The status of child health in South Africa

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The Millennium Development Goals (MDGs) aim to reduce poverty, hunger, disease, illiteracy, environmental degradation and discrimination against women by 2015 and are regarded as an historic step to address human rights gaps and to ensure children's rights to survive, grow up healthy and develop to their full potential. Not only are many of the MDGs related to health, but many of the goals are also directly or indirectly related to *child* health.

MDG 4 commits countries to reduce the under-five mortality rate – a key indicator of child health – by two-thirds between 1990 and 2015. Child mortality trends in South Africa, however, show no signs of improvement over the past 15 years, which is a cause for great concern. This essay examines the burden, pattern and determinants of childhood disease in South Africa. It evaluates progress towards MDGs pertaining to child health and calls on the government to improve the delivery of child health services and to address the underlying social determinants of health – both central pillars of the United Nations Convention on the Rights of the Child.

The essay examines the following questions:

- What are the levels and trends in child mortality in South Africa?
- What are the leading causes of child mortality in South Africa?
- What are the risk factors and determinants of the dominant childhood disease pattern?
- How does inequity impact on child health?
- How is South Africa performing in comparison with selected other African countries?
- What are the recommendations and conclusions?

What are the levels and trends in child mortality?

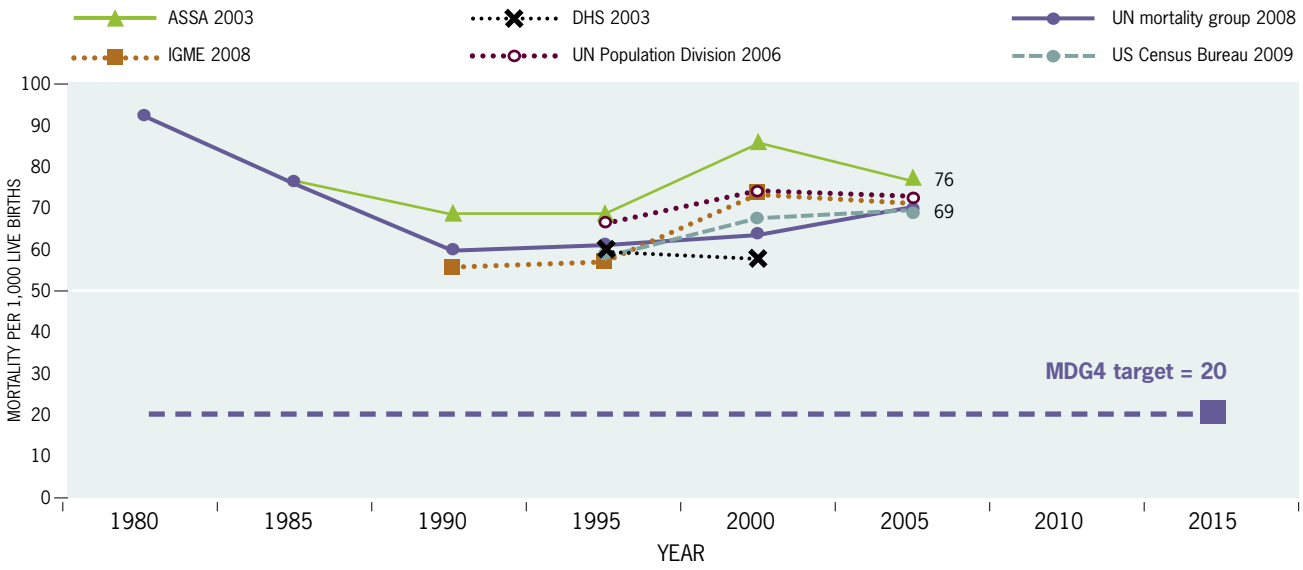
There is considerable uncertainty about the current levels of child mortality in South Africa. Despite efforts to improve vital registration, and investment in census and surveys, the actual mortality rates remain elusive. Registered deaths of children under 18 years increased from 41,288 in 1997 to a peak of 78,566 in 2006, followed by a slight drop.[1] It is not clear how much of the increase is a result of improved registration. The majority of these deaths (81%) occurred in children under the age of five years.[2] Data from various surveys indicate that the downward trend in childhood mortality of the 1980s was reversed in the early 1990s.[3]

Under-five mortality

In 1990 the estimated under-five mortality rate (U5MR) for South Africa was about 60 deaths per 1,000 live births.[4] South Africa's MDG 4 target is to reduce under-five deaths to 20 per 1,000 live births by 2015. Yet South Africa is one of the few countries globally where the U5MR is stagnant or increasing. By 2005 there was no sign of improvement in the U5MR, as shown by several estimates from different data sources in figure 2. While the US Census estimates are highly improbable, there are clear indications that child mortality in South Africa has not improved.

Projections by UNICEF (part of the UN mortality group),[5] which follow the same trend as estimates from the Actuarial Society of South Africa's 2003 model,[6] suggest that after a steady increase from 56 deaths per 1,000 live births in 1990 to 73 in 2000, South Africa has been experiencing a slow decline in under-five deaths, reaching 67 deaths per 1,000 live births in 2008 respectively.[7] While most of the increase in child deaths has been attributed to the deteriorating quality of care and a maturing HIV pandemic, the declining trend seems to coincide with the introduction and roll-out of the national programme for preventing mother-to-child transmission (PMTCT) of HIV.

