

CHAPTER 9

MORBIDITY AND MORTALITY IN THE TRANSITION COUNTRIES OF EUROPE

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Background

After the fall of the Berlin Wall in November 1989, Europe's political, economic and cultural borders shifted once again in the 20th century, with the break-up of the former communist bloc adding 22 new countries to the map of Europe. An immensely diverse region, Europe comprises some of the richest countries in the world alongside regions that have undergone dramatic political, social and economic changes during the last decade, a number of which having ended the 1990s with incomes close to those of the least developed countries. The economic disparities show a distinct geographical pattern, with national income per capita falling almost exponentially along the west-east axis. Thus, in Luxembourg in 2001, GDP per capita was, at \$53,780 (PPP¹), about 50 times that in Tajikistan (\$1,170) and at least 20 times that in the countries of the Caucasus region, Moldova, Uzbekistan or Kyrgyzstan (UNDP, 2003).

The political and economic transition in the former communist countries of Central and Eastern Europe has been difficult for all countries affected, but, at the risk of oversimplification, can be described as a 'tale of two regions' – Central and Eastern Europe on the one hand and the successor states of the former Soviet Union which are now members of the Commonwealth of Independent States (CIS)² on the other. Several countries in Central and Eastern Europe have made remarkable progress since the mid-1990s, with ten countries, including the Baltic states, having joined the European Union in 2004. In contrast, the countries emerging from the Soviet Union have been experiencing deep economic

crises, and a number of CIS countries, including Russia and Ukraine, saw an actual decline in their Human Development Index in the 1990s, reflecting economic stagnation and the inability to protect incomes and alleviate human poverty. However, despite economic growth, the more successful countries of Central and Eastern Europe, like those in Western Europe, saw an increase in income inequalities, albeit of varying degrees (Cornia et al., 2003), with an impact on levels of poverty. Thus, Poland experienced an increase in GDP per capita of 2.4 per cent per year between 1987/1988 and 1993/1995, which was, however, accompanied by a 14 per cent rise in levels of poverty (UNDP, 2003). It has been estimated that poverty, defined by a poverty line of \$2 per day, has almost trebled during the 1990s, to close to 100 million people or 25 per cent of the population in Central and Eastern Europe and the CIS (UNDP, 2003).

This diversity in social and economic patterns across the European region is mirrored, to a considerable extent, in patterns of health that date back to the late 1960s, with a remarkably clear-cut division along pre-1990 political borders (Meslé, 2004; McKee and Zatonski, 2003). Thus, during the last 30 years the health indicators of the peoples of Central and Eastern Europe and the former Soviet Union (FSU) have undergone changes that have been very different from the health trends seen in their western neighbours. As a consequence, the 1990s have seen a dramatically increased gap in health status between countries in the European region (WHO Regional Office for Europe, 2002). This gap is reflected in, among other health indicators, life expectancy at birth. Figure 1 shows trends in life expectancy since 1980 in different European countries that have, for simplicity, been grouped into countries of the pre-enlarged European Union (EU 15), Central and Eastern Europe (CEE; 12 countries³), the FSU and Central Asia (CAR⁴). It shows that while life expectancy steadily increased in Western Europe, it only

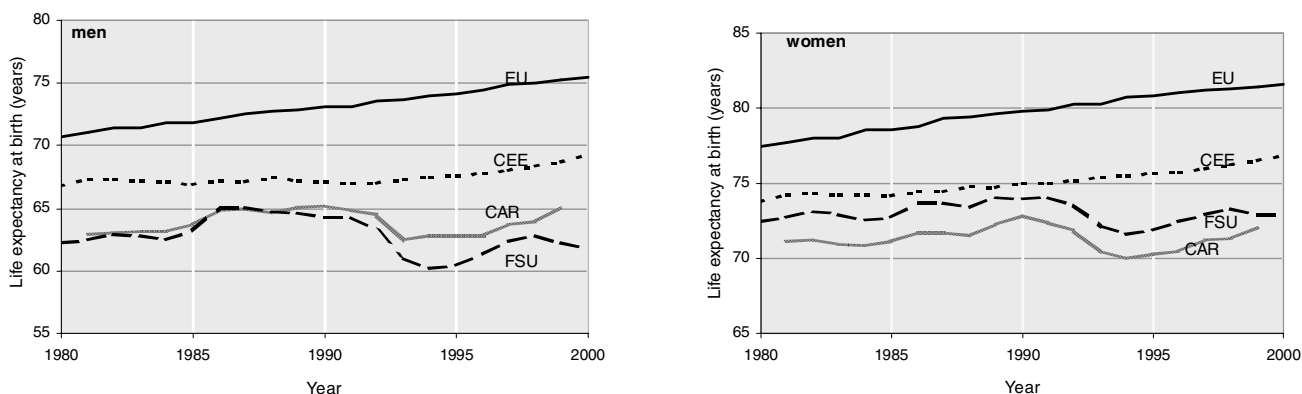
¹ PPP (Purchasing Power Parity): a rate of exchange that accounts for price differences between countries, allowing international comparison of real output and incomes. At the PPP \$ rate as used here, PPP \$1 has the same purchasing power in the domestic economy as has \$1 in the United States.

² CIS refers to the 12 successor countries of the Soviet Union that now form the Commonwealth of Independent States and does not therefore include the three Baltic states of Estonia, Latvia and Lithuania that were also part of the former Soviet Union (FSU); reference will be made to both.

³ Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Hungary, Poland, Romania, Slovakia, Slovenia, FYR of Macedonia, Serbia and Montenegro.

⁴ Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan.

FIGURE 1
Trends in life expectancy at birth in Europe, 1980-2000



Source: WHO Health for all database 2002.

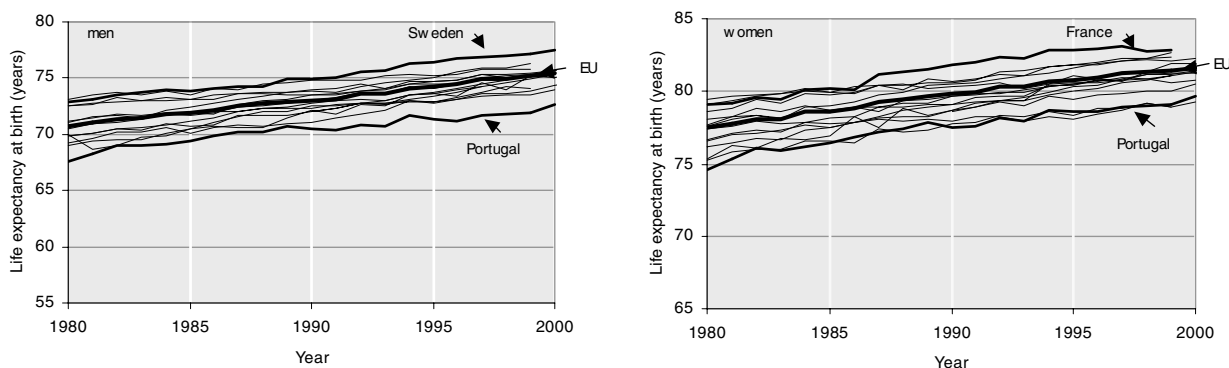
slowly improved in the countries of Central and Eastern Europe, following years of stagnation throughout the 1980s. The successor countries of the Soviet Union, in contrast, saw a series of unexpected fluctuations in which life expectancy improved substantially in 1985 before falling back after 1987, accelerating downwards until 1994, followed by brief but considerable improvement until 1998 and then falling back again, the changes in the 1990s broadly mirroring the economic crises experienced.

However, these general trends conceal a mortality pattern that differs between countries, especially regarding the diverse republics of the FSU. Within the European Union, whilst steadily improving in all member states over recent decades, there is still considerable variation in life expectancy at birth, e.g. for men, Portugal has continuously been at the bottom of the table with life expectancy of 72.7 in 2002, and Sweden has been at the top with 77.7 years in 2001 (WHO, 2002) (figure 2).

Among women, life expectancy at birth has also been lowest in Portugal, although alternating with Ireland and, in the 1990s also Denmark, and highest in France. In 2001, figures ranged between 79.2 years in Ireland and 82.9 in France (WHO, 2002). However, figure 2 also suggests that there is a general trend towards convergence in terms of life expectancy at birth within the EU 15.

In contrast, there is a wide variation between the countries in transition. After a period of stagnating or even improving mortality, especially during the 1980s, many countries in Central and Eastern Europe experienced a mortality crisis in the early 1990s after the fall of communism (figure 3). In some countries, this worsening of mortality was short-lived and was followed by improvements in health, which were rapid in some countries, such as East Germany, Poland and the Czech Republic, but delayed in others, such as Hungary. In contrast, there was a continuing steady deterioration for

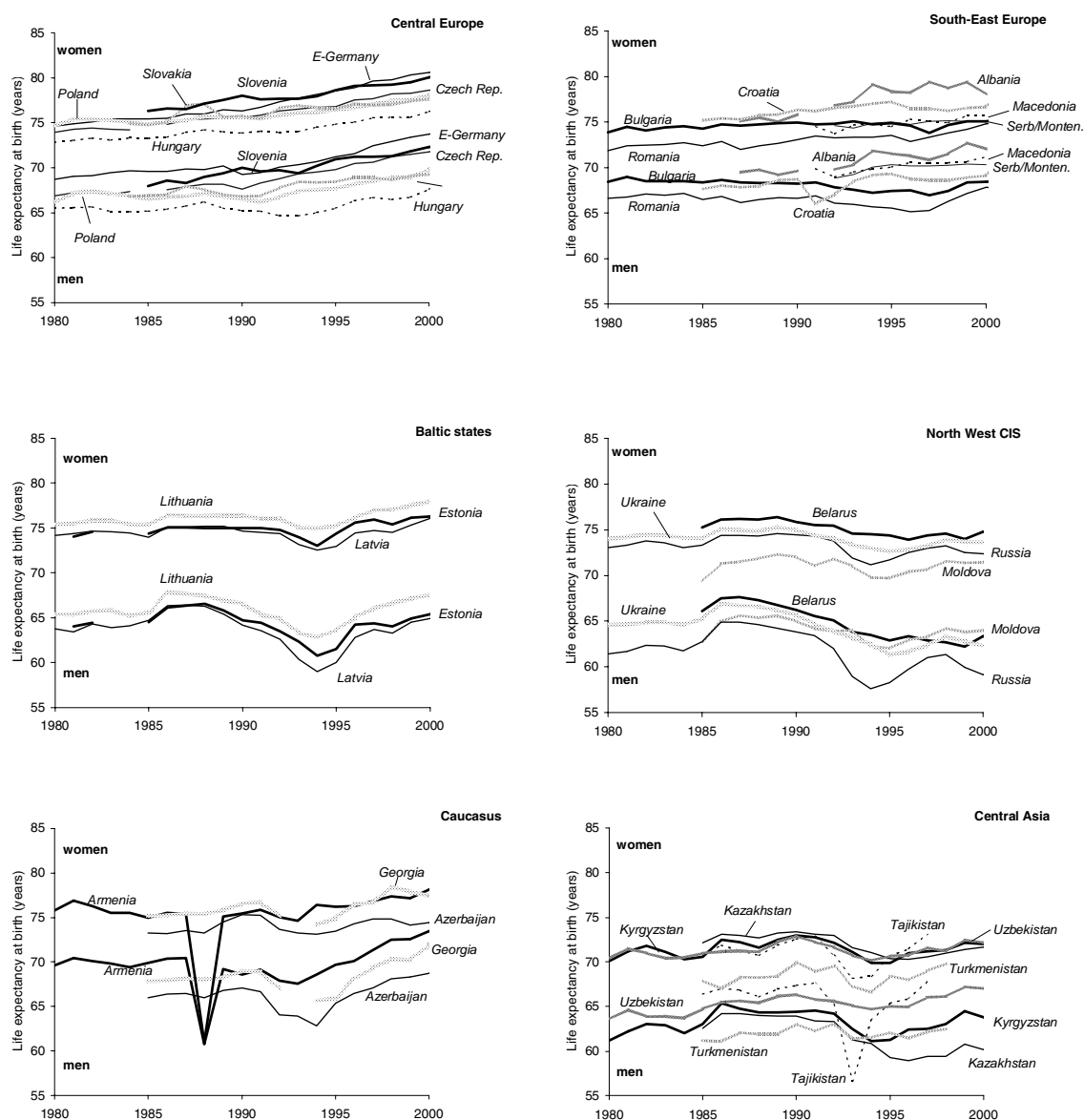
FIGURE 2
Trends in life expectancy at birth in the member states of the European Union, 1980-2000



