

Maternal, Newborn and Child Health



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Maternal and child mortality rates are declining on a global level, although progress remains insufficient to achieve Millennium Development Goals 4 and 5 by 2015. Although South Africa (SA) continues to experience unacceptably high maternal, newborn and child mortality rates for a middle-income country, the under-five mortality rate has declined significantly in recent years whilst recent data suggest that the maternal mortality ratio (MMR) has also begun to decline.

The past few years have been characterised by a number of international and national commitments and interventions that focus on improving maternal, newborn and child health. At an international level ensuring provision of evidence-informed packages of care to all women and children continues to be regarded as the key to improving maternal and child health, while the importance of addressing equity, increasing accountability and strengthening the health system are increasingly recognised. In SA, the Negotiated Service Delivery Agreement highlights reductions in maternal and child mortality rates as one of the four strategic outcomes for which the health sector must account, while the first National Maternal, Newborn, Child and Women's Health and Nutrition (MNCWH&N) Strategic Plan provides a road-map for achieving improved survival and health for women and children. Restructuring of primary health care (PHC) also provides an opportunity to improve coverage and quality of maternal and child health services through reaching learners in schools, reaching households through visits by community health workers and improving clinical governance at district level through deployment of clinical specialist teams.

Weaknesses and inefficiencies in the health system will need to be addressed if current gains in maternal and child survival are to be maintained and accelerated, and the potential benefits of PHC restructuring and other efforts to improve maternal and child health are to be realised. Human resource capacity to deliver quality maternal and child health services will need to be strengthened, while monitoring systems must be improved to facilitate both improved planning and greater accountability.

Programmatic priorities include improving care at district hospital level, especially with regard to management of obstetric emergencies, newborn care and better care for acutely ill children. As child survival improves, more emphasis must also be paid to ensuring that all children reach their full potential – this will require improvements in the nutritional status of all children, ensuring that all children receive the full package of preventive health services and implementation of other early childhood interventions at scale.

This chapter provides an overview of maternal, newborn and child survival, global and national commitments and strategies that aim to improve maternal and child health, as well as progress in implementing priority interventions outlined in the MNCWH&N Strategic Plan. In the final section, priority actions are identified.

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Maternal, newborn and child survival

Global mortality rates and trends

Recognition that improvements in the health of women and children hold the key to making progress towards all development goals and the approach of 2015 – the target year for achievement of the Millennium Development Goals (MDGs) – have served to refocus global attention on maternal and child survival.¹

Overall there is reason for optimism, especially with regard to progress in reducing child mortality. The number of under-five deaths worldwide has declined, from nearly 12 million in 1990 to 6.9 million in 2011, and the rate of decline has accelerated – from 1.8% per year during the 1990s to 3.2% per year between 2000 and 2010.² While that translates into 4 000 fewer children dying every day in 2011 than in 1990, 19 000 children under five years of age still died every day in 2011 and the MDG 4 target of reducing child deaths by two-thirds by 2015 will not be achieved.³ Under-five mortality is also increasingly concentrated in particular regions, with 70% of the world's under-five deaths in 2009 occurring in only 15 countries and about half of the deaths occurring in just five countries (India, Nigeria, Democratic Republic of the Congo, Pakistan, and China). In addition, although data are available for only 38 countries, a recent review concluded that more countries experienced an increase than a decrease in relative disparity in child mortality rates between rich and poor over the last two decades. The inference is that, even though national under-five mortality rates have been reduced in many countries, disparity in mortality rates between poor and rich has generally increased and that child deaths (and undernutrition) are, therefore, becoming increasingly concentrated in the poorest and most deprived communities.⁴

Maternal mortality has declined more slowly, although the annual rate of decline at a global level has risen – from 2% between 1990 and 2000 to 3.4% between 2000 and 2010.⁵ Globally, an estimated 287 000 maternal deaths occurred in 2010, a decline of 47% from levels in 1990, but far below the three-quarters reduction required by 2015 for the achievement of MDG 5.³ Maternal mortality is also becoming more concentrated in certain regions, with sub-Saharan Africa and southern Asia accounting for 56% and 29% respectively of the global burden in 2010.⁵

Globally, the neonatal mortality rate has declined by approximately one-third, from 32 deaths per 1 000 live births in 1990 to 22 deaths per 1 000 live births in 2011 – an average decline of 1.8% a year. This is much slower than for under-five mortality and means that the proportion of under-five deaths that occur within the first month of life (the neonatal period) has increased, from 36% in 1990 to 43% in 2010.²

At a global level, haemorrhage remains the leading cause of maternal death, followed by hypertension and other indirect causes.¹ The leading causes of death among children under age five are pneumonia (18% of all under-five deaths); preterm birth complications (14%); diarrhoea (11%); intrapartum-related complications, complications during birth (9%); and malaria (7%). Child mortality is strongly associated with undernutrition, with more than a third of under-five deaths being attributable to undernutrition.²

South Africa: mortality rates and trends

Estimates of maternal and child mortality in SA, which have historically been characterised by lack of consensus and a reliance on outdated figures, have been reviewed in detail in previous editions of the *South African Health Review*.^{6,7} This section, therefore, focuses on recent developments, particularly with regard to progress that has been made in reaching consensus on the methodologies to be used in calculating official national estimates of maternal and child mortality rates and trends.

The Health Data Advisory and Co-ordination Committee (HDACC), which was appointed to improve the quality and integrity of data on health outcomes and to advise on indicators, baseline values and targets for the Negotiated Service Delivery Agreement (NSDA) for the period 2010 to 2014, recommended that Rapid Mortality System (RMS) data be used for monitoring child deaths.⁸ The committee further recommended that Statistics South Africa (StatsSA) data on cause of death be used to monitor maternal deaths and adjusted District Health Information Systems (DHIS) data be used to calculate neonatal mortality. RMS data are based on notification of deaths and provide limited data on each death within a shorter period of time as compared with vital registration data. The RMS data are adjusted for deaths that are registered but are not on the national population register, as well as for deaths that have not been registered. The committee has further recommended that population estimates produced by the ASSA2008 AIDS and Demographic Model be used for calculating mortality-related indicators.⁹

Baseline values contained in the HDACC report as well as figures calculated using the same methodology for subsequent years are shown in Table 1. The targets proposed by HDACC for achievement by 2014 are also shown.

Maternal deaths

As shown in Table 1, maternal deaths were estimated to increase from 310 per 100 000 live births in 2008 to 333 per 100 000 live births in 2009.¹⁰ The Saving Mothers Reports also reported an increase in the institutional Maternity Mortality Ratio (iMMR) from 152 deaths per 100 000 live births for the 2005 to 2007 triennium¹¹ to 176 deaths per 100 000 live births for the period 2008 to 2010.¹² These results were disappointing, particularly given that the revised prevention of mother-to-child-transmission (PMCTCT) guidelines, which included initiation of antiretroviral therapy at a CD4 count of 350, were introduced at the beginning of the 2009/10 financial year. However, the 2011 interim report showed a decrease in the iMMR to 153 deaths per 100 000 live births. This represents a 13% reduction, which is almost entirely the result of the reduction in deaths from non-pregnancy-related infections (mainly deaths in HIV-infected pregnant women complicated by tuberculosis (TB) and pneumonia).¹³ Although confirmation from other sources is still required, these figures suggest that maternal mortality peaked in 2009 or 2010 and is now declining.