Figure 2: MDG 4 trend, with various under-five mortality rate estimates



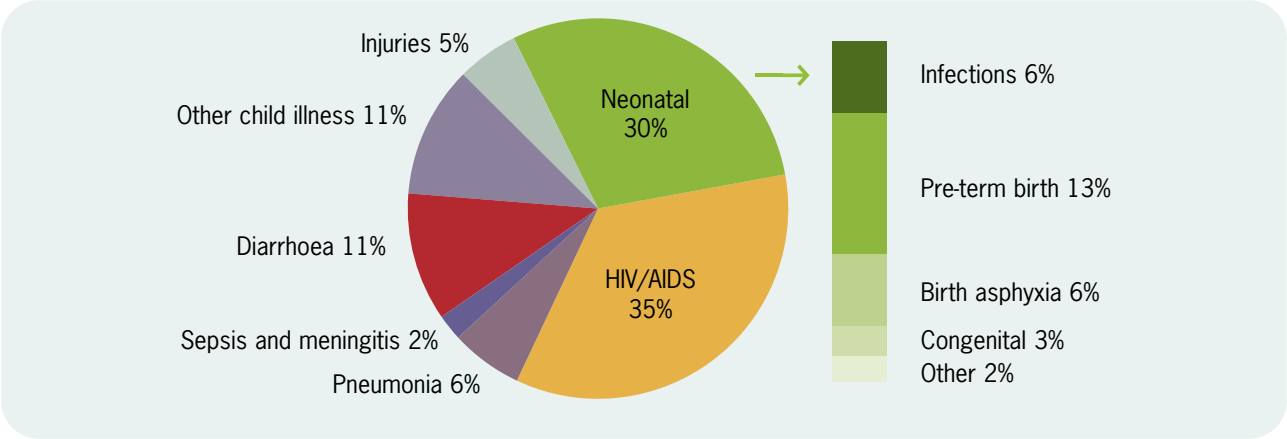
Rate of progress to MDG 4 in South Africa

Source: *Adapted from:* South Africa Every Death Counts Writing Group (2008) Every death counts: Use of mortality audit data for decision making to save the lives of mothers, babies, and children in South Africa. *The Lancet*, 371: 1294-1304.

Data sources:

- **ASSA 2003** (Actuarial Society of South Africa): Dorrington R, Bradshaw D, Johnson L & Daniel L (2006) *The demographic impact of HIV/AIDS in South Africa: National and provincial indicators 2006*. Cape Town: Centre for Actuarial Research, Medical Research Council & Actuarial Society of South Africa.
- **IGME 2008:** Interagency Group for Child Mortality Estimation (2008) *Child mortality database*. Accessed 19 June 2010: www.childmortality.org/cmeMain.html.
- **DHS 2003** (South African Demographic and Health Survey): Department of Health, Medical Research Council & Measure DHS (2002) *South African Demographic and Health Survey 1998*. Calverton, MD: Measure DHS.
- **UN POPULATION DIVISION 2006:** United Nations Department of Economic and Social Affairs, Population Division (2007) *World population prospects: The 2006 revision, highlights. Working paper ESA/P/WP.202*. New York: UN.
- **UN MORTALITY GROUP 2008** (UN Interagency Group for Child Mortality Estimation): UNICEF (2008) *State of the world's children 2008*. New York: UNICEF.
- **US CENSUS BUREAU 2009:** US Census Bureau (2009) *International database*. Accessed 19 June 2010: www.census.gov/ipc/www/idb/.

Figure 3: Causes of death in newborns and children under five years, 2000 – 2005



Source: South Africa Every Death Counts Writing Group (2008) Every death counts: Use of mortality audit data for decision making to save the lives of mothers, babies, and children in South Africa. *The Lancet*, 371: 1294-1304.
Data source: Norman R, Bradshaw D, Schneider M, Pieterse D & Groenewald P (2006) *Revised burden of disease estimates for the comparative risk factor assessment, South Africa 2000*. Cape Town: Medical Research Council.

What are the leading causes of death?

The cause of death profile changes with age group. Data from multiple sources were used in figure 3 to estimate the underlying causes of death for children under five for the period 2000 – 2005. The extent of HIV/AIDS was based on a modelled estimate, as the official death notifications consistently underrepresent HIV as a cause.

Deaths in the neonatal period[i] contribute substantially to under-five deaths – the majority of these deaths are attributed to pre-term birth, birth asphyxia and infections. Outside the neonatal period, HIV/AIDS and childhood infections (most commonly diarrhoea and lower respiratory infections) are the major causes of deaths, and responsible for the majority of childhood illness in South Africa.

A Child Healthcare Problem Identification Programme (CHIP) audit of child deaths in participating hospitals found that about 60% of under fives who died were underweight for age and one-third were severely malnourished.[8] The vast majority of children with severe malnutrition who died were also HIV infected.[9] Undernutrition and HIV both result in immune deficiency, and play an important synergistic role in diarrhoea and respiratory infections. CHIP and the Perinatal Problem Identification Programme (which audits perinatal deaths that occur in participating hospitals)[10] have both identified ways to reduce child deaths by addressing avoidable health systems and patient-related factors. These include improved clinical management, better administration of health services and community actions.

