

Preface

The timing of this study is opportune for four main reasons. Firstly, South Africa, as a young democracy, is totally committed to improving the quality of life of all its peoples, especially at provincial and local district level. The geographical distribution of mortality, a convenient summary indicator for overall health and development, is indeed important to measure health inequalities amongst the provinces.

Secondly, the main components of disease burden can be identified and used to guide priorities to reduce the burden. The four main components of disease burden, communicable diseases (such as TB and childhood diarrhoea); degenerative diseases associated with changes in life-style; injury related mortality (both intentional and unintentional); and HIV/AIDS occur in different patterns across the provinces. In 2000, HIV/AIDS has the highest number of deaths in all the provinces excepting Western Cape.

Thirdly, the estimates have opened up important opportunities for epidemiological studies that can explain the differences between the provinces. One example is that of under-5 child mortality rates which are highest in Kwazulu-Natal and Eastern Cape at 116 and 106 per 1000 live births respectively. As the rate is 46 in the Western Cape, it would be very useful to explore the risk factors in the three provinces to identify the causes of these differences. Another example is provided by epilepsy related mortality which is highest in Eastern Cape. Could this be related to the distribution of free-roaming pigs in the rural areas? Or, is it a reflection of access to health care? Or is it related to inaccuracies in the data?

Lastly, estimates of mortality serve as an entrance point to the study of the international indicators. The Millennium Development Goals have been identified as targets to promote a better quality of life in all countries in the world. Reducing the burden of disease has been identified amongst these goals for countries and must be extended to provinces, and ultimately health districts.

These estimates of mortality will therefore assist the provinces in identifying priorities, as well as monitoring of important development indicators. They constitute an important baseline to guide our response.

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Executive summary

Timeous and accurate cause of death statistics are an essential component of the information needed for planning and monitoring health services and responding to the health needs of the population. Such information is required for the process of prioritisation of not only health services, programmes and research, but also for guiding the priorities in other sectors. In particular, sub-population data are needed to identify and monitor inequalities in health status. While policy is directed from a national perspective, provincial and local government need to respond to the specific needs of their communities.

Efforts to improve cause of death statistics in South Africa have been under way since 1994, and have resulted in better coverage of death registration. However, the system does not yet routinely provide cause of death statistics that can be used by provinces. This study follows the Initial Burden of Disease Study that applied the burden of disease approach developed by the WHO by using available information and presenting it in a format that is relevant for planning health and other services. It makes use of more recent data, namely the 12% sample of deaths for 1997-2001.

Due to under-registration of deaths, it was necessary to estimate the total number of deaths and number of AIDS deaths using a demographic and epidemiological model. Due to inadequacies in the medical certification of the cause of death as a result of both poor certification by medical doctors and certification by traditional headmen in some rural areas, it was necessary to make adjustments for misclassification of underlying causes. Estimates were made for the number of deaths, the death rates and the years of life lost (YLLs) for each province according to the South African Burden of Disease list. Age-standardised mortality rates were calculated to enable a comparison of the levels of mortality experienced in each province.

The Initial National Burden of Disease Study highlighted the substantial impact of HIV/AIDS as a cause of death in South Africa by the year 2000, and the major health transition that is under way. As countries become more developed the disease profile changes, from one of infectious diseases, high child mortality and malnutrition, to a predominance of degenerative, chronic diseases. However, developing countries often experience a double burden, resulting from the simultaneous occurrence of these disease spectrums. During the early 1990s the health transition in South Africa was characterised by a very high injury burden on top of the double burden, resulting in a 'triple burden' (Bradshaw *et al.*, 2002). In more recent years the impact of HIV/AIDS has created a quadruple burden of disease in South Africa. This study shows that all provinces are experiencing this quadruple burden of disease to varying degrees.

HIV/AIDS, homicide and road traffic accidents, stroke, ischaemic heart disease, hypertensive heart disease, tuberculosis, diarrhoea and lower respiratory infections generally featured in the top causes of death of all provinces. While it was possible to discern some trends in the epidemiological transition, each province had a unique profile.