Source: WHO Health for all database 2002.

FIGURE 3

Trends in life expectancy at birth in selected countries of Central and South-Eastern Europe and the former Soviet Union, 1980-2000



Source: WHO Health for all database 2002.

men in Bulgaria and Romania and no improvement for women until the late 1990s. In the FSU countries the path followed by each country was initially much more consistent, with a rapid fall in life expectancy until 1994. This was followed by a recovery which, in some countries such as Russia and Ukraine, then peaked in 1998.

One of the few exceptions to this pattern was Belarus, which after 1994 continued on a downward path, albeit without the sudden declines experienced elsewhere. Belarus also differs from its neighbours in retaining a model of government that is little changed from the Soviet period and so, in broad terms, might be considered

as acting as a control, showing what may have happened in its neighbours had the Soviet Union not ceased to exist.

As will be seen later, figures shown for the Caucasus, the Central Asian republics and some countries in South-Eastern Europe have to be interpreted with caution. However, most of the countries in that region, that were part of the Soviet Union, broadly followed the pattern seen in the European FSU countries, with improvements in some countries since the mid-1990s (men in the Caucasus) but relative stagnation in others (Central Asia). The temporary decline in life expectancy in Armenia reflects the 1988 earthquake in the north of

the country whereas similar declines in Tajikistan and Croatia in the early 1990s reflect the consequences of periods of armed conflict.

By 2001, life expectancy at birth was lowest among men in Russia, Kazakhstan and Turkmenistan, at 58.9 years (WHO, 2002). Among women, life expectancy was also lowest in Turkmenistan, at 66.5 years, and Tajikistan, at 66.9 years. Thus, in these regions, men can expect to live almost 20 years less than men in Sweden, whereas women will, on average, live 15 years less than their Swedish counterparts. This heterogeneity in health opportunities is also mirrored at the sub-national level, with for example a gap of about two years in life expectancy at birth between counties in Sweden, while the difference between oblasts in Russia is estimated to be as much as 15 years (WHO Regional Office for Europe, 2002). This diversity in patterns of health poses considerable challenges to policy makers aiming to achieve equal health opportunities both across the European region and within countries in Europe.

Health patterns in the transition countries in Central and Eastern Europe and the former Soviet Union have been studied by a number of researchers in detail (Zatoński and Boyle, 1996; Leon et al., 1997; Notzon et al., 1998; Džurová, 2000; McKee, 2000; Nolte et al., 2000a; Shkolnikov et al., 2001; Dolea et al., 2002; Men et al., 2003). This paper will summarise the main patterns of health and mortality in the transition countries, looking specifically at the most recent trends and placing them in the wider European context. We will also examine some underlying reasons for the observed patterns. We will then explore policy responses to the health challenges facing the European region, looking specifically at the public health responses within Central and Eastern Europe and beyond. Based on these findings, we will explore future challenges to general health patterns in the European region and identify priorities in how to address these.

The health impact of transition

This section will describe in more detail the patterns of the burden of disease in Europe, with a major focus on transition countries. For completeness, this paper will also consider Albania and former Yugoslavia, whose fate was closely linked to the Soviet bloc while not actually being part of it, and which have undergone a perhaps even more painful political and economic transition, in some cases accompanied by war. As data on morbidity are still relatively scarce, especially in terms of their comparability across regions, we will concentrate on mortality. However, where possible and appropriate, we will also reflect on aspects of morbidity. We will then proceed to reviewing the major underlying factors influencing observed patterns, focusing mainly on risk factors/lifestyle, social and economic determinants and the potential impact of health care. As a review paper, it

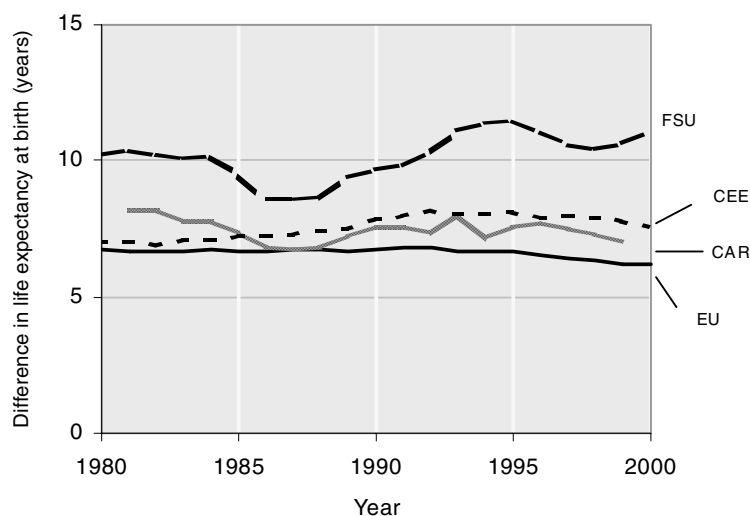
will draw mainly on data supplied by the World Health Organization (WHO), findings of our own collaborative research on health in Central and Eastern Europe⁵ as well as evidence published elsewhere. For a detailed reflection on all aspects of reproductive health in this region, please see the accompanying background paper by Serbanescu elsewhere in this volume.

The use of mortality statistics to evaluate patterns of health in a given population has the two main advantages that mortality data are routinely available in most countries and that death is a unique event that is clearly defined (Ruzicka and Lopez, 1990). There are, however, some important caveats relating specifically to the transition countries. While generally keeping a high quality system of vital statistics (Anderson and Silver, 1997), some countries did choose to conceal data at various times, either withholding data completely, as in the Soviet Union in the early 1980s, or 'losing' certain potentially controversial causes such as homicide, suicide and cirrhosis into non-specific categories, as in East Germany in the 1970s and 1980s (Statistisches Bundesamt, 1995). However, in all cases comprehensive mortality data sets have now been reconstructed (Shkolnikov et al., 1996). The few remaining problems relate to coverage and completeness in some of the least developed parts of Central Asia (McKee and Chenet, 2002) and to regions afflicted by war, as in the Caucasus (Badurashvili et al., 2001) and the Balkans (Bozicevic et al., 2001), where systems of vital registration have been weakened but, more importantly, where the scale of migration is largely unrecorded.

Recent figures by the World Health Organization estimated the completeness of mortality data covered by the vital registration systems in 1999/2000 at 66 to 75 per cent in the Caucasus (coverage: 56-73 per cent) and around 78 per cent in Tajikistan (49 per cent) and Turkmenistan (75 per cent), and up to 85 per cent in Kazakhstan and Kyrgyzstan (74-78 per cent) (WHO, 2003). These estimates relate to adult deaths only, with completeness of child deaths likely to be even lower in many of these countries. A recent study by UNICEF further showed that in several CIS countries estimates of infant mortality rates calculated from survey data were considerably higher than the official rates, up to 2.6 times in Kazakhstan and up to four times in Azerbaijan, with notable differences also seen in Turkmenistan, Kyrgyzstan and Tajikistan as well as Georgia and Armenia (UNICEF, 2003). These differences persist even after accounting for possible limitations of the survey estimates, suggesting that infant mortality rates in the countries concerned are likely to be (significantly) higher than the officially reported rates. This has important implications for the calculation of summary measures such as life expectancy at birth where infant

⁵ European Centre on Health of Societies in Transition (ECOHOST), see <http://www.lshtm.ac.uk/ecohost/>.

FIGURE 4
Female-male differences in life expectancy at birth Europe, 1980-2000



Source: WHO Health for all database 2002.

mortality has a disproportionately large impact. For this reason, routine data on mortality in these regions have to be interpreted with caution; subsequent sections will therefore draw mainly on patterns of health in the North-Western CIS (Russia, Ukraine, Belarus, Moldova), but refer to Central Asia and the Caucasus where necessary and appropriate. Similar issues apply to the Balkan region (London School of Hygiene and Tropical Medicine et al., 2003); relevant data will therefore be used as a complementary source.

The following sections will focus mainly on recent trends, looking specifically at the mortality experience during the 1990s. However, to understand recent patterns, especially in the transition countries, it will frequently be necessary to draw on earlier periods although, because of limitations of data availability for the whole European region, this will extend back to the 1980s only.

Patterns of mortality in transition countries

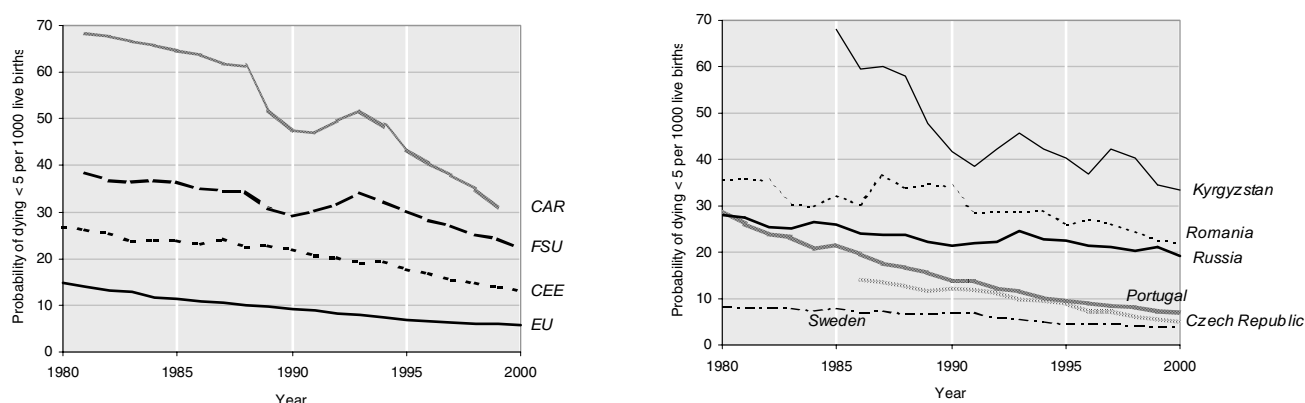
The initial description of general trends in life expectancy at birth has revealed considerable diversity across the European region, both in terms of trends over time as well as actual levels. To better understand these patterns the following sections will systematically examine mortality by sex, age and cause of death.

