

# Impact Evaluation Design for Community Midwife Technicians in Malawi

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doi: 10.19044/esj.2016.v12n27p349 [URL:http://dx.doi.org/10.19044/esj.2016.v12n27p349](http://dx.doi.org/10.19044/esj.2016.v12n27p349)

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## Abstract

Maternal Mortality Ratio and neonatal mortality rate are alarmingly high in Malawi. The shortage and poor retention of midwives coupled with poor working conditions have been a major challenge affecting the provision of high-quality maternity care for women. Many women are giving birth without skilled attendants, increasing the risk of maternal and neonatal illness and death. The major driving factor in the shortage of health staff is the limited number of existing training slots and hence the minimum output from the training institutions into service delivery units. Midwifery is a key component of sexual, reproductive, maternal, and newborn healthcare. Responding to the crisis, the Malawi Government has made a commitment in strengthening human resources for health, including accelerating training and recruitment of health professionals to fill all the shortage gaps in the health sector. One mechanism implemented by Malawi Government to increase skilled attendance at birth in rural areas is the introduction of Community midwifery assistants (CMA) training. This program of training community midwives is being piloted and targets the general population of pregnant women and their new born babies in rural areas where the CMAs are deployed. However, there is a great need to have this initiative evaluated and gauge its impact in attaining the desired outcomes.

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**Keywords:** Midwifery assistant, community, outcome, impact, Malawi

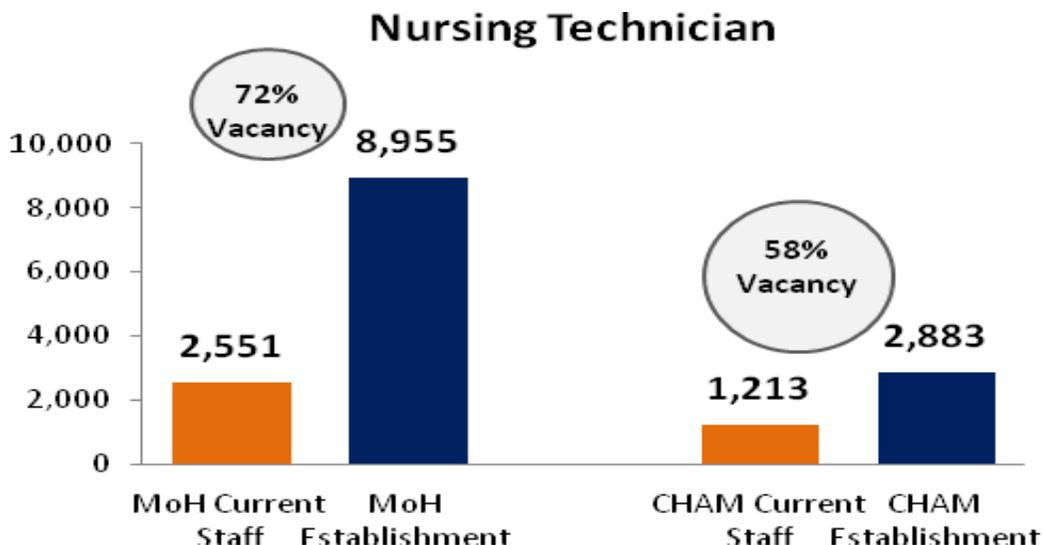
## Background

Malawi is currently experiencing high Maternal Mortality Ratio 634 per 100 000 live births and high neonatal mortality rate 29 per 1000 live births (WHO, 2015), (NSO, 2015). This translates to a shockingly life time risk of 1 in 29 pregnant women dying rather than becoming proud mothers (WHO, 2015). These statistics hampered its efforts on achieving Millennium