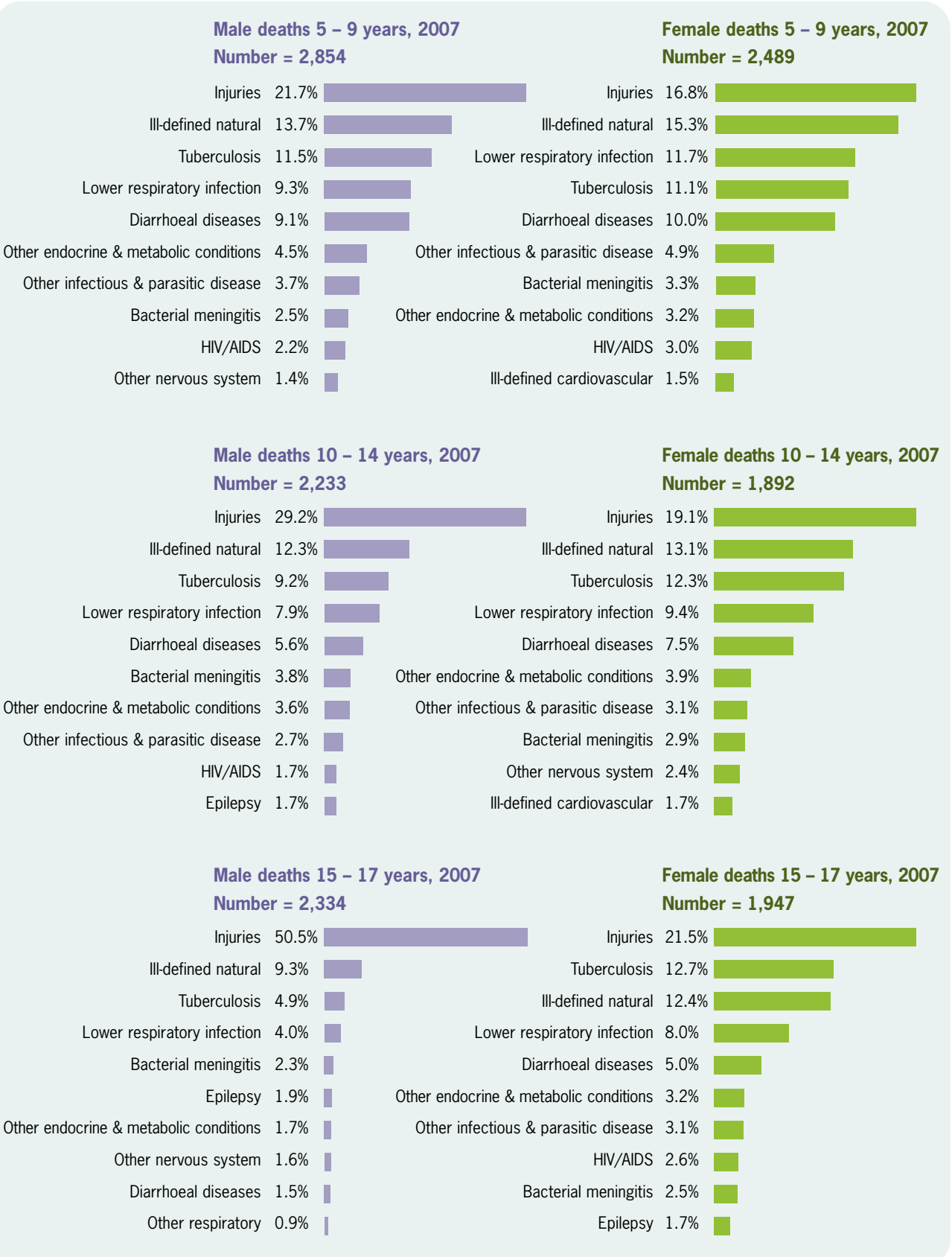
Figure 4 on the next page shows the leading causes of death among older children, based on the information reported on the death notifications.[11] These statistics do not take into account the misclassification of causes including HIV, ill-defined causes and unregistered deaths.

The data shown in figure 4 highlight the extensive role of infectious diseases among older children – such as tuberculosis (TB), diarrhoea and lower respiratory infections – much, but not all, of which would be related to HIV/AIDS. The appearance of "other endocrine and metabolic conditions" is a result of AIDS being reported as "immune suppression". Aside from infections, epilepsy and other nervous system disorders appear among the leading causes of death for children 10 years and older. This may reflect inadequate access to health services.

Injuries account for a growing proportion of the total deaths as children grow older, and accounted for 50% of the deaths of 15 – 17-year-old boys. A study of the causes of fatal injuries in selected cities shows that the leading causes were road traffic injuries, drowning, burns and, in some cities, firearm injuries.[12] It found that many more boys died from drowning than girls. It also found that road traffic injuries involved pedestrians more than passengers. Adolescent suicide rates increased with age, were twice as high for males as females, and hanging was the most common method used.[13]

i The first four weeks (28 days) after birth.

