Demographic Research a free, expedited, online journal
of peer-reviewed research and commentary
in the population sciences published by the
Max Planck Institute for Demographic Research
Konrad-Zuse Str. 1, D-18057 Rostock · GERMANY
www.demographic-research.org

DEMOGRAPHIC RESEARCH
SPECIAL COLLECTION 2, ARTICLE 7
PUBLISHED 16 APRIL 2004, PAGES 163-182
www.demographic-research.org/special/2/7/
DOI: 10.4054/DemRes.2004.S2.7

Research Article

Health sector reforms in central and eastern Europe: how well are health services responding to changing patterns of health?

Martin McKee

Ellen Nolte

The papers in this special collection were presented at the seminar "Determinants of Diverging Trends in Mortality", held at MPIDR, Rostock on 19-21 of June, 2002. The seminar was organized by the Max Planck Institute for Demographic Research and the Committee on Emerging Health Threats of the International Union for the Scientific Study of Population.

Max Planck Institute for Demographic Research

International Union for the Scientific Study of Population

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Research Article

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Martin McKee[1]

Ellen Nolte[2]

Abstract

The political and economic transition of the 1990s in the countries of central and eastern Europe has been accompanied by wide ranging health care reform. The initial Soviet model has given way to a variety of forms of health insurance. Yet, as this paper argues, reform has too often been preoccupied with ideological imperatives, such as provider autonomy and the creation of funds separate from government, and has given much less thought to the contribution that health care can make to population health.

The paper begins by examining the changing nature of health care. It recalls how the Soviet model was able to provide basic care to dispersed populations at low cost but notes how this is no longer sufficient in the face of an increasingly complex health care environment. This complexity reflects several factors, such as the growth in chronic disease, the emergence of new forms of infectious disease, and the introduction of new treatments requiring integrated delivery systems. It reviews evidence on how the former communist countries failed to keep up with developments in the west from the 1970s onwards, at a time when the complexity of health care was becoming apparent.

It continues by setting out a framework for the organisation of health care based on the goal of health gain. This involves a series of activities that can be summarised as active purchasing, and which include assessment of health needs, designing effective packages of care, and monitoring outcomes.

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It concludes by arguing that a new relationship is needed between the state and the organisations involved in funding and delivering health care, to design a system that will tackle the considerable health needs of the people who live in this region.

1. Introduction

The provision of health care in central and eastern Europe has changed enormously in the past decade (McKee 1991). The Soviet model, organised hierarchically but fragmented vertically into separate occupational strands, has everywhere been replaced by health insurance systems. The details vary but, in general, one or more insurance funds have been established. For example, in Hungary there is a single health insurance fund, with branches in each of the 19 counties. In contrast the Czech Republic created 27 separate funds, although mergers and financial problems have reduced this to nine. Contributions are collected from those in employment, with the government paying (or in some cases failing to pay adequately) for the unemployed and pensioners. The insurance funds then enter into contracts with health care providers, either health facilities, such as hospitals, or individual physicians. In many countries physicians have become independent contractors and health facilities have been granted greater autonomy, with ownership frequently being transferred to local government.

It is, however, surprising how often the health policy makers that have designed these systems seem to forget that health services exist primarily to meet health needs. The often donor-led rhetoric of the market and the imperative of reform have meant that an interloper on their debates might have difficulty knowing whether they were planning the organisation of health care or the supply of beans (Sabbat 1997). Amid discussions on the introduction of purchaser-provider splits and the merits or otherwise of competing insurance funds some questions are rarely asked. One is whether the new systems appropriate for the changing patterns of health that they now face?

This paper does not attempt to catalogue what has and has not been achieved in the reform of services. Detailed information is available elsewhere, for example in the Health Care in Transition reports published by the European Observatory on Health Care Systems (www.observatory.dk) . Neither does it seek to evaluate the effectiveness of these plans or their implementation, although it should be noted that implementation has often been extremely problematic (Healy and McKee 2002). Instead it examines the changing nature of the health challenges facing health systems in central and eastern Europe and asks whether structures that are needed to respond to them are in place.