Table 1: Maternal and child mortality rates, South Africa

Indicator	2008	2009	2010	2011	Target 2014
Under-5 Mortality Rate (U5MR)		56 per 1 000 live births	53 per 1 000 live births	42 per 1 000 live births	50 per 1 000 live births (10% reduction)
Infant Mortality Rate (IMR)		40 per 1 000 live births	37 per 1 000 live births	30 per 1 000 live births	36 per 1 000 live births (10% reduction)
Neonatal Mortality Rate (<28 days)		14 per 1 000 live births	13 per 1 000 live births	14 per 1 000 live births	12 per 1 000 live births (10% reduction)
Maternal Mortality Ratio (MMR)	310 per 100 000 live births	333 per 100 000 live births			270 per 100 000 live births (reverse increasing trend)

Source: National Department of Health, 2011;⁸ Medical Research Council, 2012.¹⁰

The Saving Mothers Reports have consistently identified five major causes of maternal deaths: non-pregnancy-related infections, mainly AIDS; obstetric haemorrhage; complications of hypertension; pregnancy-related infections; and complications of pre-existing medical conditions such as cardiac conditions and diabetes.¹¹ The most recent Triennial Saving Mothers Report found that non-pregnancy-related infections accounted for 40.5% of maternal deaths, while maternal deaths due to obstetric haemorrhage and hypertension accounted for 28% of deaths (14% each).¹² Together these top three causes accounted for almost 70% of all maternal deaths. Forty percent of all maternal deaths were classified as avoidable with maternal deaths due to obstetric haemorrhage and hypertension being thought to be possibly and probably preventable in 81% and 61% of cases respectively. Maternal deaths due to non-pregnancy-related infections, obstetric haemorrhage and hypertension were the three biggest contributors to preventable maternal deaths, accounting for two-thirds of avoidable deaths with most of these deaths occurring in level 1 and level 2 hospitals.

Child deaths

As indicated in Table 1, infant and under-five mortality rates have declined rapidly since 2009 and by 2011 had exceeded the targets for 2014 recommended by the HDACC.¹⁰ This is in line with data from a retrospective review of child mortality data, which found that infant and under-five mortality rates remained roughly stable between 1998 and 2007, although at levels higher than those in the early 1990s, before beginning to decline around 2006 or 2007.¹⁴

It should be noted that these national estimates remain slightly lower than those published by the United Nations Inter-agency Group for Child Mortality Estimation, which estimated SA to have under-five- and infant mortality rates of 47 and 35 per 1 000 live births respectively in 2011.² However, both datasets show a similar rapid decline in child mortality rates since the mid-2000s, albeit at a rate insufficient to achieve the MDG 4 target of an under-five mortality of 20 per 1 000 live births by 2015. This decline can primarily be attributed to successful implementation of the PMTCT programme (see below), as well as the introduction of new vaccines against invasive pneumococcal disease and rotavirus in 2008.

Many children continue to live in poverty and child poverty remains an important underlying or contributing factor to child deaths in SA. Children who are born to poor parents and grow up in poor households are likely to remain poor, and there is evidence that disparities in income are coupled with inequities in access to services and treatment.^{15,16} Child mortality rates have been found to be four times higher in the poorest quintile (87 per 1 000 live births) than in the wealthiest quintile (22 per 1 000 live births).¹⁷

Data from child mortality audits show that the majority of deaths in children are due to a small number of conditions, with five conditions accounting for 82.6% of deaths in infants between one month and one year of age and 74.2% of deaths in children between one and five years of age.¹⁸ These conditions are acute respiratory infections (mostly pneumonia) (28.9%), diarrhoea (20.7%), septicaemia or possible serious bacterial infection (16.2% of deaths), TB (7.1%) and meningitis (6.6%). The audits also indicated that more than half of children who died had evidence of HIV infection or exposure, while 60% of children were undernourished (as evidenced by underweight-for-age or severe malnutrition).

Newborn deaths

Neonatal mortality rates fell from approximately 18 deaths per 1 000 live births in 1997 to approximately 14 deaths per 1 000 live births in 2001; this may reflect the fact that the proportion of births occurring in health facilities increased substantially during this period.¹⁴ However for the period 2006 to 2011, the neonatal mortality rate remained static at between 13 and 14 per 1 000 live births.¹⁰ This means that approximately one-third of all under-five deaths occur during the newborn period; this proportion is likely to increase unless the decline in post-neonatal deaths is matched by a similar decline in newborn deaths.

The most recent Saving Babies Report identified the important causes of death in the early neonatal period as immaturity (45%), intrapartum hypoxia (30%), infection (10%) and congenital abnormalities (7%). Intrapartum hypoxia affects mostly larger babies and improvements in maternal care, especially intrapartum monitoring and care, would prevent many of these deaths.¹⁹ Although preterm labour is mostly not preventable, provision of simple standardised care could prevent many of the newborn deaths associated with prematurity.^{20,21}

Stillbirths

The stillbirth rate in SA is estimated to be between 21 and 25 per 1 000 births.²² This is comparable with rates in other middle-income countries, although the intrapartum stillbirth rate is higher than in these countries, which suggests that intrapartum care needs to be improved. A high proportion of both fresh stillbirths (18%) and macerated stillbirths (48%) is unexplained. Antepartum haemorrhage (15%), intrapartum asphyxia and birth trauma (14%), hypertension (13%) and infections (5%) are also important contributors to stillbirths.¹⁹

Table 2: Interventions that are most likely to save the lives of women and children

Continuum of Care	Adolescence & Pre-pregnancy	Pregnancy (Antenatal)	Childbirth	Postnatal (Mother)	Postnatal (Newborn)	Infancy & Childhood
Community Primary Referral	<ul style="list-style-type: none"> Family planning (advice, hormonal and barrier methods) Prevent and manage sexually transmitted infections and HIV Folic acid fortification/supplementation to prevent neural tube defects 	<ul style="list-style-type: none"> Iron and folic acid supplementation Tetanus vaccination Prevention and management of malaria with insecticide-treated nets and antimalarial medicines Prevention and management of sexually transmitted infections (STIs) and HIV, including with antiretroviral medicines Calcium supplementation to prevent hypertension (high blood pressure) Interventions for cessation of smoking 	<ul style="list-style-type: none"> Prophylactic uterotonics to prevent postpartum haemorrhage (excessive bleeding after birth) Manage postpartum haemorrhage using uterine massage and uterotonics Social support during childbirth 	<ul style="list-style-type: none"> Family planning advice and contraceptives Nutrition counselling 	<ul style="list-style-type: none"> Immediate thermal care (to keep the baby warm) Initiation of early breastfeeding (within the first hour) Hygienic cord and skin care 	<ul style="list-style-type: none"> Exclusive breastfeeding for 6 months Continued breastfeeding and complementary feeding from 6 months Prevention and case management of childhood malaria Vitamin A supplementation from 6 months of age Routine immunisation plus <i>H.influenzae</i>, meningococcal, pneumococcal and rotavirus vaccines Management of severe acute malnutrition Case management of childhood pneumonia Case management of diarrhoea
Primary and referral	<ul style="list-style-type: none"> Family planning (hormonal, barrier and selected surgical methods) 	<ul style="list-style-type: none"> Screening for and treatment of syphilis Low dose aspirin to prevent pre-eclampsia Antihypertensive drugs (to treat high blood pressure) Magnesium sulphate for eclampsia Antibiotics for preterm prelabour rupture of membranes Corticosteroids to prevent respiratory distress syndrome in preterm babies Safe abortion Post-abortion care 	<ul style="list-style-type: none"> Active management of third stage of labour (to deliver the placenta) to prevent postpartum haemorrhage (as above plus controlled cord traction) Management of postpartum haemorrhage (as above plus manual removal of placenta) Screen and manage HIV (if not already tested) 	<ul style="list-style-type: none"> Screen for and initiate or continue antiretroviral therapy for HIV Treat maternal anaemia 	<ul style="list-style-type: none"> Neonatal resuscitation with bag and mask (by professional health workers for babies who do not breathe at birth) Kangaroo mother care for preterm (premature) and for less than 2 000g babies Extra support for feeding small and preterm babies Management of newborns with jaundice ('yellow' newborns) Initiate prophylactic antiretroviral therapy for babies exposed to HIV 	<ul style="list-style-type: none"> Comprehensive care of children infected with, or exposed to, HIV
Referral	<ul style="list-style-type: none"> Family planning (surgical methods) 	<ul style="list-style-type: none"> Reduce mal-presentation at term with External Cephalic Version Induction of labour to manage prelabour rupture of membranes at term (initiate labour) 	<ul style="list-style-type: none"> Caesarean section for maternal/foetal indication (to save the life of the mother/baby) Prophylactic antibiotic for Caesarean section Induction of labour for prolonged pregnancy (initiate labour) Management of postpartum haemorrhage (as above plus surgical procedures) 	<ul style="list-style-type: none"> Detect and manage post-partum sepsis (serious infections after birth) 	<ul style="list-style-type: none"> Presumptive antibiotic therapy for newborns at risk of bacterial infection Use of surfactant to prevent respiratory distress syndrome in preterm babies Continuous positive airway pressure (CPAP) to manage babies with respiratory distress syndrome Case management of neonatal sepsis, meningitis and pneumonia 	<ul style="list-style-type: none"> Case management of meningitis

