Chapter 7. Commentary: Maternity waiting homes as part of an integrated program for maternal and neonatal health improvements:

women’s lives are worth saving

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Journal of Midwifery and Women’s Health, Volume 62, Issue 2, Pages 151–154
Doi:10.1111/jmwh.12618
Published: 29 March 2017
Every woman has the right to a healthy pregnancy and safe birth (1). Yet global maternal health has been neglected for many years. Still, more than 800 women are dying daily from pregnancy-related causes (2). By comparison, Liberia’s and Zambia’s maternal mortality ratio in 2013 was similar to that of the United States in 1918 and 1939, respectively (2, 3). Maternal mortality started to decrease in Europe after the 1850s when handwashing was introduced (3). Most progress was made after World War II following the introduction of penicillin (4). The United States saw a sharp decline in maternal mortality in the mid-1930s (3). A contributor was the Title V Social Security Act, which is national public health legislation passed in 1935 aimed at promoting and improving the health and welfare services for mothers and children (5).

Maternal health did not gain visible global recognition until the early 1990s, after years of single focus on population control (6). As men are not the ones dying, nor many women in high-income countries, and because maternal mortality is not a contagious condition, getting it on the political agenda was challenging (7). Once maternal mortality was recognized as important to address, efforts to decrease maternal deaths resulted in considerable success. Between 1990 and 2015, maternal mortality declined worldwide by 44%. Nevertheless, 303,000 women are still estimated to have died in 2015; 99% of these maternal deaths occurred in low- and middle-income countries (8). The disparities in maternal mortality highlight the gap between rich and poor. They also show that women’s human rights have been ignored. The famous words of Professor Mahmoud, founder of the Safe Motherhood Movement, still hold true:

“Women are not dying because of diseases we cannot treat. They are dying because societies have yet to make the decision that their lives are worth saving.” [(7), p10].

Further declines in maternal mortality can be accelerated when given priority. If this tragedy manages to receive the same spotlight as the Ebola epidemic, which killed approximately 11,500 people, preventable maternal deaths could end (9). The required interventions are known and straightforward: pregnant women need access to antenatal care, skilled care at childbirth, and care and support in the early postpartum period (7). However, an isolated approach will not prove successful. A multisectorial approach is required, as formulated by the United Nations in the new Sustainable Development Goals (10).

Interventions with a proven significant impact on maternal and newborn survival in low- and middle-income countries include family planning, management of unwanted pregnancies, provision of focused antenatal care, active management of the third stage of labour, neonatal resuscitation with bag and mask, and immediate thermal care (11). The studies by Vian et al. (12) and Lori et al. (13) in the *Journal of Midwifery and Women’s Health*...
concern Maternity Waiting Homes (MWHs). This intervention has the potential to contribute toward reducing maternal and perinatal deaths, but only when implemented within a broader structure aimed at improving maternal and neonatal outcomes. Vian et al. studied the willingness of Zambian communities to pay for MWH services to help fund the homes and increase sustainability, while Lori et al. examined women’s satisfaction with their stay at an MWH in Liberia and compared utilization rates before and during the Ebola outbreak (12, 13).

MATERNITY WAITING HOMES IN RELATION TO THE THREE DELAYS

The model of the Three Phases of Delay is frequently used to analyse and better understand why and how preventable maternal morbidity and mortality happen. Delay is perceived to be the primary factor contributing to poor outcomes in pregnancy and childbirth (14).

The first phase of delay can occur in the decision-making process of where a woman gives birth (14). For example, Vian et al. describe that husbands and elders in Zambia often play an important role in this process (12). The availability of an MWH allows decision-making to take place as part of birth preparedness, instead of at a critical time at the start of labour or when complications arise.

The second phase of delay often occurs when a woman needs to travel from her home to a health facility, sometimes at night, often on poor roads, with limited transportation, and at high cost (15). MWHs, first introduced in the 1950s, are primarily used in low- and middle-income countries to bridge this geographic barrier for pregnant women living far from a health facility providing maternity care (Table 1).

The third phase of delay occurs when poor quality maternity care is provided. Even if a woman and her family make a timely decision and reach a health facility in time for intervention, this may not lead to timely, adequate treatment. Improving access to care should therefore go hand in hand with improving quality of care to prevent maternal morbidity and mortality (14).

