. At other times, these analyses were conducted in the form of case studies covering single countries. Third, the possible determinants of between-country differences in implementation of effective health policies were explored. All analyses were limited to health policies that may have affected population health in the period 1970–2010.

The final part of the analysis consisted of a systematic between-country analysis. The evidence collected in the 11 area-specific analyses was synthesized to provide an overview of the generic effectiveness of national health policies, seeking to identify countries whose overall success was better than might be expected given other factors known to influence health policies. Using these 'best practices', the potential population health impacts of implementing 'best practices' throughout Europe were estimated. An exploration was then carried out to identify the governance conditions that are associated with successful health policy. Finally, implications for policy-makers were formulated. The results of these syntheses are presented in the final five chapters of this book.

The area-specific analyses were commissioned from experts in the field. Outlines for these chapters were discussed during an author workshop hosted by the European Public Health Conference in Copenhagen in November 2011. Draft versions of chapters were edited into the final versions appearing in this book during a residency by the editors at the Rockefeller Foundation's Bellagio Centre in April/May 2012. This residency also allowed the editors to write the introduction and final five chapters of this book.

A final word is needed about the boundaries of Europe as applied in this book. It is far from obvious how Europe should be defined. It is part of the Eurasian land mass, with the border with Asia a question of culture and history as much as of physical geography. This was already noted dismissively by Metternich, who suggested that Asia began on the outskirts of Vienna. Two partly European countries, Turkey and the Russian Federation, have the largest parts of their land masses in Asia, and both simultaneously draw on cultural traditions from east and west. The European Region of the WHO stretches from western Greenland to Vladivostok and includes a number of countries that are unambiguously in Asia, such as Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan and Israel. For the purposes of this book, we have taken a pragmatic approach, defining Europe as those countries that are part of the WHO's European Region, minus Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Israel and Turkey. When we further exclude the mini-states of Andorra, Liechtenstein, Monaco, San Marino and the Vatican City, this gives us 43 nations to consider in this book.

Notwithstanding our European focus, we hope and expect that this book will be useful for public health practitioners, health policy-makers and public health scientists both in Europe and elsewhere.

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