Annexure 3:
CHALLENGES FOR MATERNAL PERINATAL AND NEONATAL SERVICES IN SOUTH AFRICA

Addendum to the
The South African
Maternal, Perinatal, and Neonatal Health Policy

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Contents

ANNEXURE 3: SUMMARY OF CHALLENGES FOR MATERNAL AND NEONATAL SERVICES IMPROVEMENT

Women, children, and adolescents still face numerous interrelated health challenges, underpinned by poverty, inequality and marginalization, and underfunded health services, with several contextual challenges to universal quality of care. These are highlighted for the SA healthcare context. All though South Africa has made significant progress with regard to the improvement of maternal health and the reduction of maternal mortality in the last two decades, Annexure 3 highlights the critical factors and challenges in the South African dual healthcare system that needs improvement for better health outcomes.

1 Maternal and Neonatal Morbidity and Mortality

Quality and accessible maternal health care services during pregnancy, childbirth and after delivery are important for the survival and well-being of both the mother and the infant. The maternal health care services during pregnancy is one of the pillars of safe motherhood in South Africa. Within the 17 SDGs, maternal health related targets under SDG 3 seeks to ensure healthy lives and promote well-being for all at all ages. Among the SDGs, SDG 3.1 aims to reduce the global maternal mortality ratio to less than 70 per 100 000 live births by 2030.[1] Therefore, sufficient and sustainable efforts is required to remove various barriers to health care access and utilization, particularly in low- and middle-income countries such as South Africa.[2] These are highlighted for South Africa;

1.1 Maternal Mortality

Pregnant women die disproportionally more in the public sector in SA due to the increased risk of developing pregnancy complications related to poverty and inequitable access and quality of maternal and essential care for newborns health delivery services. Additionally, there is empirical evidence from various studies on the link between utilization of maternal healthcare services and the reduction of maternal morbidity and mortality health outcomes of women.[3] Improving maternal and child health remains a population health priority globally and in South Africa.

A woman in sub-Saharan Africa has a 1 in 38 chance of dying from a pregnancy-related cause, compared with a woman in Western Europe whose risk is 1 in 11,700.

In South Africa the ‘Big Five’ causes of maternal deaths have been described and have changed with time. Most of the maternal deaths are preventable.[4] [5] Currently the direct maternal deaths in pregnancy, at delivery, or soon after childbirth, are attributable to obstetric hemorrhage, hypertension in pregnancy (HDP), abortion, and sepsis.[6] The 2014-2016 Saving Mother’s Report indicated that deaths due to HDP is

the only condition with increased maternal deaths.[7] There is a decline in indirect maternal deaths due to HIV largely due to the anti-viral treatment of HIV-related conditions, although deaths still occur and remains high.[8] Non-pregnancy related infections remain the leading cause of maternal mortality in South Africa in all provinces.[9]Twenty-eight per cent (28%)[10] [11]of maternal mortality results from non-obstetric causes such as malaria, HIV, diabetes,[12] cardiovascular disease, and obesity.[13]

Maternal mortality attributable to abortive outcomes, including ectopic pregnancy, miscarriage and unsafe abortion are in line with the global incidence of 7%.[14] Globally, complications of pregnancy and childbirth are linked to unsafe abortions as the leading cause of death for 15-to-19-year-old girls. Abortion in SA according the 2020 WHO report is only 74% safe.[15]

A general lack of knowledge and skill of staff still exist as according to in the Saving Mothers Report[16] including identified challenges related to performing caesarean deliveries in all settings, failure to protect the airway in anesthetic, referral challenges, early discharge and lack of post-natal follow-up.[17]

Skilled care before, during and after childbirth is the key to save the lives of women and newborns.[18] This is only possible when a health service environment is regulated and supportive for universal quality of care to women and children.

1.2 Perinatal/ neonatal mortality and stillbirths

The neonatal mortality rate is now widely observed and surveyed as an important population health measure for quality of care. In 2019, 47% of all reported under-5 deaths that occurred in the newborn period about one third dying on the day of birth and close to three quarters dying within the first week of life.[19].[20].[21] [22]In addition, the global rate of stillbirths has received more attention with the recognition of a large number of viable fetuses (2.6 million in 2015) who died after 28 weeks of gestation, often at the time of delivery.[23] The leading causes of perinatal deaths in South Africa are complications from preterm birth, followed by intrapartum-related complications, such as birth asphyxia, infections and congenital abnormalities and still births.[24]

The WHO reports in 2020 that “Children who die within the first 28 days of birth suffer from conditions and diseases associated with lack of quality care at birth or skilled care and treatment immediately after birth and in the first days of life”. The WHO asserts that “Women who receive midwife-led continuity of care (MLCC) provided by professional midwives, educated and regulated to internationals standards, are 16% less likely to lose their baby and 24% less likely to experience pre-term birth.”[25]

1.3 Maternal and neonatal nutrition challenges

South Africa is faced with a triple burden of malnutrition (overweight, obesity, underweight and micronutrient deficiency) affecting women and children. According to the South Africa Demographic and Health Survey (SADHS) of 2016 key indicator report women of childbearing age in SA have high levels of obesity and overweight: 27% of women aged 15 years and above were overweight, 41% were obese, and a low prevalence of 3% were underweight.[26] This is coupled with micronutrient deficiencies, with an anemia prevalence of 33%, low Vitamin A (serum concentration < 20 micrograms/dl) prevalence of 27.2 %, and calcium deficiency.[27] The latter may lead to hypertensive disorders later on in pregnancy.[28] The nutritional status of children under-5 years is of concern. The SADHS indicated a high prevalence of stunting (27%), 3% wasting and 13% of children being overweight.[29].

During the first 1000 days of life, poor nutritional status is an important contributing factor to maternal health complications, maternal deaths, intrauterine growth restriction (IUGR), preterm delivery, and poor childhood development.[30].[31] Furthermore, fetal growth restriction and postnatal growth affect motor and cognitive development, with the largest effects from stunting before age 2 to 3 years leading to reduced school and work performance. [32] [33] Neural tube defects from folic deficiency have declined significantly in South Africa due to supplementation in pregnancy.[34]

Maternal underweight, overweight and obesity at the time of pregnancy increase the risk of intrauterine grow restriction and gestational diabetes mellitus, childhood obesity that continues into adulthood, hypertension and pre-eclampsia, and coronary heart disease and.[35].[36]

Health seeking behavior of pregnant women is often valued in the pursuit of better health outcomes, yet many mothers resort to utilizing their own supplements and complementary medicine, some of which are not regulated.[37] [38] [39] Suboptimal breastfeeding remains an essential issue for neonatal health and survival, [40] [41] its contribution having been established as essential amidst a robust HIV prevention programme.[42] [43]

2 Leadership and governance for MPNH in South Africa

All managers and leaders (administrative and clinical) at different levels are expected to execute their duties per legislative frameworks. This MPNH policy aims to ensure that all managers and leaders are accountable for compliance with this policy.

