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The contribution of medical care to changing life expectancy in Germany and Poland

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Abstract

This paper assesses the impact of medical care on changes in mortality in east Germany and Poland before and after the political transition, with west Germany included for comparison. Building upon *Rutstein's* concept of unnecessary untimely deaths, we calculated the contribution of conditions considered responsive to medical care or health policy to changes in life expectancy between birth and age 75 [$e_{(0-75)}$] for the periods 1980/1983–1988 and 1991/1992–1996/1997.

Temporary life expectancy, between birth and age 75, has been consistently higher in west Germany, intermediate in east Germany and lowest in Poland. Although improving in all three regions between the early 1980s and the late 1990s, the pace of change differed between countries, resulting in a temporary widening of an initial east–west gap by the late 1980s and early 1990s. In the 1980s, in east Germany, 50–60% of the improvement was attributable to declining mortality from conditions responsive to medical care (west Germany: 30–40%). A net positive effect was also observed in Poland, although counterbalanced by deterioration in ischaemic heart disease mortality.

In the former communist countries, improvements attributable to medical care in the 1980s were due, largely, to declining infant mortality. In the 1990s, they benefited also adults, specifically those aged 35+ in Poland and 55+ in Germany. A persisting east–west gap in temporary life expectancy in Germany was due, largely, to higher mortality from avoidable conditions in the east, with causes responsive to health policy contributing about half, and medical care 16% (men) to 24% (women) to the differential in 1997.

The findings indicate that changes in the health care system related to the political transition were associated with improvements in life expectancy in east Germany and, to a lesser extent, in Poland. Also, differences in the quality of medical care as assessed by the concept of 'unnecessary untimely deaths' appear to contribute to a persisting east–west health gap. Especially in Poland and the former German Democratic Republic there remains potential for further progress that would narrow the health gap with the west.

Keywords: Medical care; Population health; Germany; Poland

Introduction

During the 1980s the health of the peoples of central and eastern Europe lagged increasingly far behind that of their western neighbours. In some countries, such as the German Democratic Republic (GDR), this was due to a failure to achieve the improvements in adult mortality seen in the west (Nolte, Shkolnikov, & McKee, 2000a). In others, such as Poland, there was an actual increase in adult mortality. The political transition in the early 1990s also had a considerable impact on health although, again, there were both similarities and differences. A short-lived worsening in mortality in all countries was followed by improvements in health, which were rapid in some countries and delayed in others (Zatoñski & Boyle, 1996; McKee & Zatoñski, 1998).

The former GDR offers unique opportunities to understand these changes. During the 1980s its level of

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mortality lay in an intermediate position between east and west. After the fall of the Berlin Wall its experience of transition was also unusual, with rapid progress to unification with the Federal Republic of Germany (FRG), with the accompanying transformation of institutions supported by a massive injection of funds. This experience was very different from those of its eastern neighbours. This paper focuses on the improvement in mortality in the former GDR (hereafter described as east Germany) and in Poland. East Germany experienced an increase in life expectancy at birth of 2.4 years in men and 2.3 years in women between 1992 and 1997 (Nolte, Shkolnikov, & McKee, 2000b). Poland experienced an increase of 2 years in life expectancy at birth among men and 1.2 years among women between 1991 and 1996.

There are many possible causes for the mortality decline. They could be the effect of existing historical trends, reflecting the impact of factors acting in childhood on those who are now adults (Davey Smith, Hart, Blane, & Hole, 1998). They could also reflect contemporary factors, such as changes in diet, and thus in the risk of heart disease, as has been suggested for Poland and the Czech Republic (Zatoñski & Boyle, 1996; Bobak, Skodova, Pisa, Poledne, & Marmot, 1997).

One factor that has received less attention is improved medical care, an exception being the suggestion that it was a major contributor to the accelerated post-unification mortality decline amongst the oldest-old in east Germany (Gjonça, Brockmann, & Maier, 1999). Again, the experience of east Germany was unique among the former communist states. Its health care sector was rebuilt after unification with, for example, an investment of DM 21 billion (*12.5 billion) between 1995 and 2004 in the hospital sector (Bundesministerium für Gesundheit, 1998). Modern pharmaceuticals, considered the major explanation for the subsequent decline in deaths from testicular cancer, became available (Becker & Boyle, 1997). Improvements in neonatal mortality in east Germany have also been attributed, in part, to improvements in the quality of perinatal care (Nolte, Brand, Koupilová, & McKee, 2000c), although this has also been noted in the Czech Republic (Koupilová, McKee, & Holčik, 1998). Poland, on the other hand, is more typical of the former communist countries. Although it too has experienced an improvement in mortality, the possible impact of health care is generally considered small as reform of the system has been somewhat slower (Cockerham, 1999; European Observatory on Health Care Systems, 1999). Thus, a comparison of east and west Germany and Poland offers a valuable opportunity to explore the potential role of the health care system in the recent fall in mortality.

Building upon the concept of 'unnecessary untimely deaths' ('avoidable' mortality) originally introduced by Rutstein and co-workers in the 1970s as a measure of the quality of medical care (Rutstein et al., 1976), this study seeks to quantify the contribution of medical care to changes in mortality in east and west Germany and Poland. To assess the potential impact of medical care, we examine trends in the 1980s, when life expectancy at birth in east Germany and Poland improved only little or even stagnated (Nolte et al., 2000a), and in the 1990s, a period of sustained improvement in mortality in both regions.

Methods

Data

Mortality data for the two parts of Germany for 1980–1997 were obtained from the Statistical Office Germany (Statistisches Bundesamt, 1980–1997) and those for Poland from the WHO mortality files (1980–1996) (WHO, 2000). Data include deaths in each year, using the 9th revision of the International Classification of Diseases (ICD) (WHO: abbreviated list; Statistical Office: 3-digit code (1980–1989) and detailed list (1990–1997)), by sex and 5-year age band (with infant deaths listed separately). Population numbers by sex and age were obtained from the same sources.

This study makes use of reconstructed mortality data from the former GDR for 1980–1989. It is known that published data on causes of death in the GDR were not complete between 1975 and 1988 (Nolte et al., 2000a) as deaths from some violent and alcohol-related causes were not reported for political reasons (Höhn & Pollard, 1991) but were combined with ill-defined causes to maintain total all cause mortality. After unification, the GDR mortality data for 1980 to 1989 were reconstructed, which included an extraction of formerly 'hidden' causes of death (e.g. liver cirrhosis, suicide, homicide) (Statistisches Bundesamt, 1995), thus making it possible to study mortality patterns in the 1980s in the former GDR in more detail than has previously been possible (Höhn & Pollard, 1991; McKee et al., 1996; Nolte et al., 2000a).

Selection of causes of death

The selection of causes of death considered 'avoidable' was essentially based on the lists proposed by Mackenbach, Looman, Kunst, Habbema, and van der Maas (1988) and Holland (1988, 1991, 1993, 1997), separating causes responsive to medical intervention from those responsive to inter-sectoral health policies (Albert, Bayo, Alfonso, Cortina & Corella, 1996). The conditions selected in our study were considered either indicators for the impact of medical care, i.e. secondary prevention or medical treatment, thus 'amenable' or 'treatable' conditions, or of health policy, i.e. primary