

BMJ Open

Community-linked maternal death review (CLMDR) to measure and prevent maternal mortality: a pilot study in rural Malawi

Journal:	BMJ Open
Manuscript ID:	bmjopen-2015-007753
Article Type:	Research
Date Submitted by the Author:	22-Jan-2015
Complete List of Authors:	Bayley, Olivia; UCL Institute for Global Health, Chapota, Hilda; MaiMwana Project, Kainja, Esther; MaiMwana Project, Phiri, Tambosi; MaiMwana Project, Gondwe, Chelmsford; Mchinji District Health Management Team, Safe Motherhood King, C.; UCL Institute for Global Health, Nambiar, Bejoy; UCL Institute for Global Health, Mwansambo, Charles; Government of Malawi Ministry of Health, Kazembe, Peter; Baylor College of Medicine Children's Foundation, Rosato, Mikey; Women and Children First, Colbourn, Timothy; UCL Institute for Global Health,
Primary Subject Heading:	Global health
Secondary Subject Heading:	Public health, Patient-centred medicine, Obstetrics and gynaecology, Epidemiology, Communication
Keywords:	Maternal medicine < OBSTETRICS, AUDIT, HEALTH SERVICES ADMINISTRATION & MANAGEMENT

SCHOLARONE™
Manuscripts

Community-linked maternal death review (CLMDR) to measure and prevent maternal mortality: a pilot study in rural Malawi

Olivia Bayley¹, Hilda Chapota², Esther Kainja², Tambosi Phiri², Chelmsford Gondwe³, Carina King¹, Bejoy Nambiar¹, Charles Mwansambo^{4,6}, Peter Kazembe^{5,6}, Anthony Costello¹, Mikey Rosato⁷, Tim Colbourn^{1§}

¹ University College London Institute for Global Health, 30 Guilford Street, London, WC1N 1EH, UK
² MaiMwana Project, Mchinji, Malawi
³ Safe Motherhood, Mchinji District Health Management Team, Mchinji, Malawi
⁴ Government of Malawi Ministry of Health, Lilongwe, Malawi
⁵ Baylor College of Medicine Children’s Foundation Malawi
⁶ Parent and Child Health Initiative (PACHI), Lilongwe, Malawi
⁷ Women and Children First, London, UK

§ corresponding author: t.colbourn@ucl.ac.uk

Olivia Bayley	oliviabayley@yahoo.co.uk
Hilda Chapota	hchapota@gmail.com
Esther Kainja	estherkainja@gmail.com
Tambosi Phiri	tambosiphiri@gmail.com
Chelmsford Gondwe	chelmsgondwe@yahoo.co.uk
Carina King	c.king@ucl.ac.uk
Bejoy Nambiar	b.nambiar@ucl.ac.uk
Charles Mwansambo	cmwansambo@gmail.com
Peter Kazembe	pnkazembe@baylor-malawi.org
Anthony Costello	anthony.costello@ucl.ac.uk
Mikey Rosato	mikeyrosato@gmail.com
Tim Colbourn	t.colbourn@ucl.ac.uk

Key words: Community-linked Maternal Death Review, Maternal Mortality, Malawi

Words: abstract: 276 article: 4922

Abstract

Background

In Malawi maternal mortality remains high. Existing maternal death review fails to adequately review most deaths or capture those that occur outside the health system. We assessed the value of community involvement to improve capture and response to community maternal deaths.

Methods

We designed and piloted a Community-linked maternal death review (CLMDR) process in Mchinji district, Malawi, which partnered community and health facility stakeholders to identify and review maternal deaths and generate actions to prevent future deaths. The CLMDR process involved five stages: community verbal autopsy, community and facility review meetings, a public meeting and bimonthly reviews involving both community and facility representatives.

Results

The CLMDR process was found to be comparable to a previous research-driven surveillance system at identifying deaths in Mchinji district (population 456 500 in 2008). 52 deaths were identified between July 2011 and June 2012, 27 (52%) of which would not have been identified without community involvement. Based on district estimates of population (500 000) and crude birth rate (35 per 1000) the maternal mortality rate was around 300 per 100 000. 32 (79%) of the 41 cases that started the process completed all five stages. We found the CLMDR process to increase the quality and quantity of information available and to involve a wider range of stakeholders in MDR. The process resulted in high rates of completion of community-planned actions (82%) and district hospital (67%) and health centre (65%) actions to prevent maternal deaths.

Conclusions

CLMDR is an important addition to the established forms of maternal death review. It shows potential as a low cost maternal death surveillance system, and may be applicable to similar contexts with high maternal mortality.

Strengths and weaknesses

- This pilot study in Mchinji district, central region of Malawi shows that a CLMDR process identified twice as many maternal deaths as the existing facility review process, yielded richer data and led to more actions being taken after the review.
- Communities and health facility representatives worked in partnership to investigate and respond to maternal deaths occurring in communities and health facilities
- Confidentiality of the death review was limited to allow participation of, gain information from, and spur action from the community. No adverse effects of this openness were reported and a blame-free culture was maintained.
- Our pilot study delineated key issues to consider for scale-up: the CLMDR process is dependent on community health workers, was not started for some cases of death, and can take over six months for each case (although we believe this can be beneficial). Raising the status of the community involved is essential to ensure the sustainability of the process.

1
2
3
4
5
6
7
8
9
Introduction

Around the world, women continue to die as a result of pregnancy and childbirth. In 2013 an estimated 292 982 maternal deaths occurred worldwide [1], most preventable with proven interventions. The UN Secretary General’s Commission on Information and Accountability recommends the introduction of better methods to count maternal deaths and to review and monitor progress [2].