2.1 Political leadership

Maternal and neonatal health is a developmental priority and a key aspect in a country's health system, which requires political commitment and buy-in for resource allocation and dedicated ring-fenced funding.

MPNH policy development is a consultative process that incorporates program considerations from varied stakeholders in the country; however, the policy remains the National Department of Health's mandate, with political leadership from the Minister of Health and technical leadership from the Director-General of Health.

With maternal and neonatal mortality rates plateauing, there is a need for renewed leadership commitments for research to ensure quality maternal and neonatal health to fulfil the NHI goals. South Africa has a leadership structure with formal institutions in place to ensure accountability.[44] Within the National Department of Health, the program strategy resides with the Cluster Women's, Maternal and Reproductive Health[45], but there is a need for a dedicated national position aligned to international trends to strengthen the quality of services.

2.2 Administrative Leadership

Maternal and neonatal health outcomes rely on a well-run service delivery platform dependent on leadership and governance, the referral framework, data and information flow, financing for MPNH, human resources for MPNH and technological advancements for service delivery. South Africa lacks a standardized service delivery model for maternal and neonatal care, considering the discrepancies and inequalities between provinces and the public and private systems.[46]

Service delivery platforms need to be organized around the mother and baby pair's care needs within the integrated continuum of care.[47]

2.3 Operational leadership

Operationalization of services currently is done at the local level, led by the nine provinces. There is a need for leadership to coordinate and synergize service delivery within the levels of care as per legislative requirements, guidelines, protocols and standard operating procedures (SOPs). The public health system is overcrowded and overburdened in maternal and neonatal health service points, and the infrastructure cannot deal effectively with the number of cases in a catchment area. This is compounded by the migration of women across district and provincial boundaries to access care that is closer or perceived to be of better quality.[48] There are discrepancies between provinces, districts, and rural areas pertaining to the distribution and function of facilities.[49]

Operational shortcomings[50] exist in 1) intersectoral coordination, including active community participation, 2) the number of facilities per population, 3) fragmentation of services,[51] 4) infrastructural challenges, 5) undocumented consumers of care and 6) maternal and newborn deaths that are not documented.

2.4 Clinical governance

There is no comprehensive strategy that integrates clinical governance related to the operational management of MPNH services in South Africa.[52] The core standards for a health establishment do not address the specific needs and requirements for maternal and newborn care.[53] Chief executive officers, clinical and operational managers are challenged to place staff that are appropriately competent per norms and standards for levels of care in the catchment area.[54] Anecdotal evidence demonstrates shortcomings in the oversight provided by clinical managers, whereby staff are not appropriately skilled, placed, remunerated, managed or utilized, leading to incidences of litigation. The DCST teams are not functioning to the expected level, with some teams being incomplete, unevenly distributed, allocated to other roles, unsupported or dismantled. [55]

The CEO's, clinical managers and nurse managers are responsible for overseeing the clinical management provided by medical doctors and associate medical staff and ensuring that it meets the required norms and standards. Clinical managers need to be capacitated on the MPNH program to effectively manage staff and exercise oversight for clinical practice in an enabling environment.

The operational pillar of clinical governance is a district-level function responsible for ensuring the quality of services, surveillance, and reporting.[56] The roles and responsibilities of the DCST are supportive of the district.[57]

3 Health systems and Service Delivery platform

3.1 Global call for Quality of Care (QoC) in maternal health

The quality of maternal and perinatal health care (QoC) is not only reflected in the technical and clinical maternal and perinatal mortality and morbidity outcomes of care, but also in the experience of women of the care they received,[58] within a context of inequalities and equity.[59] The vision for meeting the SDGs is underpinned by core values of quality, equity and dignity.[60] [61]

3.1.1 Quality of Care (QoC) in maternal care in South Africa

The quality of care reflects the system's capacity to deal with a normal and complicated pregnancy and childbirth, including prompt reactions to life-threatening events. Quality care requires a skilled and responsive workforce with lifesaving skills, functioning in an enabling environment inclusive of norms and standards for adequate physical infrastructure and essential resources.[62] [63]

Quality gaps in maternal and newborn care have been reported through the Saving Mothers[64] and Saving Babies 2014-2016 reports [65] [66] and include patient factors, staff factors and health system quality factors with recommendations. The

recommendations of these reports have not been fully implemented.It takes leadership to operationalize policies, recommendations and guidelines and translate them into practice through implementation. Implementation needs an action plan that considers resource mobilization, management, supervision, collaboration with multiple stakeholders and the community, clinical oversight, how care will be coordinated between all health system levels, and monitoring and evaluation for improved quality of maternal newborn care. Lessons on how to strengthen maternal programmes should be learned from other successful projects. [68]

There is inequality in care and health outcomes between the public and private healthcare systems in SA and within vulnerable groups[69]. To improve maternal and neonatal health outcomes, universal access to quality health care is a priority, including for vulnerable groups such as intimate partner violence LGBTQI persons, orphans, runaways, abused persons[70], women with unwanted pregnancies, forced abortions, asylum seekers, refugees[71], displaced persons, mentally challenged persons, foreigners, and abandoned babies.

3.1.2 Access to universal quality MPNH care[72]

Access to MPNH services includes aspects of availability, accessibility, acceptability, accommodation, and quality in every setting. SA is still highly inequitable with respect to access to adequate care, including 24-hour emergency and pre-referral care, safe abortion services, with significant differences between rural and urban areas, provinces, and between richer and poorer communities.[73] There are also significant differences between public and private care provision, varying across parameters such as “hotel-like” services, number and level of competent care workers in attendance, and level of sophisticated resources and services at hand when needed as well as patient experience of care, the safety and efficacy of care, and value-for-money and affordability.[74]

Providing care that is integrated and responsive to the mother and newborn's needs requires a holistic approach to quality service delivery, such that fragmentation of care can be overcome[75]. All aspects of their care-related needs should be provided at every service point within the health system, considering their culture, significant persons, and family during pregnancy and birth.

Anecdotal data reveals the contribution of cultural and social practices on access to care. Some mothers may hide their pregnancy until it’s visible or choose not to comply with their healthcare provider’s advice during pregnancy[76]. These practices may lead to missed opportunities for syphilis testing, HIV testing, and other essential antenatal care.