HIV/AIDS was the leading cause of death in 2000 in all provinces excluding the Western Cape, mostly by a large margin. The pre-transitional causes of death were more pronounced in the poorer and more rural provinces. For example, diarrhoea had low mortality rates in Gauteng and Western Cape but high rates in Limpopo and Eastern Cape. In contrast, there was little variation in the overall level of non-communicable disease mortality. However, while the overall level of non-communicable disease mortality was similar across all provinces, the cause profile differed substantially. For example, ischaemic heart disease and lung cancer had high death rates in the more developed province of Western Cape, while hypertensive heart disease and inflammatory heart disease had high rates in Limpopo. The injury mortality rates were particularly high in some provinces, including those with large metropolitan areas as well as Mpumalanga.

Mortality levels differed among the provinces, with a variation in life expectancy from 63 years in the Western Cape to 52 years in KwaZulu-Natal. Life expectancy was consistently higher for females than males, the difference being about 5 to 6 years. The cause of death profiles also differed between the provinces.

The overall age-standardised mortality rate was highest in KwaZulu-Natal and Mpumalanga, where it was 1.5 times higher than in the Western Cape, which had the lowest mortality rate. Child mortality rates are influential on life expectancy estimates, and displayed marked variations between the provinces. Western Cape had the lowest under-5 child mortality rate of 46 per 1000 live births,

compared with KwaZulu-Natal (116 per 1000 births) and Eastern Cape (105 per 1000 live births) with the highest rates. Western Cape, Gauteng and Northern Cape were the only provinces that in the year 2000 met the 'Health for All' target of 80 per 1000 births for under-5 child mortality.

The variations between the provinces in levels and causes of mortality highlight extensive scope for epidemiological studies. Such differences may be related to levels of wealth and development, to population group differences and demographic features of the province, to geographical differences and environmental exposures or to access to health services or other basic services. The average profile of a province, furthermore, obscures the variability within a province. Studies comparing the mortality experienced by the different population groups, social classes and ethnic groups and for small areas would provide useful insight into the factors associated with the variations in health outcomes. Considering the levels of extrapolation required to derive the estimates for this study, it is important to validate the findings against other epidemiological data.

This study signifies an important milestone in generating burden of disease information at provincial level by providing mortality estimates for the provinces. These estimates are extrapolations from a variety of data sources, all with limitations. There is an urgent need to further improve the cause of death data system so that it can provide timely and reliable statistics. Based on the experience in analysing cause of death data, the following issues need to be addressed:

- The lack of details about the manner of death in the case of fatal injuries needs attention. A mechanism to build the mortuary surveillance system (NIMSS) in all provinces, and link the information to the vital registration system should be put in place.
- The quality of information on the underlying cause of death needs to be improved. In particular, there is a need to reduce the number of deaths certified with insufficient information about the underlying cause that results in a high proportion of deaths being classified as 'ill-defined'. There is a need to improve the quality of medical certification as well as to investigate how appropriate information for the deaths certified by traditional headmen can be collected.
- Systems to ensure timely access to information at local level need to be developed. While the model of duplicate capturing of death data has worked well for Cape Town, it is not clear that this is a viable model for all health districts. Government needs to grapple with the issue of ensuring that health districts have a system to produce timely cause of death statistics.
- A rapid surveillance system to produce preliminary information about the number of deaths and the changing age pattern that can be released well in advance of the official statistics should be set up.

While the data systems are being improved, provincial and local level planners are urged to make use of the findings of this study to modify the emphasis of national policies to meet the health needs of their communities. It should be noted that the spread of the HIV epidemic during the 1990s was very rapid and that the mortality profile is changing rapidly. This should be taken into account when making use of these estimates for planning, and highlights the urgency of implementing the treatment programme approved by Cabinet in September 2003 as quickly as possible as well as strengthening efforts to reduce the spread of HIV/AIDS.

This study has shown that all provinces are experiencing a quadruple burden of disease. This requires a broad range of interventions, including improved access to health care, promotion of a healthy lifestyle and ensuring that basic needs such as water and sanitation are met. Social cohesion needs to be fostered to ensure safe and caring communities.