Figure 4: Leading causes of death among older children, by age group and by sex, 2007



Source: Statistics South Africa (2009) *Mortality and causes of death in South Africa, 2007: Findings from death notification. Statistical release P0309.3.* Pretoria: StatsSA. Calculations by the Burden of Disease Unit, Medical Research Council.

The mortality burden does not give a full picture of ill-health and disability related to chronic conditions and mental illness; these are difficult to quantify due to paucity of data. Furthermore, poor environments limit children's ability to reach their developmental potential because both nutritional deficiencies and psycho-social deprivation affect brain development in the long term.[14]

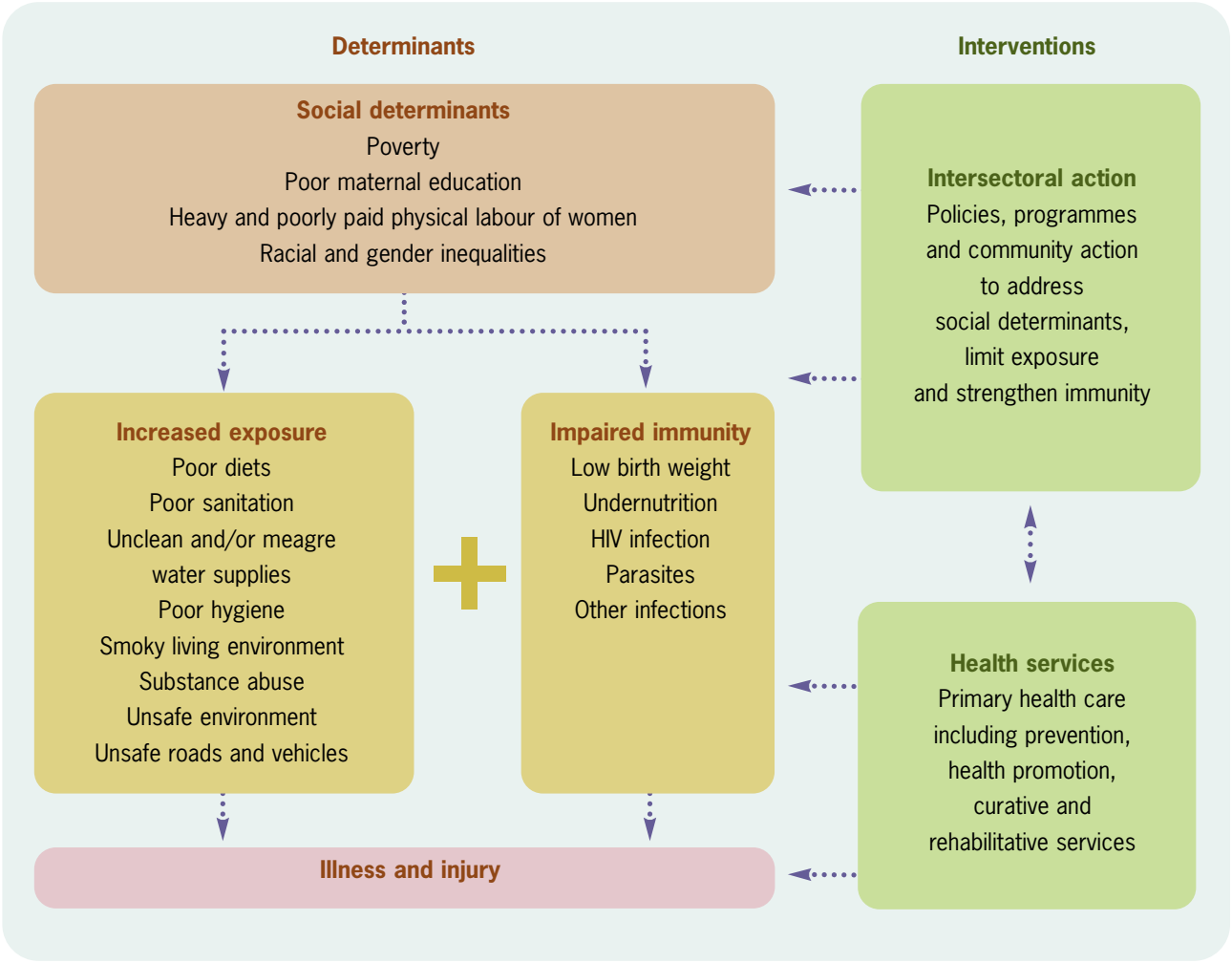
Interventions to reduce the alarming levels of childhood mortality and morbidity in children under five must prioritise HIV, childhood infections, neonatal causes and undernutrition and should include treatment, preventive actions (such as vaccination) and social and environmental measures. In the case of older children, injury prevention is a priority.

A rational, effective and sustainable approach to reducing the burden of childhood disease must address not only the effects and the immediate causes, but also the underlying and basic determinants (or causes) of childhood illness. These include a range of factors that result in increased exposure and impaired immunity, as illustrated in figure 5. Such a comprehensive and integrated response is embodied in the primary health care approach. While the health sector's role in health promotion, disease prevention, treatment and rehabilitation is vital, many of the determinants of children's health lie outside the direct control of the health system (see the essay on pp. 82 – 89).

What are the risk factors and determinants of childhood illness?

