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ORIGINAL ARTICLE

Overview of Maternal, Neonatal and Child Deaths in South Africa: Challenges, Opportunities, Progress and Future Prospects

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ABSTRACT

Background: The fact that most sub-Saharan Africa countries including South Africa (SA) are not on track to meet the 2015 target of improving maternal, neonate and child health (MNCH) is a major public health concern. The aim of this paper to give an overview of the current state of MNC deaths in SA, their relative causes, highlight challenges, existing opportunities, progress made and future prospects.

Methods: The overview involved a synthesis and review of recent data and information from key national representative peer reviewed articles and grey literature from the National Department of Health and related stakeholder reports.

Results: Since 1990 the situation in SA aroused a lot of research interest in tracing the historical context of the problem, evaluating progress made and actions for improving MNCH. In 2009 the SA government established three national committees for confidential enquiry on MNC deaths. Multifactorial systems' related challenges were identified. Subsequently, the new National Strategic Plan for MNC and Women's Health and Nutrition has, in addition to provision of comprehensive interventions, been linked and aligned with efforts to strengthen the health systems particularly through the re-engineering of the Primary Health Care (PHC) services and district health systems.

Conclusion and Global Health Implications: The overview gives an insight of the process that has influenced MNCH policy and programs in the country. The SA experience and current MNCH situation may be different compared to other African countries, however, the political commitment and government stewardship coupled with critical and yet complimentary research is exemplary, especially, given several global and regional plans and commitments to improve MNCH in the continent.

Keywords: South Africa • Maternal, neonatal, child deaths • Health • Interventions • Millennium Development Goals

Background

In sub-Saharan Africa (SSA) it is estimated that 4.7 million mothers, newborns and children (under 5 years) die annually[1]. Globally, high-level support for actions to improve maternal, newborn and child health (MNCH) has gained momentum with the pledge of US$ 40 billion to address women's and children's health through the attainment of the United Nations (UN) Millennium Development Goals (MDG) over the five years 2010-2015[2,3]. MDGs for maternal health (MDG-5) and child health (MDG-4) call for a reduction in maternal mortality by three-quarters and child mortality by two thirds by the year 2015. However, many developing regions including Africa are not on track to meet this target[4].

In SSA where maternal mortality is highest, the annual decline has been 1.7%[2]. Children continue to die of causes that can be both prevented and treated using proven, low-cost interventions. Progress has been slower for reducing newborn deaths than for deaths among post-neonatal age children[2]. It is estimated that between 66% and 85% of Africa's maternal, newborn, and child mortality could be prevented through implementation of available interventions[5]. In South Africa the dire MNCH situation elicited a lot of responses from the government and scientific community in an effort to understand where and why these deaths occur. Has increased attention translated into programmatic action for MNCH in the country?

The aim of this paper is to give an overview of the current state of maternal, neonatal and child deaths in South Africa, their relative causes and to highlight existing challenges, opportunities, progress made and future prospects. Such an insight will help inform future priorities for accelerating progress for reduction of MNC deaths towards MDG 4 and 5 targets in the country.

Methods

The purpose of this overview was by no means an attempt to do a comprehensive systematic literature review but focuses on the collation and synthesis of information on current status and country's experience in dealing with MNC deaths. The assessment was carried out through synthesis and review of recent data and information from key national representative peer reviewed articles and grey literature from the national Department of Health and related stakeholder reports, all which are referenced accordingly. This was done with the view of assessing the current status of MNCH in the country with the focus on mortality and related causes, and to identify existing challenges, opportunities for reducing MNC deaths, progress made and future prospects.

Results

In South Africa, it is generally accepted that the maternal, neonatal and child (MNC) deaths are unacceptably high, however, the estimates vary depending on the source[6]. The mortality profile presented in this overview outlines the latest estimates extracted from the 2011 National Department of Health report[7].

Maternal Neonatal and Child Mortality in South Africa

In 2009 the National Department of Health gave a maternal mortality ratio estimate of 310 deaths per 100 000 live births, neonatal mortality rate of 14 deaths per 1000 live births and child (under 5 years) mortality rate (CMR) of 56 deaths per 100 000 live births[7]. The deaths were high in the Free State, Limpopo, KwaZulu-Natal, Eastern Cape, and lower in Mpumalanga North West, Northern Cape, Gauteng and Western Cape Provinces (Figure 1).