3.2 Challenges on Integrated services within MPNH Continuum of care

3.2.1 Maternal nutrition in pregnancy and lactation

It is well documented that vertical programme do not work as effectively or efficiently as more comprehensive approaches, particularly in countries that face multiple and concurrent health challenges.[77] Without an integrated approach to address multiple maternal risk factors, interventions are unlikely to meet women's needs nor to be sustained in the long term. Maternal malnutrition is a modifiable risk factor of public health importance that can integrate into efforts to prevent adverse birth outcomes, particularly among economically developing/low-income populations. Full integration of evidence-based interventions such as implementing the Ten Steps to Successful Breastfeeding as a standard of care into maternal and neonatal service delivery will improve maternal, neonatal and overall child health outcomes and promote more efficient and effective use of resources.[78]

3.2.2 Perinatal mental health and gender-based violence

Maternal mental health is essential to the well-being of the mother, the development of her child, and the well-being of her partner and other family members. In South Africa, the National Development Plan 2030[79] emphasizes the following regarding early childhood development:

- The first 1000 days, from conception to 24 months of age, represent a critical period for intervention for positive development[80 81]
- Pregnant women and mothers need access to emotional and material support to ensure a healthy pregnancy[82]
- Maternal well-being is needed to ensure optimal nurturing of children to grow up healthy, well-nourished, physically fit, and cared for in a stable environment[83]
- Vulnerable mothers need to be recognized, protected and empowered to provide care and stimulation to their child[84]

Untreated mental disorders are associated with significant, harmful effects on maternal and neonatal health and well-being, globally and in South Africa.[85 86]These include:

- Higher risk of harmful maternal behaviors such as hazardous drinking and illicit substance use [87]
- Higher rates of experiencing Gender-Based Violence
- Reduction in maternity care uptake
- Reduced adherence to ART/ PMTCT and child immunization schedules

Maternal mental disorders are associated with poor maternal and fetal outcomes of pregnancy[88], including:

- Preterm labor, low birth weight neonates, poor infant growth, and poor infant cognitive development (most commonly, with all mental health conditions)
- Gestational hypertension and pre-eclampsia (most notable with bipolar disorder)
- Gestational diabetes (most notable with schizophrenia)

In the postpartum period, mental disorders may affect maternal responsiveness and functioning and have cross-cutting, long-term negative consequences for children's physical, cognitive, and socioemotional development.

There is no recommendation in the Guidelines for maternity care in South Africa 2015 for assessing a woman during pregnancy for emotional and mental factors that may lead to adverse pregnancy outcomes.

3.2.3 Genetic disorders, birth defects, disabilities and genetic services [89] [90]

The Human Genetic Policy for management and prevention of genetic disorders, birth defects and disability summarized the incidence of the most common genetic condition in SA for disability as Down's syndrome 1:500, neural tube defects, fetal alcohol syndrome (FAS), albinism, cleft palate and lip, club feet and rubella and cytomegalovirus infections.[91]

Congenital disorders (CDs) affect an estimated 1 in 15 or 7% of live births every year in South Africa. Of these 70 000 affected births, some are diagnosed at birth, while others will only manifest across the life course or may present as sudden death.[92] The majority (80.5%) of CDs are genetic/partially genetic in cause, while teratogens cause 19.5%. The latter is more than the 10-15% expected in SA owing to the high prevalence of Fetal Alcohol Syndrome (FAS)[93] [94]. Many complex disorders and non-communicable diseases (NCDs) have genetic predispositions (e.g. cancer, cardiovascular disease, diabetes, etc.)[95]

An apparent increase in the incidence of neonatal gastroschisis and exomphalos has been reported from several parts of the world. In South Africa available data indicates a prevalence of increase of 2,4 fold in regions with a 38,7 to 47% mortality rate. The research recommended a national survey. According to data from 'Retina South Africa', the prevalence of blindness and childhood blindness in South Africa is estimated to be 5 per 1 000 (0.5%) and 5 per 10 000 (0.05%). [96] Retinopathy of premature babies in South Africa has improved but is still about 16,000 infants per year.[97]

Serious CDs are often life-threatening and contribute significantly to child morbidity, mortality, and disability in SA. The provision of genetic services plays a crucial role in reproductive decision making and can improve maternal, fetal and neonatal outcomes. As the country transitions epidemiologically, the proportion of child mortality attributed to CDs is expected to rise and emerge as a leading cause of death in children under

five.[98] This is in keeping with the trend experienced by high-income countries where CDs emerged and remain the leading cause of death in children today.[99]

This growing health burden remains hidden under the parallel burden of communicable disease, although data is beginning to emerge. According to the 2014-2016 Saving Babies report CDs is amongst the top five final causes of neonatal mortality for neonates weighing more than 1000g. CDs as a final cause of death are ranked fourth with 12.6% of the total reported neonatal mortality data. There has been a steady increase in the proportion of neonatal mortality resulting from CDs as a cause of death for neonates >1000g from 10.5% to 11.8% in 2002-2016.[100] [101]

3.2.4. Cancer in women of childbearing age and during pregnancy or postnatal [102] [103]

In general, cancer during pregnancy is an uncommon occurrence. Statistics show that about 1 in every 1,000 pregnant women are diagnosed with some form of cancer[104]. Though there is a shortage of familial cancer data in SA, it is expected that approximately 12% of women and 4% of the general population will be affected by breast and colorectal cancer, respectively.[105] The 5 most common cancers in women in SA are listed in order of importance as, breast cancer[106], cervical cancer, colorectal cancer, uterine cancer and lung cancer. Both breast and cervical cancer have been identified as a national priority with increasing incidences occurring. with a lifetime risk of 1 in 25 in South Africa, according to the 2017 National Cancer Registry (NCR).[107]

Cervical cancer is the second most common cancer among women in South African after breast cancer with a reported a 1 in 40 lifetime risk of cervical cancer.[108] Annually there are some 5 743 new cases reported with 3 027 associated deaths in South Africa with Ninety nine percent (99%) of cervical cancers are associated with HPV. Cervical cancer is the 10th most common female cancer in women aged 15 to 44 years in South Africa.

The National Guideline for Cervical Cancer Control and Management 2019 guides the prevention and early recognition of this condition[109] Screening for cervical cancer was relatively high but for breast cancer it was low, despite the latter being a major public health problem in South Africa in 2018. This may be attributed to the limited availability, affordability, and accessibility of breast cancer screening services among socio-economically disadvantaged individuals There are some socio-economic disparities in adopting both breast and cervical cancer screening guidelines that could be targeted by interventions.[110]

3.2.5 PMTCT of Communicable infections

Infections during pregnancy are a major contributing factor to perinatal morbidity and mortality[111]. In utero infections may directly affect the fetus and can lead to intrauterine deaths and stillbirths. The fetus may also be affected indirectly because of maternal infection leading to premature birth or fetal growth restriction (FGR). Infections that are asymptomatic at birth may present later in life, often within the first five years. In

general, primary infections during pregnancy are substantially more damaging than re-infections or reactivations of infection. Likewise, infections acquired at an earlier gestational age tend to lead to more serious infections. HIV, syphilis, TB, HBV, malaria, and, more recently, listeriosis are all infections with a significant impact on maternal and child health outcomes in SA.

