HOW WELL IS THE ROMANIAN HEALTH SYSTEM PERFORMING?
- Some progress but still some way to go -

Marina KARANIKOLOS1,2, Research Fellow
Martin MCKEE, Professor of European Public Health and Director of Research Policy2
1London School of Hygiene and Tropical Medicine
2European Observatory on Health Systems and Policies

INTRODUCTION
Health systems have three main goals [1]. The first is to improve the health of the populations they serve. The second is to respond to the legitimate expectations of those populations. The third is to obtain the financial resources to do so in a way that is equitable. In this paper we ask what the Romanian health system has achieved over the past two decades with regard to the first of these, the improvement of the health of the Romanian population.

The simplest approach is to ask what has happened to overall mortality. Yet this would be misleading. Although it is now clear that health systems can make a positive, and increasingly substantial contribution to overall mortality, there are many other factors involved and there are still many causes of death, including many cancers, where health care can only relieve symptoms or extend life by only a few months [2].

To overcome this limitation, the concept of mortality amenable to health care has been developed. It was conceived initially by Rutstein, in the USA in the 1970s as a means of identifying failures of the health system [3]. It is operationalised as deaths that should not occur in the presence of timely and effective care. In practice, this involves identifying conditions for which there is clear evidence that health care can prevent death or extend life. This is a dynamic process, as new treatments are developed for previously incurable conditions. An example is testicular cancer, whose management has been transformed by new treatments such as cisplatinin [4]. It also involves defining an upper age limit. This is essentially a pragmatic decision. First, it is obvious that everyone must die sometime. However, much more important is the problem of allocating unambiguously a single cause of death at older ages, when those dying may have multiple co-existing problems. In the earliest analyses this age limit was 65 but the age of 75 is now generally accepted, reflecting increasing life expectancy.

Methods: We used mortality data from the WHO for the period between 1996 and 2008 to calculate age-standardised mortality rates for 0-74 year olds from causes amenable to health care and assess mortality trends between 1996-2002 and 2002-2008. We compare amenable mortality rates in Romania to those for England and Wales to provide an international comparator.

Results: Amenable mortality has been declining in Romania since 1996. However, detailed analysis shows that there are variations in the pace and direction of change, depending on cause and gender. Mortality rates are substantially higher in Romania compared to England and Wales for all amenable causes except for selected surgical procedures and misadventures.

Conclusions: The wide gap in mortality amenable to health care in Romania compared to England and Wales points to substantial scope for improvement. However, the observation that only a modest decline has been observed since 1996 indicates that achievement of a significant improvement will be a challenge.

Keywords: health system, performance, amenable mortality, Romania

METHODS
Data on population structure and deaths by different causes were obtained from the World Health Organization’s mortality database for the years 1996 to 2008. The first year was chosen as a time when Romania had moved beyond the immediate effects of the political transition; the second is the most recent year for which data are available.

The list of conditions considered amenable to health care is that developed by Nolte and McKee and subsequently used by a number of agencies and organisations including the Organisation for Economic Co-operation and Development [5]. Age standardised death rates (between the ages of 0 and 75) were calculated using the European Standard Population and the overall rates of amenable mortality were subsequently disaggregated into 10 clinically meaningful categories. In keeping with current practice, only 50% of deaths from ischaemic heart disease (IHD) were included as declines in mortality from this cause also reflect changes in major risk factors and not all of these deaths (especially those that are sudden) can be prevented by medical care [6]. In addition, death rates from causes other than those considered amenable to health care at ages 0-75 (including the remaining 50% of ischaemic heart disease) have been calculated for comparison.

Trends in overall rates of amenable mortality provide an indication of how a health system is performing but not why it is doing more or less well than expected. For this it is necessary to look in detail at changes in different causes of death. To facilitate interpretation, we have divided the period into two equal parts, from 1996 to 2002 and from 2002 to 2008.
We used linear regression slopes and annual percentage change to describe absolute and relative changes in mortality for the two periods. Finally, to place Romania in an international context, we have compared the death rate from causes amenable to health care to those in England and Wales in the same period.

**RESULTS**
The table shows the death rates at the beginning and end of each period as well as the absolute annual decline and the annual percentage decline. The following description refers to changes in the annual percentage decline. Deaths from causes amenable to health care were substantially higher among men than women throughout the entire period, although they continued to fall in both sexes, with the annual percentage decline acceleration in the second half of the time period. Thus, for men, rates were falling by 2.06% per year between 1996 and 2002, but by 3% between 2002 and 2008. For women, the corresponding figures were 2.12% and 3.92%. However, the pattern varied for different causes. Among men and women, this pattern of accelerating improvement was seen for ischaemic heart disease, stroke, infectious disease, and perinatal disorders. An acceleration was also seen with surgical conditions and misadventure among men only, and among women an initial worsening in deaths from other cardiovascular causes reversed. However, the rate of improvement slowed for respiratory diseases among men and women, and for other cardiovascular disease among men.