Table 1. Facts about maternity waiting homes

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Description</th>
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<tbody>
<tr>
<td>Definition</td>
<td>Accommodation within easy reach of a health centre or hospital that provides maternity care. Pregnant women are encouraged to spend the last weeks of their pregnancy at an MWH. Once labour starts or complications arise, women move to the health facility to be assisted by a skilled provider. Some MWHs also offer postpartum care (15).</td>
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<td>Objective</td>
<td>To reduce delays in the decision-making process to seek maternity care (“first delay”) and in gaining access to maternity care (“second delay”) (14).</td>
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<thead>
<tr>
<th><strong>Target audience</strong></th>
<th>Pregnant women from remote areas and those with known risk factors, such as scarred uterus, previous stillbirth, and multiple pregnancy (15).</th>
</tr>
</thead>
</table>
| **Countries**       | · MWHs are mostly used in low- and middle-income countries: Zimbabwe, Zambia, Tanzania, former Zaire, Ghana, Ethiopia, Nigeria, Lesotho, Liberia, Malawi, Mozambique, Sierra Leone, Papua New Guinea, Nicaragua, Cuba, Guatemala, Haiti, Peru, Honduras, Lao and Mongolia (15, 16);  
                           · In Canada and Australia, indigenous women are transferred to more urbanised areas to await birth in an MWH (17, 18). In the United States, pregnant women who are homeless or substance dependent may be admitted to an MWH (15). In France, MWHs exist for single women with high-risk pregnancies (19). |
| **Facilities & services** | The concept is implemented in a variety of ways:  
                           · Housing: traditional huts, modern houses, a hospital ward, etc.;  
                           · Services: self-catering and catering facilities; often access to antenatal care and health education; supervision by a community member, traditional birth attendant, nurse, midwife or physician;  
                           · Cost: communities, governments, and NGOs are often involved in construction; stay may be free-of-charge or with a user fee (15). |
| **Utilization**      | MWH utilization varies greatly between countries and also from facility to facility. Some MWHs are well utilized, while others remain empty or are underutilized (15). |
| **Reported barriers to MWH utilization** | · Poor facilities and services: lack of water, firewood and food; no help with cooking; lack of supervision; poor staff attitude; poor hygiene;  
                           · Lack of transport;  
                           · Costs/financial barriers;  
                           · Child care at home;  
                           · Psychosocial and cultural costs of childbirth away from the community (15, 17, 18). |
| **Effect**           | The largest study on the effectiveness of MWHs was a retrospective cohort study in Ethiopia, which showed that fewer maternal deaths and stillbirths occurred among MWH users compared to women admitted to the hospital directly (20). As no randomized controlled trials have been undertaken, the level of evidence that MWHs improve maternal and neonatal outcome remains weak (15). |

MWH: maternity waiting home, NGO: nongovernmental organization

**Access, quality of care, and risk selection**

While the programs for which the Vian et al. and Lori et al. studies were performed focus on improving quality of maternity care overall, both studies pay little attention to quality of care at the birthing facility. The study by Lori et al. addressed the perceived level of care at the MWH but not at the birthing facility (13). Vian et al. suggest that “if women utilize MWHs, they will then give birth at a facility where complications are more likely to be managed appropriately, resulting in better clinical outcomes” ([12], p160). Conversely, a meta-analysis on maternal and perinatal mortality in sub-Saharan Africa revealed that home births were less likely to result in maternal death than
facility births (21). These results were partially explained by the high-risk selection of women giving birth at a facility, but the authors also concluded that it could reflect lack of quality care in facilities.

One study included in the previously mentioned meta-analysis was a prospective study with more than 15,000 women in Guinea-Bissau (22). The authors found that living more than 25 kilometres away from emergency obstetric care was the most important determinant of maternal death. Implementing MWHs at the health centre level, such as was done in Zambia and Liberia, eliminates the distance to basic emergency obstetric and newborn care (BEmONC). BEmONC facilities should be able to provide seven services: administer 1) parenteral antibiotics, 2) uterotonic drugs, and 3) parenteral anticonvulsants; 4) manually remove the placenta and 5) remove retained products; and perform 6) assisted vaginal birth and 7) basic neonatal resuscitation (23). In cases of severe complications, labouring women require referral to the nearest comprehensive emergency obstetric and newborn care (CEmONC) facility, which should be able to perform two additional functions: surgery and blood transfusion (23).