OVERVIEW OF PMTCT OF HIV

South Africa (SA) is committed to achieving the elimination targets outlined in the Last Mile Plan[112]. Whilst significant progress has been made in preventing HIV infections in children, HIV remains the third leading cause of maternal mortality and a significant contributor to under-five deaths in SA.[113] Therefore, managing the health of women living with HIV and preventing mother-to-child transmission of HIV remains a critical intervention for ensuring that women and children survive and thrive in South Africa. PMTCT Option B Plus[114] entailed initiating ART for life in all pregnant and breastfeeding women regardless of CD4 count or clinical stage and was launched in SA in January 2015. According to the GAM Report [115] there has been significant continued drop in T MTCT rate and the Thembisa Model indicated the MTCT at birth as 0.9% in 2017 and 0.8% in 2019. The estimates are like those reported by the National Health Laboratory Service (NHLS). 25. According to data from the DHIS, the 10-week MTCT rate in 2019 was 0.7%, down from 1.3% in 2016/2017. Number of HIV PCR tests done at birth in South Africa, 2017–2019 has also shown slow improvement. Now, five years down the line, the 2019 PMTCT guidelines[116] has considered new evidence, both scientific and operational, to ensure that SA's HIV PMTCT program remains relevant, practical, and evidence based.

SYPHILIS IN PREGNANCY

Syphilis remains a significant cause of preventable perinatal death in SA.[117] The 2019 sentinel survey (unpublished) data on ante natal HIV, Syphilis prevalence [118] shows an increase of syphilis in pregnant women and newborns in SA against the 2017 survey. With only an estimated 72% of woman receiving screening for syphilis, many women may remain undetected and untreated.[119] Laboratory-based RPR contributes to the delay in treatment initiation. Adverse pregnancy outcomes occur in up to 80% of syphilis seropositive, untreated pregnant women.[120] South Africa has committed to the triple elimination of HIV, hepatitis, and syphilis. Therefore, greater emphasis is needed on the process of screening and effectively treating mothers, their partners, and their infants affected by syphilis. The current trends of seroprevalence of HIV/syphilis co-infection and syphilis infection overtime through the national surveillance systems indicates the re-emergence and rising syphilis infections with high risk of congenital syphilis which calls for robust early dual testing, screening of women and management in pregnancy treating of congenital syphilis. [121]

TUBERCULOSIS IN PREGNANCY

Non-pregnancy-related infections remain the leading cause of maternal mortality in South Africa and all provinces. Within this category, respiratory infection remains the most common cause of death, and TB the most common underlying disease often coinfection with HIV.[122] Yet, deaths from TB are likely to be unrecognized, with many deaths due to pulmonary or disseminated TB being attributed to other causes. Furthermore, maternal TB may result in premature birth, low birth weight, and congenital or neonatal TB infection or disease.[123] Prevention, screening during the childbirth cycle, diagnosis and treatment of women for TB must receive greater emphasis if maternal and child outcomes are to be improved in SA particularly in the context of HIV.

MATERNAL COLONIZATION OF GROUP B STREPTOCOCCI (GBS)

Global systematic reviews [124] [125] as well as regional and studies in South Africa [126] [127] indicate the prevalence of maternal colonization of Group B streptococci (GBS) during pregnancy and it is an important risk factor for neonatal morbidity and mortality.[128] [129] [130] Maternal GBS colonization may result in pregnancy-associated conditions including urinary tract infection, bacteraemia, chorioamnionitis, preterm labor (PTL),[131] preterm rupture of membranes (PROM) and perinatal transmission of the organism and postpartum endometritis.[132]

The Centre for Disease Control and Prevention (CDC) recommends that all pregnant women at 35–37 weeks gestation should be screened for GBS colonization using vaginal-rectal specimens in order to decrease the morbidity and mortality of GBS-associated neonatal disease.[133] It is therefore imperative that programmes such as surveillance, immunization, screening and antibiotics for pregnant women and neonates be included in the country's maternal and neonatal health programmes and guidelines.[134] [135]

MALARIA IN PREGNANCY [136]

Particularly in the second and third trimesters of pregnancy, pregnant women are more likely to develop severe malaria and have a higher malaria-related mortality rate than other adults. Malaria in pregnancy is more frequently associated with complications such as cerebral malaria, hypoglycemia, and pulmonary edema/adult respiratory distress syndrome. In addition, maternal malaria increases the risk of spontaneous abortion, stillbirth, premature delivery, low birth weight (a leading cause of child mortality) and rarely, congenital malaria. Fetal distress may occur intra partum.[137]

HEPATITIS IN PREGNANCY

Maternal Hepatitis B viral infection (HBV)[138] may result in higher preterm births, lower APGAR scores, gestational diabetes, and antepartum hepatitis. Whilst horizontal transmission during childhood remains the primary mode of HBV transmission, vertical transmission from mother to child remains an important mechanism of infection in countries with high HBV prevalence. In SA, many HBV infected women are also living with HIV and will receive ART during pregnancy. The ART drugs Tenofovir and lamivudine treat both HIV and HBV and reduce the risk of mother to child transmission by decreasing the viral load of both HIV and Hepatitis B.[139] Health care workers need to be aware of the required management of an HBV-infected mother and her infant as outlined in the National Guidelines for the Management of Viral Hepatitis.[140]

LISTERIOSIS, ZIKA AND OTHER INFECTIONS

Listeriosis[141] is a disease caused by ingesting food contaminated with the bacterium Listeria monocytogenes. Pregnant women, newborn infants and those with weakened immune systems are particularly at risk, and the infection may result in sepsis or meningitis with high mortality. Vertical transmission may result in stillbirth, premature delivery or severe infection in the newborn.[142]

Although Zika Virus outbreaks are not common in South Africa, health workers need to apply universal measures to prevent infections during pregnancy and the breastfeeding period. Zika virus was first identified in Uganda 70 yrs. ago and was recently carried to Brazil. It is transmitted by mosquitos. While the majority of Zika infections are asymptomatic, infected persons may present with a short-lived febrile illness. There is no evidence that pregnant women are more susceptible to Zika virus or are more likely to develop complications of the disease. However, maternal Zika infection may result in the 'Congenital Zika syndrome' with a unique pattern of defects including severe microcephaly, decreased brain tissue, eye damage, joints with limited range of motion and too much muscle tone, which restricts body movement after birth and deafness.[143] South Africa needs a strategic guideline for maternal and newborn care during disasters and pandemics.[144] [145]

TETANUS [146]

The majority of reported tetanus cases are birth-associated, occurring in low income countries among insufficiently vaccinated mothers and their new-born infants, following unhygienic deliveries and abortions, and poor postnatal hygiene and cord care practices. Neonatal tetanus occurs when non-sterile instruments are used to cut the umbilical cord or when contaminated material is used to cover the umbilical stump. Deliveries carried out by persons with uncleansed hands or on a contaminated surface are also risk factors.[147]There is improvement of neonatal tetanus reported in South

Africa due to the vaccination protocol in pregnancy, but migrants and migration between provinces and countries still needs attention to prevent the condition.

RESPIRATORY CONDITIONS. (INFLUENZA AND COVID-19)[148] [149]

Influence and H1N1 are more prevalent among pregnant women and can have serious complication is pregnancy and the newborn. Flu vaccinations has proven to reduce influenza fatalities in pregnant women and their infants.[150] [151] hence South Africa rolled out its influenza vaccination since 2014 and gradually scaling up the program.

