TITLE: REDUCING MATERNAL MORTALITY IN ZAMBIA THROUGH THE NON-PNEUMATIC ANTI-SHOCK GARMENT (NASG)AND STRENGTHENING COMMUNITY MORTALITY SURVEILLANCE

Abstract

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Citation Style For This Article: Zimba R, Mkandawire L. Title: Reducing maternal mortality in Zambia through the non-pneumatic anti-shock garment (NASG)and strengthening community mortality surveillance. Health Press Zambia Bull. 2021; 05(02); pp 7-12.

Key Messages

-Every year over 300,000 mothers die from pregnancy complications and childbirth, with 99% of all maternal deaths occurring in the developing world.

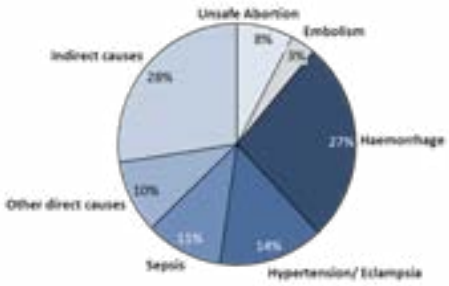
-Globally, four maternal complications (hemorrhage, eclampsia, sepsis, and unsafe abortion) account for over half of all maternal deaths.

-In Zambia, maternal deaths account for 10% of all deaths among women aged 15-49.

-Obstetric hemorrhage (OH) is the leading cause of maternal mortality in Zambia, accounting for 38.7% of maternal deaths.

-The NASG controls bleeding, applies pressure to the lower body and abdomen, thereby stabilizing vital signs and resolving hypovolemic shock.

Applying the NASG helps clinicians buy time in case of delay before definitive care for managing OH is provided to a woman.



Problem Statement

Despite recent advances, Zambia continues to experience high maternal mortality with an MMR of 252 against the national target of an MMR of 100 per 100,000 live births by 2021. Globally, about 830 women die each day due to complications during pregnancy and childbirth. In Zambia, maternal associated causes were the fourth leading cause of death in women of childbearing age[][]. Women die due to complications that are preventable or treatable. According to WHO, the major complications that account for nearly 75% of all maternal deaths are severe bleeding, i.e., Obstetric hemorrhage (mostly bleeding after childbirth), infections (usually after childbirth), high blood pressure during pregnancy (pre-eclampsia and eclampsia), complications from delivery and unsafe abortion. The rest are chronic conditions like cardiac diseases or diabetes. According to the Zambia National Public Health Institute (2018), more than one-third of maternal deaths in Zambia are due to obstetric hemorrhage. This problem is further compounded by inadequate comprehensive surveillance for early detection of OH cases when they occur in the community. The campaign to accelerate the reduction of maternal mortality in Africa (CARMMA) launched in 2010, Identified three delays that make OH management challenging and significantly contribute to maternal deaths in Zambia. These are; delay in seeking care by individuals, delay in reaching care, and delay in receiving care. In the least developed countries and most developing countries, underprivileged women, particularly those in remote areas, are less likely to receive adequate and quality health care. Among the main factors that prevent women from accessing or seeking care during pregnancy and childbirth include poverty, distance to the facilities, lack of information, inadequate or poor quality of services, social, cultural beliefs and practices.

According to the ZNPHI, Zambia must continue comprehensive surveillance of maternal deaths as well as increase access to family planning services, quality antenatal care services, skilled birth attendants, and emergency obstetric care to actualize reduction of maternal mortality.

Policy Options to Address contribute to the reduction of maternal mortality in Zambia

Zambia desires to reduce maternal mortality to 100/100,000 by 2021. This calls of greater efforts and investments in strategies that will help accelerate the prevention measures. To address the high maternal mortality due obestrict hemorrhage exerbated by the three delays, two policy options proposed and evaluated in this policy brief.

1.Maintain the current standard of care for managing breeding in pregnancy (OH)

2.Scale-up the Non-Pneumatic Anti-Shock Garment (NASG) to all facilities to help health care workers buy time before definitive care is provided in the event of delay.

Option 1: Maintain Status quo (Current standard of care)

According to the ZDHS 2018, Zambia has made progress in reduction of maternal mortality i.e., 252/100,000 live births. This however remains high and may not likely achieve the target of 100/100,000 by 2021. The MoH continues to manage PPH through various interventions including the administration of Oxytosin and misoprostal. The delays are being addressed through community awareness, building mothers shelter and deployment of staff in addition to treatments at the service delivery points.

What: Continue with the status quo (Standard of Care) and ensure that maternal mortality deaths are reviewed, action points drawn and implement the recommendations hoping that the trend go down.

Why: Zambia has recorded a reduction in maternal mortality from 398/100,000 live births to 252/100000 over a period of 5 years i.e. 2013/2014 – 2018.

Feasibility: High: Some communities have community health workers (SMAGs) who are raising awareness on birth preparedness and the need for facility deliveries. About 84% of the births occur in health facilities in Zambia.

Option 2: Scaling up the use of the Non-Pneumatic Anti-Shock Garment (NASG)

In addition to the existing interventions in managing PPH e.g. administering of Oxytosin and misoplostal, The NASG is being suggested for starblizing, reversing shock and buying time for definitive care. The NASG is a lightweight neoprene garment that is made up of five segments that close tightly with Velcro. The NASG controls bleeding, applies pressure to the lower body and abdomen, thereby stabilizing vital signs a0nd resolving hypovolemic shock. When fitted correctly, the reusable NASG forces blood to the essential organs - heart, lungs, and brain. This also extends the opportunity for the patient to be transported to a higher level of definitive care.

What: Deploy the NASG at all levels of care to be applied to women with PPH to control bleeding and stabilizing women and resolve shock. Alongside strengthen the community surveillance systems to detect early signs of PPH. Universal health coverage and leaving no one behind.

Why: The NASG has been used on over 10,000 women in 33 countries. A pilot in Northern Province Zambia beginning in 2019 demonstrated local feasibility in the public sector and documented 74 NASG uses. The NASG costs $75 andcan be re-used the cost-effectiveness of NASG was estimated to be $22 per DALY averted in Zambia and Zimbabwe. Pooled data from 5 observational studies shows that the NASG resulted in a 48% reduction in mortality.

Feasibility: High NASG is an addition to the many existing intervention and is a stop gap measure to treatment of PPH. It allows for stabilization and management of shock. For communities that are far from facilities, it is ideal that efforts such as NASG and community surveillance are strengthened to curb maternal mortality. The NASG will leverage on other interventions available. This indeed will contribute to the reduction in maternal mortality in Zambia.

Cost effectiveness comparison of Policies

	Status Quo	NASG + Community Surveillance
Estimated number of OH related maternal deaths prevented annually	363	278
Total cost government (1-year) – Million ZMK/US$	102,104	173, 910
Incremental Cost – Million ZMK/US$	------	71806
Incremental Cost-Effective Ratio (ICER)	--------	-844.78
Operational feasibility	---	
Political Feasibility		

Based on this economic evaluation, the NASG and community has shown to be cost effective and can help to stabilize and reverse shock due to OH. The government will spend ~ USD 845 to avert one maternal death due to OH.

Recommendations and next steps

-MOH should consider scaling up the use of NASGs to all the facilities in the country

-MOH should consider making available NASGs guidelines at all primary level of care

-MOH should develop a costed implementation plan

-MOH should strengthen mortality surveillance system for early detection of OH by training CBV and ensuring that reporting tools are available and utilized correctly.

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