Table 2. Estimated average interval between onset of major obstetric complications and death, in the absence of medical interventions

<table>
<thead>
<tr>
<th>Complication</th>
<th>Hours</th>
<th>Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haemorrhage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antepartum</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Postpartum</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Ruptured uterus</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Eclampsia</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Obstructed labour</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Infection</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

On average, a time frame of 12 hours is available to avert maternal death, although postpartum haemorrhage needs immediate action (Table 2). Hence, setting up MWHs at BEmONC facilities requires integrating maternal health interventions: the availability of skilled birth attendants; appropriate drugs, supplies, and equipment; and a well-functioning referral system (24). In many low-income countries the number of health facilities has grown, but the capabilities of these facilities and the referral linkage system are still poor. For example, in an area in Ethiopia with more than 450,000 inhabitants, there were 20 health centres but only 5 ambulances (Chapter 6). Although the majority of maternal deaths cannot be predicted through screening, we opt for the development of standard operating procedures in countries with MWHs at BEmONC facilities (6). Pregnant women with risk factors with predictive value
for the need of CEmONC, such as multiple pregnancy, previous postpartum haemorrhage, previous preterm birth, previous Caesarean birth, severe preeclampsia, or severe anaemia, should be admitted to an MWH near a CEmONC facility. All other pregnant women, especially those living more than five kilometres from a facility, should be encouraged to stay at an MWH close to a BEmONC facility with reliable availability of an ambulance (23). Further research is needed to compare the outcomes of MWH users at a BEmONC facility to those at a CEmONC facility.

**BARRIERS TO MATERNITY WAITING HOME USE**

Facilities in MWHs and use of MWHs vary considerably across countries. Even if a woman is willing to stay at an MWH, barriers can prevent her from doing so. These barriers include poor MWH facilities, services, and hygiene; high direct and indirect costs; lack of transportation; and being away from the household and children (15). In addition, indigenous women from remote areas of Canada and Australia report psychosocial and cultural costs of birthing experiences away from their community (17, 18).

The Vian et al. study proposes the introduction of MWH user fees as part of a strategy to develop financially sustainable shelters (12). Although it is important to ask beneficiaries their expectations of MWH services, instating user fees is not the right approach to achieve sustainability. Despite Zambia’s recent status as a middle-income country, most rural inhabitants experience extreme poverty. In addition to Vian et al.’s conclusion that the revenue raising potential among MWH users is very low, there is growing consensus that user fees compromise health service use and population health (12, 25). Instead, maternal health programs should focus on lowering barriers for women to improve access to high-quality maternity care services.

**LEADING THE WAY TO ELIMINATE MATERNAL MORTALITY**

Strong political commitment and leadership, involvement of non-governmental organizations and other key actors, sufficient funding of health systems, enabling policies, and effective and committed utilization of resources are needed to eliminate maternal mortality (24). The World Health Organization indicates that Zambia is making progress toward the set objectives on maternal health, while Liberia is lagging behind (8). Liberia’s immensely high maternal mortality ratio reflects the devastating effects of years of civil war followed by the Ebola epidemic on the functioning of its health systems.

**PLAN-DO-CHECK-ACT**

Studies in the local context in which the MWH intervention is implemented, such as the ones performed in Liberia and Zambia, are critical for the success
of MWHs (12, 13, 15). Following a quality improvement cycle, projects should be planned, implemented, evaluated, and improved. How have the study findings in Liberia and Zambia contributed to program changes, and what was their effect on access and quality of care? To further enhance the learning cycle in low income countries, local researchers should be empowered to perform the entire research cycle, guided by experienced researchers. Also worth evaluating is why women in the Liberia and Zambia studies stayed on average only seven and ten days, respectively, in MWHs. As many women in low-income countries do not know their expected date of giving birth, these findings might indicate that women are coming too late to the MWH. Other women may have wanted to stay at the MWH too, had they not given birth earlier than expected already.

Collecting and sharing MWH best practices is an essential step to increasing MWH use. Lori et al. state that traditional birth attendants have taken responsibility for the cleaning of the MWHs as well as to support the pregnant women (13). In another study, Lori et al. found that births increased and maternal mortality decreased in communities with MWHs that employed both skilled and traditional birth attendants compared to communities without such MWHs (26). This approach is worth testing in other low-income countries, such as Ethiopia, to bridge the cultural gap between the community and the MWH/facility. In Canada and Australia, negative experiences of indigenous women have led to discontinuing the use of MWHs for all pregnant women and moving toward a community-based model of maternity care, which stresses the importance of a culturally appropriate approach to reducing maternal morbidity and mortality (18).

**CONCLUSION**

To end preventable maternal deaths, governments need to make the decision that women’s lives are worth saving. The MWH intervention should be applied within an integrated program for maternal and neonatal health improvements. Access should be free of charge, and services should be culturally appropriate. Funding is required to lower other barriers to utilization, such as food provision and reimbursement of travel costs. Maternal and neonatal health programs will only be successful when aimed at improving both access and quality of care. Standard operating procedures for MWHs are needed to ensure pregnant women are residing near the appropriate level of care, and investments are needed to improve the quality of maternity care in facilities.
REFERENCES


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