Pandemics such as COVID-19 affected access to MPNH services, impacted pregnancy outcomes, and breastfeeding during the postnatal period and early childhood development. [152] [153] In South Africa steps were taken for care of women in pregnancy with COVID for early identification and best practice treatment to prevent mortality and morbidity as described from empiric experiences [154]. COVID-19 can lead to severe morbidity and mortality in women with certain high-risk conditions in pregnancy with special reference to HIV.[155] The impact of COVID on maternal and neonatal health indicate the need for the emergency preparedness during pandemics.

3.2.6 Basic antenatal care challenges

Analysis of antenatal utilization and coverage of 74%-84%[156] indicates that women visit the clinic more often. ANC attendance is influenced by age, parity, rural setting, education level and household wealth. The first visit ANC before 20 weeks' attendance have improved from 60%. The complex reasons for late 1st visit should inform healthcare providers to be encouraged and empowered to make necessary changes in patient flow challenges. [157] [158]

Many complications experienced by pregnant women can be prevented, detected, and treated during ANC visits by trained health workers[159]. Ensuring quality and respectful care during a woman's pregnancy journey results in a positive pregnancy experience and improved perinatal outcomes.[160] [161] [162] Antenatal care provides an opportunity to detect gender-based or intimate partner /domestic violence, which can cause pregnancy-related complications or poor infant health.[163] [164]

An optimal antenatal care package can foster a rapport between the mother and the father and the health care provider, provide preventive care and health education, identify and manage complications, encourage skilled attendance at birth and prepare the mother, other family members, and the health system for possible emergencies.

The current WHO aligned standard of antenatal care (ANC)[165] BANC Plus is understood to primarily focus on technical clinical obstetrical issues.[166] This contact with the pregnant women also provide an important opportunity to deliver other preventive clinical interventions as well as counselling and health education on birth preparedness. Danger signs and health issues not directly linked to BANC Plus need

an appropriate response from the clinician and healthcare workers. Key practices at the household level during and after pregnancy, and family planning also is part of the care of women in pregnancy. An integrated approach includes HIV and family planning in the care. BANC Plus is a tool to use in ANC but it does not guarantee quality of service or improved health outcomes if an integrated approached is not followed. Errors and omission still occur due to staff and health system issues. [167][168] [169]

However, there is evidence of poor or substandard care, such as not detecting elevated blood pressure in women with hypertension in pregnancy or failure to take appropriate decision action when detected. [170] Consequently, a significant number of stillbirths occur related to hypertension disorders of pregnancy (HDP) [171] [172] [173] noted as the underlying cause with the most common avoidable factor being "not responding to antenatal hypertension" in pregnant women.[174]

The core problem in perinatal deaths due to hypertensive diseases in pregnancy is that the primary health care clinics do not detect and manage the woman appropriately by either referring her on or having a more skilled attendant manage the pregnancy.

Support is needed from the community, family and partner to ensure that women attend ante care regularly and timely. A programme for education of the family to detect abnormalities and respond. There is a need to involve the significant person in the ante care. Transport to the clinic remains a barrier to ante natal care in South Africa and is significant and needs a workable and sustainable solution.

3.2.7 Intrapartum care challenges

An increase in the proportion of births delivered in health facilities was observed amongst especially rural women in Eastern Cape, Limpopo, and Mpumalanga. A skilled health provider assisted in nearly all deliveries (95%) in the public sector in South Africa.[175] This is a registered midwife or advanced midwife or a medical practitioner. The number of undocumented women that deliver in South Africa is a burden on the health care system.

The WHO[176] support the approach of normalcy of birth with consideration of the identification of women with risk factors and conditions that may contribute to adverse pregnancy and birth outcomes. For this reason, women need antenatal care and a referral system is in place to provide a higher level of care and expertise needed.

Nevertheless, there are challenges with skill of staff and interpretation of protocols that require clinical experience and skills. South African data show that the use of the partogram as a tool to assist observation for prolonged labor is not correct and effective. A multifaceted solution to the problem is needed to prevent the perinatal deaths due to intrapartum asphyxia. This supports the findings and the new WHO recommendations for intrapartum care (IPC) that discourage interventions based on

cervical dilatation alone, as this is a poor predictor of adverse neonatal outcomes.[177] [178] [179] [180]

The unfortunate outcomes of the high incidence of substandard care in labor led to adverse outcomes for mothers and babies resulted in ongoing stream of litigations related to maternal and newborn deaths, stillbirths and encephalopathy of the newborn. The indication is that 39.6% of perinatal deaths were due to intrapartum asphyxia.[181] [182] [183]

In South Africa, the C/S rates are high in both the public sector and the private sector, with the C/S rates being much higher in the private sector The SADHS 2016 has shown that six in ten births (61%) delivered at private health facilities are caesarean births, as compared with 22% of births delivered at public health facilities. In the past five years' caesarean section rates increased from 26,5% in 2016 to 29,7% in 2020. [184]. Surgical skills and management of bleeding during caesarean sections have been reported as the main contributor to maternal mortality due to postpartum hemorrhage.[185]

Experiences of women in the public sector during birth is under scrutiny with reports of dissatisfaction, contribution to the conditions and experiences referred to as "abuse" in care.[186] [187] [188] For this purpose, the respectful maternity care approach is put in to place as a guideline.[189] [190]

Doulas or traditional birth attendants can contribute to better birth outcomes by encouraging accompanying persons during labor, assisting with the birth and supporting breastfeeding.

In South Africa as in many other countries MOUs exist in both the public and private sectors, with the majority being in the public sector with a shift in policy to increase the level of autonomy and decision-making for midwives and midwifery led care regarding low-risk pregnancies. Evidence exist that these units create positive environment for women to have more choice and autonomy. With less medical interventions patients are more likely to receive natural births and more positive respectful positive childbirth.[191] [192] [193] However, challenges exist to transport women for distances too far to reach hospitals for the next level of expertise. This need for access to emergency care for maternal and neonatal emergencies OMBUs could be and a recommendation from the NCCEMD as an alternative model for providing safe and cost-effective childbirth care, which may be particularly important in low- and middle-income countries to meet the growing demand for facility-based birth for low-risk women and improve efficiency of health systems (OMBUs). [194] [195] [196]

Stillbirths[197]

Stillbirths are preventable but remains a hidden if there is no specific indicator to measure the number of cases accurately and if no specific action is taken to prevents these deaths. Findings in South Africa shows that 60% of stillbirths are macerated, indicating that the death in utero during the antenatal period and 40% are related to intrapartum factors classified as fresh stillbirths.[198] This is contrary to the worldwide pattern and the pattern in sub-Saharan Africa.[199] The most common category of cause of the stillbirths is given as 'unexplained', followed by hypertensive disorders in pregnancy and antepartum hemorrhage (mostly abruption placenta)[200].Five priority areas to bring change include: (1) intentional leadership; (2) increased voice, especially of women; (3) implementation of integrated interventions with commensurate investment; (4) indicators to measure impact and especially to monitor progress; and (5) investigation of critical knowledge gaps. The rates correlate with access to maternal healthcare in general and an indicated increased period of stillbirth risk after a 6-week absence of antenatal care.[201] Every newborn action plan (ENAP) to end preventable deaths has a set stillbirth target of 12 per 1000 births or less by 2030. This required a reduction of more than the current 2% reduction in stillbirth to accomplish this target. [202]

3.2.8 Neonatal health challenges

For the past decade, reports and evidence,[203] [204] reported birth asphyxia as one of the three major causes of neonatal deaths [205] emanating from poor fetal monitoring during labor as well as infections and preterm births.[206] [207] The immediate postpartum period provides an opportunity to optimize the infant's health, especially for small and sick neonates, contributing significantly to the neonatal mortality rate. Preterm birth is the leading cause of child death worldwide at 11%.[208] Small and sick newborns require timely, high-quality inpatient care to survive. This includes providing warmth, feeding support, safe oxygen therapy and effective phototherapy with prevention and treatment of infections. Inpatient care for newborns requires dedicated ward space staffed by health workers with neonatal specialist training and skills.