Causes of Maternal Neonatal and Child Mortality in South Africa

Five key causes of maternal deaths (Figure 2) that have remained consistent over the past five years include (i) non-pregnancy related infections (mainly HIV/AIDS, tuberculosis (TB), and pneumonia); (ii) complications of hypertension; (iii) obstetric hemorrhage (antepartum and postpartum hemorrhage); (iv) pregnancy related sepsis and (v) pre-existing maternal diseases[6,7]. These are attributed to (1) administrative weakness such as poor transport facilities; (2) lack of health care facilities and appropriately trained staff; (3) patient oriented problems such as no antenatal care (ANC) or infrequent ANC attendance and delay in seeking

Figure 1. South African national estimates of maternal mortality ratio (per 100 000 live births), neonatal and child mortality rates (per 1 000 live births) by province in 2009[7]

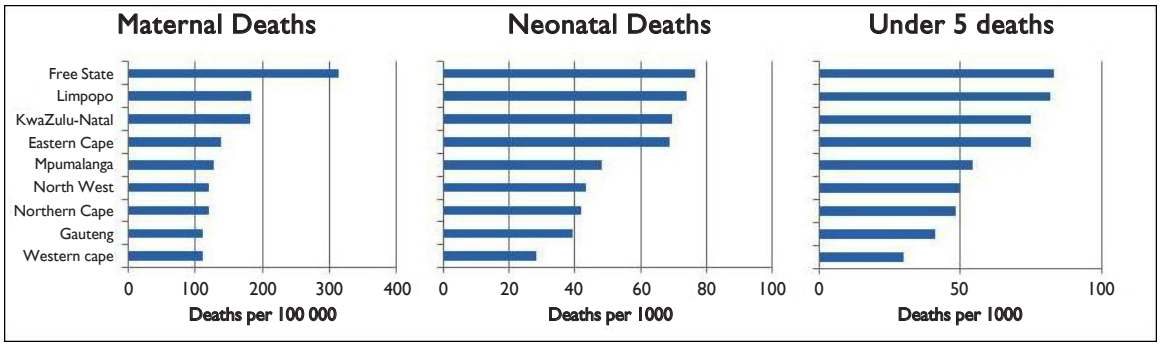
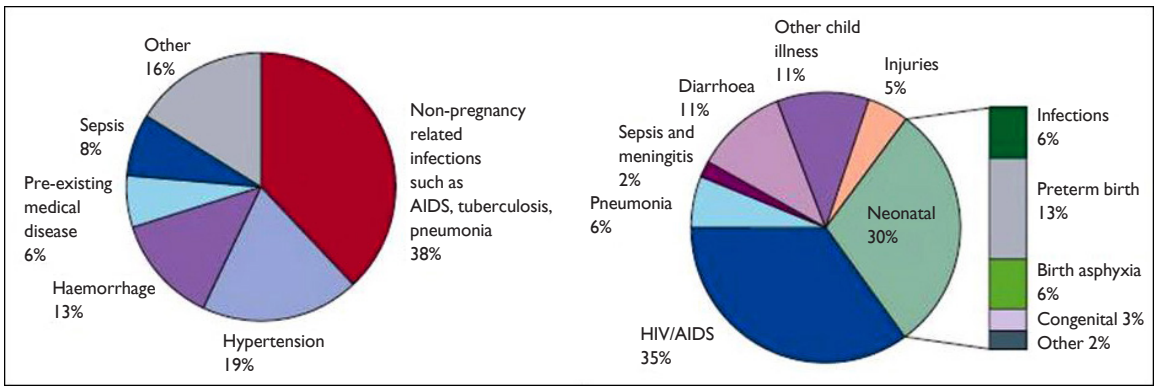


Figure 2. South African maternal, neonatal and childhood causes of death[6]



medical help; (4) health worker oriented problems such as health care provider failure to follow protocol (delay in referring patients) and poor initial assessment and recognition/diagnosis; and (5) communication problems[6,7-9].