Looking first at sex differences, it is apparent that men in the transition countries have been especially vulnerable (McKee and Shkolnikov, 2001). In all industrialised countries men have a lower life expectancy than women. However, this gap is especially large in the transition countries of Central and Eastern Europe and the FSU (figure 4). In addition, while in the countries of the

European Union sex differences appear to have been narrowing over recent years to just over six years in 2000, the FSU saw a further widening in the late 1990s, following substantial fluctuations since the mid-1980s, reaching 11 years in 2000. The most recent widening is, however, mainly driven by the reversal in mortality trends in Russia and Ukraine. The Caucasus countries of the FSU, in contrast, experienced considerable narrowing in the late 1990s, to about five years in 2000, largely because of steady improvement in male mortality while female mortality remained largely unchanged (see figure 3). In contrast, in some Central Asian countries sex differences have been consistently smaller and close to those seen in some Western European countries, for example at around five years in Tajikistan and Uzbekistan (2001) (WHO, 2002), reflecting rather low levels of health among women, especially in rural areas (McKee and Chenet, 2002).

In the countries of Central and Eastern Europe, male-female differences in life expectancy, while initially not very different from those in the EU 15, have been increasing steadily since 1980, to 8.4 years in 1995, but are now slowly falling back, to just under eight years in 2000. Once again, this pattern differs across the region, with for example the Czech Republic showing relatively modest changes in sex-differences over time, hovering around seven years, whereas Hungary experienced a steady increase to 9.5 years in the mid-1990s, with some decline only recently. Interestingly, the narrowing difference in life expectancy between men and women as observed for some countries in Western Europe is likely to be attributable largely to rising levels of smoking-related mortality among women.

FIGURE 5
Probability of dying before age 5 years (per 1000 live births) in Europe, 1980-2000



Source: WHO Health for all database 2002.

As will be discussed later, another feature of the gender gap in life expectancy and mortality is that the differences in absolute levels between the different regions in Europe, while not negligible, are much less prominent among women than they are among men.

One weakness of aggregate figures such as life expectancy is that they conceal changes in mortality that may be different for different age groups, and, with the relatively higher weight of infant mortality rates, may obscure significant mortality changes at adult ages. The latter is indeed one of the main features of health in the transition countries of Central and Eastern Europe and the FSU. Thus, deaths among infants and young children generally fell steadily throughout the 1980s, a decline that accelerated in the 1990s in many countries across Europe (figure 5). There are, however, some exceptions, for example Romania, which saw an increase in under-5 mortality in the late 1980s, a consequence of the adoption of a policy of giving blood transfusions to many undernourished children who had been abandoned in 'orphanages' (Kozintez et al., 2000). Russia also saw some fluctuations in under-5 mortality, with a small increase in the early 1990s. This increase was largely due to rising infant mortality in 1993, possibly related to the adoption of the WHO definition of a 'live birth' in that year. Significantly, mortality among infants and young children then continued to decline, albeit at a slow pace, until the end of the 1990s.

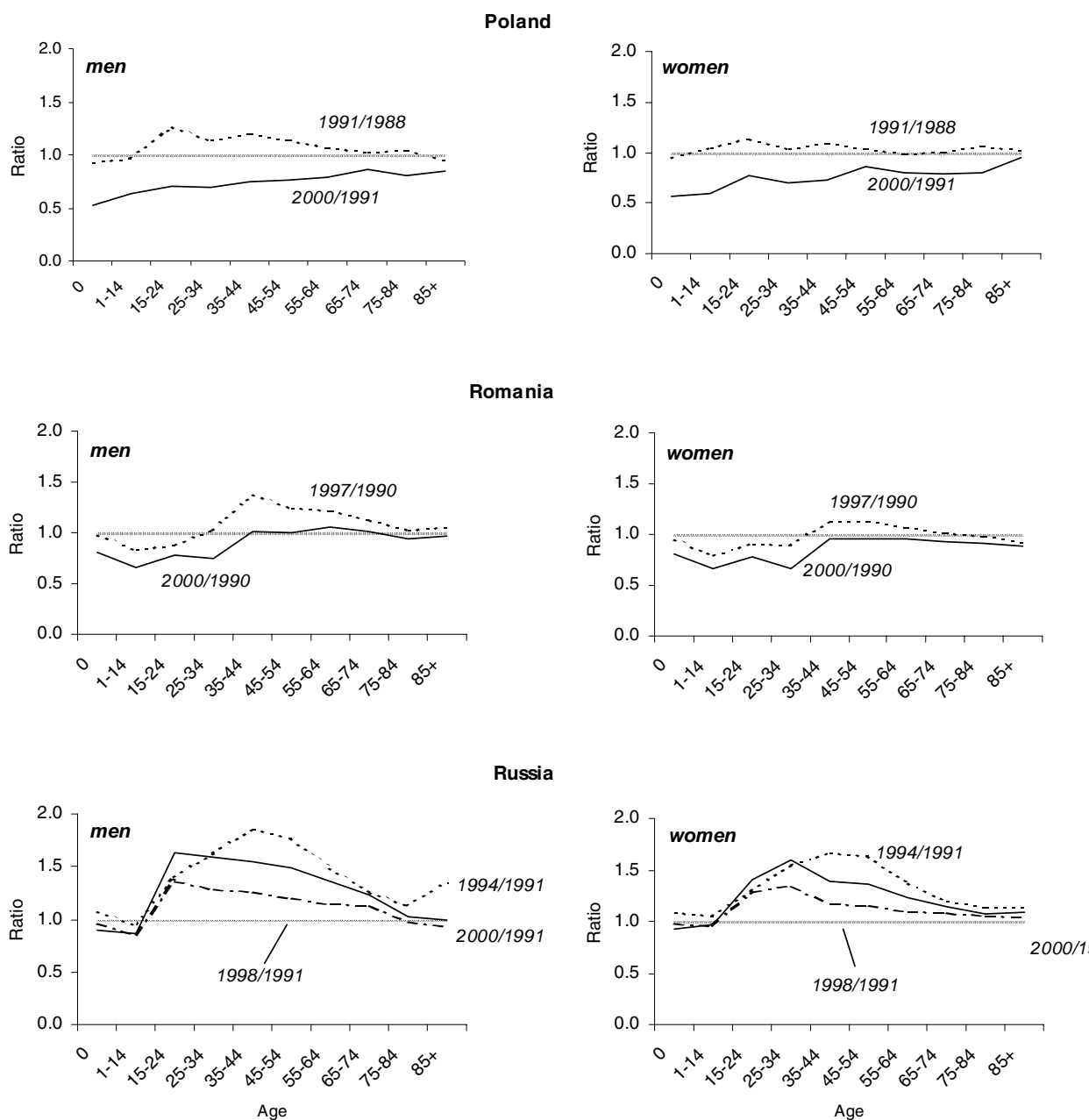
Figure 5 also illustrates that probability of death among children under five years was consistently lowest in the EU 15 countries, at about half the rates seen in the CEE and just a quarter of the rates in the FSU. This general pattern does, however, conceal considerable variation within regions, with, for example, the Czech Republic consistently showing lower rates than Portugal. However, by the end of the 1990s rates had become very

similar and close to those seen in Sweden which, along with Finland and Luxembourg, has the lowest under-5 mortality rates in the European region. This diversity in patterns of mortality among infants and young children already indicates the different challenges that transition countries are facing, with pockets of high under-5 mortality in Eastern Europe, especially in Romania and Moldova, and more widespread problems in Central Asia and the Caucasus (UNICEF, 2003).

Death rates among older people have also been affected by transition and they are now generally higher in the FSU than they were in 1990, except for Armenia and Georgia where rates have fallen considerably, although these trends have to be interpreted with caution. The three Baltic states experienced increasing mortality at older ages in the 1990s but rates have now fallen back to levels that are somewhat lower than in 1990. Some improvements were also seen in Bulgaria and Romania, where death rates among those over 65 years remained rather high during the 1980s and much of the 1990s compared to the EU 15 average, with improvements seen in the late 1990s only. In contrast, and somewhat similar to the EU 15, albeit at a different level, the transition countries in Central Europe, such as the Czech Republic and Poland, experienced sustained improvement in mortality rates at older ages during the 1990s. However, in the FSU death rates at older ages (65+) among both men and women are about twice those in Western Europe, and in Central and Eastern Europe they are about 50 per cent higher.

Yet, while there have been changes in mortality at both young and old ages, the greatest impact has been on those of working age, between 15 and 64 (Leon et al., 1997; McKee and Shkolnikov, 2001; Meslé, 2004). In the countries of Central and Eastern Europe, deaths in this age group increased steadily throughout the 1980s. However, this increase was largely confined to men,

FIGURE 6
Changes in age-specific death rates in Poland, Romania and Russia in the 1990s



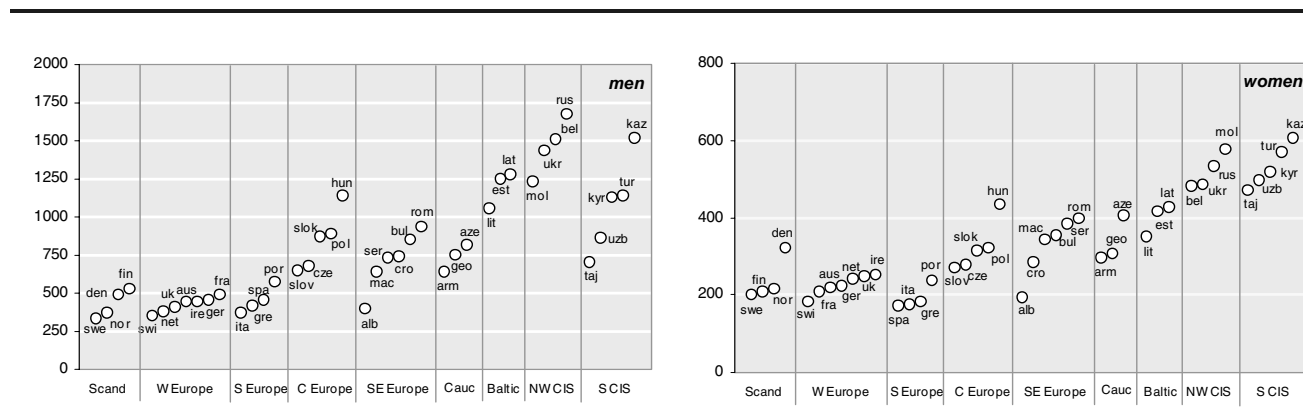
while among middle-aged women death rates remained rather stable. Thus, while spared from actual deterioration in mortality, they did not experience notable improvements in mortality rates either, contrary to their female counterparts in Western Europe at that time. Many countries in that region did, however, see a temporary mortality increase among women around the time of the collapse of communism, which was particularly notable in Hungary and Romania in the early 1990s. However, since then mortality has been improving, although beginning at different times in

different countries. In Poland and the Czech Republic it began almost immediately after the fall of communism, as it did in East Germany (Nolte et al., 2000a), while it was delayed in Hungary and Bulgaria until the mid-1990s. In Romania it was delayed until 1997. This age group was affected most in the FSU, with their deaths driving the large fluctuations in overall mortality (Leon et al., 1997).