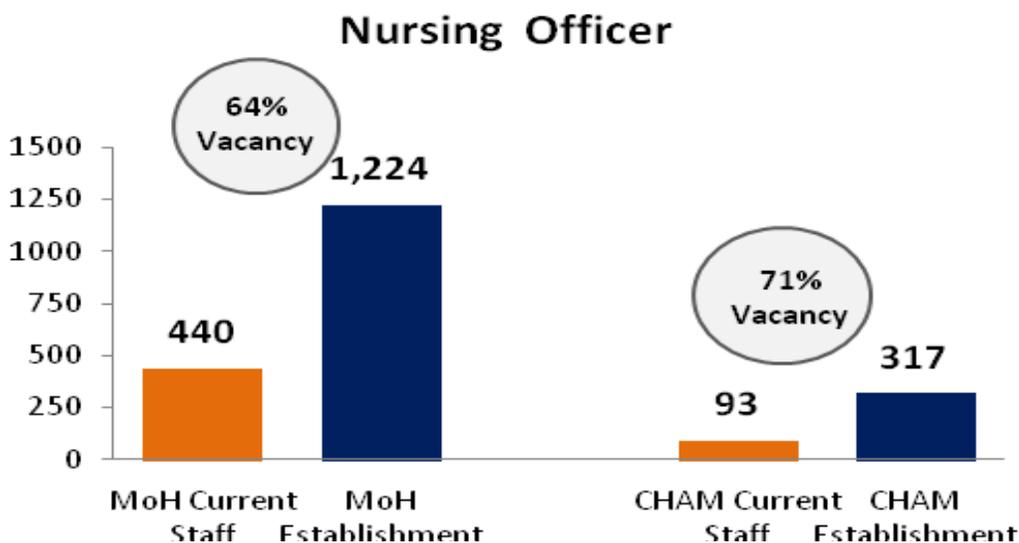
Development Goals 4 and 5 which had a focus on improving child and maternal health. Malawi did achieve the U5MR target however failed to achieve the Maternal Mortality Ratio (MMR) target. The Shortage and poor retention of midwives has been a major challenge for Malawi in successfully achieving these Millennium Development Goals and continues to be a stumbling block for achieving sustainable development goals.

The overall shortage of midwives and other health workers as well as poor working conditions and skewed distribution preference for urban areas, are affecting the provision of high-quality maternity care for women (Chimwaza, W. et al., 2014), (WHO, 2014). This then contributes to a shortfall in skilled birth attendants. As a result, women are giving birth without skilled assistance thereby increasing the risk of maternal and neonatal illness and death. Giving child birth without a midwife or skilled birth attendant puts women and their babies at a much higher risk of death from complications that may occur during childbirth. It is hence vital to have a trained midwife and other skilled birth attendants present during child birth in order to early identify the pregnancy complications which mostly are unpredictable and must be managed or referred immediately.

Midwifery is key to reproductive, sexual, newborn and maternal healthcare. Referring to the newly launched *State of the World's Midwifery Report* (SoWMy) 2014, investing in midwives could produce a 16-fold return on investment in terms of lives saved; free doctors, nurses, and other health care provider cadres to focus on other health needs; and contribute to ending preventable maternal mortality and newborn deaths (Nove, A, 2011). This report details a pathway for policy and planning which urges countries to make transformative changes to improve on availability, accessibility, acceptability, and quality of health services to achieve universal access to sexual and reproductive healthcare and a reduction in maternal and newborn mortality. Currently Malawi has critical shortage and an estimated operation at 33% of the healthcare workers (HCWs) necessary to effectively deliver healthcare services to the population (MOH, 2010). The critical shortage of nursing/midwifery staff is shown in the figures below;



**Fig 1:** Vacancy rate of Nurse/Midwife professionals. Source; MOH HRMIS and CHAM HR Vacancies List, September 2010



**Fig 2:** Vacancy rate of Nurse/Midwife professionals. Source; MOH HRMIS and CHAM HR Vacancies List, September 2010

It was established that the major driving factor in the shortage of health staff is the limited number of existing training slots for these cadres and hence the minimum output of the cadres from the training institutions into service delivery units. The goals of SoWMy report includes that all women of reproductive age, including adolescents, have universal access to midwifery care when needed; midwifery care is close to the woman and her family within their communities and that the Governments, health care

systems provide an enabled environment and are held accountable for quality care provision (UNFPA, 2014).