To do so it is necessary to reflect on the contribution that health services have made to population health. At the time when organised health systems in Europe were emerging, during the middle of the nineteenth century, the scope for improving health was remarkably small. Indeed, until the reforms introduced by Nightingale, Semmelweis and others in the second half of the century, admission to hospital was a virtual sentence of death for most people, with high rates of infection often accelerating the process (Porter 1997). Outside hospitals there was little on offer. Without modern

pharmaceuticals, health care was essentially limited to first aid or provision of somewhere where people could either recover spontaneously or die in peace.

One hundred and fifty years later the situation has changed beyond recognition. Modern health care can cure many previously fatal disorders (McKee 1999). Deaths from childhood infections are now extremely rare, unlike the situation a century ago when parents in many of the new industrialising cities could expect to loose up to a third of their children. Much of the reduction in childhood mortality can be attributed to the introduction of basic interventions, such as immunisation, antibiotics, and simple obstetric care. Here, the Soviet model of health care delivery was remarkably successful. Its ability to mobilise resources and to provide health care in rural, previously poorly accessible areas meant that access to basic services was rapidly widened in the post-war years.

However, while the consequences of progress in health care became apparent in the west from the 1960s onwards in the east its effects were less visible. Mackenbach and others suggest that about half of the improvement in life expectancy in western European countries over the past three decades can be attributed to the impact of health care (Mackenbach *et al.* 1988). This estimate uses a concept developed in the mid 1970s, initially by Rutstein and colleagues (Rutstein *et al.* 1976), that is known variously as avoidable mortality (Holland 1988), preventable mortality, or mortality amenable to medical care (Mackenbach 1991). This involves identification of causes from which, in the presence of effective and timely medical care, premature death should not occur. It includes many common medical conditions, such as asthma, respiratory infections, and hypertension, and common surgical conditions, such as appendicitis and gall bladder disease. The common factor is that interventions are available that are effective in preventing either the onset of disease or, if the disease has arisen, then progression to death.

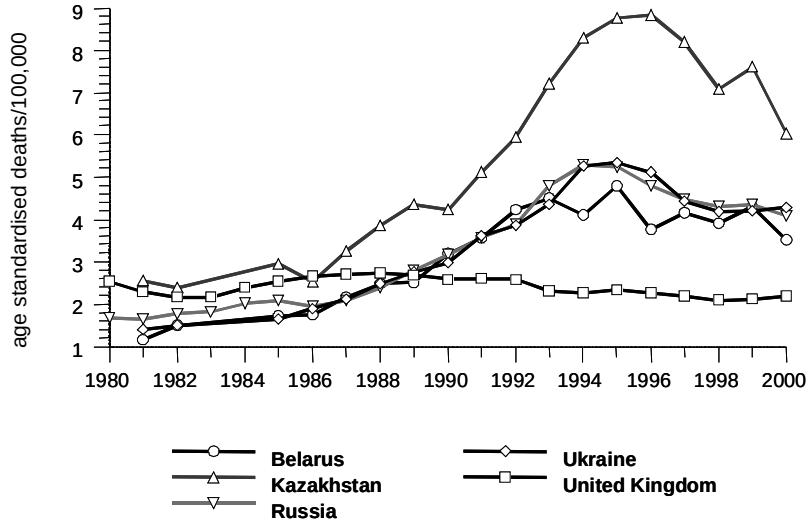
In contrast, there was no such decline in countries such as Russia (Andreev *et al.* 2003). As a consequence, by the late 1980s, deaths from causes amenable to medical care were considerably higher in eastern Europe (Boys *et al.* 1991), with one study estimating that these deaths accounted for between a quarter and a third of the gap in life expectancy at birth (Velkova *et al.* 1997).

2. Meeting new challenges

While the early achievements of the communist health care system should not be ignored, the nature of the challenges faced began to change in the 1970s, in ways that the system was unable to adapt to. The over-riding factor was the growth in complexity of health care.

Health care was not unique in becoming more complex. In education, the simple village school, with its desks, blackboard, and a few books has been transformed into a computerised learning centre in which pupils can access the vast resources on the World Wide Web. In the area of defence, governments have recognised that conscript armies, with limited training, are unable to adapt to the complexity of modern warfare. In health care, the increase in complexity was a function of both the diseases involved and the potential responses to them.