Introduction

South African health policy is currently aiming to redress the inequities of the past and ensure adequate health services for all and to improve the health of the nation. Policy is directed from a national perspective, yet provincial Departments of Health and local government have to respond to the specific needs of their communities. An essential element for public health planning at these levels is reliable statistics on causes of death as these contribute to understanding the health outcomes experienced by the population. In spite of major improvements, the national vital statistics system, like that of many developing countries, does not yet provide good-quality mortality data in a timely fashion. The importance of cause of death statistics has been recognised by the post-apartheid government, and various initiatives to improve the poor quality of cause of death statistics have been implemented in South Africa over the last 10 years.

Efforts to understand the failures in the system identified a range of problems, and a detailed analysis of these provided a framework for improving vital registration and death statistics (Bradshaw and Schneider, 1995). A new-found co-operation between the Departments of Health and Home Affairs and Statistics South Africa (SSA) established a platform for improved vital registration and statistics. A national task team was established by the Department of Health to direct inter-departmental efforts to improve registration. A new death certificate incorporating the WHO guidelines on medical certification of causes of death was implemented in 1998 (Bradshaw *et al.*, 1998). Provincial task teams were set up to identify barriers and to find ways to resolve them. Analysis of the data from SSA and the Department of Home Affairs showed that the registration of adult deaths improved from about 50% in 1990 to over 90% in 2000 (Dorrington *et al.*, 2001). Completeness of registration for children is lower. The latest available national cause of death statistics are for the year 1996 (SSA, 2000a).

The Initial National Burden of Disease Study for 2000 (Bradshaw *et al.*, 2003) made use of several data sources, and for the first time provided a clear overview of the causes of death experienced in South Africa. Given the rapidity of the changes in mortality, the ASSA2000 model of the impact of HIV/AIDS was used to estimate the total number of deaths and the number due to HIV/AIDS (ASSA, 2002), together with the 1996 cause of death data (SSA, 2000a), the NIMSS data on fatal mortality (Burrows *et al.*, 2001) and other data sources.

The Initial Burden of Disease Study highlighted the substantial impact of HIV/AIDS as a cause of death in South Africa, and the major health transition that is under way (Bradshaw *et al.*, 2002). As countries become more developed the disease profile changes from one of infectious diseases, high child mortality and malnutrition to a predominance of degenerative, chronic diseases. However, developing countries often experience a double burden, resulting from the simultaneous occurrence of these disease spectrums. During the early 1990s the health transition in South Africa was characterised by a very high injury burden on top of such a double burden, resulting in “a triple burden” (Bradshaw *et al.*, 2002). In more recent years the impact of HIV/AIDS has created a quadruple burden of disease – with very high mortality rates being experienced when South Africa is compared with countries of similar income levels and expenditure on health services (WHO, 2000).

Estimates from the Initial Burden of Disease Study have made an important contribution to planning, but failed to reveal regional variations in health status. Living conditions in South Africa range from developed metropolitan areas and wealthy suburbs to impoverished peri-urban townships, small towns, rural farms and rural tribal areas. The variations are historical and are bound up with the racial inequalities of our apartheid past. These manifest as inequities in terms of basic amenities such as housing, water and sanitation as well as income and formal employment. Selected indicators depicting this variation at provincial level are shown in Figures A1 – A5 of Appendix A.

As South Africa enters its second decade of democracy it is essential for the provinces to have estimates of the mortality profile in order to plan effectively and benchmark their efforts to improve the health of the people. The release of a 12% sample of deaths for 1997-2001 (SSA, 2002) provided more recent cause of death data albeit from a sample. This study aims to make use of the more recent data to develop estimates of the mortality profile in each of the provinces of South Africa. This is not straightforward as a result of the high proportions of deaths classified as ‘undetermined unnatural causes’ and ‘unspecified natural causes’. Furthermore, AIDS deaths are likely to be under-represented as a result of misclassification to the immediate cause of death. In addition, such a project requires population estimates that are demographically consistent with the mortality estimate.