10
11
12
13
14
15
16
17
18
19
20
21
Maternal death audit (MDA) is an important tool to prevent maternal deaths, and uses knowledge of the circumstances of a death to help prevent future deaths. MDA covers three approaches: confidential enquiry into maternal deaths, facility-based maternal death review (MDR) and community-based data-gathering known as verbal autopsy. The World Health Organisation defines facility-based maternal death review as a "qualitative, in-depth investigation of the causes of, and circumstances surrounding, maternal deaths which occur in health care facilities" [3 4]. The process involves identifying cases of maternal death, collecting and analysing information regarding the contributing factors, using this information to formulate recommendations for action and evaluating the outcomes of these actions.

22
23
24
25
26
27
28
29
30
31
The existing system for MDA in Malawi fails to adequately achieve these objectives. Although the Malawi Ministry of Health does conduct national-level confidential enquiries into maternal deaths, they are mainly limited to the use of facility-based MDR [5]. In practice, however, facility-based MDR is fraught with problems and there is no routine system for conducting community-based verbal autopsy [6]. In order to address the limitations of the present system, in partnership with the Malawian Ministry of Health, we designed and piloted an alternative Community-linked MDR system (CLMDR), combining the strengths of facility-based MDR and community verbal autopsy.

32
33
34
35
36
The MDSR (Maternal Death Surveillance and Response) system, suggested by WHO and UNFPA, is aimed at improving measurement of maternal mortality and stimulating actions to prevent maternal deaths in future [7 8]. The availability of community level data for this MDSR system is currently limited in scope so innovative methods are required to develop a sustainable model.

37
38
39
40
41
42
Our study describes the Malawian context and identifies six weaknesses of the current MDR system. We present the pilot study of the CLMDR process over a one-year period and the results of how it can overcome these weaknesses and provide an estimate of maternal mortality. We conclude with thoughts on the added value and applicability of the CLMDR approach.

43
44
45
Methods

46
Location

47
48
49
50
51
52
53
54
55
56
57
58
59
60
Malawi has a high, though declining, maternal mortality rate [9]. The most recent national survey estimated 574 maternal deaths/100 000 live-births during the period 2008–2014 [10]. The leading biological causes of maternal death in Malawi are postpartum haemorrhage, postpartum sepsis, ruptured uterus, complications of abortion, antepartum hemorrhage, pregnancy-induced hypertension and as indirect causes anemia and HIV/AIDS [11]. Behind each death is a complex story of social, behavioural, economic, logistical and health system factors which can be grouped into the ‘three delays’ model [12]. A delay by the family in the decision to seek care, a delay in reaching appropriate care once the decision has been made and a delay in receiving adequate care after arriving at the health facility may all contribute to a maternal death [13]. A recent study found that in Malawi, delay in receiving adequate care was the commonest delay due to referral delays, missed diagnoses, lack of blood, lack of drugs, inadequate care or severe mismanagement [13]. The

health system struggles with shortages of personnel, with insufficient knowledge and low morale, inaccessible facilities and irregular drug supplies [14 15].

Weaknesses of the current MDR system

1. Maternal death identification

Whilst a maternal death is a notifiable event in Malawi, the Ministry of Health notification system attempts to identify only those maternal deaths that occur in hospital. However, one third of all deaths are known to occur outside health facilities, either at the woman's home, the home of a traditional healer or in transit to a facility and these are presently not identified by the hospital-based notification system [16].

2. Review of maternal deaths

The Ministry of Health aims to review all maternal deaths occurring in health facilities, but in reality this is not achieved. A review of emergency obstetric care services in Malawi in 2010 found that only 89 of 309 health facilities (29%) had conducted MDRs and only 153 of 597 (26%) maternal deaths recorded were included in these reviews [17]. Barriers to effective MDR include missing medical charts, poor documentation and record keeping, shortage of senior staff to conduct the reviews, a fear of blame and a lack of resources, commitment, and knowledge or skills for the proper conducting of reviews [6 11 18]. MDR is not even attempted for deaths occurring in the community where many women are either unable to access quality healthcare or avoid the formal health sector [19].

3. Quality and quantity of information available

The outcome of an MDR process is dependent on the quality of the data gathered. Current data comes from hospital records, which often fail to adequately record patient history, examination findings, monitoring, results, and management [18]. In one study less than 20% of post-natal women's charts were correctly completed [20]. The lack of accurate written data may be compounded by a culture of blame that inhibits staff from sharing valuable information [6]. In a context where sub-standard care has been found to contribute to approximately one third (38%) of institutional deaths [21] good quality data is essential to the MDR process.

4. Stakeholder involvement

Only a limited number of hospital staff are involved in the MDR process [22]. Individuals whose actions may affect maternal outcomes are not represented, such as community health workers and non-clinical staff such as pharmacists, laboratory technicians, or transport coordinators [6]. There is no involvement of the woman's community, meaning that her family and traditional leaders are unable to contribute their insights to the process or put forward ideas for action.

5. Community mobilization and action

A recent study in Mchinji district, Malawi added to the evidence that communities themselves have significant potential to reduce maternal and neonatal mortality when they are involved in planning and implementing community actions [23 24]. Failing to involve communities in MDR therefore fails to utilize this potential.

6. Accountability of health workers

When health workers plan to take action following a MDR there is no official monitoring of whether these actions are taken, as completion of the maternal death follow-up form is almost non-existent [6]. There is also no forum for communities to hold health workers accountable for the actions

identified to prevent future deaths. Motivation for MDR among health-workers is reported to be low, whilst communities are highly motivated to take steps to prevent maternal deaths [6 23].

We hoped that these limitations could be overcome by involving the woman’s community in all stages of the process, from identifying the death, to holding review meetings and monitoring the completion of planned actions. We aimed for a blame-free process to review all maternal deaths, including those occurring in the community; supplement the limited hospital data with rich descriptive information from the community; and include a wider group of health facility staff and community representatives. We hoped that this new process would catalyse health facility and community actions to address the determinants of maternal death; improve the accountability of health workers; and, by elevating the community to partners in the process, generate a self-sustaining MDR process fuelled by community motivation to prevent maternal deaths.