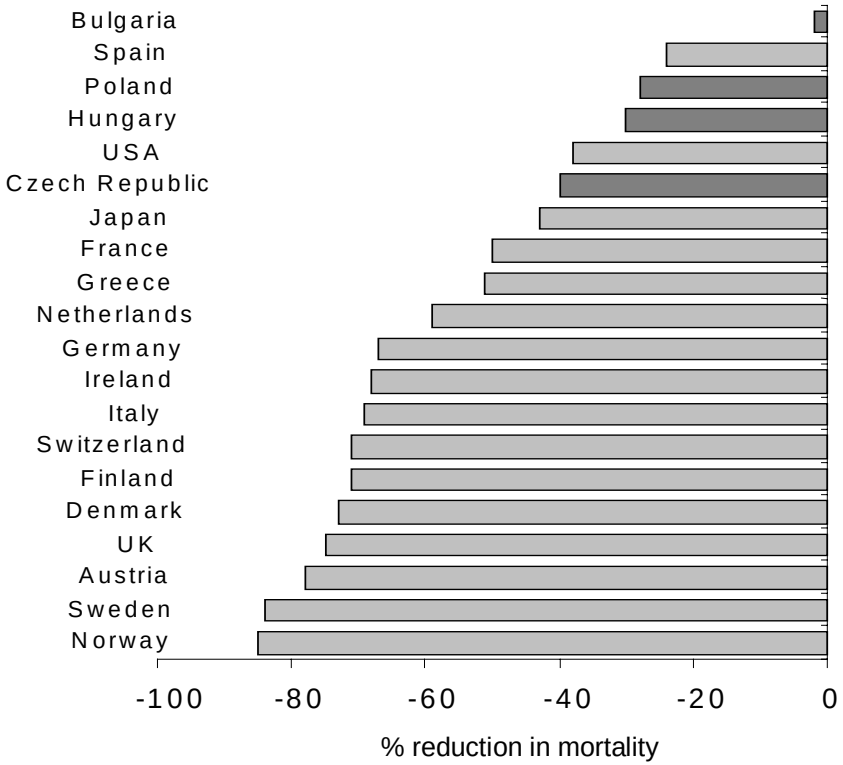
One factor was the relative growth in importance of chronic diseases. To some extent this was due to ageing populations. But the main reason was the ability of people with a range of previously fatal disorders to lead a normal life. One of the most obvious examples is juvenile onset diabetes. The discovery of insulin transformed this from an acute, rapidly fatal disease of childhood into a chronic, life long disorder affecting many body systems and whose management requires the integrated skills of a broad range of specialists with access to complex modern technology (Bliss 1982). Diabetes has now been joined by a growing list of disorders for which long term, co-ordinated management is necessary for individuals to remain healthy and participate in society. They include well-established chronic disorders, such as asthma, epilepsy and hypertension, as well as diseases that effective treatment has more recently converted from acute to chronic disorders, such as some forms of cancer and AIDS. The Soviet model of health care found it difficult to deal with these chronic disorders. For example, in the USSR many children with diabetes were excluded from mainstream education and treatment regimes, as set out in Prikaz, were extremely basic, although at least care was provided, as has become apparent from the rapid increase in deaths from diabetes in those former Soviet Republics that have experienced a serious deterioration in health system functioning (Figure 1) (Telishevska *et al.* 2001).



Source: WHO Health for All database

Figure 1: *Age standardised death rate: diabetes, age 0-64 years, per 100,000*

A related issue was the way in which the management of acute conditions was being transformed in the west. In the 1960s a patient suffering a myocardial infarction would be treated by bed rest and little more, whatever country he or she lived in. By the 1980s, if in a hospital in the west, they might expect intensive monitoring and the administration of thrombolytic drugs. Many diseases were transformed by the discovery of new and often extremely expensive pharmaceuticals. As a consequence, a few cancers, such as cancer of the testes or childhood leukaemia, which were otherwise fatal, could be cured in many cases. Figure 2 shows the change in death rates from testicular cancer between the late 1970s and the late 1990s. Assuming no change in incidence, it suggests that the declines in mortality were much greater in most countries of western Europe than in the ex-communist countries of central Europe (Levi *et al.* 2001). Similarly, the reduction in deaths from childhood leukaemia in Russia that occurred in the west in the 1970s and 1980s was only seen in Russia in the 1990s (Shkolnikov *et al.* 1999).



