

Public health intervention needed to curb increase in diarrhoea-related deaths in South Africa

M STEYN

CSIR Resources and the Environment, PO Box 395, Pretoria, South Africa, 0001
Email: msteyn@csir.co.za – www.csir.co.za

INTRODUCTION

Sub-Saharan Africa continues to be the region most affected by the Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome (HIV/AIDS) (WHO, 2009). South Africa alone is home to 14 % of the world's HIV positive population (UNAIDS, 2006). Of the estimated 5.5 million HIV-infected individuals in the country, 1.54 million (28%) are resident in KwaZulu-Natal Province (Dorrington *et al.*, 2006).

While there has been an unprecedented global investment in the roll-out of antiretroviral therapy (ART) for HIV infection since 2003, health care providers and policy makers in South Africa and other parts of sub-Saharan Africa are faced with a profound challenge due to the devastating impact of HIV/AIDS (Lule *et al.*, 2005).

It is by now well established that diarrhoea is a symptom of HIV and AIDS and an important cause of death and disease in HIV-infected people. In South Africa and many other developing countries, especially where the stigma of HIV/AIDS is still very high, the cause of death is often incorrectly classified as diarrhoea or tuberculosis, for example, instead of the true underlying cause, namely HIV (Groenewald *et al.*, 2005). The result of this is statistical data that favours health interventions that are actually not applicable to the true "underlying cause of death".

Diarrhoea is not a life-threatening disease, yet globally millions of people, mostly children, die from diarrhoea every year. The World Health Organization (2007) estimates that diarrhoea is preventable in 94% of all cases by increasing the availability of clean water, and improving sanitation and hygiene.

Improving water, sanitation and hygiene (Prüss-Ustün *et al.*, 2008) therefore has the potential to prevent at least 6.3% of all deaths world-wide and approximately 9.1% of all DALYs (Disability Adjusted Life Years).

Major improvements have been made in the water and sanitation sector in South Africa since 1994 and few people lack access to improved water supply, even in rural areas. Many, however, still lack access to improved sanitation facilities.

Households affected by HIV and AIDS require greater quantities of water and excellent hygiene to meet the requirements of the chronically ill and to prevent opportunistic infections (Lule *et al.*, 2005). While HIV plays a major role in diarrhoea incidence and deaths, Lewin *et al.* (2007) found that 84% of all diarrhoeal disease in South Africa is attributable to water and sanitation. Clearly, incomplete water and sanitation coverage and the associated levels of morbidity and mortality, are still not widely appreciated or acknowledged.

The aim of this paper was therefore to assess whether these positive improvements in water and sanitation coverage are reflected in the diarrhoea mortality statistics by:

- Examining the diarrhoea mortality statistics for South Africa over a ten year period (1997 to 2006);
- Studying the mortality trends for the different age groups and provinces.

METHODOLOGY

The study used available cause-of-death data from Statistics South Africa classified under *Intestinal Infectious Disease* to examine the mortality trends of diarrhoea over the period 1997 – 2006. Diarrhoea mortality data categorised under the ten leading natural causes of death for South Africa was used for each of the nine provinces. The available data was grouped into four age groups (Stats SA 2005, 2006, 2007, 2008).

The broad group 'Intestinal Infectious Disease' death statistics were used to graphically depict the changes in diarrhoea deaths over the ten year period. In addition, the study assessed the diarrhoea death trends in the provinces for the different age groups, to identify changes in patterns over time within and between age groups and provinces.