Design of the CLMDR process

The CLMDR system was designed by MaiMwana, University College London (UCL) and Ministry of Health (MoH) staff, taking into account evidence from published work on MDR and discussions with maternal death review experts. To design the process we drew on evidence from a number of studies that have used social autopsy to enhance maternal health programmes. In Indonesia, social autopsy and medical records were used together to review deaths, with some community involvement [25]. Another programme, based in India, used community-based maternal verbal social autopsies to generate data regarding maternal deaths, which was then shared with the community to encourage participatory development of health interventions [26]. A number of studies of child deaths have also used verbal autopsy data to feed back to communities, but to a lesser degree [27].

The CLMDR project was discussed with local leaders who gave their consent and input. The project was initially piloted in four of the 12 health centre catchment areas in Mchinji district. Following feedback from all participants and the Malawi national-level safe motherhood taskforce the process was modified (shortening and combining reporting into one form) and then rolled out across the whole district for a one-year period (July 2011-June 2012). Project staff trained 350 community teams, made up of the group village headman, community health workers (called Health Surveillance Assistants (HSA) and volunteers. Health centre teams were created at all 12 health centres providing maternity care in the district. The existing MDR team at the district hospital was expanded (to include non-health professionals – drivers, pharmacy, laboratory, support staff) and strengthened with further training on their roles and responsibilities.

Overview of the CLMDR process

The process (see Web Appendix 1 for flow-chart) was triggered in the event of any maternal death, by community CLMDR team members hearing about a death in their area. Stage one began with the woman’s family giving consent for the process, followed by a verbal autopsy, or structured interview, including multiple open-ended free-text questions about the events leading up to her death. This form (Web Appendix 2) was used to record data at all stages of the process and designed to facilitate discussion and communication between participants.

Stage two was a meeting held in the woman’s local area by the community team. They recorded factors they believed contributed to the woman’s death and suggested strategies to prevent future deaths.

Stage three was a meeting held at the woman's local health facility or at the district hospital dependent on where the death occurred, with a broad spectrum of health centre staff, district hospital staff and the HSA. The HSA reported the information from the verbal autopsy and the community team discussions. Participants agreed on a medical cause of death and health facility factors that may have contributed to the death, after which they recorded the strategies that they planned to prevent future deaths. Action points were assigned to individual health centre and district hospital staff to implement.

Stage four was a public meeting held in the woman's local community, attended by district hospital and health centre representatives, the HSA, community leaders and community members – all were welcome to attend. The HSA sought the family's consent to summarise the case in order to facilitate an open discussion of all relevant factors. The health workers presented their planned action points. The community agreed on community factors that may have contributed to the death and planned their own strategies, assigning action points for individuals to implement.

Stage five was a bimonthly meeting, which provided an opportunity for community and health facility representatives to hear about progress on implementing action points, celebrate successes and to identify and overcome any barriers to action. An additional meeting of traditional leaders was held quarterly in order to share innovations and lessons learned across the whole district.

Sample

Over a one-year period, from July 2011 until June 2012, we attempted to review every maternal death of a woman resident in Mchinji district. The district population was 456 500 in the 2008 census. With a growth rate of 2% the population at the time of the study was probably close to half a million. A maternal death was defined as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes [28]. All maternal deaths of Mchinji women were included even if they died outside the district, such as at the central hospital in the capital city, Lilongwe. Women who died in the district but who were resident outside the district (i.e. from neighbouring Zambia, Mozambique or surrounding Malawian districts) were excluded from the sample as it would be impossible to complete the CLMDR process without involvement of a community team in the woman's home village.

Data collection and indicators of success

Data collection was via the combined form (Web Appendix 2), completed by either the community CLMDR team or the health facility CLMDR team at each stage of the process. Process data was collected by the research team and included information on who initiated the process, numbers of people attending the community feedback meetings, and feedback from all participants during the pilot and roll-out phases of the project.

We assessed the CLMDR process against the weaknesses of the pre-existing MDR process. We measured indicators relating to each identified weakness of the existing system (Table 1).

Data management and analysis

Each form was collected by the study team once the maternal death review process had been completed. A total of two forms could not be traced after completion and are therefore not included in this analysis. Descriptive statistics (counts and percentages) were produced from the

quantitative data, which was analysed in Stata 12.1 for Mac. Qualitative data was extracted (following translation of the relevant sections of the forms) and grouped into themes.

Ethics

Confidentiality is a norm of MDRs, enforced in order to improve the accuracy of reporting events, to protect the confidentiality of the deceased woman and her family and to protect health workers from blame and recriminations resulting from the publication of their actions. The potential negatives of a more open process were carefully considered during the design phase. On balance, we hoped that the motivation of a community affected by a death would be one of the drivers of the process. The community required some details of the case in order to draw meaningful conclusions and generate relevant actions. Family consent (both written and verbal) was an absolute prerequisite of the CLMDR process and this was also sought again formally prior to the public community feedback meeting. It could also be withdrawn at any stage. The HSA publicized only the summary of the case that had been previously agreed with the family prior to the meeting. All other discussions were confidential and this was reinforced in training and at the beginning of each meeting using a standardized text read out by the chairperson.

We recognized that discussion of a maternal death can result in blame and recriminations. In order to avoid this, the blame-free nature of the process was emphasized during training and was reiterated at the beginning of each meeting using standardized text on the form (Web Appendix 2). This study was approved by the National Health Sciences Research Committee of Malawi, protocol 785.

Results

1. Maternal death identification

The CLMDR process increased the number of maternal deaths identified compared to the MoH notification system alone. During the study year 52 maternal deaths were identified. Of these, 25 maternal deaths (48%) were identified by the MoH notification system at the district hospital. A total of 43 maternal deaths (83%) were identified by community CLMDR teams. Of note, this included 4 deaths that occurred at the district hospital, which had been overlooked by the hospital system.