Source: Levi et al, 2001.

Figure 2: *Change in deaths from testicular cancer age 20-44: 1975-9 to 1995-9*

From the 1970s onwards survival of low birth weight babies in the west was transformed by new management regimes in well-equipped neonatal intensive care units. In many parts of the Soviet bloc these approaches were simply impossible but, as with certain cancers, once modern methods were introduced in the 1990s the effects were apparent (Koupilová *et al.* 1998; Nolte *et al.* 2000) .

One reason why the Soviet bloc lagged behind the west was the shortage of foreign exchange to purchase modern technology and pharmaceuticals. Another was the COCOM scheme, which prohibited the export of modern computers to communist states on grounds of security. However, especially in the Soviet Union, isolation from

western scientific advances and, in particular, the rise of evidence-based medicine had profound effects (Krementsov 1997). As a consequence, many treatments used in Soviet health facilities, such as provocation with a variety of chemicals to stimulate "latent" gonorrhoea, or electrical stimulation for tuberculosis, had no scientific justification. This information gap was much less in countries such as Poland, Hungary and Czechoslovakia, where exchanges with the west were much more common.

A third factor has been the changing nature of the threat from communicable disease (MacLehose *et al.* 2002). As noted above, the Soviet system was successful in eradicating many epidemic diseases, in part reflecting the political importance accorded them. As Lenin noted, referring to typhus, "If communism does not destroy the louse then the louse will destroy communism" (Field 1957). By the 1980s the situation had changed. In the west, improved laboratory methods were identifying a range of pathogens that required highly specialised culture facilities, such as legionella and campylobacter. Many of the traditional threats were becoming resistant to antibiotics that had previously kept them under control, as exemplified by the rise in multi-drug resistant tuberculosis (Farmer *et al.* 1999). Closed borders provided little protection from the global spread of AIDS (UNAIDS/ WHO 2001). The coexistence of resistant tuberculosis and AIDS in the former Soviet Union adds a very worrying further dimension (Kazionny *et al.* 2001).

Each of these threats posed major challenges to the system of communicable disease control, based on the San-Epid service. This laboratory-dominated service was unable to respond to the new situation. In particular its equipment was often obsolete, it had few of the skills required to undertake sophisticated epidemiological investigations, and it found it difficult to confront the issues involved in preventing the spread of lifestyle-related diseases, in particular sexually transmitted diseases, in the new, more open and less deferential environment. Since 1990 communicable disease control has faced further challenges as environmental factors, some associated with changes in land use and in human behaviour since the transition, have altered the microbiological ecology. For example, more intensive agriculture in some parts of Bulgaria has been associated with a substantial increase in cases of leptospirosis (Stoilova and Popivanova 1999). Changing leisure time activity, coupled with the effects of climate change, is thought to have contributed to the major increase in tick-borne encephalitis in the Baltic Republics (Randolph 2001). In addition, already weak systems have sometimes been compromised further by health care reform. For example, liberalisation of health care in the Czech Republic caused a breakdown in tuberculosis services, which struggled for survival in the new competitive environment, leading to a serious deterioration in surveillance and control (Trnka *et al.* 1999).

Health systems can thus be seen to face three overlapping types of problems. One group comprised those problems that the Communist model of health care was unable

to respond to, in particular the now common non-communicable diseases. These have become relatively more important in the post war period, first because of the decline in deaths from other causes such as childhood infections but also because of greater exposure to certain risk factors, in particular, tobacco as well as the combination of greater calorie intake coinciding with reduced levels of physical exercise. They also include the consequences of the high level of societal violence that characterised these societies (Chervyakov *et al.* 2002).

A second group comprises those conditions that the communist system had managed to control, to a greater or lesser extent. Examples include malaria, many vaccine preventable diseases, and tuberculosis.

A third group comprises a new challenges arising from or being exacerbated by the process of transition. Examples include increased trauma from the greater volume of road traffic, and increased rates of sexually transmitted diseases arising from the loss of societal controls.

However in all cases, a further challenge is that compared with the past much more is not possible. In an increasingly globalised world, the gap between reality and potential can no longer be hidden.