The major causes of childhood deaths identified are diarrheal disease, meningitis, lower respiratory tract infections such as pneumonia, perinatal conditions associated with HIV and AIDS and malnutrition as well as poor quality of care and coverage of reproductive health services[6,8,9]. Among neonates these also include perinatal and postnatal complications such as birth asphyxia, preterm birth, and congenital abnormalities (Figure 2). These are also attributed to poor communication, inadequate clinical care as well as lack of adherence to nutrition and immunization programs[6,8,9].

Overall the main causes of maternal and child mortality in South Africa are HIV and AIDS, pregnancy and childbirth complications, neonatal illness, childhood illness, and malnutrition, which are all related to poverty and great inequity. These are the countries' big five challenges that need to be addressed in order to accomplish the health related MDGs[6,7-9]. The leading causes of death for both mothers and children less than five years of age are compounded by rising multi-drug resistant TB and HIV-TB co-infection[10].

Challenges

An estimated 32-54% of all maternal, neonatal and child deaths are due to preventable causes that could have been avoided within the health care system[6,7]. Approximately 25-44% of these deaths

had modifiable factors related to family/community action (inadequate ANC, delayed action in seeking help during labour, caregiver and family members not recognizing the severity of the illness)[6,7]. In 2009 a series of papers on health in South Africa presented the unique features of South Africa's history that have contributed to the systemic problems existing today, and assessed the challenges that affect among others MNCH[8-12].

Multifactorial systems related challenges identified included poor health status and care of women, illiteracy plus lack of information with regard to available health services, poor antenatal and obstetric care both within the community and health facilities, absence of well-trained cadre of health extension workers, inadequate referral system and absence of or poor linkages of health centers with the communities[8]. Furthermore, there are substantial inequalities in maternal and child health service coverage and health outcomes with differences between socio-economic groups and geographical areas within the country[6]. Mothers, babies, and children in poor families are at increased risk of illness and face many challenges in accessing timely, high-quality care. This can also be attributed to poor use of health care facilities by patients, lack of transport and sub-optimal quality of care by some health providers[12]. Expanding coverage to ensure that the poorest, least educated and most-difficult-to reach mothers, their neonates and children under five years get accessible, timely, quality health care, remains a major challenge for the South African government.

In addition, great disparities exist between South Africa's public and private health care systems with about 40% of the total health care expenditure allocated to the public health care system that caters for about 86% of the population[6]. The distribution and access to essential services is also unequal with the most deprived provinces and districts receiving the least primary care expenditure. Therefore addressing inequities is a pre-requisite to achieving MDGs in South Africa[6, 9]. The challenge is to ensure not only high coverage for all but also higher-quality coverage, for example, a recent assessment showed that while more than 90% of women completed at least one antenatal visit, only about 11% received the full set of interventions required[8].

In addition to systemic challenges one study noted that South Africa, with a supportive policy and funding environment, is facing a "paradox of apparent progress yet worsening health outcomes"[8]. Another study observed that "the Ministry of Health's role in providing overall guidance on activities that contribute to improving levels of health in South Africa has generally been characterized by good policies, but without equivalent emphasis on the implementation, monitoring, and assessment of these policies throughout the system"[11].

Opportunities for Improving MNCH in South Africa

South Africa is committed to addressing issues of inequality through providing universal coverage for maternal, neonatal and child interventions and by identifying and targeting poorest and under-served areas[7]. Given the magnitude of the problem, a multidisciplinary anonymous investigation sanctioned by the ministerial committee on health was carried out by (i) the National Committee on Confidential Enquiries into Maternal Deaths (NCCEMD), (ii) the National Perinatal Morbidity and Mortality Committee (NaPeMMCo) and (iii) the Committee on Morbidity and Mortality in Children under 5 Years (CoMMiC) at local, regional and national levels[6, 13-16]. The committees were established to advise the National Department of Health on gaps in service delivery and how these can be addressed.