RESULTS

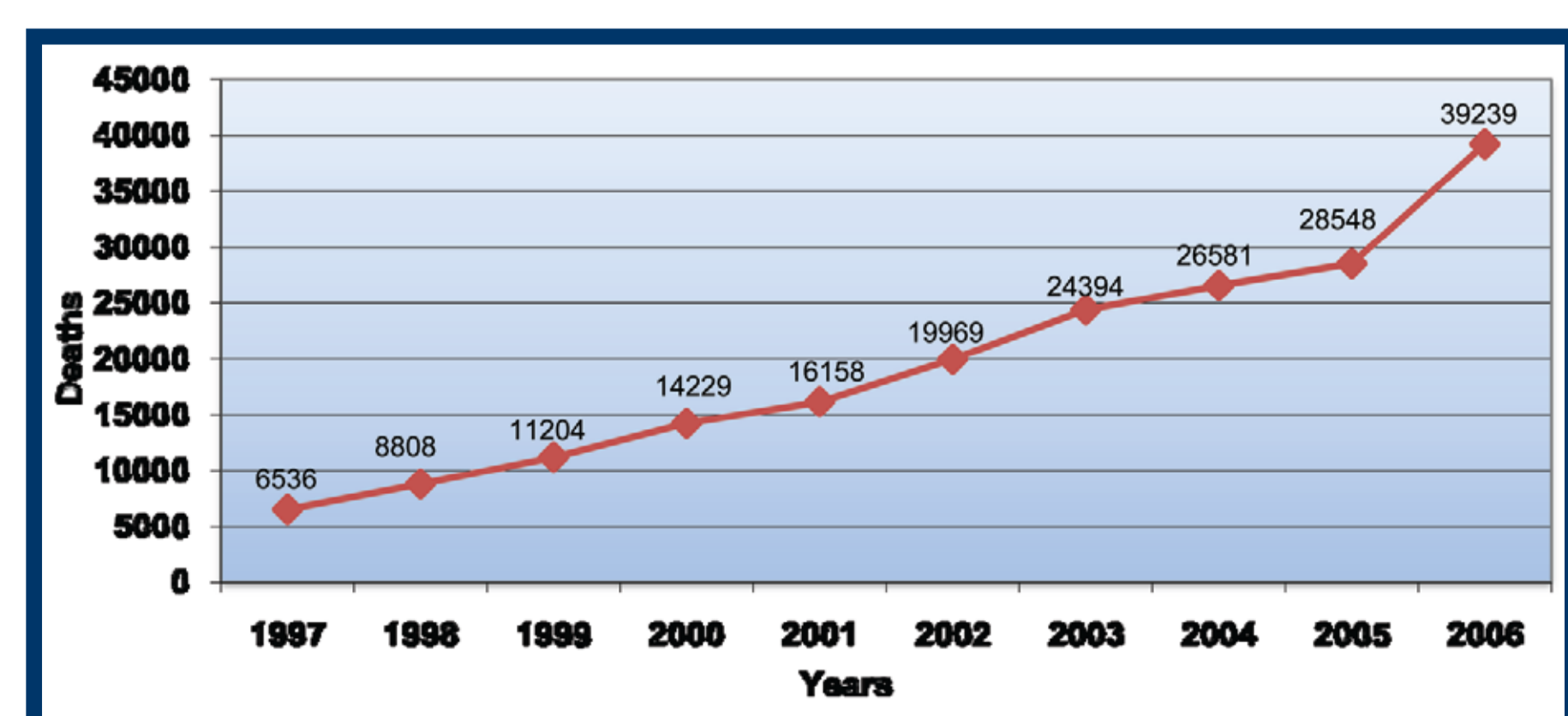


Figure 1: Broad group cause-of-death Intestinal Infectious Diseases, 1997 – 2006

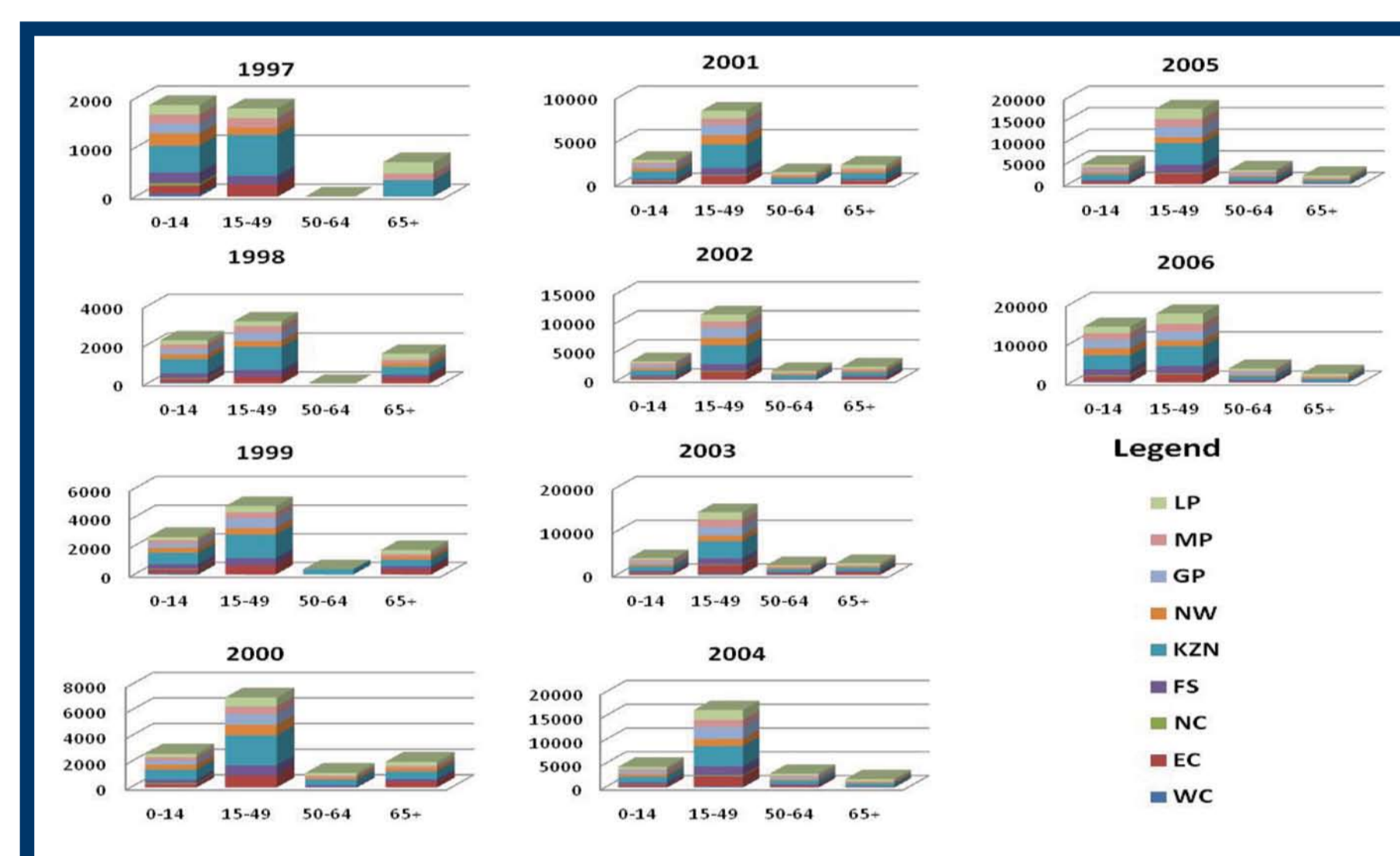


Figure 2: Intestinal Infectious Disease mortality data for each province per age group, 1997 to 2006

Since 1997, diarrhoea deaths in South Africa has increased from 6 536 to almost 40 000 in 2006. Closer assessment of the deaths due to diarrhoea over a ten year period clearly shows an increase in diarrhoea deaths in all age groups, especially in the adult population historically not affected by the disease. While it is recognised that many of these deaths were potentially due to HIV/AIDS as the underlying cause of death, this paper argues that diarrhoea is an important health problem which could be easily prevented.

There are many cost-effective interventions that could easily be put in place to target prevention of diarrhoeal disease and subsequent deaths (especially in the more vulnerable subpopulations, e.g. the young, the old and the immunocompromised).

KwaZulu-Natal had the highest diarrhoea mortality of all the provinces which also seem to strongly link with the fact that the HIV prevalence in KwaZulu-Natal is the highest in the country.

CONCLUSION

Assessment of the diarrhoea mortality statistics showed that assigning death to HIV/AIDS instead of diarrhoea results in an under estimation of the true number of cases of diarrhoea. This results in the appropriation of funds away from interventions that can easily prevent diarrhoea and death in children, for example access to safe water.

REFERENCES:

1. Dorrington, R.E., Johnson, L.F., Bradshaw, D., and Daniel, T. 2006. The demographic impact of HIV/AIDS in South Africa. National and provincial indicators for 2006. Cape Town: Centre for Actuarial Research, South African Medical research Council, Actuarial Society of South Africa.
2. Groenewald, P., Nannan, N., Bourne, D., Laubscher, R., and Bradshaw, D. 2005. Identifying deaths from AIDS in South Africa. *AIDS*, 19:193 – 201.