In addition to the community and health facility CLMDR teams identifying deaths, a further death was identified through a radio broadcast about deaths of transient workers on a tobacco estate. The process also identified four deaths of women who lived outside the district. These were excluded from the study as having no community maternal death review team covering their home village meant they could not undergo the full process.

The study findings give an estimate of maternal mortality rate: 52 deaths from a population of 500 000 and a crude birth rate of 35 per 1000 gives a result of around 300 per 100 000 deaths. The national crude birth rate from the 2008 census was 39.5 [29] but we allowed for a secular fall. This MMR figure is close to the findings of a trial conducted in the district in which the last reported value was 328 per 100 000 (21/ 6408 births) collected from prospective surveillance during 2009 [23].

2. Review of maternal deaths

The CLMDR process resulted in an increase in maternal deaths being subject to review, including those deaths that occurred outside the district hospital. Overall, of the 52 maternal deaths, 45 (86%) were subject to some form of review. 37 (71%) were discussed at a community CLMDR meeting, 44 (85%) were discussed at a health facility CLMDR meeting, 32 (62%) were discussed at a community feedback meeting and 35 (67%) were discussed at a bimonthly review meeting.

Of the 52 maternal deaths identified, 41 cases started the CLMDR process. Of the 11 cases which did not start the process, five still held a health facility CLMDR meeting. Reasons for not starting the process included: in eight cases it was not possible to trace the woman's next of kin (in 5 cases she was a transient worker or her family moved away following the death, and in 3 cases the HSA failed to trace the family); in two cases the family declined consent to start the process; and in one case no details were known about the woman's death, which occurred outside the district.

Of the 41 maternal deaths that started the CLMDR process, 29 cases (71%) completed all 5 stages. Table 2 details the number of cases completing each stage of the process and the reasons for non-completion of each stage.

3. Quality and quantity of information

The verbal autopsy form was available in 39 of the 44 cases that were discussed at health facility CLMDR meetings during the study period. The form contained a minimum of closed questions (which are more difficult to share in a meeting context) and used open ended, free-text questions, which described events and invited discussion. Use of verbal autopsy data at the health facility CLMDR meetings significantly increased the information available to participants, generating a more informed process, which they found more satisfactory than using hospital records alone. For example, a midwife in charge of one of the health centres said:

"Using information from the deceased family together with hospital records during reviews assists to come up with a route cause of the problem which enables us to come up with real contributing factor and good strategies"

and a supervisor of community health workers said:

"detailed verbal autopsy gives a true picture of what happened and generates discussion with communities and health facility personnel"

4. Stakeholder involvement

The CLMDR process significantly increased the number of people involved in MDR activities. Over the course of the year, the CLMDR process involved a total of 3166 participants (although many may have attended more than one meeting). Numbers of attendees were not recorded for all meetings, but where data was recorded, on average, community CLMDR meetings were attended by 10 people (a total of 376 people), health facility CLMDR meetings were attended by 11 people (a total of 356 people) and community feedback meetings were attended by 98 people (a total of 2434 people; Table 3). Community feedback meeting participants represented a broad spectrum of the community, with women making up 53%, men 35%, young people 6% and traditional leaders, health workers and MaiMwana staff making up the remaining 6%.

5. Community mobilization and action

In addition to drawing large crowds to discussions about each maternal death, the CLMDR process resulted in concrete community actions to improve maternal health. Action points included:

community meetings to explore traditional beliefs; instituting bye-laws to prevent traditions posing a risk to pregnant women; educating men on their roles and responsibilities in supporting women during pregnancy, delivery and the post-partum period; lobbying the health facility advisory committee for more respectful treatment of women during antenatal care and delivery; establishing a mobile antenatal clinic; mobilizing community funds for bicycle ambulance maintenance; establishing a youth club, and organizing young female counsellors to support pregnant women.

Where data was recorded (in 25 cases of the 32 completing stage 4), on average 2.2 action points were made per meeting and 1.8 action points were reported completed. 82% of all proposed community action points were reported completed and in 84% of cases at least one action point was reported completed (Table 4).

6. Accountability of health workers

During the community feedback meetings, health workers presented their planned actions to the community. At the bimonthly meetings community representatives could question them about whether their planned actions had been successfully completed. Action points included designing a new antenatal form to better capture risk factors, improving drug supplies to ensure adequate stocks of anti-hypertensive drugs, training sessions for clinicians following maternal deaths, health education events for communities on maternal health topics, improved provision of emergency transport, including a motorcycle ambulance, increased fuel allowance and changing protocols to improve access to rural hospitals.

Where action points were recorded for the health centre (in 26 of 44 cases) on average 2.4 action points were made per meeting and 1.5 were completed. At health centre level 65% of all action points were reported completed and in 77% of cases at least one action point was reported completed (Table 5). Where action points were recorded for the district hospital (in 13 of 44 cases) on average 2.2 action points per meeting were made and 1.5 were completed. At district hospital level 67% of all action points were reported completed and in 73% of cases at least one action point was reported completed (Table 5).

Discussion

Our study showed that the CLMDR process improved the identification of maternal deaths compared to the national reporting system and provided a good estimate of maternal mortality rate compared with recent trial data [23]. Of note, community teams succeeded in identifying maternal deaths overlooked by hospital staff, as well as deaths occurring outside the health sector and outside the district. It has wider applicability as a maternal death surveillance system. Unlike community-based surveillance systems, which struggle to maintain the motivation of key informants without incentives, the CLMDR builds community motivation. The community is elevated from passive ‘data collectors’ to active partners in maternal death surveillance and response, thereby generating a potentially self-sustaining source of maternal death data.