3. Implications for health care reform

So what does this imply for health care reform in central and eastern Europe? The new systems of health insurance envisage a direct relationship between the public and providers, with insurance funds simply acting as financial intermediaries. This is based on the concept that providers should respond to demand for health care. But what happens when those in need are unable to express their need as demand? Traditionally there are two areas where this has been an issue and in both cases governments of countries with health care funded through insurance have felt it necessary to put in place alternative arrangements. They are communicable disease and mental health. Leaving aside any spirit of altruism, in both cases society has an interest in ensuring that those in need are treated, or if treatment is not possible, then confined. In the first case this is because of the risk of contagion. In the second it is the risk to the orderly conduct of society. Yet in both cases there will be people in need of care who either are unable to, or unwilling to demand care. Indeed, they may demand *not* to be treated. For this reason, health policy makers have traditionally created separate mechanisms, such as the large fever and psychiatric hospitals on the outskirts of many western European cities (Freeman 1995; Lomax 1994), often with separate funding streams. In these cases the simple relationship between individual and provider does not work.

But there are many other situations in which individuals are unable effectively to express their need for health care as demand. In some cases they will simply be unaware of their need. This is especially true in relation to screening programmes (Gillam 1991), which are of growing importance as new methods for early detection of cancer become available. In several countries in the region access to cervical smears and mammographic screening is widespread, especially where reimbursement systems encourage their development, but simply making a service available does not mean that it will be used. Indeed, it may widen health inequalities as those in most need may be least likely to use it as they face a variety of real and perceived barriers (Remennick 1999).

However inequalities may also arise with respect to many other conditions where individuals find difficulty distinguishing disease from the normal aging process (Sarkisian *et al.* 2001). Again this is commonly socially determined, with the least well off least likely to seek help. Existing research shows that health inequalities are wide in many countries in the region (Bobak *et al.* 2000; Gilmore *et al.* 2002; Wroblewska 2002), and indeed were even in the 1970s, and inequalities in access to care are likely to have been exacerbated by the substantial growth in informal payments as insurance and tax collection in some countries fails to match health care expenditure (Delcheva *et al.* 1997).

In other cases individuals may recognise their need but be unable to express it as demand. This is especially likely among those are on the margins of society. In central and eastern Europe the most obvious concern is for the Roma population (Koupilová *et al.* 2001). Their health is generally much poorer than that of the majority population and mechanisms that sought to integrate them during the communist era have largely been abandoned. At the same time, economic insecurity in some countries has fuelled an increase in discrimination and violence directed at them, in some cases with high-level political encouragement or, at least, acquiescence. In addition, however, the combination of a rise in global migration and a lowering or borders in this region means that there are now appreciable numbers of migrants from developing countries in several central and eastern European cities, many of whom face outright hostility.

It is not, however, only those from other cultures that face problems. Disabled people often face major barriers, both physical and cultural. The financial and social provision offered by the state during the communist era has disappeared and they have little scope for employment in the prevailing economic climate. There is a danger that health care reform could disadvantage them further. In theory the new systems of health insurance could make a major contribution to redress these problems, with funds actively purchasing effective models of care for those unable to make their voices heard. But do they? In an attempt to answer this question it is helpful to draw on a circular model, based on one used widely in quality assurance (Figure 3). This involves

a series of linked activities, each embedded within an overall strategy to improve health. The first step is to assess health needs, and in particular those that are less likely to be voiced as demand. The second is to determine how those needs might best be met, drawing on evidence of effectiveness, not just in relation to individual interventions but also about organisational structures and configurations that are most likely to deliver effective care. The third is to purchase care that complies with this specification, employing the model of contracting appropriate for their situation. The fourth is to monitor the impact of this process, seeking to ensure that effective care is now in place. Finally, as health needs are continually changing, the assessment of health needs would be revisited.