This section draws on an analysis of the burden of childhood disease in the Western Cape province, which is the only in-depth study of the burden of disease in South Africa.[15] Although there are provincial differences, the same general pattern of childhood disease exists in all provinces, with the same social and environmental determinants.

Figure 5: Key interventions to address the determinants of child illness and injury



Impaired immunity

The major causes of impaired immunity are low birth weight, undernutrition and HIV infection.

Low birth weight is a common risk factor for neonatal mortality and often associated with subsequent child undernutrition. Low birth weight is linked to short gaps between pregnancies and maternal hypertension, undernutrition and infection – especially HIV. These causes are themselves affected by underlying determinants like inadequate dietary intake (for mothers and children), excessive physical labour during pregnancy, low levels of maternal education, and smoking tobacco and/or drinking alcohol during pregnancy.

Undernutrition, including micronutrient deficiencies, is often a result of frequent illness and insufficient and poor quality food (see pp. 46 – 52). These two immediate risk factors for undernutrition are created by household food insecurity, inadequate child care practices (especially sub-optimal breastfeeding), and poor health and environmental services (especially access to safe sanitation and sufficient clean water). The association between the nutritional status of children and their school achievement is well established.[16] The persistent high level of stunting among children 1 – 9 years old (18% in 2005),[17] which is due to chronic malnutrition, threatens the government's efforts to reduce poverty and improve human development, especially among marginalised groups. Actions to address both acute and chronic malnutrition should be integral to maternal and child health interventions because of the short- and long-term effects of malnutrition on child survival, growth and development.

Unsafe sex increases the risk of HIV and other sexually transmitted infections and, combined with the current poor coverage and functioning of the PMTCT programme, results in transmission of HIV from mothers to children. More basic determinants of HIV infection include gender inequality and financial dependency of women, and embedded practices such as 'sexual networking', itself entrenched as part of the migrant labour system that enforced lengthy separation of marital partners.[18]

HIV in children is predominantly acquired from an infected mother during pregnancy, childbirth or through breast milk (see pp. 41 – 45). The PMTCT programme aims to reduce new infections and HIV-related morbidity and mortality in children. Programme data indicate that, by the end of 2009, 73% of HIV-infected pregnant mothers and only 59% of their HIV-exposed babies were receiving antiretroviral treatment.[19] This is of concern in a country where AIDS is the leading cause of maternal and child death.

The 2003 South African Demographic and Health Survey (DHS) found that only 12% of infants under four months were exclusively breastfed, despite most infants being delivered in health institutions by a skilled attendant.[20] This extremely low rate of exclusive breastfeeding is cause for concern and suggests that an urgent review of policies on health worker training in infant feeding, and on the continuing, unrestricted promotion of infant formula milk, including provision through clinics. Failure to promote this key intervention to improve nutrition and boost immunity is contributing to the high burden of diarrhoeal disease. These missed opportunities clearly indicate weaknesses of the health system that need to be addressed to improve maternal and child health preventive and treatment interventions.

Vaccination can provide immunity against specific childhood infections. Although vaccination coverage has increased with the Expanded Programme on Immunisation, coverage levels are still too low to prevent outbreaks of highly infectious diseases, such as the recent measles epidemic – itself a cause of undernutrition and impaired immunity (see the essay on p. 46). A 2009 study documented low coverage of DPT3[ii] (55%), polio (59%), hepatitis B3[iii] (50%) and Hib3[iv] (40%).[21]

Increased exposure

Environmental risk factors increase exposure to infectious and toxic agents. These include inadequate sanitation and water supply, poor hygiene practices (especially hand washing), and poorly ventilated, crowded and smoky living spaces.

Underlying risk factors are common to both impaired immunity and increased exposure. These tend to be clustered within households affected by poverty and their lack of access to a range of resources – financial, physical, educational, organisational, etc.

The most basic risk factors are structural. They operate at local, national and, increasingly, at a global level. They include but are not limited to: social and labour policies (that affect employment and welfare), housing policies, environmental health policies, land and agricultural policies, and micro- and macro-economic policies, including trade policy. At a global level trade policies and patterns – including trade in food, services and intellectual property – play a significant role in shaping diets, affecting food security and the nature of work, as well as access to basic services. Dominant conservative

ii DPT = diphtheria (a highly infectious and potentially fatal respiratory infection), pertussis (whooping cough) and tetanus (a disease that results in severe muscle spasms and carries a high risk of mortality).

iii Hepatitis B causes liver damage, which is often irreversible.

iv Hib = haemophilus influenzae type B, which causes severe pneumonia and meningitis.

macro-economic policies that emphasise, amongst others, fiscal stringency, limit state investment in those services most important for child health.

How does inequity affect child health?

South Africa has discrepantly poor child health outcomes for a middle-income country. These outcomes and the distribution and pattern of morbidity and mortality are shaped by persisting inequalities. In 1998,[v] child mortality was higher in non-urban settings, and four times higher among Africans than Whites.[22] Undernutrition is also associated with poor socio-economic status, with stunting rates six times higher in the poorest quintile compared with the richest (38% vs. 6%).[23]

Table 2 uses the Eastern Cape as an example of a predominantly rural province to show that children living in such provinces have higher rates of stunting than children living in more urban and racially mixed provinces, like the Western Cape. Eastern Cape residents are also nearly two times more likely to be unemployed than those in the Western Cape. Eastern Cape households have five times less access to safe sanitation, 60 times less access to safe drinking water, and use indoor pollutants such as firewood and paraffin for cooking and heating nearly six times more often than those in the Western Cape.