In response to the above calls, the Malawi Government has made a commitment to strengthen human resources for health to fill all the available positions in the health sector. One mechanism developed by Malawi Government to try to increase skilled attendance at birth, particularly in rural areas, was the introduction of Community midwifery assistants (CMA) training. This program of training community midwives is being piloted and targets the general population of pregnant women and their new born babies in rural areas where the CMAs are deployed. However, there is a great need to have this initiative evaluated and gauge its impact in attaining the desired outcomes.

### **Objectives of Community Midwifery Assistant Training Program**

The program of training community midwifery assistants aims to promote maternal and children's right to survival, health and development. It focuses on building capacities of families, communities, local Government and other duty bearers to ensure fulfillment of women and children's right to improved health associated with reduced morbidity and mortality. The program contributes towards strengthening Primary Health Care (PHC) in targeted program areas by adoption of good health seeking behaviours, increasing access to modern skilled attendant maternal health care and adoption of good health practices as well as improving the health status of under-five children and pregnant women. Safe motherhood practices are the basic strategies to be used to ensure child survival, growth and development and improvement in maternal health care outcomes.

### **Program Goals**

The Community Midwifery assistant Training program strives to achieve the following goals;

- Improve access to care in rural areas

- Increase skilled birth attendants in the rural areas

The program specific objectives are;

- To reduce maternal deaths

- To reduce newborn deaths

- To improve overall child and maternal health outcomes

### **Purpose of this evaluation design for the community midwifery training program**

Impact evaluation is an assessment of an intervention to check if it affects outcomes and see whether the effects are intended or unintended. The proper analysis of impact requires an appropriate counterfactual of what

those outcomes would have been in the absence of the intervention, in this case in the absence of community midwifery assistants (Judy, B, 2000).

This program impact evaluation design will serve both as lesson-learning and for accountability.

This evaluation will answer the question of whether the program of community midwifery assistant training is working or not and hence assist in decision making about scaling up. It will also help in accountability in terms of evaluating resource utilization effectiveness in the implementation of the training program. It will also help answer the question; does Malawi need to create more health cadres or just fill the existing shortages in the available health care cadres in order to improve maternal and child health outcomes?

### **Project evaluation – Goals**

The program will evaluate the following specific objectives, by comparing occurrence of the indicators in the intervention and comparison groups.

Reduction in maternal deaths

Reduction in newborn deaths

Improvement in overall quality of health outcomes

### **Sampling process**

There will be two significant areas, the intervention and the comparison study areas. The study groups will constitute the naturally assembled clusters in both the intervention and comparison group areas. Community clusters in areas where community midwife assistants will be deployed will be selected and these will serve as the intervention group. A similar number of community clusters will be selected in areas where community midwife assistants will not be deployed and these will serve as a comparison group.

### **Variables**

The two groups will be monitored over a period of time based on the following evaluation design variables.

#### **Independent (input) variable**

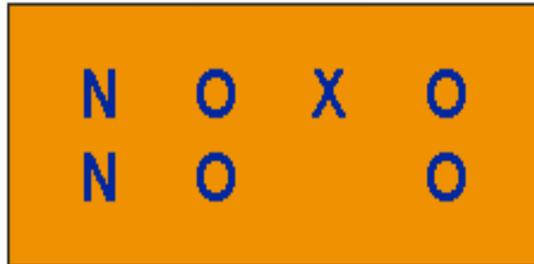
The main independent variable will be the deployment of community midwife assistants in research intervention areas.

#### **Dependent (Outcome) variables**

The dependent variables will be the overall child and maternal health outcomes in the two areas with a particular attention to the following health indicators;

Maternal death  
Neonatal death  
General health outcomes (maternal and child morbidity trends)

**Fig 3: Program impact Evaluation Design:** Non equivalent control group Quasi Experimental Design



Source: Trochim W.M. 2006

The evaluation will use Non Equivalent Control Group Quasi Experimental Design because randomization of research areas to intervention and control groups will not be possible as ethics will prohibit random assignment of clusters into intervention or control groups. The random assignment of the intervention in the intervention group is also not possible due to ethical challenges.

#### **Why this design? The design Strengths**

This design offers a wide range of advantages;

It will provide the chance to examine the similarity of the intervention and comparison groups.