The process doubled the rates of maternal death review, with 86% of maternal deaths covered. Discussion focused on factors that delayed a woman’s decision to seek care or delayed her ability to reach care, including examination of the reasons some women may have chosen not to attend a health facility at all. The verbal autopsy data supplemented health facility records in describing delays in receiving adequate health care. These included disrespectful treatment by health workers, being turned away from health centres, misdiagnoses, slow referral pathways, lack of hospital

transport and unavailability of life-saving treatments. These insights prevented health-workers from jumping to simple conclusions about the reasons women died, such as blaming the woman for not presenting to a health facility sooner, and fuelled valuable discussions about quality of care. They also generated awareness of how negative experiences of healthcare affects care-seeking behaviours.

Each health facility CLMDR resulted in the assignment of a medical cause of death. Whilst it is recognised that health workers may not be as accurate as expert analysis, it is known that the accuracy of facility-assigned cause of death may be improved by using verbal autopsy data in addition to hospital records [18]. An accurate stream of data on medical cause of death is essential for health services to monitor changing patterns of mortality and response to health interventions. The CLMDR process therefore provides improved data for evidence-based decision making at district and national level.

The Mchinji district CLMDR involved more than 2000 people in discussions around maternal health and problem-solving, which resulted in creative solutions and high rates of completion of planned activities. Whilst we cannot postulate any effect on maternal death rates, when communities are empowered to identify maternal health problems and implement their own solutions to these problems, there can be significant reductions in maternal deaths [23 24]. By harnessing community capacity, the CLMDR process might contribute to reductions in maternal death rates over time.

Action points were set and recorded at the health facility CLMDR meeting in less than half of cases, but two-thirds were completed. Publicising their plans at the community feedback meetings and reporting on the outcomes of their activities at bimonthly meetings may have increased health workers motivation to fulfil their commitments. Participants reported improved trust in the health system, with potential benefits for uptake of available healthcare.

The CLMDR process created a forum for health-workers and communities to discuss the challenges they face in relation to maternal health. Traditionally, health-workers occupy an elevated status in Malawi. By contrast, patients have limited power, with little choice and poor recourse in the event of inadequate treatment. By deepening understanding and creating partnerships between health-workers and the communities they serve, CLMDR sensitively challenges the existing power hierarchy and may contribute to a positive cultural change in patient-provider relationships.

Issues for scale-up of CLMDR

To enable participation of the community in the process we accepted a reduced level of confidentiality compared to traditional MDR. While this was essential and no known adverse events occurred, we recognize the potential risk of information being shared beyond the intended audience. Where the family declined consent for a CLMDR process, only a closed, confidential health facility MDR took place.

Recording data from all stages on one form gave continuity to the process but the form travelling between the community and the health facility meant that it was at risk of being lost or confidentiality being breached. The CLMDR management team making a copy of the form at each stage would mitigate this risk whilst maintaining the communication benefits of a single form.

In seven cases of death consent was declined or withdrawn, with two families declining to start the process and five families declining consent for the community feedback meeting. In at least three of these cases, abortion or HIV contributed to the woman's death, so it seems the CLMDR process was

not always able to facilitate the discussion of these sensitive topics. Of the five cases where the community feedback meeting was declined, all underwent health facility MDR and three went on to be discussed at the bimonthly meeting, meaning that at least some form of review was undertaken.

The death of one transient worker mother was missed, but identified on the radio. In transient areas such as tobacco estates, community teams achieve less coverage. Transient workers also accounted for at least three of the cases where the next of kin could not be identified. As transient residents, these tenant farmers have little social support and may be more vulnerable to maternal death. Seven women died outside the district; in two cases this prevented the process from being completed. Rolling out CLMDR s across neighbouring districts would potentially enable completion of the process regardless of place of death.

Whilst we propose this system as an alternative to the existing MDR system, we recognize it's greater complexity and duration. On average, there were 140 days between the maternal death and the community feedback meeting and 228 days between the maternal death and the bi-monthly review meeting at the district hospital to review progress (Web Appendix 3). The length of the process may be a positive by serving to maintain attention to the issues raised by the death and allow sufficient time to organise and take actions. Nonetheless, the process should remain short enough to maintain commitment and motivation.

The process relies on the ability of the community health workers (HSA) to link the health service and the community. HSAs have numerous responsibilities. In five cases, the process was halted by HSA failures to identify the woman's family, to organize the community CLMDR meeting or feedback meeting, and in one case the HSA was not trained. For scale-up, all HSAs should be trained in CLMDR.

Routine data gathering was not conducted at the monthly strategy evaluation meetings so the value of this aspect of the process remains unknown. The bimonthly meetings attended by both community and facility representatives may supersede the importance of these monthly evaluations.

The CLMDR process attempts to challenge the existing power imbalance between health workers and the communities they serve. Project staff noted that even though a community might be highly motivated to pursue the process, where the HSA failed or the health facility was slow to organize a meeting, the community had little recourse to push it forward. Any rollout of CLMDR should try to elevate the status of the community and hold all stakeholders to account, perhaps through written agreements or parallel advocacy activities. The Traditional Authority (or chief) rarely attended community feedback meetings, instead being represented by a Group Village Headman. Raising TA involvement from the beginning might be an effective strategy to improve the sustainability of the process in the long term.

Conclusion

CLMDR is a new and effective method of maternal death audit. By harnessing the motivation of communities to prevent maternal deaths CLMDR improves identification and review of deaths, improves the quality of maternal death review meetings, provides opportunities for education on maternal health and stimulates action in communities and health facilities. The potential of CLMDR has been recognized by the Malawi Ministry of Health who have begun rollout nationwide. CLMDR is relevant to similar settings with high rates of maternal mortality and needs further assessment.

Acknowledgements

We thank all the community and health facility participants of the CLMDR process and hope they found it valuable. We also thank all staff at MaiMwana Project who helped with the logistics and management of the project.