Evidence and reports in South Africa have always indicated the three major causes of neonatal mortality as Birth Asphyxia, infections and prematurity. [209] [210] [211] Preterm birth is the leading cause of child death worldwide at 11%,[212]with congenital abnormalities following as the fourth cause.[213] The immediate postpartum period provides an opportunity to optimize the infant's health, especially for small and sick neonates, contributing significantly to the neonatal mortality rate. Small and sick newborns require timely, high-quality inpatient care to survive. This includes providing warmth, feeding support, safe oxygen therapy and effective phototherapy with prevention and treatment of infections. Inpatient care for newborns requires dedicated ward space staffed by health workers with neonatal specialist training and skills.

Intrapartum asphyxia and Encephalopathy at birth: According to the Perinatal data monitoring system (PPIP) Intrapartum or Birth asphyxia resulting in hypoxic-ischaemic encephalopathy (HIE)[214][215] is only one of the many other causes [216] [217] emanating from mainly poor intrapartum management, prematurity, small for gestational age, infections among other factors.[218] [219] Intrapartum asphyxia in LMICs may be due to under-resourcing and lack of access to appropriate health facilities,[220] given an encephalopathy incidence of 8.5 %/1 000 to 13, 3% / 1000 live births.[221] [222] Neonates with asphyxia are at risk of developing encephalopathy and often have ongoing respiratory depression requiring respiratory support in a neonatal intensive care unit, with a need for neuroprotective interventions such induced hypothermia or therapeutic hypothermia (TH) improves survival and neurodevelopmental outcome. [223] [224] [225]

It is therefore recommended that clinicians conduct a comprehensive evaluation (including determining the type and timing of contributing factors therapeutic hypothermia, development of guidelines and protocol for TH as well as make available cooling machines technologies, keeping in mind that these may require adaptation to the South African environment and context.[226]

Neonatal Healthcare-associated infections (HAIs)

South Africa has had burden of Healthcare-associated infections (HAIs) and lately most frequent complication of hospitalisation, resulting in increased neonatal morbidity, in-hospital mortality and healthcare costs and litigation [233] since the early 90's. [234] [235] [236] Hospitalised neonates and children are at high risk for HAI owing to immunological immaturity, frequent handling by caregivers through direct contact with contaminated hands, surfaces or equipment and increased in-hospital exposure to infectious diseases (notably viral respiratory and gastrointestinal pathogens) [237] [238] For South African hospitals some of the attributable factors include ageing hospital infrastructure with overcrowded and short-staffed neonatal units, poor infection prevention and inadequate institutional support for IPC control (IPC) and practices, inappropriate use and poor monitoring and reporting of antimicrobial use antimicrobial agents. Adequate surveillance and response systems are necessary components in preventing the excess morbidity and mortality associated with HAIs.[239] [240]

It is recommended that hospital neonatal wards infrastructure need revamping to adhere to recommended spacing prescripts, adequate neonatal staffing with strict adherence to adequate IPC practices, antimicrobial stewardship programmes, surveillance systems to be put in place.[241]

Service readiness for neonatal care: The introduction of the increased visit schedule for antenatal visits (BANC Plus)[242] has led to a reduction in perinatal deaths due to hypertension and stillbirths between 34-38 weeks' gestation. This increases the burden on neonatal services**.** Cost-effective interventions can reduce neonatal deaths

by 41 - 72% and include antibiotics for preterm premature rupture of membranes, antenatal corticosteroids, clean delivery practices, resuscitation of the newborn, breastfeeding, prevention of hypothermia and kangaroo mother care (KMC)[243] [244]. However, there is insufficient emphasis on the availability of skilled personnel, adequate medical equipment and enough beds to care for sick newborns and avoid overcrowding in neonatal wards [245].

3.2.9 Postnatal period challenges

The marked increases in institutional deliveries (95%) provide an opportunity to take advantage of the time before discharge to deliver key aspects of postnatal care[250]. Up to 1 in 45 of postpartum maternal deaths[251] occur within one day of delivery, approximately 65% occur within one week, and roughly 80% occur within two weeks due to postpartum hemorrhages, caesarean section related complications, and unmanaged hypertensive disorders of pregnancy.[252] While the quality of services provided in the immediate postpartum is key, the timing of the service to be provided is an important factor in maximizing maternal and newborn health.

Whether before discharge or at subsequent follow-up visits, postnatal care should include a clinical assessment, counselling for parenthood, screening for mental health conditions and support for breastfeeding.

Data indicates that postnatal visits to facilities have proven difficult for some mothers resulting in missed opportunities for postnatal care, immunizations, and loss to follow up of HIV exposed infants[253]. To improve access, home visitation by community health workers has been promoted as a postnatal care strategy that achieves comparable benefits under conditions with limited resources and has demonstrated potential for reducing maternal and newborn deaths. However, implementation has proven difficult to take to scale in many areas.

3.3 MPN healthcare workforce requirements and challenges

Optimal management of staff and resources are key aspects for effective maternal and newborn care service delivery. According to the South African Health Review (2018), one of the major issues in the human capital arrangements in South Africa is the poor stewardship of human resource planning and inadequate information on the availability of human resources for health (HRH) to address historical inequities[254] [255] between urban and rural areas.[256] [257]

Although there is a Human Resources for Health Strategy 2014,[258] it needs a specific key strategic focus on the maternal and neonatal workforce, reflecting mothers and neonates as a vulnerable group. The midwife is the primary, key and most cost-effective caregiver for normal pregnancy and birth[259] [260] The scope of the midwife is routine, uncomplicated care. The midwife's core competencies should be aligned with

those stipulated by the International Council of Midwives (ICM).[261] [262][263]The availability of an emergency transport system and an effective obstetric system in support is needed to reduce mortality and morbidity.

The shortage[264] and uneven distribution of appropriately skilled healthcare workers for MPN and obstetric care contribute to MPN mortalities. Doctors, specialists, midwives, advanced midwives, neonatal nurses, and neonatologists are unevenly distributed due to personal preferences for urban vs rural areas and the public vs private health system mix.[265] Fully investing in midwives by 2035 would avert roughly two-thirds of maternal, newborn deaths and stillbirths, saving 4.3 million lives per year globally.[266].