Continuum of Care	Adolescence & Pre-pregnancy	Pregnancy (Antenatal)	Childbirth	Postnatal (Mother)	Postnatal (Newborn)	Infancy & Childhood
Community Strategies	<ul style="list-style-type: none"> • Home visits for women and children across the continuum of care • Women's groups 			<ul style="list-style-type: none"> • Family planning interventions at referral level include those provided at the primary level 		

Source: Partnership for Maternal Newborn and Child Health, 2011.²⁵

Interventions and initiatives to reduce maternal, newborn and child deaths

At an international level, recent efforts to improve maternal, newborn and child survival have focused on ensuring full coverage with packages of interventions with proven effectiveness. It is argued that the key to making progress towards improving maternal, neonatal and child survival is to reach every mother, newborn and child in every district with a set of priority cost-effective interventions.²³⁻²⁵ These packages should be provided through a continuum-of-care approach in order to lower costs, promote greater efficiencies and reduce duplication of resources.²⁶

In order to facilitate decision making in low- and middle-income countries about how to allocate limited resources for maximum impact on the health of women and children, a review of existing evidence about the impact of different interventions on the main causes of maternal, newborn and child deaths was undertaken. The study reviewed more than 50 000 scientific papers to determine the proven effectiveness of interventions and impact on survival, identifying 56 essential interventions that when implemented in packages relevant to local settings are most likely to save lives.²⁵ The proposed interventions and packages are shown in Table 2.

Recognition that progress in reducing childhood deaths has been accompanied by increases in within-country inequities, as evidenced by a widening of the mortality gap between the wealthiest and most deprived quintiles, has highlighted the need to aim specifically at increased coverage among the poorest and most disadvantaged children.²⁷ Modelling undertaken by Carrera et al. suggests that an equity-focused approach that prioritises services for the poorest and most marginalised can be more effective and cost effective than mainstream approaches that incrementally increase population coverage from the easier to the more difficult to reach populations.²⁸ Analysis of data from middle- and low-income countries has demonstrated that those countries with the largest overall coverage with key interventions achieved this coverage primarily through achieving the greatest increase among the poorest quintiles.²⁹

The importance of health system strengthening, of greater accountability (which depends on improved monitoring) and more sustainable financing have also been highlighted.

Key international commitments and strategic documents

Global Strategy for Women's and Children's Health

The Global Strategy for Women's and Children's Health was launched by Ban Ki-moon in 2010 in an effort to mobilise commitments by governments, civil society organisations and development partners to accelerate progress towards achievement of MDGs 4 and 5.¹ The strategy sets out the key areas where action is urgently required to enhance financing, strengthen policy and improve service delivery. These key areas include:

- support for country-led health plans, supported by increased, predictable and sustainable investment;
- integrated delivery of health services and life-saving interventions;
- stronger health systems, with adequate numbers of skilled health workers at their core;
- innovative approaches to financing, product development and the efficient delivery of health services; and
- improved monitoring and evaluation to ensure the accountability of all actors for results.

The Commission on Information and Accountability for Women's and Children's Health

Following the launch of the Global Strategy, the World Health Organization (WHO) was tasked with coordinating a process to determine the most effective international institutional arrangements for global reporting, oversight and accountability on women's and children's health.³⁰ The recommendations of the commission focused on ensuring the availability of "better information for better results". Countries are challenged to improve their systems for recording vital events through the establishment or the strengthening of systems for registration of births, deaths and causes of death, and having well-functioning health information systems that combine data from facilities, administrative sources and surveys. Emphasis is also placed on improving the tracking of resources for women's and children's health and on ensuring better oversight of results and resources both nationally and globally.

A set of 11 health indicators on reproductive, maternal and child health, which are disaggregated for gender and other equity considerations, should be used for the purpose of monitoring progress towards the goals of the Global Strategy. These, together with their preferred source of data, are shown in Table 3.

Table 3: Current primary data sources and preferred data sources for the 11 core indicators of women's and children's health

Indicator	Current Primary Data Source	Preferred Data Source
Maternal mortality ratio	Surveys	Vital registration
Under-five child mortality (with the proportion of newborn deaths)	Surveys	Vital registration
Stunting prevalence	Surveys	Surveys
Demand for family planning satisfied (met need for contraception)	Surveys	Surveys
Antenatal care (four or more visits)	Surveys	Surveys and facility reports
Antiretrovirals for HIV-positive pregnant women*	Facility reports	Facility reports
Skilled attendant at birth	Surveys	Surveys and facility reports
Postnatal care for mothers and babies within two days of birth	Surveys	Surveys and facility reports
Exclusive breastfeeding (0 to 5 months of age)**	Surveys	Surveys
Three doses of combined diphtheria-tetanus-pertussis vaccine (DTP3) immunisation coverage	Surveys and facility reports	Surveys and facility reports
Antibiotic treatment for childhood pneumonia	Surveys	Surveys and facility reports

* This indicator comprises antiretroviral drugs for HIV-positive pregnant women to reduce the risk of mother-to-child transmission of HIV and for their own health.

** Up to the last day of the fifth month of life.

Source: World Health Organization, 2011.³¹

Committing to Child Survival: a Promise Renewed

Led by the United Nations Children's Fund (UNICEF), this strategy aims to revitalise commitment to child survival under the banner of *A Promise Renewed*.³² The strategy, which aims to ensure that under-five mortality rates are below 20 per 1 000 live births in all countries by 2035, focuses on scaling up essential interventions through strengthening of evidence-informed country plans, transparency and mutual accountability, and global communication and social mobilisation.

The strategy focuses on:

- concentrating resources on countries and regions with the most child deaths;
- increasing efforts among high-burden and underserved populations;
- focusing on high-impact solutions by targeting the biggest opportunities for impact – e.g. neonatal conditions – by scaling up and sustaining demand and supply of highest impact and evidence-informed solutions and investing in innovation to accelerate results;
- creating a supportive environment for child survival; and
- fostering mutual accountability by creating transparency and mutual accountability, unifying child survival voices, improving monitoring and evaluating, and sharing knowledge.

Global strategy for elimination of new HIV infections among children

This strategy recognises the synergy between maternal and child health and focuses on accelerating progress towards the elimination of new child infections by 2015.³³ The strategy defines two key targets – namely to reduce the number of new childhood HIV infections by 90% and to reduce the number of HIV-related maternal deaths. Strategies for achieving the first target include reducing the transmission of HIV from a mother to her child, as well

as reducing the HIV incidence in women of reproductive age and increasing the use of family planning services for women living with HIV. Achievement of the second target is dependent on provision of a broader package of HIV and maternal, newborn and child health services.