These inequalities are aggravated by growing inequalities in employment and income. From 1996 to 2001 unemployment amongst Africans increased from 42.5% to over 50%, compared to a rise from 4.6% to 6.3% among Whites. The recent economic recession has significantly worsened unemployment. Eighty-seven percent of the bottom 40% of South Africa's households had no or one working family member and relied heavily for their livelihoods on pensions or remittances in 2001.[24]

The level of income disparity between the richest and poorest in South Africa is measured by the Gini coefficient,[vii] which rose from 0.665 in 1994 to 0.666 in 2008,[25] making South Africa one of the most unequal societies in the world.

Inequalities in coverage and quality of health care are also marked. Only 47% of paediatricians work in the public health sector, which caters for about 85% of children in South Africa. Further inequalities exist between the provinces. The Western Cape boasts a ratio of one paediatrician to 9,500 children, while in the Eastern Cape there is one paediatrician for every 102,500 children.[26] The quality of child care at health facilities is also problematic. Severe childhood malnutrition, a common and often fatal condition, is often poorly managed in hospitals, especially in rural districts, despite the fact that international guidelines can reduce fatality dramatically if properly applied.[27] The highest case fatality rates were linked to poor leadership and management by staff at various levels within these hospitals.[28]

There are large differences between districts in coverage of key interventions for maternal, neonatal and child health: With few exceptions, coverage is better in better resourced districts and provinces.[29] Only 71% of women deliver their babies in facilities in the Eastern Cape, whereas 98% of births take place in facilities in the Western Cape.[30] Full immunisation of children under one year shows a similar pattern: 84% coverage in the Eastern Cape, and 104% in the Western Cape[viii].[31]

Table 2: Socio-economic indicators with a critical impact on child health

Indicators	Eastern Cape %	Western Cape %
Unemployment	30	20
Stunting	18	12
Inadequate sanitation	19	4
Inadequate water supply	25	0.4[vi]
Use firewood or paraffin	41	7

Source: *Statistics South Africa (2010) Quarterly Labour Force Survey, Quarter 1, 2010.* Pretoria: StatsSA; Labadarios D (ed) (2007) *The National Food Consumption Survey – Fortification Baseline (NFCS-FB): The knowledge, attitude, behaviour and procurement regarding fortified foods, a measure of hunger and the anthropometric and selected micronutrient status of children aged 1 – 9 years and women of child bearing age: South Africa, 2005.* Pretoria: Directorate: Nutrition, Department of Health; Statistics South Africa (2010) *General Household Survey 2009.* Pretoria: StatsSA.

v The 1998 South African Demographic and Health Survey is the most recent, reliable data source for child mortality.

vi Access to sanitation and drinking water on site may be lower than indicated by these provincial statistics, as recent data from the City of Cape Town suggest that: "Only 52.6% Black African households had piped water by 2007. In some areas up 90 to 100 households, or 300 to 400 people share a single standpipe. 6.9% of Black African households used bucket toilets, 9.1% had none." Small K (2007) *Community Survey analysis.* Department of Strategic Development, Information and Geographic Information, City of Cape Town.

vii The Gini coefficient is a measure of national income equality. It ranges from 0 (no inequality) to 1 (complete inequality).

viii The Western Cape results suggest problems with data quality, as the recent measles outbreak in the province is related to poor coverage of the measles vaccine.

How is South Africa performing in relation to other African countries?

While sub-Saharan African countries are amongst the poorest performers globally in terms of child health, there are a number of low income African countries whose progress in child survival is impressive.

Progress in child survival in South Africa is poor in comparison with countries where the U5MR is falling progressively.[32] In 2006, the South African government spent seven times more money on health than Malawi, and 17 times more than Madagascar[33] – two countries that have reduced child mortality by more than one-third between 1990 and 2008.

Recent analyses have implicated South Africa's high HIV prevalence as a major factor in its poor health performance, with mother-to-child transmission contributing to significant infant and young child morbidity and mortality.[34] However, it is clear that other health problems, such as undernutrition and common infections, also play a role.

The following description of the main success factors in Madagascar and Malawi may assist South Africa's policymakers and child health practitioners in redirecting efforts for child survival and development.

Madagascar[35]

The Madagascar Family Health Programme, a comprehensive child survival programme, focuses on mobilisation of communities and linking them with quality reproductive and child health services.

The programme includes routine childhood immunisation; a package of 'essential nutrition actions'; reproductive health, including family planning and adolescent reproductive health; sexually transmitted infections; and prevention and case management of sick children using the Integrated Management of Childhood Illnesses (IMCI) framework.

The technical interventions were implemented through a scaling-up strategy; community mobilisation; strengthening health systems; and information, education and communication.