Figure 6 shows the proportional change in total mortality rates at different ages for selected years relative to a reference year; this was chosen to reflect years of

FIGURE 7

Age-standardised death rates from all causes among adults aged 25-64 years, by sub-region (1999)



Source: WHO Health for all database.

significant change in mortality and/or political and socio-economic change in Poland, Romania and Russia. This further illustrates that the age groups most affected by the transition were the young and middle-aged, although the pattern varies between countries. Thus, while both Poland and Russia saw increases in mortality among young adults aged 15-34, this rise was only temporary in Poland where death rates then fell back to levels that are now about 30 per cent lower than they were in 1991. In contrast, in Russia, those aged 15-34 continue to experience substantially elevated mortality levels that have remained about 60 per cent higher than the rates seen in 1991, in both men and women. Meanwhile in Russia, mortality rates among those aged 35-64, following a major upsurge between 1991 and 1994 of up to 85 per cent in men and 66 per cent in women (for ages 35-44), then subsequent recovery until 1998, have now reversed to levels that are only slightly lower than those seen in 1994 but are still 40-50 per cent higher than those seen in 1991. In Romania, the mortality increase among those aged 35-64, as observed between 1991 and 1997 in both sexes, has now fallen back to 1991 rates, while death rates at younger ages have improved beyond 1991 levels. Similarly, the Baltic states, while initially following a pattern comparable to that seen in Russia (and Ukraine), have experienced sustained improvements since 1994, so that by 2000 mortality among adults had generally fallen back to the 1991 level, or in some cases, such as among women aged 55-84, even below those rates (WHO, 2002).

These varied changes have led to overall death rates among men aged 25-64 years being almost four times higher in the FSU than in Western Europe; the difference between Western Europe and the Central and South-Eastern European countries is about two times. Among women, the differences are somewhat smaller, at 1.7 and 2.5 times respectively, and do not exhibit the peak at middle age as seen among men. However, once again the broad grouping by region conceals quite substantial variations in adult mortality at the sub-regional level (figure 7), especially within South-Eastern Europe and

Central Asia, but also within Central Europe, with standardised death rates among Hungarian men being about twice as high as for men in Slovenia or in the Czech Republic.

Among women aged 25-64 the pattern is somewhat more consistent, with overall a much lower level of mortality than among men. Significantly, the east-west mortality divide is not as clear-cut as among men with, for example, death rates among women in Denmark being on a par with those seen in Poland, Slovakia and Lithuania (figure 7). The underlying reasons for this last observation differ, however, from one country to another, with rates in Denmark reflecting higher mortality from breast cancer as well as lung cancer and other smoking-related diseases, whereas deaths from cardiovascular disease account for a much higher proportion in Poland (WHO Regional Office for Europe, 2003).

The immediate causes

The causes of death underlying the mortality changes in transition countries are complex and the following description is a simplification. As indicated earlier, many Central and Eastern European countries experienced a mortality crisis at the time of transition. This was largely due to deaths from external causes, especially traffic accidents; these are believed to be attributable to the sudden availability of western cars, combined with a probable increase in drunken driving and erosion of safety controls, poor transport infrastructure, and a possible deterioration of ambulance and first-aid services (United Nations Children's Fund, 1994; Zatonski and Boyle, 1996; Winston et al., 1999). However, death rates subsequently declined steadily during the latter years of the 1990s (WHO Regional Office for Europe, 2003). Subsequently, sustained improvements in life expectancy, that began at different times in the 1990s, have largely been due to falls in cardiovascular disease, which, in cases such as Poland, have fallen quite steeply (Zatonski et al., 1998), although in some parts of South-East Europe such as Romania,

where rates were previously extremely high, a decline in deaths from cirrhosis has also contributed.

Trends in the former Soviet Union are very different from those of Central and Eastern Europe and need to be interpreted in the context of changes in mortality pre-transition. In the mid-1980s, much of the region experienced a sudden increase in life expectancy, coinciding with the anti-alcohol campaign under Mikhail Gorbachev (White, 1996). The improvements were due largely to a decline in cardiovascular disease and injuries. Improvements were also noted for a range of causes associated with alcohol, including acute alcohol poisoning and pneumonia. In contrast, other major causes of death, such as cancer, were unaffected. In the subsequent large fluctuations in mortality, the same causes have been implicated, pointing to a major role of alcohol in the changing pattern of mortality in the former Soviet Union (McKee et al., 2001). This is discussed in more detail below.

Regarding the higher mortality levels in Central and Eastern Europe and the CIS relative to Western Europe, a few specific conditions can be identified as major causes of this persisting health gap, which will be examined in turn: injuries and violence, cardiovascular disease and cancer. While less important in terms of absolute numbers, the following section will also briefly look at newly and re-emerging infectious diseases, which are of particular concern in the FSU. Table 1 gives an overview of the major causes of death in Central and South-Eastern Europe and the CIS, as well as in selected countries within these regions, by sex and broad age groups, to illustrate the variation in mortality rates across the region, with the European Union average chosen for comparison.

Injuries and violence

In 2000, deaths from injuries and violence accounted for about a quarter of all deaths among men aged 25-64 in the CIS countries (women: 15 per cent), thus representing the second leading cause of death for this age group (WHO Regional Office for Europe 2003). This compares to about 15 per cent in Central and Eastern Europe and 14 per cent in the EU 15 (women: 7-8 per cent). In absolute terms, the death rate from injuries and violence among men under the age of 65 was almost six times higher in the CIS than in Western Europe (in 2000 the SDR for the CIS was 265/100,000 compared to 46/100,000 in the EU 15); in Central and Eastern Europe it was double that in the West. Among women, these ratios were somewhat lower, as was absolute mortality. Interestingly, though, the male-female ratio in the mortality burden from injuries and violence among those aged 25-64 was about five in both the CIS and CEE, while in the EU 15 levels among men were about three times those in women.

However, while all causes of injury are more common in the eastern region than in the west, the gap is

particularly wide for homicide and suicide, with death rates related to homicide and intentional injuries in those under 65 in the CIS exceeding those in the west by almost 20 times. Russia stands out with rates that are among the highest recorded anywhere in the world (Chervyakov et al., 2002) and, after a brief decline between 1994 and 1998 they are now rising again. Death rates from suicide are highest in Lithuania, Russia, Belarus and Kazakhstan, although the pattern differs by age and sex. Thus, in 2000, while rates among young people in Lithuania are almost as high as those in Russia, they have remained rather stable since the mid-1990s, whereas rates seem to be continuously rising in Russia, Belarus and Kazakhstan. This, however, appears to be largely a male phenomenon. It has been estimated that, in 1999, over 4,500 young people in the transition countries aged 15-19 committed suicide, with more than half of them in Russia (UNICEF, 2002). This is further illustrated by a recent study that examined the mortality increase in Russia since 1998 (Men et al., 2003). This showed that, while this latest increase was largely due to rising death rates among those aged 35-69, a parallel increase among 15-34 year-olds was mainly attributable to suicide, followed by traffic injuries, homicide and alcohol intoxication. Other external causes of death that are very much more common in the east than the west are drowning and deaths in fires.

Alcohol emerges as a common factor. In Russia, where these causes have received most attention, deaths from all groups of external causes and specific causes correlate closely with deaths from alcohol poisoning (Walberg et al., 1998; Chervyakov et al., 2002; Nemtsov, 2002; Shkolnikov et al., 2002). It has also been shown that the highest rates of deaths from external causes in Russia have been in those areas experiencing the most rapid pace of social and economic change (Walberg et al., 1998), pointing to one important explanation as to why people drink to excess; this will be looked at in more detail below.

Cardiovascular disease

Analyses of the changing mortality pattern in the former communist countries of Central and Eastern Europe and the Soviet Union have frequently pointed to the major role of cardiovascular diseases in determining both the rise and subsequent decline of adult mortality in this region (Zatonski and Boyle, 1996; Shkolnikov et al., 1996; Nolte et al., 2000b; McKee and Shkolnikov, 2001; Shkolnikov et al., 2001; Meslé, 2004). Overall, deaths from cardiovascular disease are much more common in Eastern Europe than in the West, with levels of mortality between ages 25 and 64 five times higher in the CIS than in the West, while in Central and South-Eastern Europe levels are up to three times higher (table 1). In Central and Eastern Europe this gap reflects high levels of many traditional risk factors, such as a diet rich in saturated fats but low in antioxidants due to a low intake of fruit and

TABLE 1
Age-standardised death rates (per 100 000) by sex, cause and age group
in selected regions and countries in Europe, 2000