Key national commitments and interventions

This section provides an overview of important national commitments and strategies that aim to reduce maternal and child mortality.

Negotiated Service Delivery Agreement

NSDA was signed on behalf of the health sector by the Minister of Health in October 2010 and is a contract or "charter that reflects the commitment of key sectoral and intersectoral partners linked to the delivery of identified outputs". The NSDA outlines four key strategic outputs that the health sector must achieve within the next five years. These are:

- Output 1: Increasing life expectancy
- Output 2: Decreasing maternal and child mortality
- Output 3: Combating HIV and AIDS and decreasing the burden of disease from TB
- Output 4: Strengthening health systems effectiveness.³⁴

The NSDA, therefore, places maternal and child mortality and the need to reduce the number of mothers and children who die in SA firmly on the country's agenda and requires that all levels of the health system report on and account for progress or lack thereof.

Establishment of ministerial mortality committees

The establishment of three mortality committees has provided impetus to efforts to address maternal-, perinatal- and child mortality. The National Committee on Confidential Enquiries into Maternal Deaths (NCCEMD), which collects data on all maternal deaths occurring within health facilities in order to monitor trends and address identified deficiencies, was established in 1998. The National Perinatal Mortality and Morbidity Committee (NaPeMMCo) and the Committee on Mortality and Morbidity in Children (CoMMiC) were established in 2008 and do not collect primary data but collate and interpret data regarding mortality rates. All three committees advise the National Department of Health (NDoH) on gaps in service delivery and how these can be addressed.

The recommendations contained in the most recent reports of the three committees are shown in Box 1.

MNCWH and Nutrition Strategic Plan

The country's first MNCWH&N Strategic Plan, launched in 2012, focuses on identifying and strengthening those priority interventions that can be expected to have the greatest impact on reducing maternal, newborn and child mortality.³⁶ These priority interventions are shown in Box 2.

The plan provides a road-map of how these interventions can be effectively implemented. Their focus is on improving coverage, quality and equitable access to this package of core services through the implementation of eight key strategies for achieving improvements in maternal, newborn and child health:

1. Address inequity and social determinants of health.
2. Develop a comprehensive and coordinated framework for MNCWH service delivery.
3. Strengthen community-based MNCWH.
4. Scale up provision of key MNCWH&N interventions at PHC and district levels.
5. Scale up provision of key MNCWH&N interventions at district hospital level.
6. Strengthen the capacity of the health system to support the provision of MNCWH&N services.
7. Strengthen the human resource capacity for the delivery of MNCWH&N services.
8. Strengthen systems for monitoring and evaluation of MNCWH&N interventions and outcomes.

The plan also contains a set of key indicators for monitoring progress in improving maternal and child health outcomes.

The Campaign for Accelerated Reduction in Maternal and Child Mortality in Africa strategy

The Campaign for Accelerated Reduction in Maternal and Child Mortality in Africa (CARMMA) was launched by the Fourth Session of the African Union (AU) Conference of Ministers of Health held in Addis Ababa, Ethiopia in May 2009, under the theme: "Universal Access to Quality Health Services: Improve Maternal, Neonatal and Child Health Mortality in Africa (CARMMA)". The campaign was launched under the slogan "Africa Cares: No Woman Should Die While Giving Life!"³⁷ and focuses on four main areas: building on existing efforts (particularly best practices); generating and providing data on maternal and newborn deaths; mobilising political commitment and support of key stakeholders; and accelerating actions aimed at the reduction of maternal-, infant- and child mortality in Africa.

The campaign was launched in SA in May 2012. The South African campaign focuses on six priorities. These are:

1. Strengthen and promote access to comprehensive sexual and reproductive health services, with a specific focus on family planning services.
2. Promote early antenatal care and attendance of appointments.
3. Improve access to skilled birth attendants by allocating dedicated obstetric ambulances to every sub-district to ensure prompt transfer of women in labour and women with obstetric emergencies to the appropriate level of care. Establish maternity waiting homes.
4. Strengthen human resources for maternal and child health by:
 - providing training on ESMOE to doctors and midwives;
 - intensifying midwifery education and training;
5. Improve child survival by:
 - promoting and supporting exclusive breastfeeding for at least six months;
 - providing facilities for lactating mothers (boarder mothers) in health facilities where children are admitted;
 - promoting Kangaroo Mother Care (KMC) for stable low birth weight (LBW) babies at all levels of care;
 - advocating for appropriate care and support for pregnant women and lactating mothers in the workplace;
 - improving immunisation and vitamin A coverage;
 - intensifying management of severe malnutrition in health facilities;
 - intensifying case management of sick children;
 - improving implementation of key family practices, including diarrhoea management at home;
 - strengthening implementation of IMCI in all PHC facilities;
 - strengthening clinical skills for the management of severe diseases, including pneumonia and diarrhoea in referral facilities;
6. Intensify management of HIV-positive mothers and children by:
 - improving access to treatment for both mothers and children;
 - improving management of co-infections; and
 - eliminating mother-to-child-transmission (MTCT) of HIV.

Box 1: Summary of the recommendations of the three ministerial mortality committees

SAVING MOTHERS 2008-2010: FIFTH REPORT ON THE CONFIDENTIAL ENQUIRIES INTO MATERNAL DEATHS IN SOUTH AFRICA

The committee has summarised its recommendations in five key categories as shown below.¹³

HIV and AIDS

1. Promote the “know your status” and “plan your pregnancy” messages in communities and in the health sector and ensure non-judgemental approaches.
2. Ensure that every maternity facility is able to screen for HIV, perform early initiation of highly active antiretroviral therapy (HAART), and recognise and treat co-infections – especially respiratory infections.

Haemorrhage

3. Promote preventive interventions: provide community education, prevent prolonged labour, prevent anaemia; use safe methods for the induction of labour; and practise active management of the third stage of labour.
4. Severe obstetric haemorrhage must have the status of a ‘major alert’ requiring a team approach and immediate attention must be given to diagnosing the cause of the haemorrhage, resuscitation, and a stepwise approach to arresting the haemorrhage.

Hypertension

5. All maternity facilities must provide calcium supplementation to all women throughout their antenatal care and ensure the detection, early referral and timely delivery of women with hypertension in pregnancy.
6. All maternity facilities must be able to recognise severe hypertension (and related conditions) and provide appropriate management.
7. Promote family planning services in the population at large.

Health worker training

8. Train all healthcare workers involved in maternity care in the Essential Steps in the Management of Obstetric Emergencies – Emergency Obstetric Simulation Training (ESMOE-EOST) programme and obstetric anaesthetic module.
9. Train all healthcare workers who deal with pregnant women in HIV advice, counselling, testing and support (ACTS); initiation of HAART; monitoring of HAART; and the recognition, assessment, diagnosis and treatment of severe respiratory infections.

Health system strengthening

10. Ensure 24-hour access to functioning emergency obstetric care (both basic and comprehensive).
11. Ensure accessible and appropriate contraceptive services for all women, which are integrated into all levels of health care and which must be available on site for women post-miscarriage and postpartum.

NATIONAL PERINATAL MORTALITY AND MORBIDITY COMMITTEE (NAPEMMCO)

The report includes 10 general recommendations, as well as recommendations regarding specific conditions to reduce maternal deaths, stillbirths and newborn deaths. The general recommendations are summarised below.²²

Improving access to appropriate health care

1. Appoint regional clinicians to establish, run and monitor and evaluate outreach programmes for maternal and neonatal health.
2. Improve the transport system for patients and establish referral routes.
3. Government to ensure that constant health messages are conveyed to all and understood by all. This includes community members, patients/clients and healthcare providers.