Death rates from treatable cancers increased in men in both periods, although a small initial increase among women then reversed. Deaths from causes that are not considered amenable to health care also fell throughout the entire period, but at a slower rate than causes amenable to health care (except for women between 1996 and 2002).

Figure 1 shows trends in amenable mortality in men and women in Romania and, for comparison, England and Wales. Three things are apparent. The first is that the large gap between men and women seen in Romania is not seen in England and Wales. This is not an inevitable biological phenomenon. Second, the overall rates are much higher in Romania than in England and Wales. Third, the general downward trend in Romania was interrupted in the period around 2002.

Figure 2 looks at the ratio of death rates from major causes in Romania compared to England and Wales in 2007 (the latest year for which we have data in England and Wales). The difference is by far the greatest for infectious diseases (which includes AIDS), other cardiovascular diseases (here including stroke), other amenable causes, and respiratory diseases. Death rates from surgical causes and misadventure are lower in Romania.

**DISCUSSION**
Like all studies using mortality amenable to health care, this study is subject to a number of limitations. The most obvious is the quality of cause of death coding. In Romania the formal position has long been that all deaths must be registered, after certification by a physician [7]. Autopsies are required for all accidental and sudden deaths and deaths occurring in hospital, with some exceptions, specified by law [8]. In the mid 1990s it was estimated that 95% of deaths were medically certified but an autopsy was performed in only 7% of all deaths [9]. In some rural areas that have few physicians, some death certificates are completed by nurses. However, a recent study reported that the frequency of ill-defined causes of death, a common marker of quality of coding, was low, suggesting that Romanian data are adequate for our purposes [10]. However, it is possible that the apparently low death rate from surgical conditions and misadventure could reflect under-recording of certain complications of treatment.

Another limitation of our study is that we were only able to include data up to 2008 and there is abundant evidence that Romania in general, and its health system in particular, have suffered severely from the consequences of the current global economic crisis [11]. We were also unable to look at differences within the Romanian population, and in particular at health outcomes for the Roma population, given extensive evidence of the difficulties that they face in obtaining effective care [12].

An earlier study of deaths amenable to health care in the European Union and the candidate states in 2002 found that Romania had the highest rates of all [13]. Although rates have fallen subsequently, they have done so relatively slowly, especially taking account of their starting point and thus the enormous scope for improvement, which is apparent from the gap with England and Wales.

Measures of amenable mortality are simply indicators that can identify where problems exist. They do not, themselves, indicate what must be done to fix the problem. Hence, although the comparison of death rates by cause in Romania and England and Wales provides some basic pointers, the next stage must be to explore the data in much more depth to determine what is happening with individual causes of death, looking at how they are changing in different places, at different times, and in different age groups.

There are, however, some obvious responses that could be adopted. The high death rate from infectious disease reflects a number of specific conditions. During the 1990s Romania faced a quite specific problem of high rates of paediatric HIV infection, although many of those affected died over the following decade [14]. The incidence of AIDS has been falling since 1998, although there is still scope for further improvements, in particular by means of measures to reduce spread among and from intravenous
Table 1. Age standardised mortality (age 0-75) from specific causes, Romania, 1996, 2002 and 2008

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<tr>
<th></th>
<th>All causes</th>
<th>Amenable (incl. 50% IHD)</th>
<th>Stroke</th>
<th>Ischaemic heart disease (50%)</th>
<th>Other Cardiovascular Diseases</th>
<th>Respiratory</th>
<th>Treatable cancer</th>
<th>Infectious</th>
<th>Perinatal, maternal and congenital</th>
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Source: Authors calculations from WHO mortality files, July 2010

Figure 1. Trends in age standardised mortality from causes amenable to health care, Romania and England and Wales: 1996-latest year

Source: Authors calculations from WHO mortality files, July 2010
drug users, such as expansion of needle exchange programmes. There is also much more that could be done to address the high death rate from tuberculosis, which is now about 75% higher than it was in 1980, although again rates have been falling since the late 1980s [15]. A particular problem is the emergence of multi-drug resistance, with Romania being among the countries with the highest burden of resistant disease [16].

Another clear priority is to tackle the high death rate from stroke and other cardiovascular disease. Here, the emphasis should be on detection and treatment of hypertension. The level of awareness of hypertension in the Romanian population is low, as is effective treatment, with only about 20% of those with hypertension controlled by treatment [17]. Control is substantially worse in men than women, a finding reflected in our mortality data.

There is also evidence from other research, consistent with the findings of this study, that Romania has failed to benefit to the extent seen elsewhere in advances in treatment of cancer [18].

C onclusions

The wide gap in mortality amenable to health care in Romania compared to England and Wales points to substantial scope for improvement. However, the observation that only a modest decline has been observed since 1996 indicates that achievement of a significant improvement will be a challenge. None of the progress will, however, be possible without the development of a sustainable, adequately funded, and high quality health system. Unfortunately, the reality is far from that, with widespread shortages of staff, inadequate facilities, and unaffordability of effective treatment. This must be the greatest priority for Romania but it will not be easy to make this happen.

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