For maternal deaths NCCEMD initially identified four focal points that need to be prioritized and these included improving knowledge development, quality of care and coverage of reproductive health services, establishing norms and standards, and facilitating community involvement[13]. The recent report spells out five key points namely 5'H's which include: HIV (promoting know you status and plan you pregnancy); hemorrhage (promote preventive interventions, severe obstetric hemorrhage must be tagged as "major alert" requiring a multidisciplinary approach to expedite resuscitation and stepwise approach to arresting hemorrhage); hypertension (all maternity facilities to provide calcium supplementation to all women throughout the antenatal care and ensure early detection, referral and timely delivery of women with hypertension in pregnancy, severe hypertension

with imminent eclampsia is a major alert requiring urgent attention); health worker training in maternal care including HIV counseling, testing and initiation of HAART); Health systems strengthening (24 hour access to functioning emergency obstetrics care with basic and comprehensive care, provision of appropriate contraceptives that are accessible to all women and integrated into all levels health care)[14].

For neonates NPMMC recommended clinical skills improvement especially strengthening skills of interns, midwives and nurses; improving staffing, equipment and facilities; proper implementation of national maternal and neonatal guidelines; training and education of health care workers/communities; improving transport and referral routes; improving postnatal care; appointment of regional clinicians to establish, run, monitor and evaluate all outreach programs (at regional, district, hospital and clinic level) for maternal and neonatal health including data collection and review[13-16]. In addition Government should ensure that (i) constant health messages are conveyed to all and understood by all, (ii) management should adhere to national maternal and neonatal guidelines in all health care facilities, (iii) normalization of HIV infection as any chronic disease[14,16].

For children under 5 years CoMMiC recommended the strengthening of the existing child survival programs adopted by the NDOH which included the Community Health Worker (CHW) program, Integrated Nutrition Program and 10 steps for the management of severe malnutrition, Expanded Program on Immunization (EPI), Integrated Management of Childhood Illnesses (IMCI) and Prevention of Mother to Child Transmission (PMTCT) of HIV during ANC[13-16]. Additionally, strengthening of essential data systems, identifying key drivers to give and sustain actions required to improve the health of children across the country and developing a national child health strategy. The CoMMiC also recommended that primary health care be strengthened by adopting and implementing the Household and Community component of IMCI[16]. In addition, an unprecedented period of change in South Africa's health sector and renewed political commitment has created new opportunities to tackle the unacceptably high maternal, newborn and child mortality in South Africa[17].

Progress

The revitalization and building of more Primary Health Care (PHC) facilities has significantly increased access to MNCH services at PHC level with over 120 million visits reported countrywide in 2010[17]. Significant shifts in policies towards HIV and AIDS treatment to prevent mother to child transmission is also having a significant impact on HIV related maternal and child mortality. In 2011 a 13% reduction in maternal mortality ratio was reported mainly as a result of decline in deaths from non-pregnancy-related infections such as HIV-infected pregnant women complicated by TB and pneumonia[14]. The 2012 WHO/UNICEF countdown to 2015 report showed that in South Africa PMTCT coverage has increased from 71% in 2009 to 96% in 2010[18]. A nationwide assessment of PMTCT impact showed that out of 10178 infants at 6weeks in 572 health facilities, vertical transmission rate was down to 2·7% in 2010 compared with 20–30% in the preceding decade[19]. This is among the country's major achievements in terms of child mortality reduction. However, the PMTC triple therapy regime has been shown to be more effective in reducing mortality for children less than 5 years of age than in neonates[12].

In a recent appraisal of the South African health changes and challenges since 2009, the establishment of three national committees on maternal, perinatal and child mortality described in the current overview was seen as a step forward since this increased the profile and coordinated action for MNCH, linking national mortality audit data to action and transferring lessons learned from one province to another[12]. The assessment also noted that "re-engineering of primary health care and plans for the national health insurance (NIH) were important national themes". Progress with the NHI funding scheme will help address challenges of inequalities caused by the skewed health care financing system which particularly disadvantaged the poor, women and children at all levels of care.