Lack of staff skills, inexperience and lack of supervision during surgical and anesthetic administration by medical doctors in cesareans sections remains a challenge[267]. Task shifting takes place in primary healthcare and includes community health workers and clinical associates who have limited maternal and newborn care scope.[268]. If they work unsupervised, they may put the lives of women and neonates at risk. Therefore, the right skill mix must be matched with the right obstetric complication risk.[269]

The 2020 change of the curriculum and training for nurses and midwives to a Higher Education Qualification is a compounding factor on the output of midwives.[270] This, in addition to the natural depletion of skilled and experienced nurse-midwives from the system, will negatively impact the quality of healthcare for the future.[271] [272] A one-year post-basic midwifery course should be considered together with other solutions. An urgent compulsory CPD point system is needed for all categories of MPN health care workers.[273]

There is a need to ensure that all healthcare workers providing maternal and neonatal care are fully trained and equipped for their task level. Therefore, an effective deployment strategy is needed in all levels of care, particularly ensuring that skilled midwives are placed in MOUs, linked to a general understanding of the midwife's scope of practice in the district and regional hospitals. The scope of practice would need to be considered, as referred to in the scope of practice documents for midwives, including the SANC scope of practice and the International Confederation for Midwives (ICM) competency list. Regard for issues of retention of clinicians is needed, especially given the high attrition and litigation rates that are a threat in the profession.

Besides increasing the numbers of healthcare workers through training, there are other policy suggestions from the South African Health Review;[274]

- There should be a comprehensive retention strategy that includes finances, supportive management, and a safe, conducive work environment
- There is a need for improvement of skills at all levels of care for all healthcare staff

- Key for maternal and neonatal health delivery are considerations for the mother and baby pair and that the right level of care is applied to the correct maternal or neonatal condition[275]
- Reconceptualization of student selection and ensuring that deployment seeks to address current health inequities
- The private sector should participate in the training platform for human resources for health in South Africa
- Engagement with regulatory bodies on enriching the scope of work for both nurses-midwives and doctors around MPNH services
- The use of technology to automate mundane and repetitive tasks.[276]

3.4 Financing MPNH services

Although the MPNH programs are funded from the fiscus, with financial flows from national to the provincial treasury and then allocated to programs for service delivery, it is not ring-fenced. Fundamentally, the pursuit of universal health coverage could reduce vulnerability from out-of-pocket payments for health, with the fund acting as a single purchaser. It is envisaged that such a move would benefit MPNH programs, given that women and children make up most of the users of a healthcare system, but its implementation is still underway. Expenditure line items should be reorganized to reflect the various elements of service delivery for maternal and neonatal health.

The development and strengthening of partnerships with the private sector (public-private partnerships (PPPs), funders, implementing partners, local NPO's and private providers have become an essential strategy to reach the SDG goals in MPN care by 2030 [277] [278].

Collaboration and costing of the implementation of norms and standards for universal, quality MPN care delivery will ensure quality and sustainability.[279] [280]

At a national level, unconditional grants are given to the NDOH for program planning, including piloting new initiatives. A new dynamic in funding for MPNH programs is the NHI Fund,[281] which introduces a purchaser-provider split into the South African health system.

3.5 Infrastructure compliance

Hospital infrastructure can enable or obstruct specific interventions: space that provides privacy and accommodates birth companions facilitates respectful maternity care; availability of facilities for Kangaroo Care (KMC) facilitates optimal care for the management of stable, very low birth weight and preterm neonates.[282] Evidence indicates that space limitations and resultant overcrowding contribute to the risks of neonatal sepsis outbreaks. Facilities should follow the broad guidance on the design of MPNH services as laid out by the CSIR in the ideal clinic framework[283] and the

Infrastructure Unit Systems Support (IUSS) Guide. Additional resources include the Quality Improvement Toolkit for Neonatal Care and the KZN Guide for Maternity Units and KMC Units.[284] Input should be obtained from the NDoH on the infrastructural outlay of MPNH services**.**

Demand should be created so that women with low-risk pregnancies who are anticipated to have normal deliveries can use safe and accessible dedicated birth centers such as midwife obstetric units (MOUs). MOUs are an effective strategy to reduce pressure on higher levels of care.[285].

MOUs should provide 24-hour services to the population of their catchment area. MOUs should comply with norms and standards to provide effective care and reduce overcrowding. Safe staffing levels as per staff/delivery ratios should be available to manage the number of normal deliveries for the unit, with access to transport to the next level of expertise or care for the management of emergencies. Onsite obstetric Midwives Unit (OMBUs) [286] provide models of triage and internal access to specialized care.

3.6 Essential MPNH supplies, including medicines and equipment.

Maternal and newborn health care is hampered by a pervasive lack of essential lifesaving medicines and equipment, causing poor quality of care, loss of lives and litigations. Available equipment is often of poor quality, prone to breakages, or lacking spare parts with no maintenance and repair systems.[287]

Quality services require the availability of medicine and equipment at the point of care to deliver the task at hand effectively. Ineffective and poorly designed supply chains for purchasing and distributing medicines and essential commodities for MPNH are among the most important barriers to providing quality care. Therefore, provincial and district managers must be responsible for the conceptualization and effectiveness of sustainable supply chains to supply commodities for MPNH efficiently. The ripple effects of shortage of medicines and commodities affect not only patients but also high attrition rates when staff work in environments with suboptimal supplies.

There is a need for innovative and integrated digital mechanisms to streamline supply chain processes and monitor stock levels for effective service delivery. Coordination is needed between the regulatory bodies, such as the SAHPRA and the Essential Drug List (EDL), as to prescription policies, scheduling of drugs and the off-label use of drugs essential in reducing maternal and neonatal mortality.[288]

Processes for the procurement and management of equipment need to be strengthened to ensure that the norms and standards for essential equipment are adhered to, including emergency obstetric ambulances.[289]

3.7 Emergency preparedness and response[290]

3.7.1. Obstetric emergencies and complicated childbirth [291]

Improving the delivery of emergency obstetric care (EmNOC) remains critical in addressing direct causes of maternal mortality such as Antepartum haemorrhage, fulminating Eclampsia, severe bleeding post-delivery and severe prematurity, severe birth asphyxia in a case of a neonate. This necessitates availability of high level of skill at entry point or point of care and at referral site to provide more specialized care. Obstetric and neonatal emergencies require personnel with well-oiled lifesaving skills, reliable, functional vehicles with EMS competent staff, effective referral pathway/system to higher level or referral facilities and good telemedicine communication to smooth the process. Preparedness of public health facilities to provide EmNOC has indicated numerous limitations which has led to adverse pregnancy outcomes in our South African MNH services.[292]

3.7.2. Unexpected events

Unexpected events such as earthquakes, floods, pandemics, and terrorist attacks—can cause widespread health problems. Public health emergencies can affect access to medical and social services, increase stress, intensify physical work, and expand caregiving duties. This may affect access to medical services and health outcomes among women and families of childbearing potential, especially pregnant and postpartum women and new-borns. Although these events are rare however there is a need to address the day–to-day challenges of emergency reactions to obstetric emergencies and referral pathway problems reported.[293]

Pandemics such as COVID-19 affected access to MPNH services, impacted pregnancy outcomes, and breastfeeding during the postnatal period and early childhood development.[294]

The Framework and Guidelines for Maternal and Neonatal Care developed during the COVID-19 response serve to guide crisis response of the health system during crisis.