Contributors

OB and HC conceived the study, which was further developed by EK, TP, MR and CG. OB, HC, EK, TP and CG were involved in data collection. TC and OB analysed the quantitative data and HC, MR and OB analysed the qualitative data. OB wrote the first draft of the paper with significant input from MR and TC. All authors reviewed and revised the paper and approved the final version of the paper.

Funding

This study was funded by a grant from Engender Health, no.: GMH-103-01

Competing Interests

None

Table 1: Identified weaknesses of existing MDR process and indicators used to assess CLMDR

Identified weakness	Indicator used to assess CLMDR
1. Maternal death identification	Source of identification of maternal death, i.e. community CLMDR team, health facility CLMDR team or another source
2. Review of maternal deaths	Completion of each section of the form indicating completion of the relevant stage in the process
3. Quality and quantity of information available	Availability of section 1 (verbal autopsy data) at the health facility CLMDR meeting
4. Stakeholder involvement	Numbers of participants present at each stage of the CLMDR process and breakdown
5. Community mobilization and action	Planned action points and rates of completion of action points
6. Accountability of health workers	Planned action points and rates of completion of action points

Table 2: Cases completing each stage of the CLMDR process and reasons for non-completion of each stage

Stage of process	Number of cases completing stage	Number of cases not completing stage	Reasons for not completing stage
Stage 1: Verbal autopsy	41	11	8: Unable to trace family 2: Family declined consent 1: No details known about death
Stage 2: Community CLMDR meeting	37	15	11: Process not started 3: Not known 1: HSA not trained in CLMDR (failed after stage 1)
Stage 3: Health facility CLMDR meeting	44	8	6: Process not started 1: Death outside district (failed after stage 2) 1: Process failed after stage 1
Stage 4: Community feedback meeting	32	20	11: Process not started 5: Relatives declined consent for meeting 1: HSA failed to organize meeting 1: Process failed after stage 1 1: Process failed after stage 2 1: Form lost after stage 3
Stage 5: Bimonthly meeting	35	17	11: Process not started 1: Process failed after stage 1 1: Process failed after stage 2 1: Form lost after stage 3 3: Process failed after stage 4
Total	52		

Table 3: Participants at CLMDR meetings

	Number of meetings with data	Total participants	Average participants per meeting ^a
Community CLMDR meeting participants			
Community members	37	195	5
Group Village Headman	34	34	1
Community Health Workers ^b	34	83	2
Volunteers	32	64	2
<i>Total</i>		376	10
Health facility CLMDR meeting participants			
Health facility staff	34	258	8
Health facility in-charge	34	33	1
Community Health Workers ^b	33	32	1
Mchinji District Hospital Representative	33	33	1
<i>Total</i>		356	11
Community Feedback meeting participants			
Traditional Authority	22	3	0
Group Village Headman	24	21	1
Community Health Workers ^b	25	25	1
Health Facility Representative	26	26	1
Mchinji District Hospital representative	25	24	1
MaiMwana representative	21	21	1
Other Very Important People	17	16	1
Women	25	1283	51
Men	25	860	34
Young people	23	155	7
<i>Total</i>		2434	98

^a rounded to nearest whole number

^b called Health Surveillance Assistants in Malawi

Table 4: Action points made and completed following community feedback meeting

	Number of action points made	Cases	Number of action points reported completed	Cases (% of cases with data)
Community action points			0	4 (16%)
	1	7	1	4 (16%)
	2	10	2	11 (44%)
	3	4	3	5 (20%)
	4	4	4	1 (4%)
Average per case	2.2		1.8	
Total	55		45 (=82% completed)	

Table 5: Action points made and completed following health facility CLMDR meeting

	Number of action points made	Cases	Number of action points reported completed	Cases (% of cases with data)
District hospital action points			0	7 (27%)
	1	8	1	4 (15%)
	2	10	2	11 (42%)
	3	3	3	4 (15%)
	4	5	4	0 (0%)
Average per case	2.2		1.5	
Total	57		38 (=67% completed)	
Health Centre action points			0	3 (23%)
	1	5	1	3 (23%)
	2	1	2	4 (31%)
	3	4	3	3 (23%)
	4	3	4	0 (0%)
Average per case	2.4		1.5	
Total	31		20 (=65% completed)	