Future Outlook

The new 2012-2016 National Strategic Plan for Maternal, Newborn, Child and Women's Health (MNCWH) and Nutrition, has in addition to

provision of comprehensive interventions, been linked and aligned with efforts to strengthen the health system particularly through the re-engineering of the Primary Health Care services (PHCs) and district health systems[17]. This entails (1) establishment of local or ward (community level structure) based PHC outreach teams for delivering community-based MNCHW services at community and household levels and facilitating access to services at PHC and hospital levels, (2) strengthening of School Health services to improve health and learning outcomes for children and youth and (3) establishment of district clinical specialist teams to ensure provision of quality MNCWH services through supervision and support at all levels. The teams are made up of an obstetrician, a pediatrician, a family physician, an anesthetist and advanced midwife, pediatric and obstetrician nurse and a PHC nurse. The main goal of South Africa's new strategic healthcare and nutrition plan for women and children is to reduce by 10% by 2016: the maternal mortality ratio (MMR); the neonatal mortality rate (NMR); the infant mortality rate (IMR); and the child mortality rate[17]. The implementation of NHI as a financing mechanism to promote universal coverage might also have positive spin offs for MNCH.

The latest assessment of the health system in the country as it affects among others the MNCH program, suggest that "change in leadership of the Ministry of Health has been key, but new momentum is inhibited by stasis within the health management bureaucracy and that the solution is effective human-resources system based on equity and merit"[12]. Training, mentoring and supportive supervisory systems will need to be strengthened to address these human resource issues. The recently renewed focus on quality assurance and improvement, and the proposed establishment the Office of Health Standards Compliance will fast-track the attainment of quality standards across the country[20]. In addition, performance management reform initiative which includes the organizational review of the National Department of Health was initiated to strengthen human resources and performance management systems through the development of key performance areas and competencies for critical positions to strengthen the provision of quality health care[21]. Therefore, given the availability of political will and the supportive policies and guidelines for MNCH in South Africa, increased government attention is needed to focus on implementation and monitoring of these policies and programs in order to improve women and children's health[8,11].

Conclusion and Global Health Implications

Improving maternal, newborn and child survival across the continent depends on each country's ability to reach women, newborns and children with effective interventions; the provision and use of timely data on quality of care; monitoring and evaluation of health outcomes. Pivotal to the successful implementation of intervention packages for maternal, neonatal and child mortality is the establishment and maintenance of stakeholder partnership strategies to ensure sustainability in the continuum of care[8,22]. An effective continuum of care addresses the needs of the mother, newborn, and child throughout the life cycle wherever care is provided. This involves strengthening the continuum of care linking home, community, primary health care, regional and district hospitals by ensuring the availability of right care in the right place at the right time at each level[22]. Continued funding and commitment by all stakeholders including government, NGOs and communities is vital for the successful and sustained reduction of MNC deaths in South Africa.

The South African experience and current MNCH situation may be unique and / or different compared to other countries in Africa given the historical context. However, the political commitment and government stewardship in response to worsening MNCH outcomes is exemplary in the continent. This is more relevant given several global and regional plans and commitments to improve MNCH in the continent, whose essential prerequisites for meaningful and sustained improvement in health are effective leadership and governance[23]. "Governance and leadership are needed throughout the process not only to create policies and implement them but also to ensure quality and efficiency of care, to finance health services sufficiently and in an equitable way, and to appropriately manage the health

workforce"[24]. Finally, the use of critical and yet complimentary research for evidence based priority setting in SA, highlights the need for science to inform policy and practice which is often missing in many settings in Africa[25]. Given accumulating body of evidence on strategies for reducing MNC deaths in many countries which are part of the Countdown to 2015 initiative, translating such evidence into effective and sustainable program implementation for MNCH must be prioritized for MDG 4 and 5 targets to be realized.