3. Lewin, S., Norman, R., Nannan, N. Thomas, E., Bradshaw, D and the South African Comparative Risk Assessment Collaborating Group. 2007. Estimating the burden of disease attributable to unsafe water and lack of sanitation and hygiene in South Africa in 2000. *South African Medical Journal*, 97:755-762.
4. Lule, J.R., Mermin, J., Ekwaru, J.P., Malamba, S., Downing, R., Ransom, R., Nakanjako, D., Wafula, W., Hughes, P., Bunnell, R., Kaharuzza, F., Coutinho, A., Kogozi, A., and Quick, R. 2005. Effect of home-based water chlorination and safe storage on diarrhea among persons with human immunodeficiency virus in Uganda. *American Journal of Tropical Medicine and Hygiene*, 73(5):926-933.
5. Prüss-Ustün, A., Bos, R., Gore, F., and Bartram, J. 2008. Safe Water, Better Health: Costs, Benefits and Sustainability of Interventions to Protect and Promote Health. World Health Organisation, Geneva.
6. 9. StatsSA (Statistics South Africa). 2007b. Community Survey, 2007. (Revised version). Statistical release P 0301. Statistics South Africa. <http://www.statssa.gov.za> Local copy: <http://www.hst.org.za/indicators/StatsSA/CommSurvey/>.
7. StatsSA (Statistics South Africa). 2005, 2006, 2007, 2008. Mortality and Causes of Death in South Africa. Findings from Death Notification. Pretoria: Statistics South Africa.
8. UNAIDS. 2006. Joint United Nations Programme on HIV/AIDS. Report on the global AIDS epidemic, Geneva.
9. WHO. 2007. Combating waterborne disease at the household level. The International Network to Promote Household Water Treatment and Safe Storage. In World Health Organization, 2007:13.
10. WHO (World Health Organisation). 2009. World Health Statistics. Geneva. Pp. 149

The H1N1 virus has killed at least 18,300 people with the latest epidemic. During the same time, diarrhoea has killed about 2 million people. This indicates that the diarrhoea morbidity threat cannot be underestimated.