References

1. Kassebaum NJ, Bertozzi-Villa A, Coggeshall MS, et al. Global, regional, and national levels and causes of maternal mortality during 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013. *The Lancet*; **384**(9947):980-1004 doi: [http://dx.doi.org/10.1016/S0140-6736\(14\)60696-6](http://dx.doi.org/10.1016/S0140-6736(14)60696-6) [published Online First: Epub Date].
2. WHO. Keeping promises, measuring results. Commission on information and accountability for women's and children's health. Geneva: World Health Organisation, 2011.
3. Lewis G. Beyond the Numbers: reviewing maternal deaths and complications to make pregnancy safer. *British Medical Bulletin* 2003;**67**:27–37
4. Lewis G. Reviewing maternal deaths to make pregnancy safer. *Best Practice & Research Clinical Obstetrics and Gynaecology* 2008;**22**:447–63
5. Mataya R, Malawi National Confidential Committee on Enquiry into Maternal Death. Report on the Confidential Enquiry into Maternal Deaths in Malawi (2008-2012). Lilongwe, Malawi: Reproductive Health Unit, Ministry of Health, 2013.
6. Kongnyuy EJ, van den Broek N. The difficulties of conducting maternal death reviews in Malawi. *BMC Pregnancy and Childbirth* 2008;**8**:42
7. Danel I, Graham WJ, Boerma T. Maternal death surveillance and response. *Bulletin of the World Health Organization* 2011;**89**(11):779-79A
8. Hounton S, De Bernis L, Hussein J, et al. Towards elimination of maternal deaths: maternal deaths surveillance and response. *Reproductive health* 2013;**10**:1 doi: 10.1186/1742-4755-10-1 [published Online First: Epub Date].
9. Colbourn T, Lewycka S, Nambiar B, et al. Maternal Mortality in Malawi, 1977-2012. *BMJ Open* 2013;**3**:e004150
10. National Statistical Office [Malawi]. Malawi MDG Endline Survey 2014, Key Findings. Available at: [http://www.nsomalawi.mw/images/stories/data_on_line/demography/MDG_Endline/Malawi MDG Endline Survey Key Findings Report .pdf](http://www.nsomalawi.mw/images/stories/data_on_line/demography/MDG_Endline/Malawi_MDG_Endline_Survey_Key_Findings_Report.pdf) (accessed 17th December 2014). Zomba, Malawi: National Statistical Office, 2014.
11. Kongnyuy EJ, Mlawa G, van den BN. Facility-based maternal death review in three districts in the central region of Malawi an analysis of causes and characteristics of maternal deaths. *Womens Health Issues*. 2009;**19**(1):14-20
12. Thaddeus S, Maine D. Too far to walk: maternal mortality in context. *Social Science & Medicine* 1994;**38**(8):1091-110
13. Combs Thorsen V, Sundby J, Malata A. Piecing Together the Maternal Death Puzzle through Narratives: The Three Delays Model Revisited. *PLoS One* 2012;**7**(12):e52090
14. Bayley O, Colbourn T, Nambiar B, et al. Knowledge and perceptions of quality of obstetric and newborn care of local health providers: a cross-sectional study in three districts in Malawi. *Malawi Medical Journal* 2013;**25**(4):110-13
15. Mueller DH, Lungu D, Acharya A, et al. Constraints to implementing the Essential Health Package in Malawi. *PLoS One* 2011;**6**(6)
16. Colbourn T, Nambiar B, Costello A. MaiKhanda - Final evaluation report. The impact of quality improvement at health facilities and community mobilisation by women's groups on birth outcomes: an effectiveness study in three districts of Malawi. Available at <http://www.health.org.uk/publications/maikhanda/> (accessed 29/10/2013). London: The Health Foundation, 2013:1-364.
17. Republic of Malawi Ministry of Health. Malawi 2010 EmONC Needs Assessment Final Report, 2010.
18. Combs Thorsen V, Sundby J, Meguid T, et al. Easier said than done!: methodological challenges with conducting maternal death review research in Malawi. *BMC Medical Research Methodology* 2014;**14**:29
19. Yoder PS, Rosato M, Riad M, et al. Women's recall of delivery and neonatal care: A study of terms, concepts and survey questions. Calverton, Maryland, USA: Macro International, 2010.

20. Ashwood-Smith H, Simpson H. An observational study of obstetric care quality in Southern Malawi. Malawi Safe Motherhood Report., 2003.

21. Ratsma E, Lungu K, Hofman J, et al. Why more mothers die: confidential enquiries into institutional maternal deaths in the Southern Region of Malawi. Malawi Medical Journal 2005;**17**(3):75-80

22. Vink NM, de Jonge HCC, Ter Haar R, et al. Maternal death reviews at a rural hospital in Malawi. International Journal of Gynaecology & Obstetrics 2013;**120**(74-77)

23. Lewycka S, Mwansambo C, Rosato M, et al. Effect of women’s groups and volunteer peer counsellors on rates of mortality, morbidity and health behaviours in mothers and children in rural Malawi (MaiMwana): a factorial, cluster-randomised controlled trial. Lancet 2013;**381**:1721-35

24. Prost A, Colbourn T, Seward N, et al. Women’s groups practising participatory learning and action to improve maternal and newborn health in resource-limited settings: systematic review and meta-analysis. Lancet 2013;**381**:1736–46