Improving quality of care

4. Improve the training of healthcare professionals and emphasise maternal and newborn care guidelines during pre-service training and training in clinical skills – especially with regard to training in medical, obstetric and neonatal emergency care, including resuscitation.
5. Follow national maternal and neonatal guidelines in all healthcare facilities.
6. Improve provision and delivery of postnatal care.
7. Normalise HIV as a chronic disease.

Ensuring that adequate resources are available

8. Provide adequate nursing and medical staff and adequate equipment for the health needs of both mothers and babies, especially the equipment required for emergency and critical care.
9. Provide an adequate number of hospital beds for the health needs of mothers and babies at all levels of health care, including critical care beds.

Auditing and monitoring

10. Improve data collection and collation (through the use of standardised registers) and ensure that healthcare workers and managers review and receive feedback regarding their performance.

FIRST REPORT OF THE COMMITTEE ON MORBIDITY AND MORTALITY IN CHILDREN UNDER FIVE YEARS (COMMIC)

The report gives eight key recommendations.³⁵ These are:

1. Develop a national child health strategy.
2. Develop a framework for the delivery of essential healthcare services:
 - develop an essential package of care
 - define norms and standards for child health services
3. Strengthen community-based-care services:
 - give a booklet at the birth of the child that outlines 16 key family practices for child survival
 - implement a community health worker programme
4. Strengthen and complement existing priority child survival programmes:
 - HIV/AIDS – PMTCT and paediatric HAART
 - PHC services – integrated management of childhood illnesses (IMCI), expanded programme on immunisation (EPI), vitamin A supplementation, nutrition and TB and childhood emergencies
 - hospital services – enhance management of common emergencies and foster non-rotation of core staff
5. Strengthen pre-service, postgraduate and in-service training in child health and paediatrics.
6. Institute a system of geographically defined and population-focused child health coordination and support by specially trained paediatricians or child health workers.
7. Strengthen essential data systems: including vital registration; the District Health Information System (DHIS); the Demographic Health Survey (DHS); Child Healthcare Problem Identification Programme (Child PIP); and the Road to Health booklet.
8. Identify key drivers to sustain the actions required to improve the health of children across the country:
 - establish district child health forums
 - establish provincial child health forums

Sources: National Committee for Confidential Enquiries into Maternal Deaths, 2012;¹³ National Perinatal Mortality and Morbidity Committee, 2012;²² Committee on Mortality and Morbidity in Children, 2012.³⁵

The Tshwane Declaration: promoting exclusive breastfeeding

In response to the 2010 WHO guidelines on HIV and infant feeding,³⁸ which re-established promotion of breastfeeding as a key child survival strategy, a national breastfeeding consultative meeting was convened in August 2011. The meeting concluded with the Tshwane Declaration of Support for Breastfeeding, which declared SA to be a country that actively promotes, protects and supports exclusive breastfeeding as the infant feeding option of choice, irrespective of the mother's HIV status.

The declaration recommended the following additional actions:

- National Regulations on the International Code on Marketing of Breast Milk substitutes are finalised, adopted into legislation within 12 months, fully implemented and the outcomes monitored.
- Legislation regarding maternity among working mothers is reviewed in order to protect and extend maternity leave. Measures are to be implemented to ensure that all workers, including domestic and farm workers, benefit from maternity protection.
- Comprehensive services are to be provided to ensure that all mothers are supported to breastfeed their infants exclusively for six months and, thereafter, to give appropriate complementary foods and continue breastfeeding up to two years of age and beyond.
- Human milk banks are promoted and supported as an effective approach, especially in post-natal wards and neonatal intensive care units, to reduce early neonatal and post-natal morbidity and mortality for babies who cannot breastfeed.
- Implementation of the Mother and Baby Friendly Health Initiative (MBFHI) and KMC are mandated such that all public hospitals and health facilities are MBFHI accredited by 2015. All private hospitals and health facilities should be partnered to be MBFHI accredited by 2015.
- Communities are supported to be 'baby friendly' and community-based interventions and support are implemented as part of the continuum of care, with facility-based services to promote, protect and support breastfeeding.
- Continued research, monitoring and evaluation should inform policy development and strengthen implementation.
- Formula feeds will no longer be provided at public health facilities, except on prescription by appropriate healthcare professionals for mothers, infants and children with approved medical conditions.

National HIV and AIDS and STI Strategic Plan

In line with international trends, the National HIV and AIDS and STI Strategic Plan (NSP) explicitly links efforts to reduce mortality and morbidity associated with HIV infection with efforts to improve maternal and child health.³⁹ The NSP aims to reduce MTCT to less than 2% at six weeks after birth and less than 5% at 18 months by 2016. The plan recognises that this will require strengthening the management, leadership and coordination of the PMTCT programme and ensuring its integration with maternal and child health programmes.

The NSP has identified four strategic objectives to reach its five-year goals. These are:

- address social and structural factors that influence the three diseases;
- prevent new HIV, TB and STI infections;
- sustain health and wellness by:
 - ensuring access to quality treatment, care and support services for those with HIV, STIs and/or TB;
 - supporting people so that they stay on treatment and developing programmes that focus on wellness;
 - improving community-level PHC, number of treatment centres and specialist referral for difficult cases; and
- protect rights of people living with HIV by working to end stigma, discrimination, human rights violations and gender inequality.

National Early Childhood Development strategy

It is increasingly recognised that early childhood – especially between birth and two years of age – represents a critical window of opportunity to shape the long-term physical, cognitive and emotional health and development of children and that the best way to give children the best start in life is through an integrated approach to early childhood development (ECD).⁴⁰

As the first step in developing a new ECD strategy for the country, a Diagnostic Review of Early Childhood Development was undertaken in 2012. The review found that many elements of comprehensive ECD support and services were already in place and that some aspects of basic services provision were assessed as performing well; these include birth registration, social security, health care for women and children, early child care and education, and preparation for formal schooling.⁴¹

Important needs highlighted in the review included: support for parenting, prevention of stunting among young children, safe and affordable child care for very young children and for families needing assistance, and access to services for the most at-need families and children with disabilities.

The Buffalo City Declaration, which emanated from the National ECD Conference held in September 2012, called for:

- a comprehensive review and harmonisation of policy and legislation within the ECD sector moving towards universal access;
- a multisectoral, integrated, coordinated approach to the effective provisioning of ECD services by government, non-governmental organisations, civil society and business;
- strengthening the role of parents and caregivers, families and communities in the provisioning of ECD services;
- deliberately extending ECD services to include children with special needs and children in rural areas; and
- adequate resourcing of ECD services, including infrastructure provisioning.⁴²

Health systems strengthening and PHC re-engineering

Delivery of comprehensive, quality MNCWH&N services depends on a well-functioning health system. Deficiencies in the quality of maternal and child health services have been extensively documented and gains in maternal and child health are unlikely to be achieved in the absence of improved service delivery. This will require substantial investment in human resources to ensure improved availability, skills and motivation of healthcare workers who provide maternal and child health services at community, PHC and hospital levels.¹⁶

Government initiatives to improve the noted deficiencies include the introduction of the National Health Insurance, introduction of national core standards and PHC re-engineering. PHC re-engineering specifically aims to improve maternal and child outcomes and is, therefore, described in more detail below.