	EU	CEE	Czech Republic	Romania	Lithuania	CIS	Russian Federation	Uzbekistan
MEN								
<i>All causes</i>								
all ages	863.91	1 306.86	1 161.59	1 358.3	1 331.38	1 894.79	2 117.75	1 387.06
15-24	81.14	95.94	85.38	93.95	179.8	260.89	357.97	125.06
25-64	431.02	829.06	657.8	905.09	1 033.88	1 563.54	1806.17	887.97
<i>Circulatory diseases</i>								
all ages	314.12	663.43	576.89	771.89	610.65	988.05	1 056.19	873.39
25-64	112.35	305.37	219.53	352.31	318.44	599.96	675.77	413.93
<i>Cancer</i>								
all ages	248.18	282.34	325.26	223.03	284.61	244.36	290.45	97.97
25-64	151.24	221.78	225.68	208.44	216.66	224.98	252.59	92.96
<i>Lung cancer</i>								
all ages	66.1	85.95	90.17	64.89	76.5	69.72	87.41	15.73
25-64	45.15	77.21	75.13	73.1	61.84	68.69	80.8	15.98
<i>Infectious diseases</i>								
all ages	9.58	11.48	3.12	22.01	23.25	44.65	45.31	38.18
25-64	6.56	12.4	2.95	28.83	30.77	65.53	68.16	51.05
<i>External causes</i>								
all ages	57.91	104.57	92.96	101.34	234.81	279.34	373.78	81.38
15-24	57.22	70.67	66.73	60.96	153.93	186.73	273.69	53.55
25-64	58.92	125.1	100.89	129.83	327.52	400.02	511.1	104.72
WOMEN								
<i>All causes</i>								
all ages	516.98	777.64	690.5	879.25	678.62	1 000.82	1 025.74	1 023.76
15-24	29.4	34.31	32.71	40.84	46	82.8	98.53	75.58
25-64	211.43	332.04	275.02	385.88	339.21	531.04	564.02	515.27
<i>Circulatory diseases</i>								
all ages	200.83	453.1	378.98	580.86	394.69	627.31	629.02	690.32
25-64	39.2	112.65	72.15	151.64	90.86	219.08	224.35	243.71
<i>Cancer</i>								
all ages	138.54	149.03	177.37	129.58	138.39	123.51	139.35	74.65
25-64	103.25	126.78	131.7	124.57	121.06	121.46	129.62	79.13
<i>Lung cancer</i>								
all ages	16.1	15.87	18.18	11.3	7.44	7.94	8.74	4.73
25-64	13.01	15.1	15.79	10.38	4.62	6.71	6.81	4.45
<i>Breast cancer</i>								
all ages	27.58	23.59	27.85	23	24.12	21.8	24.13	11.37
25-64	28.4	25.2	24.65	26.58	27.67	27.77	29.37	14.27
<i>Infectious diseases</i>								
all ages	9.58	4.71	3.12	22.01	23.25	44.65	45.31	38.18
25-64	6.56	3.05	2.95	28.83	30.77	65.53	68.16	51.05
<i>External causes</i>								
all ages	22.97	30.24	34.17	29.33	55.15	64.66	84.54	25.92
15-24	15.31	16.28	18.65	16.63	27.09	42.6	61.11	17.81
25-64	18.13	24.43	23.86	28.51	68.36	80.55	104.21	24.96

Source: WHO Health for all database.

vegetables (Pomerleau et al., 2001) along with high rates of smoking. A marked decline in deaths from cardiovascular disease in Poland since 1991 has been associated with changes in dietary patterns, most likely from a changed composition of fat in the diet and an increased intake of fresh fruit and vegetables (Zatonski et al., 1998).

In contrast, explaining the trends in cardiovascular disease in the FSU poses a much greater challenge, especially in terms of the sudden changes in death rates as observed rather frequently during the past 15 years. Death rates are especially high among the young, and deaths are more likely to be sudden (Laks et al., 1999).

Conventional risk factors as identified by western epidemiological research, such as high lipid levels and low physical activity, fail to explain the high cardiovascular mortality rates (Averina et al., 2003). Other factors such as micronutrients may be more important, as has been suggested for the rapid decline in cardiovascular mortality in Poland noted above, and this has also been discussed for the Czech Republic (Bobak et al., 1997). Thus, overall poor nutrition may go some way in explaining the persisting east-west gap in cardiovascular mortality.

Still, these mechanisms cannot explain all of the observed effects, and in particular the much higher rate of

sudden cardiac death among young men. Again it is likely that alcohol is playing an important role. In all of Northern Europe, but especially in Russia and its neighbours, alcohol is typically drunk as vodka and in binges (Bobak et al., 1999), unlike the more steady consumption in Southern and Western Europe. An increasing volume of research has looked into the possible involvement of alcohol in cardiovascular mortality in Eastern Europe (Chenet et al., 1998; Chenet et al., 2001; Malyutina et al., 2002), with one re-analysis of previous studies looking at the cardiovascular effects of alcohol consumption finding clear evidence that episodic heavy drinking is consistently associated with a marked increase in the risk of cardiovascular death, especially sudden cardiac death (Britton and McKee, 2000).

One other factor of possible relevance for the observed increase in cardiovascular mortality in some transition countries is the high level of psycho-social stress. Available evidence points to the importance of psycho-social factors, and there is also evidence from this region to link stress and a feeling of lack of control over events with cardiovascular disease (Bobak and Marmot, 1996).

Cancer

Cancer is responsible for about one third of all deaths in Western Europe compared to one-fifth in Central and Eastern Europe and just over 10 per cent in the CIS (WHO Regional Office for Europe, 2002). While overall absolute levels of mortality from cancer are fairly similar in the three regions, if anything even somewhat lower in the CIS, there is a notable gap at younger ages, especially among men, with rates in the west about 50 per cent lower than in the east among those aged 25-64; among women the rates are about 20 per cent lower (table 1). Cancer death rates have been falling across the European region as a whole, although this decline is mainly confined to Western Europe and the CIS as well as some Central European countries such as the Czech Republic and, under the age of 65, Poland (WHO Regional Office for Europe, 2003). Romania, by contrast, has experienced a sustained increase in cancer mortality since the early 1990s, whilst there has been little change in Bulgaria, except for an increase among men under 65.

However, the pattern of cancer mortality in Eastern Europe is rather complex and changing. Also, as cancer comprises quite a number of different diseases, each with its own risk factors, this section will look at selected conditions only. Among cancers, the most important element of the disease burden is lung cancer, and, among women, breast cancer. Tobacco smoking is the single most important risk factor for lung cancer, and smoking has been very common among men in all of Eastern Europe (McKee et al., 1998; Pudule et al., 1999). Consequently, death rates from lung cancer among men

are high, especially at younger ages (table 1). Interestingly, death rates from lung cancer are currently falling in many former Soviet countries. Given the long latency period after which the health effects of smoking will become apparent, this decline has been attributed to the fact that fewer men started to smoke in the austere period of the late 1940s and early 1950s (Shkolnikov et al., 1999a). However, this also implies that the current decline in lung cancer deaths in a number of FSU countries will be only temporary and followed by increases reflecting the higher uptake rates of smoking since then.

In contrast, smoking has always been relatively uncommon among women, although this is now changing. Female smoking rates, especially among young women in major cities, are increasing rapidly. Consequently, lung cancer rates among women can soon be expected to start rising, with some Central European countries already showing increasing rates, thus following or, as in the case of Hungary, possibly even surpassing (Brennan and Bray, 2002) trends seen in several countries in Western Europe.

Mortality from breast cancer has generally been higher in Western European countries than in those to the east, although high rates have also been observed in Hungary and the Czech Republic. Differences in breast cancer rates have conventionally been explained by differences in childbearing patterns such as childlessness and age at first childbirth (Hermon and Beral, 1996), although it may also reflect patterns of growth in childhood, as suggested by emerging research on life course epidemiology (Davey Smith et al., 2000). At the same time, however, available evidence suggests that survival from breast cancer (and other curable cancers) is lower in Eastern Europe, which has been explained, in part, by differences in the quality of health care in terms of availability of diagnostic and therapeutic facilities, and in the effectiveness of health-care systems (Sant et al., 2001).

In contrast, cervical cancer is somewhat more common in the east than in the west, a finding that is unsurprising given the high rates of sexually transmitted disease and, until recently, the difficulty in obtaining barrier contraceptives (Levi et al., 2000). Unfortunately, the few effective cervical screening programmes are rare exceptions and screening is often opportunistic, with little quality control, and generally ineffective.

Infectious diseases

Acute infectious disease is no longer one of the leading causes of death in either part of the European region although mortality levels are higher in Eastern Europe than in the West, in some cases substantially so (table 1). The overall relatively low level of infectious disease mortality in the transition countries can be seen to reflect the high level political commitment to disease

control during the twentieth century. The Soviet system was especially successful in reducing vaccine-preventable diseases; however, a breakdown of control systems in some countries following independence has resulted in the re-emergence of some diseases such as diphtheria (Hardy et al., 1996).

Of particular concern are sexually transmitted infections (STIs), HIV and tuberculosis. Several countries have seen a rapid increase in rates of STIs in the 1990s, particularly the FSU. In most countries, rates peaked in the mid- or late 1990s; however, there are concerns as to whether this reflects a true reduction in incidence or a decline in notification, as treatment is increasingly being provided privately (Platt and McKee, 2000). While still relatively low in comparison with other countries worldwide, rates of HIV infection have been rising extremely quickly in many parts of the FSU (Hamers and Downs, 2003). Of an approximately 1.56 million people living with HIV/AIDS in the European region, about one million individuals are located in Central and Eastern Europe and the FSU (WHO Regional Office for Europe, 2002). While HIV is, at present, primarily spread between injecting drug users, the epidemic is now moving increasingly into the wider population by means of sexual transmission of HIV infections (see also in this volume the background paper by Serbanescu on reproductive health in the transition countries).

As noted above, tuberculosis is another growing problem facing many parts of Eastern Europe, with death rates trebling in some countries, such as Kazakhstan and Kyrgyzstan, and sustained increases in several other CIS countries (WHO Regional Office for Europe, 2003). Rates are especially high among the large prison population, where conditions are highly conducive to rapid spread and where treatment is often inadequate (Stern 1999). It has been estimated that about 40 per cent of deaths among the prison population in Ukraine are due to tuberculosis. At the same time, multi-drug resistant tuberculosis, which is much more difficult and costly to treat, is increasing rapidly (Farmer et al., 1999), with the highest levels worldwide reported in Estonia, Latvia and Russia (WHO Regional Office for Europe, 2002). The coexistence of HIV and resistant tuberculosis poses enormous challenges for the future, and an effective response has yet to be formulated.

Patterns of morbidity and ill health

The preceding sections gave a broad overview of patterns of mortality in transition countries in the European region, looking at age, sex and cause of death in order to better understand observed trends. However, mortality data capture only those causes of morbidity that have a fatal outcome and are, therefore, just an approximate measure of the burden of disease in a population. Information on morbidity is, however, still relatively scarce, with the possible exception of infectious

diseases, which are generally captured in national monitoring and control systems, albeit to varying degrees (MacLehose et al., 2002); these have been alluded to in the previous section. In contrast, available information on morbidity due to non-communicable diseases is often limited to local sample studies, such as the WHO MONICA Project (WHO Regional Office for Europe, 2003) or specific disease registries, such as cancer registries. These can provide useful additional, albeit sometimes misleading, information, for instance where registration is not population-based. Population surveys, on the other hand, are often not comparable across regions, and when they are, they usually reflect only the 'general' population, while excluding specific subpopulations such as the institutionalised or those who are difficult to reach.

The following sections will look at measures of ill health other than morbidity rates; evidence derived from information sources on morbidity as described above has recently been examined in some detail by the "European Health Report 2000" (WHO Regional Office for Europe, 2002) and, due to constraints on space, will not be covered in this paper.

In an attempt to bring together the mortality and morbidity experience of a population, the WHO has used a measure of healthy life expectancy (HALE),⁶ which is interpreted as the lifespan in full health (WHO, 2002). Despite some methodological problems (Law and Yip, 2003), this measure provides useful insights into the burden of ill health across populations which go beyond life expectancy and mortality.

