

Long-term Modelling of NHI

This policy brief highlights some of the issues and debates that need to be considered in the long-term modelling of diseases and costs, including the quadruple burden of disease in South Africa.

Cost curves by age and gender for a series of benefit packages in medical schemes were originally developed by Grobler & McLeod for the Actuarial Society of South Africa. It would be ideal to study the same curves in the South African public sector but it has not yet been feasible to estimate any of the curves. Since it is very difficult to use data from an under-resourced public service to predict cost in a future better-resourced system, they attempt to adjust the excellent private sector data to the total cost likely in a well-resourced public system. Critically, these curves do not yet include the effect of these packages becoming mandatory; nor the costs of administration and managed care; and the impact of the HIV epidemic needs further work.

The public sector curves are likely to have a similar shape to those observed in the medical schemes environment but with at least a few differences: lower costs for Under 1s (fewer ICU admissions and very low birth-weight babies are not resuscitated in the public sector); lower maternity costs (far fewer Caesarean sections); and higher HIV admissions and costs in the HIV years. The cost of chronic disease from age 40 onwards may also be affected by different patterns of disease and treatment regimens. While the mix of chronic diseases amongst the poor is different to that of the higher-income groups in medical schemes, the total burden of disease (excluding HIV) might possibly be of about the same magnitude.

The cost curves by age and gender can be applied to the future expected age-gender population profile to determine expected total cost for a given future year. This is necessary since the expected aging of the South African population is significant over the period shown (to 2025) in the ASSA2003 provincial model. The degree of uncertainty in demographic projections should be borne in mind.

Changes in mortality and morbidity, and changes in medical practice and technologies have an important influence on long-term projections. For example, changes in the age at which people die and in the length of terminal illness may affect usage patterns. As the use of hospital beds is strongly associated with age, this would suggest that population ageing will lead to increased demand for hospital beds. If instead hospital usage is associated with care close to death, an ageing population will not imply more beds but just that beds will be required later in life.

Steyn argues that South Africa suffers from a **quadruple burden of disease**. "The disease patterns in this region are characterised by a combination of **poverty-related diseases** together with the emerging **chronic diseases** [of lifestyle] associated with urbanisation, industrialisation and a westernised lifestyle. This double burden of diseases is exacerbated by high injury rates associated with the social instability of **violence** or high crime rates, and by the exploding epidemic of **HIV/AIDS** across the African continent. This multiple burden represents a demand on the health services of South Africa far beyond those experienced in developed countries and what the limited resources can accommodate."

Steyn & Schneider reviewed literature on demographic, epidemiological and health transitions which hold important lessons for South Africa and the modelling of a future NHI system. They identified a model characterised by the juxtaposition of a developed and an underdeveloped sector of the population. Developing countries with limited resources have an enormous burden placed on health services to cater for multiple burdens of disease. However, when competing with more acute and urgent conditions, chronic diseases seldom receive the resources required for prevention and cost-effective care, unless a health service has a scientifically-based process of priority-setting.

Furthermore, health services in poorer countries are largely based on a model for treating acute illness. As such, particularly in public sector clinics catering for the poor, appropriate health promotion initiatives or educational needs of patients with chronic disease is rarely provided for. For example, the logistics of dispensing long-term medication for chronic diseases are seldom organised so that patients can obtain repeat prescriptions in an efficient way.

The projections of future disease, taken from the three policy briefs dealing with the 25 Chronic Disease List (CDL) conditions, HIV/AIDS and cancer, shows that the total numbers with these diseases have increased from 3.6 million in 1994 to 9.9 million in 2009 and could rise to 11.3 million by 2025 (Figure 1 below). The non-CDL chronic diseases, the burden of violence and infectious diseases need to be added for a more complete picture. Altogether, the immense challenges for a sustainable National Health Insurance system become apparent.

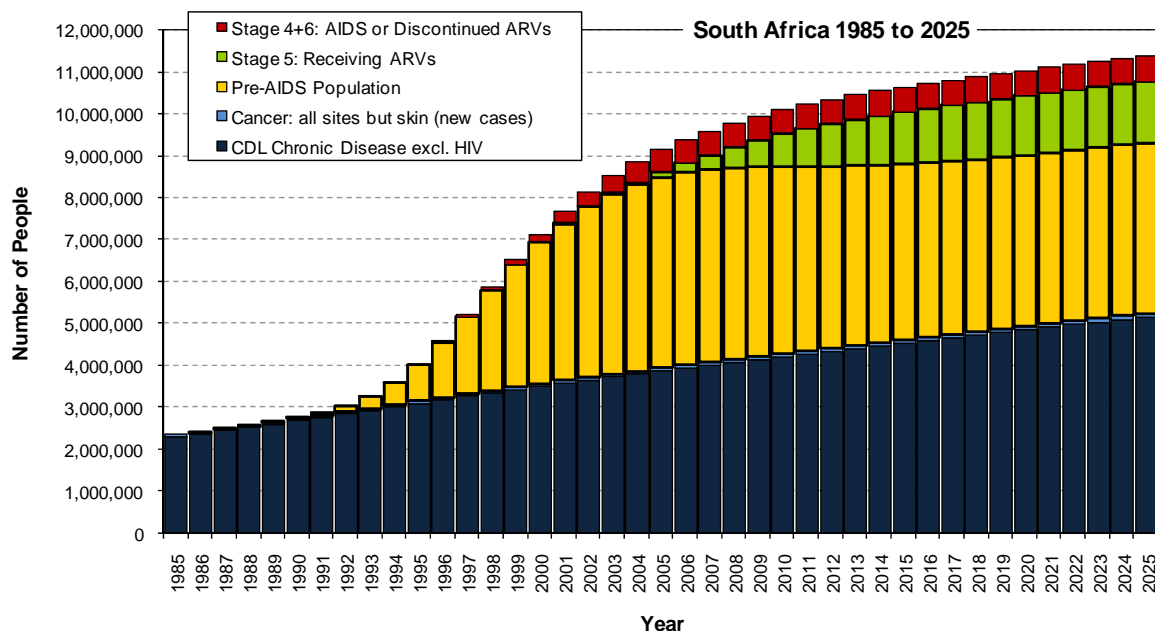


Figure 1: The Burden of CDL Chronic Diseases, Cancer and HIV/AIDS in South Africa, 1985 to 2025

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Further resources on the IMSA NHI web-site

http://www.innovativemedicines.co.za/national_health_insurance.html

- The full policy brief, as well as the slides and tables used. Includes slides of the disease projections to 2025 from Policy Briefs 3, 4 and 5.

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