Key factors that appear to have contributed to success include:

- Consistent action on community mobilisation and systems strengthening. The programme was integral to national strategies for immunisation, nutrition, reproductive health, and care of sick children. This helped sustain the programme's focus long enough to achieve impact.
- These community interventions were supported by improved management and quality of services, including a focus on better skills and performance by health providers, systematic use of data and reliable supplies. Volunteers from existing community networks were enrolled to reach families.
- Effective communication was used. Health information messages to individuals were repeated through other communication channels such as radio, press, and television. Community volunteers were actively linked with health providers.
- The core content of all interventions was simplified for rapid expansion, and interventions were sequentially introduced to assure that families eventually received a full package of services.
- An effective monitoring process was developed. Ongoing evidence of progress, or lack thereof, helped tailor programme components to achieve results, and helped craft the most effective approaches.

'Champions' and partnerships were key in effecting changes in policies and processes, and increased the resources available for health development.

Malawi[36]

As a country with a very low gross national income[ix] per capita ($280)[37] and high HIV prevalence (14%), Malawi is performing much better than would be expected. Despite an extreme shortage of paediatricians, doctors and midwives, Malawi has achieved high coverage of key child survival interventions and a sharp drop in under-five mortality.

Key factors that appear to have contributed to success include:

- The use of (predominantly male) community-based health surveillance assistants, whose numbers have been greatly increased. They are attached to fixed health posts but operate at community level. They administer antiretroviral drugs, supervise the directly observed treatment short course for TB and undertake key actions in maternal, newborn and child health care, including, importantly, postnatal visits. Skilled birth attendance is high at 60% coverage and mid-level workers, who are placed at health centres and small hospitals, are adept at key obstetric procedures, including caesarean section.
- All donor assistance is channeled through Malawi's sector-wide approach whereby donor funding for health is pooled to enable alignment of funding with health policies, and to reduce fragmentation of health programmes.

Malawi has also strengthened district management skills and drug supplies.

ix Gross national income is the income earned by a country, including labour and capital investment in a given year. South Africa's GNI was $5,820 in 2008, according to the World Bank development indicators database.

What are the recommendations and conclusions?

Focused and concerted action is required to ameliorate the current, disturbing situation. Young child death, in addition to being a family tragedy, also often imposes a heavy financial burden on families and the health services. Young child morbidity – notably low birth weight, malnutrition and HIV/AIDS – negatively influence physical and mental development and contribute to the emergence of non-communicable diseases in adult life. These longer-term impacts have adverse consequences for both the human and economic development of South Africa and require interventions both within and outside of the health care system.

The coverage and quality of health care in South Africa are sub-optimal, especially at community and primary levels and in more peripheral (rural and peri-urban) areas. Key steps for improving health services for children include:

- establishing a well-functioning, standardised community health worker programme that achieves high community-level coverage of the priority child care interventions;
- a rapid improvement both in staffing ratios and staff performance in child care activities in clinics and health centres, with support for mid-level workers and nurses central to such efforts;
- greatly improved child care in district hospitals, key procedures embedded through focused training and support – especially from regional paediatricians, whose numbers and training need to be urgently enhanced; and
- a focus on the districts and communities with the poorest living conditions and highest rates of malnutrition and HIV infection to reduce inequities and improve health outcomes.

Priority must be given to the leading causes of child mortality:

1. HIV is the top killer of children under five and the major contributor to South Africa's poor mortality rates. Increasing the coverage of PMTCT to 100% should virtually eliminate childhood HIV.
2. Neonatal causes, the second leading cause of child death, require early antenatal care, improved maternal nutrition, reduction in tobacco and alcohol use in pregnancy, more deliveries at institutions, better referral and better maternal care at peripheral facilities like small district hospitals and community health centres, and improved coverage and quality of PMTCT.
3. Diarrhoea is the third leading cause of death for children under five. Despite significant improvements in access to safe drinking water, access to sanitation is lagging. Community-based IMCI is essential to promote good hygiene practices, exclusive breastfeeding, and oral rehydration therapy.
4. Community-based practices account for nearly a third of all modifiable causes of death for children under five.[38] While many structural barriers contribute to delays in seeking care, community-based IMCI enables caregivers to recognise the danger signs and seek medical care. It is therefore critical to expand the number of community-based workers undertaking these essential child health interventions.[x]
5. The nutrition of pregnant mothers and children needs to be improved, including the promotion of exclusive breastfeeding for the first six months, regular growth monitoring, the appropriate introduction of micronutrients and complementary foods, and referral and improved management of children with severe malnutrition.
6. Injuries amongst older children need to be prevented though an intersectoral approach. This includes integrating injury prevention within primary health care programmes and engaging with other departments to reduce burns, drowning, road traffic injuries and violence. The latter two are often associated with drug or alcohol abuse – addressing these will require legislation and more focused community development efforts, and, in the longer term, reductions in unemployment and inequality.

The imperative to improve socio-economic conditions, especially of the poor, is pressing.

The Millennium Development Goals provide a useful tool for tracking South Africa's progress in addressing key determinants of child health such as poverty, hunger, water and sanitation. Table 3 on the next page presents a summary of the country's progress towards reaching the MDGs. It shows that South Africa has made little or no progress in reducing poverty and malnutrition, despite succeeding in improving access to safe drinking water.

All those concerned with child health – practitioners, policy-makers, researchers, teachers, and communities themselves – need to advocate for greater equity in the social and environmental determinants as well as improved coverage and quality of child health care, especially at community and primary levels. Advocacy is more likely to succeed when it is based on robust evidence. The need to improve data and health information systems thus remains a priority.

x Policy discussions are currently taking place regarding the standardisation of the conditions of service of community caregivers and expansion of their role to include child care activities.