Figure 8 shows the proportion of total life expectancy that is lost through living in health states of less than full health, based on recent estimates of HALE (WHO, 2002). Two main features emerge: firstly, not only can the peoples of Central and Eastern Europe and the FSU expect to live a shorter life than those in the west, but also their expected lifespan spent in full health will generally be shorter, in some cases substantially so. Secondly, while women enjoy a longer life expectancy at birth across the European region, their time spent in full health tends to be somewhat less than among men, although this difference seems to apply more to Western European countries.

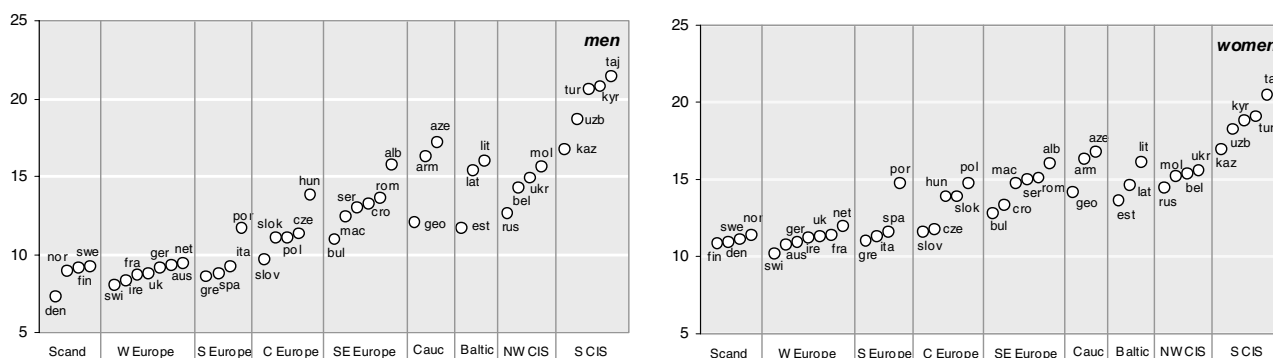
The causes of the higher burden of ill health in the transition countries can be examined further using disability-adjusted life years (DALYs).⁷ Classifying the countries of the European region into three mortality strata according to their level of child and adult mortality,

⁶ Previously DALE (disability-adjusted life expectancy); combines life expectancy and estimates of non-fatal outcomes, adjusted for severity.

⁷ DALYs for a disease/health condition are calculated as the sum of the years of life lost due to premature mortality (YLL) in the population and the years lost due to disability (YLD) for incident cases of the disease/health condition.

FIGURE 8

Years of full health lost through living in health states of less than full health as percentage of total life expectancy at birth in Europe by sub-region (2001)



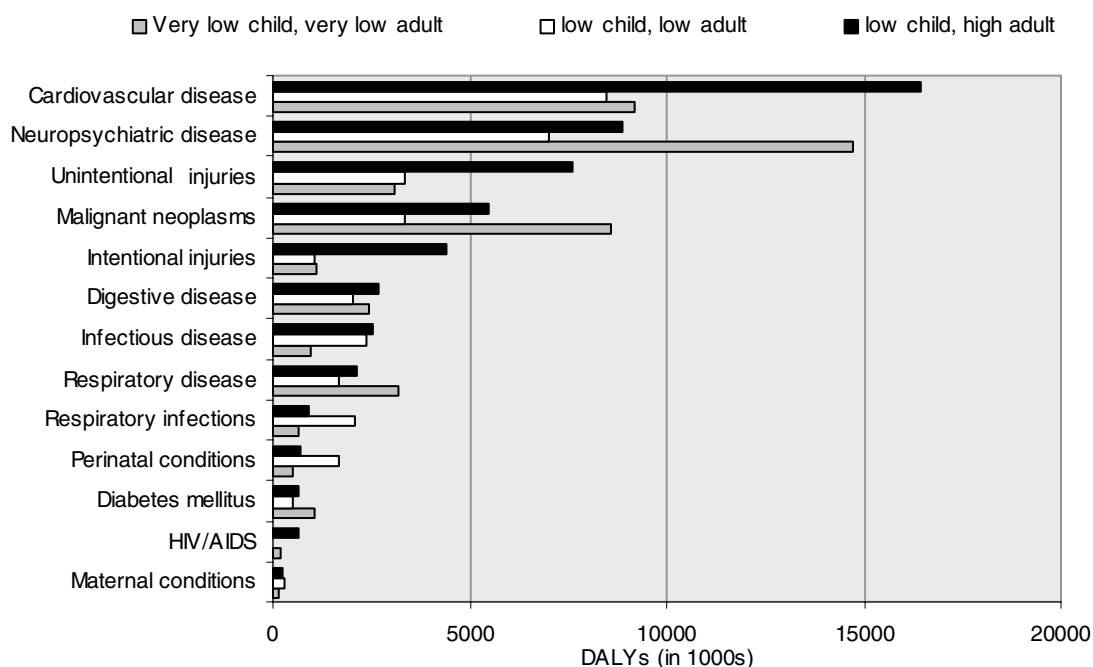
Source: WHO Health for all database.

it was estimated that, in the category C countries⁸ of the European FSU, the burden of cardiovascular disease accounted for almost one third of the overall burden of disease and, in absolute terms, was almost twice as high as in the category A and B countries of the west (where it is about one fifth of the total burden) (figure 9).

Unintentional and intentional injuries accounted for another 20 per cent of the total burden of disease in the category C countries, compared to 8 per cent in category A countries and 11 per cent in category B countries. The absolute level of this burden exceeds the level seen elsewhere in Europe by 2.5 (unintentional injuries) to

FIGURE 9

Burden of disease in DALYs (in 1000s) by cause and mortality stratum in the European region, 2001



Source: WHO 2002.

⁸ A = very low child mortality, very low adult mortality: EU 15, Czech Republic, Slovenia
 B = low child mortality, low adult mortality: Central and South-Eastern Europe, Central Asia
 C = low child mortality, high adult mortality: Belarus, Moldova, Ukraine, Russian Federation, Baltic states

four times (intentional injuries). By contrast, Western Europe showed the highest burden of neuro-psychiatric disease as well as of cancer, accounting, respectively, for 28 per cent and 16 per cent of the total burden of disease. The former may perhaps appear somewhat surprising given the comparatively high rates of deaths from suicide in many FSU countries which may serve as an, albeit indirect, indicator of mental health. It is possible that the higher burden estimated for Western Europe reflects, in part, a higher recognition of mental disorders. The comparatively higher burden of respiratory infections, perinatal and maternal conditions in the category B countries appears to mirror essentially the higher infant and under-5 mortality in the Central Asian republics and the Caucasus as noted earlier.

Previous sections on the causes of mortality already alluded to the role of alcohol abuse as one determinant of observed patterns, particularly among men in the transition countries. This conclusion received further support by the findings of the recent World Health Report 2002 that sought to quantify selected major risks to health, including risks related to lifestyle, again using DALYs (WHO, 2002). It thus estimated that, among men, the overall burden of disease in the European FSU countries is largely attributable to alcohol and tobacco, followed by elevated blood pressure and cholesterol levels. Alcohol and tobacco alone account for almost as many disability-adjusted years of life lost as the total disease burden in the category B countries (Central and South-Eastern Europe, Central Asia, Caucasus). They also account for about 80 per cent of the disease burden in Western Europe (figure 10).

Among women, the disease burden has been attributed largely to more physiological causes, such as blood pressure and cholesterol, along with their

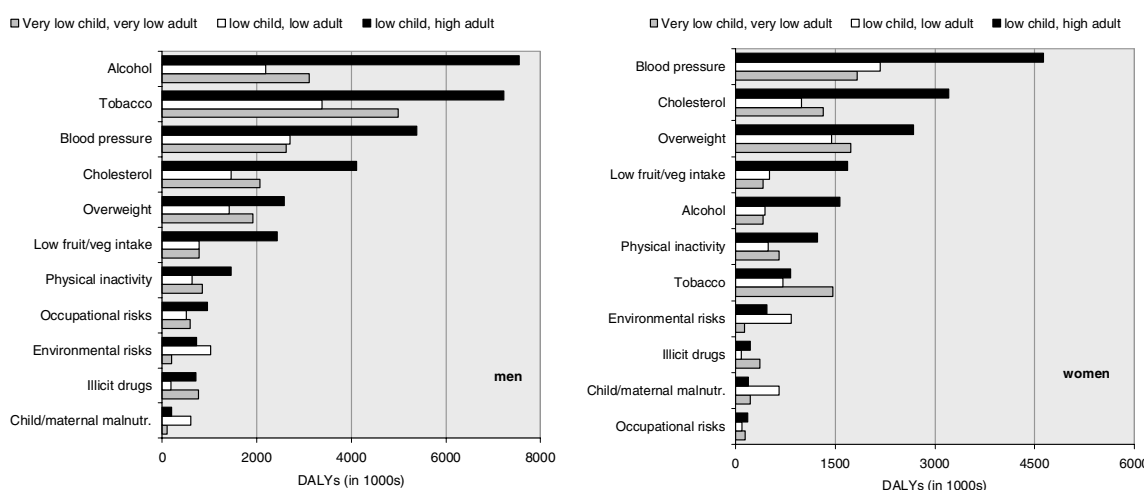
behavioural correlates, diet and physical activity. As with men, alcohol consumption accounts for a substantially higher burden of ill health in the European FSU countries than elsewhere in Europe (10 per cent versus 5 per cent). In contrast, the burden attributable to tobacco is highest among women in Western Europe, accounting for 16 per cent, compared with 4 per cent in the European FSU. In category B countries, the risk-attributable burden of disease appears to be intermediate between the West and the FSU for the major risk factors, while environmental risks, such as unsafe water/hygiene or lead exposure, as well as childhood and maternal under-nutrition, account for a much higher burden than elsewhere in Europe. This is likely to reflect the particular problems that many countries, especially in Central Asia and the Caucasus, are still facing.

The underlying factors

The previous section has pointed towards the importance of specific risk factors to health in determining the patterns of morbidity and mortality in the transition countries of Central and Eastern Europe and the FSU. However, their interplay is rather complex. In addition, we have evidence that changes in the level of health care associated with the socio-economic transition have also contributed to changes in population health in this region. One of the key features of health in Eastern Europe is the way that men have been affected much more than women by the transition, and the major role of alcohol and tobacco has already been described. However, lifestyle choices such as smoking and alcohol abuse do not develop in isolation but are strongly influenced by social circumstances and have to be interpreted in the context in which they are made. The following section will therefore consider both aspects together.