Establishment of ward-based PHC outreach teams

The ward-based PHC outreach teams which are based on the model used to improve health outcomes in Brazil will play an important role in delivering community-based MNCWH&N promotion and other services to communities and households, and will facilitate access to routine and curative health and other services where these are required. Each team should consist of a team leader (professional or enrolled nurse) and four to five community health workers. They will be expected to provide services to approximately 7 500 households. In the long term, teams are expected to cover all of the 4 227 wards.⁴³

Establishment of district clinical specialist teams

District clinical specialist teams will be made up of an obstetrician, a paediatrician, a family physician, an anaesthetist, an advanced midwife, an advanced paediatric nurse and a PHC nurse.⁴⁴ The teams will be tasked with improving clinical governance in the districts in which they are deployed. They will, therefore, play a key role in ensuring the provision of quality MNCWH&N Strategic Plan services at all levels within the district. Particular attention will be paid to ensuring supervision and support of MNCWH&N Strategic Plan services at district hospital level.

Expansion and strengthening of school health services

Strengthening school health services will contribute towards improved health and learning outcomes for children and youth. The new Integrated School Health Programme (ISHP) aims to build on and strengthen existing school health services, although with some important changes. These include:⁴⁵

- a commitment to close collaboration between all role players, with the Departments of Health and Basic Education taking joint responsibility for ensuring that the ISHP reaches all learners in all schools;
- provision of services to learners in all educational phases;
- provision of a more comprehensive service, which addresses not only barriers to learning but also other conditions that contribute to morbidity and mortality among learners during both child- and adulthood;

- more emphasis on provision of health services in schools, with a commitment to expanding the range of services over time; and
- a more systematic approach to implementation. The phased approach (as outlined in the 2003 school health policy), which focused on district-level implementation, did not translate into adequate coverage at sub-district, school and learner levels.⁴⁶ Although the ISHP will initially target the most disadvantaged schools, sequenced plans for progressive coverage aim to ensure that all learners are reached.

The ISHP aims to ensure that this package of services is provided for all learners by 2016.

Progress in implementing key interventions and programmes

Sustaining reductions in maternal and child mortality depends on translating the commitments and strategies outlined above into workable programmes and services that can achieve and sustain high coverage. This section focuses on the package of priority maternal and child health interventions as outlined in the national MNCWH&N (see Box 2). These packages include all of the 56 essential interventions outlined in Box 1, although calcium supplementation to prevent hypertension for all pregnant women has not been widely implemented and surfactant is generally not available at district hospital level.

Box 2: Package of priority maternal- and child-health interventions as outlined in the National MNCWH&N Strategic Plan

Maternal health

- ❖ basic antenatal care (BANC);
- ❖ HIV testing during pregnancy, with initiation of ART and provision of other PMTCT services where indicated;
- ❖ improved access to care during labour through introduction of dedicated obstetric ambulances and establishment of maternity waiting homes (where appropriate);
- ❖ improved intrapartum care; and
- ❖ post-natal care within six days of delivery.

Newborn health

- ❖ promotion of early and exclusive breastfeeding, ensuring that breastfeeding is made as safe as possible for HIV-exposed infants;
- ❖ provision of PMTCT;
- ❖ resuscitation of newborns;
- ❖ care for small/ill newborns according to standardised protocols;
- ❖ KMC for stable LBW infants; and
- ❖ post-natal visit within six days, which includes newborn care and helping mothers to practise exclusive breastfeeding.

Child health

- ❖ promotion of breastfeeding and appropriate complementary feeding practices for infants and young children;
- ❖ provision of preventative services. These include: immunisation, growth monitoring and promotion, vitamin A supplementation and regular deworming;
- ❖ correct management of common childhood illnesses using the IMCI case management process (including early identification and management of children with HIV and TB);
- ❖ early identification of HIV-infected children and appropriate management (which includes initiation of ART where indicated);
- ❖ improved hospital care for ill children, especially for those with common conditions (pneumonia, diarrhoea and severe malnutrition), using standardised protocols;
- ❖ expansion and strengthening of school health services; and
- ❖ developing services for children with long-term health conditions.

Community interventions

- ❖ provision of a package of community-based MNCWH&N Strategic Plan services by generalist community health workers working as part of ward-based PHC outreach teams;
- ❖ multi-sectoral action to reduce poverty and inequity, and improve access to basic services, especially improved water and sanitation; and
- ❖ development of an MNCWH&N Strategic Plan communication strategy.

Source: National Department of Health, 2012.³⁶

Data from the DHIS and other sources are used to assess progress regarding implementation, while ongoing challenges and their possible solutions are highlighted.

Maternal health care

Antenatal care

Antenatal care (ANC) should be provided through the Basic Antenatal Care (BANC) approach, which has been shown to be as effective as more traditional antenatal care models in terms of maternal and perinatal outcomes, as well as acceptable to users.⁴⁷ The BANC approach requires that every woman attends ANC at least four times during her pregnancy, starting in the first trimester. Early attendance is particularly important, given that the current PMTCT guidelines recommend that ART be commenced at 14 weeks' gestation in eligible women. The approach also emphasises promotion of healthy behaviours (such as adequate nutrition and moderate exercise, safe sex and smoking and alcohol avoidance and cessation), and identifies and refers women with high-risk pregnancies.

As shown in Table 4 although DHIS data for 2011 show that ANC coverage was above 100%, only 40% of pregnant women attended ANC before 20 weeks gestation and only four provinces achieved an average of four visits per antenatal client. HIV counselling and testing rates were reported to have attained full coverage, although retesting rates (at 32 weeks) were far lower. ART initiation rates reflect the proportion of eligible pregnant women who were initiated on ART. While this rate has increased over time, the low rates in some provinces (i.e. Northern Cape and Free State) are of concern.⁴⁸ From April 2013, all HIV-infected pregnant and breastfeeding women will be eligible to receive ART.

Table 4: ANC and PMTCT coverage indicators, 2011

	ANC coverage %	ANC coverage before 20 weeks %	Average no. of ANC visits per ANC client	ANC clients who tested for HIV (first test) %	ANC clients who tested for HIV (second test 32 weeks) %	Eligible ANC clients who were initiated on HAART %
Eastern Cape	99.7	33.0	3.0	95.4	33.4	71.1
Free State	86.1	46.3	4.3	96.8	45.1	62.6
Gauteng	117.0	34.4	3.7	88.3	50.5	77.9
KwaZulu-Natal	93.8	40.2	4.4	110.1	36.7	90.0
Limpopo	113.7	41.6	3.5	102.7	44.3	75.4
Mpumalanga	99.3	37.8	3.5	111.2	32.6	65.7
North West	100.3	41.9	3.6	107.8	38.3	71.7
Northern Cape	95.1	52.4	4.5	99.8	42.2	52.3
Western Cape	81.7	55.6	4.5	91.4	35.6	99.5
South Africa	100.6	39.9	3.0	99.3	40.3	78.7

Source: National Department of Health, 2012.⁴⁸

Intrapartum care

Although 90% of women deliver in facilities (see Table 5), it is postulated that many women do not reach hospital during labour or present late in labour primarily due to difficulties related to accessing transport after the onset of labour. This issue is addressed specifically in the CARMMA strategy through the introduction of dedicated obstetric ambulances and the establishment of maternity waiting homes. PHC outreach team members will also play an important role in ensuring that expectant mothers are assisted to develop birthing plans.