It would provide more generalizable results if the groups would have similar baseline characteristics.

It is the most feasible design for this research since randomization of the intervention is not possible because of ethical challenges.

Besides the above strengths, this design also has some weaknesses;

It has a non equivalent control group and therefore baseline differences would exist between the intervention and the control groups.

It provides a weak causal relationship between the intervention and the outcome of interest.

#### **Threats to internal and external validity**

The non equivalent control group quasi experimental design will enable the control for some threats to internal as well as external validity. The threats to internal validity are those that would compromise the confidence in saying that a relationship exists between the independent and dependent variables. The threats to external validity would compromise the

confidence in stating whether the study's results are applicable to other settings and different groups (Trochim, W.M, 2006).

This design is prone to the following threats of internal validity;

#### *Selection*

The design is a non equivalent control group design and in this way the baseline differences could exist between the intervention and comparison groups at the start of the study. This therefore generates some kind of selection bias and would affect the study outcomes. This is the major internal validity threat that could be experienced.

#### *Regression*

The study clusters will be selected from a sampling frame based on the extreme scores on maternal and child health outcomes. This as a result may make individual participants in both the intervention and comparison groups to score very highly or low on outcomes possibly due to chance factors and produce extreme scores.

#### *Instrumentation*

The information on dependent variables in the intervention and comparison group areas will be gathered by observers. If there could be any differences in the way this information is gathered from the two groups it may create an internal validity threat as data could be dissimilar from the two groups due to observer's difference in data collection. This would not be a major threat if the data collection process would be similar for the two groups.

### **Threats to external validity**

External validity is the degree to which the results of an empirical investigation can be generalized to other groups. Any factor within the study that reduces its generalizability would compromise its external validity (Trochim, W.M, 2006).

This design is prone to the following threat of external validity;

#### *Selection bias (No two people are the same)*

Selection bias is a more significant threat to external validity in this non equivalent control group quasi-experimental research design. The clusters that will be chosen may not be representative of the general population. This makes selection bias a more significant threat to external validity due to non equivalent groups in this quasi-experimental research and the possible non representativeness of the clusters to the general population. This would limit the generalizability of the study results in the long run.

### **Minimization of internal and external validity threats**

Threats to validity will be controlled by the following;

#### *Matching*

The intervention and the comparison group clusters will be matched based on demographic characteristics. The individual intervention clusters will be comparable to those clusters in the comparison group areas.

### **Analytic methods to be used**

Experimental designs have a straightforward statistical analysis than quasi experimental designs. Due to the lack of randomization in quasi experimental research designs, statistical analytical procedures become very necessary (Dimsdale T, & Kutner M, 2004). Double difference (DD) analytical methods will be used to compare intervention and comparison groups in terms of outcome changes over time relative to the outcomes observed for a pre-intervention baseline. The project effect/impact will be determined by taking the difference in outcomes across intervention and comparison groups before and after the program intervention. Multiple regression analysis will also be utilized in order to determine the project impact. This will allow multiple adjustments and control for outside factors. Analysis of covariance (ANCOVA) would also be employed to reduce the effects of the initial differences between groups. These analytical methods will be implemented in order to respond to and control for the lack of randomization in this non equivalent control group quasi experimental research design.

### **Implications, conclusion and Recommendations**

The study would face several implementation problems since scaling-up of midwife assistants in the community is a complex issue with great challenges. It is not self-evident that young community midwife assistants would be willing to live in rural areas, which offer limited opportunities for them and particularly their children's education and future careers. Getting the rural communities to terms and have them work with community midwife assistants would also demand massive awareness campaigns in order to make the whole program a success (Pettersson, K.O. et al., 2004).

These challenges need to be overcome and have the midwife assistants maintained in the community intervention areas and work in an enabled environment.

If this evaluation design would establish that the program is successful and effective then it would be recommended that the program scales up to the other rural areas. This would mean increasing the training sites and training more community midwife assistants and have them deployed to several areas.

### **Acknowledgements**

Thanks to Dr Y.Y. Chen for guidance.

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