FIGURE 10

Attributable DALYs (in 1000s) by risk factor, sex and mortality stratum in Europe, 2000



Lifestyle and socioeconomic context

As noted in the introduction, the political, social and economic transition in the former communist countries of Central and Eastern Europe has been difficult for all the countries affected, and has greatly affected people's lives, many of whom have experienced rising levels of poverty and economic hardship. However, the extent to which these social forces have - and still are - driving trends in mortality in this region are still inadequately understood. Regional analyses within Russia have shown that many of the steepest declines in life expectancy in the early 1990s occurred in the urban and economically most developed areas of European Russia. This has been explained by the observation that the abrupt economic and social changes tended to be most substantial in regions that were relatively affluent and had good communications, and so were most susceptible to change, such as Moscow (Leon and Shkolnikov, 1998). This has been underlined by other evidence demonstrating that the rise in mortality was greatest in regions experiencing the most rapid pace of transition, as measured by gains and losses in employment (Walberg et al., 1998), and where measures of social cohesion were weakest (Kennedy et al., 1998).

Men with poor education were especially vulnerable to the changes, with overall mortality being much higher among men with the least education compared to the well educated, and with much of this difference attributable to higher death rates from external causes and cardiovascular disease (Shkolnikov et al., 1998). Consistent with the findings discussed above, this again points to a link with alcohol, especially as deaths from causes directly associated with alcohol consumption have shown the steepest social gradients (Chenet et al., 1998). Other findings have also highlighted the possible impact of low levels of social support (Hajdu et al., 1995), and a sense of lack of control over one's life (Bobak et al., 1998). A series of cross-sectional studies in countries of Central and Eastern Europe have shown that a feeling of lack of control was related to poor self-rated health (Bobak et al., 2000; Gilmore et al., 2002), which in turn has been linked to a higher risk of subsequent mortality (Idler et al., 1997). This relationship was shown to also hold at the population level, with low levels of perceived control being associated with higher levels of total mortality in several transition countries (Pikhart, 2001).

The specific vulnerability of men with lower educational background has been attributed, in part, to different coping mechanisms available to men as compared to women to address new challenges. Women, it has been argued, may have been able to redefine their role in society within the home, which may have offered some degree of protection (Watson, 1996), while men with low skill levels were confronted with a feeling of impotence in a hostile and unresponsive world (Rose, 1995). These findings paint a picture of societies in

which young and middle-aged men in particular face a world of social and economic disruption for which they are poorly prepared (Cockerham, 2000). For many, their opportunities are constrained by low levels of education and a lack of social support in the form of informal social networks (friends, family) that are vital for maintaining general welfare. Poor nutrition and high rates of smoking have already reduced their chances of a long life, but the easy availability of cheap alcohol, along with the general acceptance of alcohol consumption as part of the male culture (White, 1996), provides a pathway to oblivion and then to premature death. The hazards of drunkenness are exacerbated in a society in which there are few on whom one can depend.

In addition there are, of course, the effects of factors linked to material deprivation and poverty that directly affect health, such as infections, malnutrition and food insecurity, inadequate heating or shelter, with poverty being the single largest determinant of ill health due to infectious diseases (WHO Regional Office for Europe, 2002).

The contribution of health care

Research on trends in mortality in the former communist countries of Central Europe found that the decline in mortality from causes considered amenable to timely and effective health care ('avoidable mortality') had been slower there than in the west during the 1970s and 1980s (Boys et al., 1991). Later work suggested that deaths from these causes accounted for between a quarter and a third of the gap in life expectancy between the East and West of Europe (Velkova et al., 1997).

More recent evidence suggests that some of the more economically successful former communist countries have seen tangible improvements in outcomes attributable to health care, such as improvements in survival of low birth weight babies (Koupilová et al., 1998; Nolte et al., 2000c) and in cancer survival (Becker and Boyle, 1997; Shkolnikov et al., 1999b), indicating that these countries have been able to reform their health-care systems relatively successfully. In contrast, other countries, while their basic infrastructure has remained in place, saw some elements of their system effectively collapsing. In particular, there have been major problems with pharmaceutical supplies. This is further illustrated by recent studies which aimed to assess the potential impact of health care on changing mortality in Russia, Lithuania, Hungary and Romania (Andreev et al., 2003; Nolte et al., 2004). Again, using the concept of avoidable mortality, these showed that in Russia in 1995-1999 life expectancy at birth could have been improved by at least 1.5 years if outcomes of health care as seen in the United Kingdom were achieved (Andreev et al., 2003). Also, a drop in life expectancy in Romania in the early 1990s was caused, to a considerable extent, by rising mortality from causes that are amenable to effective health care (Nolte et al., 2004).

It is likely that the increase in mortality among the elderly in some FSU countries is a consequence of a reduction in the quality of health care, especially as the increase has been greatest, and more sustained, in countries such as Belarus where the economic situation is worst. However the main evidence is from deaths among young people with diabetes. This population is especially susceptible to a breakdown in the delivery of health care as, in the absence of a regular supply of insulin, they will simply die. Deaths from diabetes at ages under 50 increased about eight-fold in the 1990s in many former Soviet countries (Telishevska et al., 2001). Similarly, to maintain the health of pregnant women and infants, access to medical advice and care is a critical factor. However, while in many FSU countries these services are, in theory, available, they appear to be largely ineffective and/or of low quality, with many facilities - for example in Armenia - lacking even basic infrastructure and equipment, such as water supply, toilets and refrigerators (UNICEF, 2003).

Taken together these findings emphasise the need for governments in many countries, especially in the FSU, together with the international donor community, to explore how they can establish a health care system that provides effective and equitable care for their populations, which their present systems clearly do not.

Policy responses

The immediate post-transition period in Central and Eastern Europe was characterised by intensive nation-building efforts, as countries agreed new constitutions and forms of government, and put in place the institutions to support this process. In parallel, major changes were taking place as a consequence of the opening of borders to movement of people, goods and services. In all countries (with the possible exception of the former German Democratic Republic, which essentially adopted the existing structures of the German Federal Republic on unification) this task was far from straightforward, often pushing to the limits the capacity of those individuals leading the reform process. In many of the countries that emerged from the Soviet Union the process was further complicated by the prior limited capacity for decision-making at republic level during the Soviet period. Elsewhere, other complications arose, such as the unexpected division of Czechoslovakia and the wars in South-Eastern Europe.

In these circumstances it was perhaps unsurprising that health was not placed high on the political agenda. Indeed, in several countries where several parties shared in government, such as Hungary, Romania and Bosnia, the health ministry was, symbolically, awarded to a minority party. Within administrations that were facing unprecedented challenges with limited resources, the status of health policy tended to be rather low compared with, for example, economic policy or privatisation; this

meant that it was difficult to recruit high quality staff or to get time for legislation on crowded parliamentary agendas.

Since then, health ministries and the institutions that support them have been strengthened in many countries although, in general, their focus has been on health care reform, and in particular the development of new financing structures. In most countries the main objective of reform was to move away from the centralised and integrated tax-based Soviet model of health care financing to decentralised, contract-based social health insurance (Dixon et al., 2004). This, however, often took place against the backdrop of socio-economic and institutional upheaval, posing substantial challenges to the reforming of health care. Thus, while legislative reform was often instituted rather swiftly, it was not always matched with actual change on the ground, and in some cases the goals as set out in policies were not fully or even partially attained. Problems related mainly to the weak macroeconomic context in many parts of the region, with low levels of growth and a relatively low proportion of people in formal employment; both of these resulted in a weak economic base from which to draw funding for health care. Thus, countries that have been relatively successful in making the transition to social health insurance are those with comparatively high levels of GDP, such as the Czech Republic and Slovenia. In contrast, countries with low per capita GDP continue to rely on general taxation as the main source of funding for health care and, with falling GDPs, provision is increasingly based on direct (formal and informal) payments by patients (out-of-pocket payments). Available evidence suggests that in several countries, especially those of the former Soviet Union, out-of-pocket payments have significantly increased health risks, in that it deters people from seeking medical care because of the high costs involved. For example, the proportion of people affected in Georgia is estimated at up to 30 per cent of the population (Gamkrelidze et al., 2002). Overall, while the number and types of new financing schemes in the region show a clear departure from the previous socialist systems, the results to date have been mixed and point to the importance of economic growth and capacity building in driving successful change.

Regarding public health in general, initial attention was also rather low. More recently this has changed; a good indicator is the gradual response to tobacco, a substance that is one of the leading causes of premature death in the region and where there is clear evidence from experience elsewhere to indicate which policies are effective. Some countries have been much more successful in implementing effective policies than others, with Poland standing out in terms of its robust policy response, a response that is already achieving results as will be shown below.

Responses to other causes of disease have largely been weak. For example, despite the enormous burden of avoidable mortality attributable to alcohol in the former Soviet Union, there are few examples of policies to tackle it. Similarly, while nutrition in many countries is improving because of the opening of markets, this change is taking place without any involvement of the health sector.

This low priority given to national health concerns was mirrored in the priorities of the international community. The European Union had limited competence to act in the area of public health, which was only accepted by its member states as being a legitimate subject for European action in the Maastricht Treaty, signed in 1992. In fact, some health-related activities had been undertaken by the European Union, under the PHARE programme.⁹ This was launched in 1989 and has become the single most important source of assistance to the countries of Central and Eastern Europe, accounting for 36 per cent of total development assistance to these countries in 1999 (McKee et al., 2004). Initially, PHARE funding was 'demand driven', with a focus on systems development, knowledge transfer and human resource development. This inevitably favoured those sectors that were already relatively strong and which could therefore develop the most coherent proposals for funding. Several health reform projects were initiated - in Poland, Hungary and the then Czechoslovakia - with other countries soon following. Between 1990 and 1998 PHARE committed a total of €105 million to health sector reform in the CEE, supporting health system developments such as: sustainable financing; hospital management; primary care development; information systems; pharmaceutical sector regulation; and human resource management.

Following adoption of the principle of eastward enlargement of the European Union, the focus of PHARE shifted, becoming 'accession driven' in the latter half of the 1990s, and functioning as an instrument to support countries in their preparations for joining the European Union. The emphasis was on transposing the *Acquis Communautaire*, or accumulated body of European law, into national legislation. This move disadvantaged the health sector further. Health care, which had received some support previously, was not within the specific competence of the European Union, so support was essentially discontinued. However some PHARE funds supported twinning arrangements between related institutions in candidate countries and member states as a means of facilitating the adoption of health-related *acquis*

in areas such as occupational health, phytosanitary standards and food safety. PHARE also enabled candidate countries to participate in European Union public health and research programmes.

The PHARE programme is complemented, in countries of the former Soviet Union, by the TACIS programme. Launched in 1991, it provides grant-financed technical assistance to 13 countries of Eastern Europe and Central Asia (Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Mongolia, Russia, Tajikistan, Turkmenistan, Ukraine and Uzbekistan).

The European Union's TEMPUS programme requires special mention. Established in 1990 to respond to the needs for higher education reform in Central and Eastern European countries and intended to support cooperation in higher education, it has been a significant source of funding for the development of public health training programmes in several countries, strengthening them sufficiently to then enable them to attract more substantial funding from other sources.