3.8 Regional care, levels of care and referral system/pathways

Due to the increased physical and psychological vulnerability of this group, failure to identify and manage risk factors promptly can negatively impact the wellbeing of the mother and her baby. This necessitates a high level of skill at the point of care and a reliable and effective referral pathway/system.[295]

The referral system itself is hampered by i) limited staff with inadequate obstetric and neonatal life support skills and scope of practice, ii) unreliable or non-functional vehicles, iii) vehicles that are used for the transport of clients other than obstetric and neonatal emergencies, and iv) referral criteria that are not based on the urgency of the

medical problem (such as the urgent need for caesarian section), but rather on referral routes. Norms and standards for a competent “obstetric and neonatal friendly” EMS service is a priority.[296]

Referrals and care pathways for maternal and neonatal care are tiered from primary to a central level of care and include primary, community, district, regional and provincial services. It is not an effective system for emergencies and complications related to pregnancy and birth. Primary Health Care (PHC) anchors this delivery, acting as a gateway for care coordination. Expanding access is therefore dependent on addressing key bottlenecks at the primary care level. Telemedicine could assist in smoothing the process.[297] [298] [299]

4 Respectful Maternity Care

4.1 Respectful Maternity Care[300]

Reports from patients on their experiences in health facilities point to a deficit in respectful care, trampling on their right to dignity, privacy and confidentiality.[301] [302] Women desire a positive childbirth experience that fulfils or exceeds their prior personal and socio-cultural beliefs and expectations. Respectful care has been demonstrated to be a key driver of better MPNH outcomes in several studies.[303] The Patient’s rights charter in South Africa[304] embraces principles of respectful care in general, with these rights being central to care delivery, although not specific to maternal and child health care.

The four recommendations of the WHO on “care throughout labor and birth’ are 1) respectful maternity care, 2) effective communication, 3) companionship during labor and childbirth, and 4) continuity of care. [305]

The provision of respectful maternity care can be linked to improved quality measures. For example, respectful care reduces unnecessary invasive obstetric interventions such as episiotomies, improves the mother's birth experience and is a strategy to avoid unnecessary litigation.[306] [307] [308]

4.2 Vulnerable groups inclusivity[309]

Migrants and refugees: Anecdotal evidence suggests that undocumented migrants may make up 40% of deliveries at some facilities. These women may not be budgeted for. This calls for an urgent need for multi-sectoral and perhaps intercountry collaborations for care provision for the vulnerable. Humanitarian assertions need to make provision for refugees from a human rights perspective, yet policy guidance is needed to handle the influx of undocumented migrants in health facilities [310] [311]

Vulnerable and marginalized:[312] This includes the homeless, those who are geographically isolated, and those in conditions of extreme poverty. Since delays in

seeking care are a contributor to mortality, it is important to identify ways of getting to geographically and otherwise marginalized persons, thus ensuring that they are extracted from their pockets of vulnerability and that no one is left behind.

5 Community Maternal Health Services

5.1 Maternal, Perinatal and Neonatal services at Community level

In South Africa families and communities are an untapped resource for improving maternal and neonatal health. Implications for maternal and infant health care in developing countries are discussed, with a particular focus on barriers to utilization and involvement of communities and families in maternity care. The success of Mom Connect to connect mothers to maternal health services has proven a success story for SA. [313]. With the strengthening of the reengineering of primary health care service Outreach services in SA it is widely agreed that communities should take an active part in improving their own health outcomes that CHWs can play a vital role to improve maternal health services through integrated health care to the households and individuals within its catchment area. Community-based interventions may encompass encouraging healthier practices and care seeking among communities and families; recruiting and training local community members to work alongside trained health care professionals; and community member involvement in service provision, including diagnosis, treatment, and referral. Within these broad categories are a range of approaches, including CHWS, traditional birth attendants (TBAs), health campaigns, school-based health promotion, home-based care [314]. These services still need expansion through good development of practice guidelines.

5.2 Stakeholder engagement.

A multi-stakeholder framework with intersectoral coordination is needed to enable active citizenry and participation in South Africa.[315] In light of the overt participation of civil society in reproductive health in South Africa, with a bulk of active civil society members being part of the HIV movement, it may be difficult to build robust social accountability frameworks[316]. The National Health Act stipulates[317] that there is a need for functional clinical governance structures.

However, there is a deficit in the clinical governance feedback loop for accountability at all levels. Only the Western Cape Government connects leadership with the clinical interface to ensure that the basics of services delivery are linked.[318] In other provinces, the coordination and implementation of the standards of care need to be strengthened.

6. Maternal, Perinatal and Neonatal Death Response and Surveillance system (MPDRS)

South Africa has useful data sets and has been advancing data collection from vital registers to aggregated data at a national level through StatsSA[319] as well as the District Information Health System. Multiple surveillance systems exist in and outside of the NDoH, nationally and locally, that do not communicate with one another, with a lack of data ownership by the NDoH. Data is not used effectively for decision-making at a facility level nor to ensure accountability for service delivery outcomes. Furthermore, feedback loops to those who collect the data are often incomplete.

The need for data consistency is an essential element of a functioning health system with elements of flow of data, accuracy, translating it into information, feedback of data and ownership at a collection level. The current M&E sets of indicators for maternal and neonatal health are robust enough,[320] but some key indicators are missing, particularly pertaining to the main causes of maternal morbidity and mortality.[321] Although the MPNH program already has a robust M&E system from facility level feeding to national-level data, it may be useful to leverage technology, especially mHealth initiatives,[322] for data collection, both at a community and facility level. Furthermore, some medical devices, such as ultrasounds,[323] store useful data which could be used for decision making at a provincial level. The use of the SA identification number as a unique identifier will assist in the accuracy of data.

7 Research in maternal health care systems and quality care

South Africa as a LMIC has developed strategies to reduce maternal and new-born mortality and morbidity with mixed success due to financial disparity in the population, urban and rural communities, differences in culture groups and regions or provinces' views and needs, quality service delivery issues between the dual private and public healthcare systems and funding models.

The research findings of the Saving Mothers and Babies from 1998 and 2013 respectively to improve maternal and new-born health outcomes through improved healthcare care mainly focussed on clinical and system challenges and less on the user's needs and experiences and few evidence-based models of care has been tested so far. In view of the intended NHI in South Africa more research is needed on what the required competency of the midwife should be, what model of care will be acceptable for the community, and how the user experience and satisfaction be monitored independently for improvement of the quality of care.[324]

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