However, late presentation is not the only factor in high levels of maternal mortality and morbidity. The ESMOE is a practical modular training programme, which has been shown to result in a significant improvement of interns' knowledge and skills. It is currently being scaled-up with all healthcare workers that supervise deliveries at all levels of care, being targeted for training.⁴⁹

Table 5: Intrapartum and post-partum care, 2011

	Deliveries occurring in facilities %	Women who receive post-natal care within 6 days of delivery %
Eastern Cape	81.8	44.1
Free State	79.1	79.7
Gauteng	97.3	64.2
KwaZulu-Natal	83.3	55.7
Limpopo	113.1	64.5
Mpumalanga	89.3	40.0
North West	83.9	75.5
Northern Cape	89.4	38.0
Western Cape	84.8	Does not report
South Africa	89.7	52.5

Source: National Department of Health, 2012.⁴⁸

Post-natal care

The lack of provision of post-natal care has been identified as a gap in the continuum of care both internationally and in SA.⁵⁰ Post-natal care visits can play an important role in providing care to the mother and newborn, especially by helping mothers to practise exclusive breastfeeding and by ensuring that the mother/infant pair receives the post-natal component of PMTCT. The National Maternity Care Guidelines prescribe that these visits should be made at six hours, at six days and at six weeks after delivery.⁵¹ Reported coverage of post-natal care within six days of delivery has increased substantially, from a national figure of 4.8% in 2009 to 52.5% in 2011.⁴⁸ However, considerable variation in coverage between provinces (shown in Table 5) persists.

Newborn care

The newborn care package outlined in the MNCWH&N Strategic Plan aims both to prevent deaths by targeting the leading causes of death during the newborn period and to promote PMTCT and exclusive breastfeeding – two interventions that have important implications for improving survival and health throughout infancy and childhood. Data on perinatal mortality rates provide an indication of the quality and coverage of newborn care, although provincial rates hide wide intra-provincial variation.⁴⁸

Table 6: Perinatal mortality rate, 2011

	Perinatal Mortality (deaths per 1 000 deliveries)
Eastern Cape	37.1
Free State	41.0
Gauteng	30.9
KwaZulu-Natal	31.6
Limpopo	32.3
Mpumalanga	33.6
North West	35.4
Northern Cape	36.9
Western Cape	23.1
South Africa	32.4

Source: National Department of Health, 2012.⁴⁸

Preventing deaths: caring for sick and small newborns

Complications related to prematurity and LBW are the leading cause of death in newborn babies. Mortality rates for small newborns are high in district hospitals when compared with those in regional tertiary and central hospitals – notwithstanding that most small infants are cared for in district hospitals.²²

Studies have shown that provision of KMC to stable small newborns where the baby is carried on the front of the mother's chest (with direct skin-to-skin contact) is an effective and safe way of caring for these babies. Data collected through perinatal mortality audits have shown that public hospitals that have implemented KMC have reduced their mortality rates among small babies (weighing between 1 kg and 2 kg) by 30%.⁵² KMC is an important component of the CARMMA strategy and should be implemented in all facilities that provide newborn care.

Most neonatal deaths in large babies result from asphyxia. Improvements in intrapartum care and emergency management can be expected to prevent many of these deaths. All healthcare workers who deliver babies should be able to recognise promptly those newborns that require resuscitation and start resuscitation immediately.

Prevention of Mother-to-Child Transmission

As outlined above, the NSP aims to reduce MTCT to less than 2% at six weeks after birth and less than 5% at 18 months by 2016.³⁹ The 2011 PMTCT Effectiveness Study found the national MTCT transmission rate to be 2.7% among HIV-exposed infants that attended a representative sample of PHC facilities for their six-week immunisation.⁵³ This is compared with a figure of 3.5% for 2010 and of 8% for 2008.⁵⁴ Figures for transmission rates at 18 months are less certain, as a result of low routine-testing coverage and challenges in following up infants, even in research settings.

Critical actions that facilitated the improvement in the PMTCT programme outcomes included: rapid implementation of changes in PMTCT policy at the field level through training and guideline dissemination; ensuring good coordination with technical partners, such as international health agencies and international and local non-governmental organisations and making use of data on and

indicators of all aspects of the PMTCT programme. Enabling healthcare staff at primary care facilities to initiate ART and expanding laboratory services for measuring CD4 T-cell counts and for polymerase chain reaction (PCR) testing were also identified as factors that facilitated improvements.⁵⁵

Exclusive breastfeeding

Exclusive breastfeeding is recognised as being the single most effective intervention for reducing under-five mortality in low-income settings.⁵⁶ SA has experienced the erosion of its breastfeeding culture over the past years due to among other reasons, aggressive marketing of breast milk substitutes by the infant feeding industry and a lack of clarity regarding optimal infant feeding practices in the context of HIV and AIDS. Studies have reported that between 8% and 25.7% of children aged 0 to 6 months were exclusively breastfeeding,^{57,58} while breastfeeding practices have proven resistant to interventions (such as a programme of home visitation in addition to routine facility infant feeding counselling), which have proved more successful in other settings.⁵⁹

Implementation of the Tshwane Declaration is, therefore, a priority. Regulations regarding infant feeding, which are in line with the international Code on Marketing of Breast Milk Substitutes, were gazetted in December 2012, and breastmilk substitutes (formula) are no longer provided at public health facilities (except for approved medical conditions). Progress with regard to ensuring that all mothers are supported to breastfeed their infants is less certain, and is likely to require sustained attention and effort.

Child health

As outlined above, child mortality rates have shown a rapid decline in recent years, primarily as a result of the decline in the HIV burden in children. This provides an opportunity to address other important child health issues that have tended to be neglected in the past.

Optimal nutrition and ECD

Undernutrition remains an important problem for children in SA. The 2005 National Food Consumption Survey found that 18% of children were stunted, 9.3% were underweight and 4.5% were wasted.⁶⁰ Levels for all three indices were higher in young children (one to three years) than in older children (seven to nine years). Stunting was higher in children living in rural farming areas (24.5%), tribal areas (19.5%) and urban informal areas (18.5%). Micronutrient deficiencies were also documented.

The ECD strategic review specified that reductions in the prevalence of stunting should be one of the key components of ECD interventions. PHC outreach teams will be well placed to ensure that caregivers are supported to feed their children optimally and that growth faltering is identified, corrected and managed. It is important that this is recognised and protected as one of their key roles.

Ensuring full coverage of preventive health services

Ensuring full coverage of preventive services, which include immunisation, growth monitoring and promotion, vitamin A supplementation and regular deworming, is a key component of ensuring the optimal health and development of all children. In order for this goal to be achieved, children need to access PHC services on a regular basis. The average number of visits to PHC facilities for children under-five has remained fairly stable in the past few years (increasing from 4.3 in 2008 to 4.6 in 2011). However, there is considerable variation between provinces, with children in the Free State only visiting health facilities an average of 3.6 times in 2011.⁴⁸

Immunisation rates remain relatively high, although the low rates in Mpumalanga, North West and Eastern Cape are of concern. Discrepancies between DHIS figures and figures obtained through population-based surveys are also apparent and efforts are underway to understand and address these discrepancies.

Ensuring that children aged one to five receive vitamin A supplementation remains a challenge. PHC outreach teams are expected to play an important role in ensuring that children receive preventive services, including early identification of growth faltering and undernutrition.

Prevention and treatment of common illnesses

Pneumonia and diarrhoea remain the leading causes of death in children outside of the newborn period. DHIS data on these two conditions are shown in Table 8. These figures represent routine data from facilities; this means that variations in reported incidence may reflect access to health services and differences in case identification rather than real differences in the burden of disease.

Data on the proportion of children that receive the correct treatment, i.e. oral rehydration for diarrhoea and antibiotics for pneumonia, can only be accurately collected through population-based surveys.

Table 7: PHC utilisation and coverage with key preventive interventions, 2011

	Average no. of PHC visits for children under five years of age	Children who are fully immunised by one year of age,%	Vitamin A Coverage amongst children one to five years of age %
Eastern Cape	4.5	81.5	43.1
Free State	3.6	90.8	45.2
Gauteng	4.1	115.4	46.2
KwaZulu-Natal	4.5	97.0	40.0
Limpopo	6.3	95.9	44.6
Mpumalanga	4.8	71.9	37.5
North West	4.3	81.5	33.8
Northern Cape	4.6	94.1	30.5
Western Cape	4.8	88.7	37.7
Total	4.6	94.2	41.4

Source: National Department of Health, 2012.⁴⁸

The 2003 DHS showed that health care was sought for two-thirds of the children that were sick with a cough or fever, while 63% of children with diarrhoea received oral rehydration solution or sugar salt solution.⁵⁷ There is an urgent need to ensure that more recent data are available for these indicators.