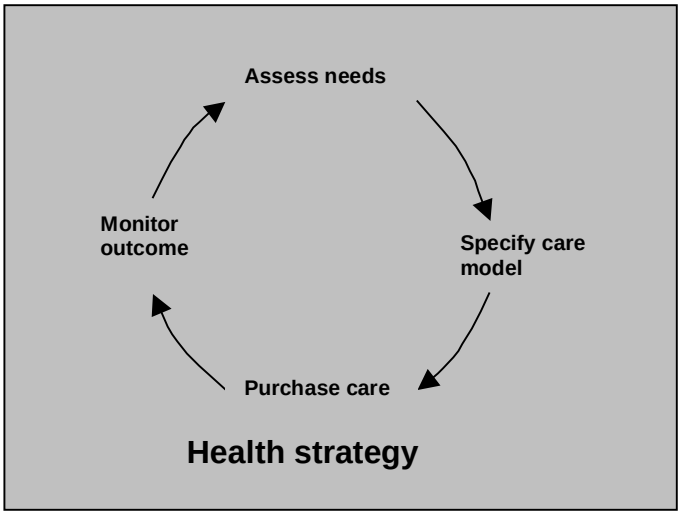


Figure 3: *Optimising health through health services*

4. What has been achieved?

The reality is, inevitably, far from the ideal. Each of the steps involves complex and often difficult processes. However this model rests on one fundamental assumption. This is that the purchasing of health care is taking place as part of an agreed health strategy, in which the key stakeholders in the health system and beyond it have signed up to programmes that have clearly defined objectives to improve health.

It might be expected that such strategies would be common as most countries in this region have signed up to initiatives such as the World Health Organisation's Health 21 strategy and, before that, to Health for All by the Year 2000 (World Health Organisation Regional Office for Europe 1985). Many countries do have some document that purports to set out a health strategy. But as in many western European countries, these typically express the desirable rather than the actual situation (Marinker 2002). The existing strategies are often unprioritised lists of aspirations, with little idea of how they might be used to achieve change. Few countries have adopted quantitative health targets or even any discussion of how such targets might be achieved. Lithuania (Grabauskas 2002) and Hungary are rare exceptions.

The next step is to assess health needs. It is important to repeat that need does not simply equate to demand. It is not sufficient to wait for all those in need of care to turn up at the door of a health facility. Instead it is necessary to take active steps to assess needs, in particular where need is least likely to be voiced as demand. It is also important to look not only where need is not being met, but also where it is inappropriately met, for example where individuals are receiving interventions that are inappropriate for them and so do not lead to health benefits. Assessing need is therefore inextricably linked with the issue of effectiveness. Although the principles of assessing need are now well understood (Stevens and Raftery 1994), there are few examples of it being undertaken in central and eastern Europe.

Having assessed the health needs of the population on whose behalf care is being purchased, the next, and inextricably linked step is to define the models of care that should be provided. This activity has its origins in the technology assessment and evidence-based health care movements. In the 1960s and 1970s it became clear that the effectiveness of many health interventions had been inadequately evaluated. Researchers identified numerous examples of variation in use of interventions that were attributed to uncertainty about the indications for using them. At the same time, the growth in medical technology and concerns about the safety of ever more powerful drugs were stimulating a reassessment of the ability of existing evaluative and regulatory regimes to both ensure safety and reduce unnecessary costs.

Governments have also established mechanisms that can draw on this evidence to decide on what interventions are effective, and in what circumstances. Several countries in central and eastern Europe now have some form of technology assessment programme, commonly established to decide on whether complex and expensive interventions should be funded (Anon 1995). However a key issue is that discrete interventions, such as a particular type of scan or a surgical procedure, are only one part of the integrated package of care that an individual will receive. Cancer screening is a good example. It will only be effective if part of an integrated programme, incorporating mechanisms to ensure quality at all stages in the process and rapid

referral and treatment for those in whom abnormalities are detected. For example, although France has over seven times as many mammography machines per million women over 40 as does the United Kingdom, the United Kingdom, with its integrated and actively managed programme, has achieved a much greater reduction in breast cancer mortality over the past two decades (Figure 4).

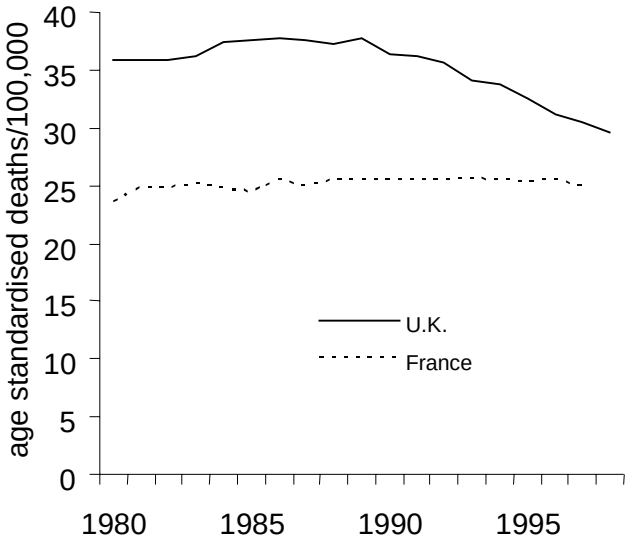


Figure 4: *Changes in age standardised mortality from female breast cancer in the United Kingdom and France*