Conflict of interest: None

References

1. Kinney MV, Kerber KJ, Black RE, Cohen B, Nkrumah F, Coovadia H, Nampala PM, Lawn JE. Sub-Saharan Africa's Mothers, Newborns, and Children: Where and Why Do They Die? PLoS Medicine. 2010;7:e294.
2. UN. Global Strategy for Women's & Children's Health. New York:United Nations, 2010.
3. The Global Campaign. Putting the Global Strategy for Women's and Children's Health into action. New York: The Global Campaign for the Health Millennium Development Goals, 2010.
4. Bhutta ZA, Chopra M, Axelson H, et al. Countdown to 2015 decade report (2000–10): taking stock of maternal, newborn, and child survival. Lancet.2010;375:2032–44.
5. Kinney MV, Lawn JE, Kerber KJ. Science in Action: Saving the lives of Africa's mothers, newborns, and children. Cape Town, South Africa, African Science Academy Development Initiative; 2009.
6. South Africa Every Death Counts Writing Group. Every death counts: use of mortality audit data for decision-making to save the lives of mothers, babies, and children in South Africa. Lancet 2008; 371:1294–304.
7. National Department of Health. Health Data Advisory and Coordination Committee Report. Pretoria: Department of Health; 2011.
8. Chopra M, Daviaud E, Pattinson R, Fonn S, Lawn JE. Saving the lives of South Africa's mothers, babies, and children: can the health system deliver? Lancet. 2009; 374:835-846.
9. Chopra, M, Lawn, JE, Sanders, D, Barron P, Abdool Karim SS, Bradshaw D, Jewkes R, Abdool Karim Q, Flisher AJ, Mayosi BM, Tollman SM, Churchyard GJ, Coovadia H. Achieving the health Millennium Development Goals for South Africa: Challenges and Priorities. The Lancet. 2009;374:1023-31.
10. Abdool Karim SS, Churchyard GJ, Abdool Karim Q, Lawn SD. HIV infection and tuberculosis in South Africa: an urgent need to escalate the public health response. Lancet. 2009;374: 921–933.
11. Coovadia H, Jewkes R, Barron P, Sanders D, McIntyre D. The health and health system of South Africa: historical roots of current public health challenges. Lancet. 2009;374: 817–834.
12. Mayosi BM, Lawn JE, van Niekerk A, Bradshaw D, Abdool Karim SS, Coovadia HM. Health in South Africa: changes and challenges since 2009. Lancet. 2012;380(9858):2029-43.
13. NCCEMD. National Committee on Confidential Enquiries into Maternal Deaths. Saving Mothers fourth report 2005–2007. Pretoria: Department of Health; 2009.
14. NCCEMD. National Committee on Confidential Enquiries into Maternal Deaths. Saving Mothers fourth report (2008–2010). Pretoria: Department of Health; 2011.
15. NaPeMMCo. National Perinatal Mortality and Morbidity Committee Triennial Report (2008-2010). Pretoria: Department of Health; 2011.
16. CoMMiC. First Report of the Committee in Morbidity and Mortality in Children Under 5 years (2008-2010). Pretoria: Department of Health; 2011.
17. NDoH. Strategic plan for maternal, newborn, child and women's health (MNCWH) and nutrition in South Africa, 2012-2016; 2012. Available from http://www.doh.gov.za/docs/stratdocs/2012/MNCWHstratplan.pdf. Accessed January 24, 2013.
18. WHO, UNICEF. Countdown to 2015: Maternal, Newborn and Child Survival - building a future for women and children, the 2012 Report. Geneva; 2012. http://www.countdown2015mnch.org/documents/2012Report/2012-complete- no-profiles.pdf. Accessed Nov 9, 2012.

19. Goga AE, Dinh TH, Jackson DJ for the SAPMTCTE study group. Evaluation of the Effectiveness of the National Prevention of Mother-to-Child Transmission (PMTCT) Programme Measured at Six Weeks Postpartum in South Africa, 2010. South African Medical Research Council, National Department of Health of South Africa and PEPFAR/US Centers for Disease Control and Prevention; 2012.
20. Department of Health, Republic of South Africa. National Core Standards for Health Establishment in South Africa. Tshwane: South Africa; 2011.
21. Department of Health, Republic of South Africa. Annual Performance Plan 2011/2012. Tshwane: South Africa; 2011.
22. Kerber KJ, de Graft-Johnson JE, Bhutta ZA, Okong P, Starrs A, Lawn JE. Continuum of care for maternal, newborn, and child health: from slogan to service delivery. Lancet. 2007;370:1358–1369.
23. Sewankambo NK, Katamba A. Health systems in Africa: learning from South Africa. Lancet. 2009;374:957-959.
24. Countdown Working Group on Health Policy and Health Systems. Assessment of the health system and policy environment as a critical complement to tracking intervention coverage for maternal, newborn, and child health. Lancet 2008; 371:1284–93.
25. Bennett S, Ssengooba F (2010) Closing the Gaps: From Science to Action in Maternal, Newborn, and Child Health in Africa. PLoS Med 7(6): e1000298.