Management of HIV infection

An estimated 450 000 children under 15 years of age were living with HIV in SA, and HIV infection is a contributing factor in between 30% and 60% of child deaths.^{18,61} The 2010 HIV guidelines include the provision of ART for all HIV-infected infants and this has recently been extended to cover all children under five. ART should be provided at all PHC facilities as part of the routine management of young children, using the IMCI case management guidelines. The number of children receiving ART has increased, with 40 000

Table 8: Diarrhoea and pneumonia in children under five years of age: incidence, admissions, deaths and case fatality rates, 2011

	Incidence of diarrhoea with dehydration (cases per 1 000 children under five years of age)	Admissions for diarrhoea (per 1 000 children under five years of age)	Case fatality rate %	Incidence of pneumonia (cases per 1 000 children under five years of age)	Admissions for pneumonia (cases per 1 000 children under five years of age)	Case fatality rate %
Eastern Cape	12.5	7.6	8.3	59.5	9.1	5.2
Free State	7.2	7.7	8.2	94.0	9.2	7.0
Gauteng	13.9	3.1	5.0	57.3	5.3	4.2
KwaZulu-Natal	22.7	7.4	5.0	155.0	9.0	3.8
Limpopo	16.2	5.7	9.0	55.1	10.1	5.8
Mpumalanga	9.3	4.8	9.9	42.7	6.8	8.3
North West	10.8	8.3	4.9	76.7	9.0	5.1
Northern Cape	11.9	16.9	3.7	95.8	15.1	3.0
Western Cape	16.7	14.3	0.2	72.0	13.6	0.4
South Africa	15.2	7.2	5.2	84	8.9	4.3

Source: National Department of Health, 2012.⁴⁸

children (under 15 years of age) being initiated on ART during 2011.⁶² However, significant challenges remain in ensuring that all eligible children are initiated on ART as early as possible and that systems for tracking progress in initiating and maintaining children on ART are strengthened.

Hospital care

Strategies for monitoring and improving the care that children receive in public hospitals have not been implemented on a large scale. This has resulted in a wide variation in the quality of care provided in different hospitals. DHIS data reveal enormous variation with regard to child mortality rates (see Table 9) and mortality audits continue to identify many modifiable factors that have or may have contributed to the deaths of children in hospitals.

Table 9: In-hospital fatality rates for children, 2011

	In-hospital fatality rate children under one year %	In-hospital fatality rate children under five years %
Eastern Cape	7.2	5.8
Free State	10.2	8.4
Gauteng	7.2	2.5
KwaZulu-Natal	7.0	5.2
Limpopo	10.9	6.8
Mpumalanga	9.7	6.3
Northern Cape	8.5	6.1
North West	6.9	5.3
Western Cape	2.8	1.8
South Africa	6.9	4.5

Source: National Department of Health, 2012.⁴⁸

Data from hospital audits undertaken between 2005 and 2009 also highlight deficiencies in the quality of emergency care, with more than one-third of deaths occurring within 24 hours of admission and a disproportionate number of modifiable factors occurring in the emergency care setting. Assessment and management of children in this setting appeared to be a particular problem, and highlights the need for the introduction of a standard approach to the provision of emergency care.¹⁸

The establishment of district clinical specialist teams provides an important opportunity for improving the quality of care at regional and district hospital levels. The teams will be expected to ensure that appropriate guidelines and protocols are available and that healthcare workers are appropriately trained and supported to provide high-quality services.

Children with long-term health conditions

Services for ensuring that children with long-term health conditions and disabilities receive the care that they deserve are lacking.⁶³ International data indicate that 15% to 20% of children are affected by a chronic or long-term health condition. These include a range of congenital and acquired conditions, which include medical conditions (such as asthma and rheumatic heart disease), developmental delay and disabilities.

Conclusions and recommendations

Despite recent progress, SA continues to face a high burden of disease and high maternal and child mortality rates. Reducing maternal and child deaths has been included as one of the four strategic outputs of the NSDA. This means that all levels of the health system are required to report on progress in reducing these rates. This requirement has not only increased accountability but has provided impetus to efforts to improve the health of mothers and children.

At a global level, ensuring provision of evidence-informed packages of care to all women and children continues to be regarded as the key to improving maternal and child health. Strengthening the health system, addressing equity and increasing accountability play a parallel role. In SA, the packages of maternal and child health services, as outlined in the MNCWH&N Strategic Plan, are in line with those interventions that have been identified as most likely to save the lives of women and children. However, weaknesses and inefficiencies in the health system will need to be addressed if current gains are to be maintained and accelerated and the potential benefits of PHC restructuring and other efforts to improve maternal and child health are to be realised. International experience also suggests that gains in combatting child mortality will stall unless issues related to equity are dealt with more explicitly through reaching the most disadvantaged communities.

The MNCWH&N Strategic Plan, together with the CARMMA strategy, recommendations from the three ministerial mortality committees and other key documents, provide SA with a detailed road-map for improving maternal, newborn and child health. Efforts to improve maternal and child health should, therefore, focus on ensuring that all the components of the plan are implemented. These should include those components that address the strengthening of health system supports and human resources.

Priority actions include:

- Ensure the availability of adequate numbers of well-trained healthcare workers at facility and community levels. District clinical specialist teams and PHC outreach teams represent a valuable human resource at community and district levels; systems will need to be in place to ensure that these teams identify and address key barriers to the provision of MNCH services at household, community and facility levels. It will be particularly important to ensure that PHC outreach team members are not overloaded with too many tasks and to ensure that provision of maternal and child health services remains one of their core tasks.
- Strengthen systems for monitoring and evaluation to improve planning and service delivery and encourage greater accountability. This includes:
 - strengthening the use of routinely collected data at national, provincial and local levels;
 - improving the availability of population-based data on health status and outcomes and on coverage with key interventions. Such surveys need to collect data regarding socio-economic indicators to measure coverage and other gaps between different wealth quintiles and groups with other socio-economic and educational characteristics;

- expanding and institutionalising mortality audits as these have been effective in identifying deficiencies in care and galvanising action to improve service delivery;
- Monitor and address issues related to inequity more explicitly. Although this is included in the strategic plan, the strategies and interventions through which this will be achieved need to be more clearly defined.
- Prioritise current efforts to improve management of HIV infection and of obstetric emergencies as these services have the greatest potential to improve maternal survival.
- Address newborn mortality needs in a systematic manner. In addition to improving maternal care, all hospitals should provide a package of care to newborns, which includes provision of routine care (including breastfeeding support and PMTCT), neonatal, resuscitation, special care for small/sick newborns and KMC. As outlined in the NaPeMMCo recommendations, this will require improvements in access to appropriate care and in the quality of care, as well as ensuring that adequate resources are available and that auditing and monitoring are strengthened.
- As mortality from HIV infection in children declines, pay more attention to addressing other conditions and to ensuring optimal development of all children. These include:
 - ensuring that undernutrition in children is addressed in a systematic way. This needs to form a key component of a comprehensive package of ECD interventions, which include promotion of breastfeeding and ensuring that children access all routine preventive and promotive health services;
 - improving the quality of care that children receive in hospital. Emergency care needs to be improved as well as care for common conditions, especially diarrhoea, pneumonia, malnutrition and HIV infection; and
 - improving services for children with long-term health conditions, including disability.

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