Other institutions of the European Union also provide support. The European Investment Bank has a mandate to close the income gap between the countries of Europe. It began to invest in Central and Eastern Europe in the early 1990s. It is a major investor in the public sector, including health care, where capital requirements are high, especially in Central and Eastern Europe. The World Bank has played a particularly important role in supporting health reform in this region. Starting in the immediate post-transition period, it has provided technical support for the reform process and has subsequently been a major lender to the health sector, with interests in both health care and broader public health issues.

The World Health Organization (WHO), while having considerably more limited resources than the other organisations mentioned above, has been able to provide valuable technical support to governments, with the establishment of 'liaison officers' in health ministries facilitating involvement in the WHO's technical programmes. Several other United Nations specialised agencies have also advised on health policy developments in this region, such as UNICEF, whose Innocenti centre has produced a series of reports on the impact of transition on children and whose TransMonee database has become a valuable source of health statistics.

Bilateral agencies have also contributed substantially to the reform of the health sector in many countries, with different countries focusing on particular sub-regions. The Scandinavian countries have been especially active in the Baltic region, for example through the creation of the Baltic Sea Task Force on Communicable Diseases and the BRIMHEALTH Programme. France has been an active donor to

⁹ PHARE: Poland Hungarian Assistance for Reconstruction of the Economy. Originally created in 1989 to assist Poland and Hungary, PHARE currently covers 10 countries: the 8 new Member States (Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia) and the candidate countries Bulgaria and Romania. Until 2000 the countries of the Western Balkans (Albania, Bosnia-Herzegovina and FYR Macedonia) were also beneficiaries of PHARE.

Romania, and Italy to the countries of former Yugoslavia and Albania, while Germany and Austria have been closely involved in supporting those countries with a pre-World War II Bismarckian type of health system, such as the Czech and Slovak Republics and Hungary. Several countries, including the United Kingdom and Germany, have provided support to Russia.

Finally, the non-governmental sector has also played a part, although to a much lesser degree than in other parts of the world. The main actor has been the Soros Foundation, which has supported activities designed to help vulnerable populations, in particular drug users, the Roma population and prisoners, as well as supporting reproductive and human rights more generally.

The challenges ahead

Transition heralded major changes, as described above. Foremost amongst these was the transition from a centrally planned to a market economy and the opening of borders that had previously been sealed. Whilst this brought some potential benefits to health such as an increase in the availability of fresh fruit, vegetables and unsaturated vegetable oils (Zatonski et al., 1998), it also brought potential threats such as the arrival of the major tobacco multinationals and fast food giants, corporations the like of which had never previously been known in the region.

The case of tobacco is illustrative. In the former communist bloc, tobacco products had been produced and sold through state-owned monopolies. Smoking rates had a heavy male bias, with men having very high smoking rates while smoking among women was rare. The tobacco transnational companies (TTCs) had been eyeing such markets for some time, and once they opened, flooded them with imported western cigarette brands, backed by heavy marketing, which appealed to the newly liberated populace in their embrace of the west (Hurt, 1995). Privatisation of state-owned tobacco factories proceeded apace, first in Central and Eastern Europe and the former Soviet Union and more recently, following the resolution of hostilities, in the Balkans. Considerable amounts of money have been invested, giving the TTCs considerable economic and political leverage (Gilmore and McKee, 2004). Such changes should, however, be a cause of concern; for example, the entry of TTC cigarette imports to specific Asian markets in the 1980s following trade liberalisation suggests that this led to significant increases in cigarette consumption in those areas (Chaloupka and Laixuthai, 1996; Taylor et al., 2000; Bettcher et al., 2001). These appear to have been mirrored throughout the transition countries, with TTCs being more likely than previous state-run companies to deny the evidence of tobacco's health impacts, challenge public health initiatives and obstruct national tobacco control laws by exerting political and commercial pressures (Chaloupka and Laixuthai, 1996).

As a result smoking rates have changed markedly, with increasing rates particularly among women in urban areas (Forey et al., 2002), and increasing levels at younger ages (McKee et al., 1998; Pudule et al., 1999; Gilmore et al., 2001a; Gilmore et al., 2001b).

However, as seen in Poland, the negative impact of transition on tobacco consumption does not have to be definitive. Despite pressure from the tobacco transnationals, the Polish government was the first in the region to enact comprehensive tobacco control legislation and, since 1995, has developed a set of tobacco control policies that are more comprehensive than those currently in force in the EU. Smoking rates are now declining and health indicators are improving as a result. It is estimated that about one third of the recent increase in life expectancy at birth of 4 years in men and 3 years in women in Poland is due to the reduced incidence of smoking (Zatonski et al., 1998). Lagging somewhat behind are the Baltic States, two of which have recently seen a steady rise in the rise of smoking seen elsewhere in the FSU since enacting effective tobacco control policies. In contrast, in other parts of this region the results have been less satisfactory. Some countries, such as Russia and Croatia, have enacted restrictions on advertising; however, they have failed to enforce them. Elsewhere, political leaders have become financially dependent on their relationship with the international tobacco industry (Gilmore and McKee, 2004).

Trade and economic reform took precedence over health in the transition debate, with the International Monetary Fund (IMF) and other financial organisations arguing the need for privatisation of state-owned assets, including the tobacco and alcohol industries. However, even in the absence of empirical evidence, the experience in Asia and economic theory could have predicted that market liberalisation would increase tobacco consumption by driving down prices and with increased advertising. Yet alcohol and tobacco industries were treated no differently to other industries in the region. Indeed in Moldova the IMF made its loan contingent on tobacco and alcohol industry privatisation!

In a similar way, trade appears to be winning the day in debates over the accession to the European Union (EU). The EU is above all an economic entity concerned with free trade, and in particular the free movement of goods, capital, people and services. Some of these goods (such as cigarettes and alcohol) and the services used to promote them (advertising) may however be detrimental to health. A potential conflict could therefore arise between the desire to promote the internal market and the need to protect health. This problem was highlighted when Finland joined the EU in 1995 and had to weaken its alcohol and tobacco control legislation to bring it in line with EU legislation, while at the same time liberalising trade in these products as a result of joining the free market (Gilmore et al., 2004). An increase of about 15 per cent in total alcohol consumption occurred

between 1994 and 2001 and the previous downwards decline in tobacco consumption ceased in 1995 and plateaued. Similar problems may arise for the countries of Central and Eastern Europe that have joined the EU in 2004 (2007 for Romania and Bulgaria), despite the fact that accession is often seen as a process that will raise health standards, as the opening of borders brings faster economic growth and consequently a rise in living standards.

Of course, tobacco and alcohol, although perhaps the greatest, are only two of the many challenges to health that this region faces in the future. These challenges are complex, interrelated, and apparent at many levels. They also take different forms in different parts of the region. Thus, in the Caucasus, in Central Asia, or in the depopulating industrial complexes of the far north of Russia, the immediate challenge is often one of survival in the face of societal collapse and impoverishment. Infrastructure, including transport, education facilities and basic utilities, which were built up in the Soviet period are now collapsing in the absence of adequate continued investment. On occasion the consequences are newsworthy, as when a disaster strikes (e.g. "Foreigners perish in Moscow blaze" (BBC, 2003)), but more often the process is one of insidious decline. However, everywhere, one of the greatest challenges is to renew a sense of hope that the future can be better than the present. The mortality crisis in this region has disproportionately affected those with the poorest prospects, whether because of their lack of education or the absence of opportunities for employment in a rapidly changing society.

The task for policy makers therefore is first to try and provide this hope. This will involve creating the conditions for sustainable economic growth, while recognising that growth on its own will not be enough unless the benefits are fairly distributed. Unfortunately, experience so far has been that what economic gains have been achieved have been concentrated in the hands of a few, while conditions for the majority are steadily worsening. Consequently, as has been noted by many international bodies, there is a major need for institution-building based on democratic principles and the development of civil society. This will then create the conditions, not only for sustained growth, but also for actions that will begin to combat the threats to health. The development of specific responses to these threats, such as tobacco, poor diet and heavy alcohol consumption, can draw on lessons learned elsewhere, but it is also important to take full account of local context. Consequently, rather than being overly prescriptive here, the most important recommendation should be that each country develops its own human capacity and information systems with which to assess its health needs, and then design and monitor policies that will address them.

All governments in this region have accepted their responsibility for ensuring access for their population to basic health services. In reality, however, there is much to be done. In some countries, such as those in the Caucasus, the requirement for patients to pay for their health treatment remains a significant barrier to obtaining care. Elsewhere, while access may be affordable, the quality of care is low. Furthermore, health systems across this region are often poorly equipped to deal with the growing complexity of disease, whether from non-communicable disorders arising from ageing populations, or communicable diseases, such as multi-drug resistant tuberculosis and AIDS. Consequently, there is a real need for effective health system reform that can ensure access to effective, responsive care for those in need.

Conclusion

This paper has illustrated the many different challenges in terms of health care and health threats that the transition countries in Central and Eastern Europe and the former Soviet Union are facing. It has shown that several countries, especially in Central and Eastern Europe, have passed through the transition quite successfully and are experiencing sustained improvements in general health indicators such as life expectancy. These are the ones that are now (along with the three Baltic states that initially followed a rather traumatic trajectory similar to that seen in Russia) firmly on course for acceding to the European Union. However this does not mean that health policy makers in these countries can be complacent; life expectancy still lags well behind that of their western neighbours and, on the basis of current trends, they cannot be expected to converge until around 2032.

The situation remains far more difficult in the CIS countries, with some countries experiencing a reversal in life expectancy trends. Yet even now the health problems of this region are poorly recognised internationally. Many countries in the region fail to register on the international development agenda with its focus, in health terms, on infant, under-5 and maternal mortality, as in the Millennium Development Goals (MDGs). The fact that these indicators are far better in most parts of the former Soviet Union than in many countries at a similar level of economic development hides many real health problems in the population. Thus, achieving the health-related MDGs in this region will do relatively little to improve overall health, and much less than would action to tackle the causes of adult mortality (Lock et al., 2002). Failure to recognise the health problems of this region is also undoubtedly exacerbated by the geopolitical isolation of some parts.

This review has shown that there is still a substantial unfinished agenda in public health in this region. While much has been achieved in many parts, there is still some way to go to achieve the levels of

health enjoyed in Western Europe. Moreover, new threats, in particular from HIV and resistant tuberculosis and the predations of the global tobacco industry, are apparent.

Tackling these problems requires the development of strong public health systems in this region. Health policy makers must be prepared and equipped to address themselves to supranational health threats, including the production and trade in products damaging to health, if these threats to health are to be curtailed. In all of these settings a new generation of strong and effective public health leaders, who can be advocates for healthy public policies, is clearly needed. However, the often-cited solution - retraining of public health workers - has been of only moderate success and, regrettably, it has often been necessary to accept that some changes may take a generation to unfold. This means engaging with governments and international agencies, in order to re-write the agenda so that public health is seen as a priority.

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