In central and eastern Europe, however, only a few countries, such as Hungary, have established integrated programmes. As a result, many women undergo frequent screening but gain little benefit as results are misinterpreted or follow up fails to take place. A focus on technology, rather than how it is used, is also seen in the fact that none of the technology assessment programmes in this region have developed systems to look at overall packages of care that include both the interventions and the organisation of services to deliver them.

There are several reasons why insurance funds have been unable to bring about changes in the configuration of health services. One is their limited ability to contract selectively with providers. Another is a lack of co-ordination to ensure that the inputs needed are actually available, in the right format and in the right place. The insurance model, with its multiple actors, faces intrinsic problems, with different funding streams for revenue and capital. In Poland the situation is especially complex. Hospitals obtain recurrent revenue from insurance funds, major capital investment from central government, and maintenance from local government (Kozierkiewicz and Karski 2001). To overcome this problem, some countries in western Europe have adopted radical solutions. For example, in France, regional hospital agencies have taken on much of the work of the sickness funds, combining responsibility for contracting, planning and, for public hospitals, funding (McKee and Healy 2002). Although experience is limited, they have managed to change the configuration of hospitals in ways that align them much more closely with population health needs. This experience is very different from the many examples of failure to restructure hospital facilities in central and eastern Europe (Healy and McKee 2001).

A further problem is that many of the optimal models of care require skills that are in very short supply. In particular, many depend on skilled nursing and paramedical professionals. Traditionally, these groups have been under-invested in, with nursing typically involving only secondary education at a time when it has become a university-level qualification in many parts of western Europe.

To be able to respond to changing health needs, it is necessary to bring together the state, the insurance funds, and where possible civil society, in the form of the non-governmental organisations that have played such an important role in getting issues on the agenda in the west, to address production of the major inputs necessary to provide health care: people, facilities, and knowledge. Unfortunately it has often proved difficult to establish these relationships as newly created institutions seek to carve out their distinctive roles.

5. Conclusion

There is a major contradiction between the goal of improving health, set out in the 2000 World Health Report (World Health Organization 2000), and the reality in most central and eastern European health systems. If this is to change what must happen? Perhaps the most important thing, that is often overlooked, is that health policy makers must take account of the changing nature of disease and the responses to it. The systems introduced in this region since 1990 imply that health care involves only brief, clearly defined interactions between individual patients and providers. A typical example might

be an acute respiratory infection or a cataract extraction. Yet a combination of aging populations and new therapeutic opportunities mean that an increasingly large volume of health care will be for chronic disorders, requiring co-ordinated interventions by different professionals and specialists over a prolonged period of time. But many of the detailed reforms of health services, such as the introduction of Diagnosis Related Groups, go in the opposite direction, seeking to package health care into isolated, homogenous interventions. Unsurprisingly, they frequently fail to achieve the desired results (Kroneman and Nagy 2001).

This paper has set out a series of functions that are required if the impact of health care on health is to be optimised. Unfortunately, many of the reforms introduced so far have done little to address these issues. Of course the situation in western Europe is also far from ideal, with many health care systems failing to address health needs equitably or to optimise use of resources. One might, however, hope that those who have reformed their systems more recently would have been more successful in avoiding the earlier mistakes made in the west.

6. Acknowledgement

The European Observatory on Health Care Systems is a partnership between WHO Regional Office for Europe, the Governments of Greece, Norway and Spain, the European Investment Bank, Open Society Institute, World Bank, London School of Economics and London School of Hygiene & Tropical Medicine. MM's work on health systems is also supported by the UK Department for International Development's Knowledge Programme and EN's work is supported by an unrestricted educational grant by Merck & Co. and by a fellowship from the Nuffield Trust.

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