Table 3: South Africa's progress toward the Millennium Development Goals: A summary of key indicators
(For some indicators, data across the different years are not directly comparable as they are derived from different sources)

Goal 1: Eradicate extreme poverty and hunger				
Target	**Indicators**	**Baseline**	**Latest data**	**Overall trend in available data**
Target 1A: Halve, between 1990 and 2015, the proportion of people whose income is less than $1 a day.	% of population below $1 per day	24.3% (1993)[x]	26.2% (2000)	Target: 12.2% Apparent reversal of progress prior to mid-point; insufficient data for post-mid-point assessment. Credible data are sparse.
Target 1C: Halve, between 1990 and 2015, the proportion of people who suffer from hunger.	% of underweight children under five years of age[xi]	9.3% (1994)	11.5% (2003)	Target: equal to or less than 5%. No improvement is evident. Regular, reliable data are sparse.
Goal 2: Achieve universal primary education				
Target	**Indicators**	**Baseline**	**Latest data**	**Overall trend in available data**
Target 2A: Ensure that, by 2015, children everywhere are able to complete a full course of primary schooling.	Net enrolment ratio in primary education (both sexes)	91.7 (1991)	91 (2007)	Target: 95% Enrolment stood at 99% in 1999, followed by a reversal of progress. The current ratio is close to the target.
Goal 3: Promote gender equality and empower women				
Target	**Indicators**	**Baseline**	**Latest data**	**Overall trend in available data**
Target 3A: Eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education no later than 2015.	Gender Parity Index (GPI): primary level enrolment	0.99 (1991)	0.97 (2007)	Target: 1 The GPI for primary schools has remained constant over the 1999 – 2007 period, with slightly more boys than girls at primary school. There are higher proportions of female students at secondary and tertiary levels (GPI > 1). The primary and secondary GPIs are close to target, but failed to meet the 2005 deadline.
	GPI: secondary level enrolment	1.18 (1991)	1.05 (2007)	
	GPI: tertiary level enrolment	0.83 (1991)	1.24 (2006)	
Goal 4: Reduce child mortality				
Target	**Indicators**	**Baseline**	**Latest data**	**Overall trend in available data**
Target 4A: Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate.	Children under-five mortality rate per 1,000 live births	66 (1990)	73 (2006)	Target: 20 per 1,000 live births The under-five mortality rate has climbed steadily since 1990. Urgent intervention is needed to reverse the current trend. Updated, credible data are vital.
	Infant mortality rate (0 – 1 year) per 1,000 live births	48 (1990)	48 (2006)	Target: 15 per 1,000 live births The IMR shows no signs of improvement. Intervention is urgently needed. Updated, credible data are vital.

x The income poverty national estimates are derived from the 1993 KwaZulu-Natal Income Dynamics Study (KIDS) and the 2000 October Household and Income and Expenditure Surveys.

xi Underweight refers to the moderate measure (<-2 SD). Data for 1994 refer to children aged 6 months – 6 years.

Goal 5: Improve maternal health				
Target	**Indicators**	**Baseline**	**Latest data**	**Overall trend in available data**
Target 5A: Reduce by, three-quarters, between 1990 and 2015, the maternal mortality ratio.	Maternal mortality ratio (MMR) per 100,000 live births	230 (1990)	400 (2005)	Target: 58 per 100,000 live births The MMR has increased since 2000, ranging between 270 and 530. A more conservative facility-based estimate of 147 excludes women dying at home. Credible, national data are sparse.
Goal 6: Combat HIV/AIDS, malaria and other diseases				
Target	**Indicators**	**Baseline**	**Latest data**	**Overall trend in available data**
Target 6A: Have halted by 2015, and begun to reverse, the spread of HIV/AIDS.	% of people living with HIV, 15 – 49 years old living with HIV	0.12% (1990)	18.9% (2009)	Modelled estimates suggest that HIV prevalence has increased by more than 150 times the 1990 rate. Since the mid-2000s, the rate has slowed down. More needs to be done to meet the stated target.
Target 6C: Have halted by 2015, and begun to reverse, the incidence of malaria and other major diseases.	Tuberculosis (TB) incidence rate per year per 100,000 population	300 (1990)	950 (2007)	The TB incidence rate has steadily climbed since 1990, and has more than tripled over the 1990 – 2007 period.
Goal 7: Ensure environmental sustainability				
Target	**Indicators**	**Baseline**	**Latest data**	**Overall trend in available data**
Target 7C: Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation.	% of the total population using improved drinking water sources	81% (1990)	93% (2006)	Target: 91% This indicator shows a steady increase in access to improved drinking water. The 2015 target has already been surpassed. However, progress is slow in rural areas and informal housing settlements.
	% of the population using improved sanitation	55% (1990)	59% (2006)	Target: 78% There has been a gradual increase in access to improved sanitation, but current progress is insufficient to meet the target.

Progress on track Insufficient progress Reversal or no progress

Source: United Nations (2010) *Millennium Development Goals indicators*. Accessed on 18 May 2010: http://mdgs.un.org/unsd/mdg/Data.aspx.

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