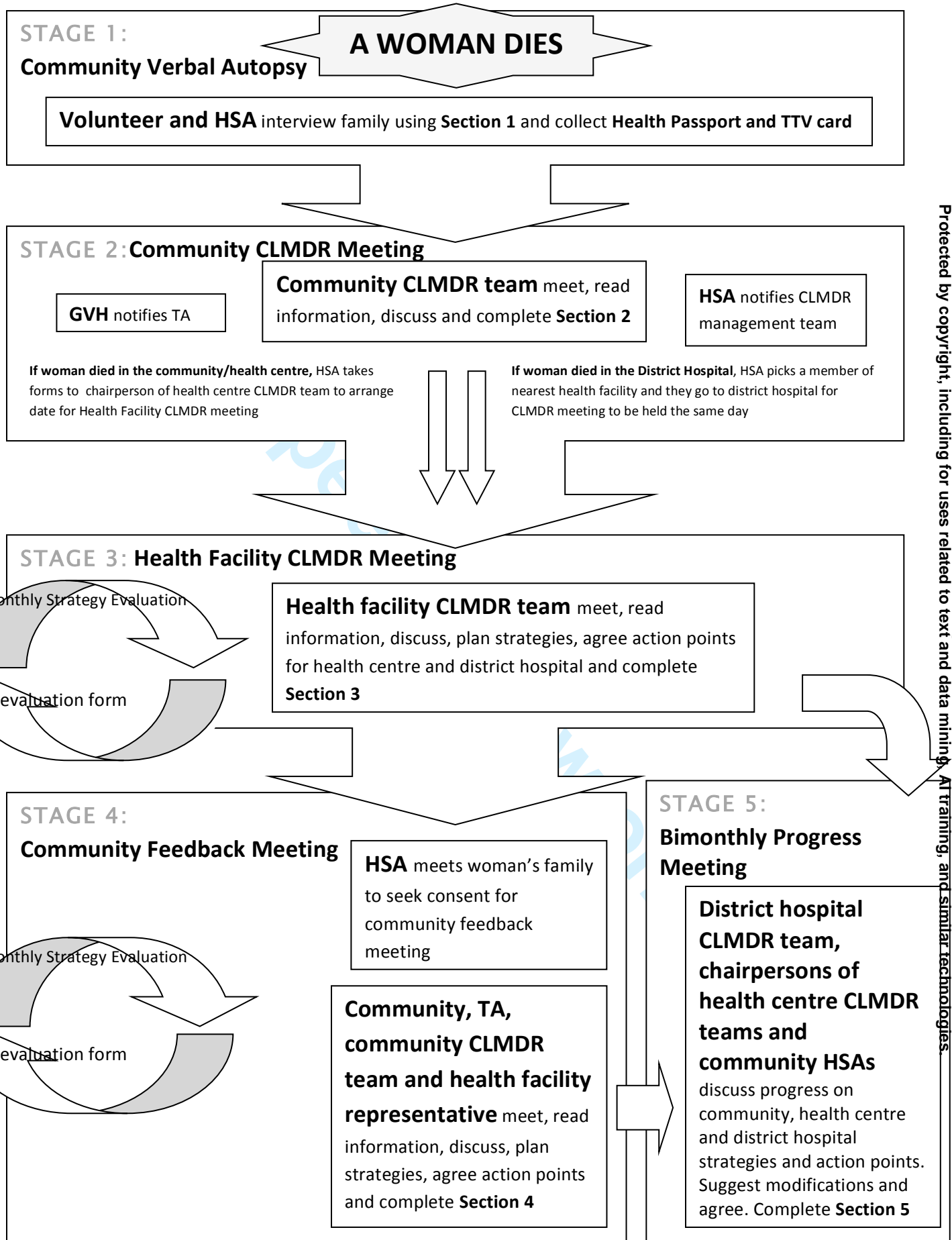
25. Supratikto G, Wirth ME, Achadi E, et al. A district-based audit of the causes and circumstances of maternal deaths in South Kalimantan, Indonesia. Bulletin of the World Health Organisation 2002;**80**(3):228-34

26. UNICEF. Maternal and Perinatal Death Inquiry and Response: Empowering communities to avert maternal deaths in India (available at: http://www.unicef.org/india/MAPEDIR-Maternal_and_Perinatal_Death_Inquiry_and_Response-India.pdf accessed 17th December 2014). New Dehli: UNICEF, 2008.

27. Kalter HD, Salgado R, Babilie M, et al. Social autopsy for maternal and child deaths: a comprehensive literature review to examine the concept and the development of the method. Population Health Metrics 2011;**9**(45)

28. WHO. International statistical classification of diseases and related health problems. 10th Revision. Vol. 2. Instruction Manual. 2010 Edition. Geneva: World Health Organisation, 2010:134.

29. National Statistical Office [Malawi]. Census of Malawi 2008, Main Report. Lilongwe, Malawi: National Statistical Office, Government of Malawi, 2010.



COMMUNITY FOCUSED
MATERNAL DEATH REVIEW FORM

This form should be used by Community and Health Facility MDR teams to record information and to document all discussions. **It must be kept safely and must not be shown to anyone outside the community focused MDR process.** Each section begins with instructions about how to use the form and ends with instructions about what to do next. Follow all instructions carefully. If you are not sure what to do, check the manual or contact the Safe-Motherhood Co-ordinator or MaiMwana team.

Name of the deceased		Traditional Authority	
Date of death		GVH name	
Place of death		Village name	
Nearest health facility		HSA name	

Please record the maternal death ID number at the bottom of each page.

REMINDER: This is a blame-free process. The purpose is to learn lessons to prevent future maternal deaths, not to assign blame to individuals. Anyone found blaming individuals may be asked not to participate.

VERBAL AUTOPSY
Section 1

Name of Volunteer		Date of interview	___/___/___
Name of HSA			

Instructions for Volunteer and HSA: 2 weeks after a maternal death, you should go to the home of the deceased woman to interview close relative.

- On arrival at the respondent's house:
- 1. Greet and condole the respondent
 - 2. Ask for a private place to sit and talk away from other people
 - 3. Ask the respondent to bring the health passport and TTV card of the deceased (if available)
 - 4. Engage the respondent in a general discussion e.g.; about the weather, to make them feel relaxed

Consent: Read out the following:
My name is _____ a volunteer working with Mchinji District Health Office and MaiMwana Project. We are in the process of trying to improve the health of mothers and babies in Mchinji District. In particular we are working to strengthen communities and health services in relation to mother and child health.

We are in the process of implementing Community Maternal Death Review (MDR).

I am here today to conduct an interview with you because you are a friend or relative of(deceased name) who died recently during pregnancy, delivery or up to 42 days (6 weeks) after birth. We feel that you are in the best position to be able to tell us more about the events leading up to this woman's death and thus initiate the Community Maternal Death Review process. After this interview the information you give us will be reviewed by the Community MDR Team and the Health Facility MDR Team and will be reported back to your community. We assure you that any information you provide will be treated with respect and will only be used to assist individuals, communities and health facilities to understanding the contributing factors and learn how to prevent maternal deaths in future.

The purpose of this project is NOT to find fault with any individual or to put blame on the woman, the family, the community or health staff. The purpose is to give everyone an opportunity to think about how things could be improved IN FUTURE.

The interview will take approximately 45 minutes to complete. Your participation is absolutely voluntary. You may choose not to participate, or withdraw your consent for any reason at anytime, without jeopardising your care by our team and any health worker. If you do not wish to take part, this will not affect your right to treatment at any health facility or participation in MaiMwana activities now or in the future.

I will answer any questions you may have about the study but should you have any further questions or issues you should call Mrs Tambosi Phiri on 0999277303 or Dr Chipiliro Kadzongwe on 0888516439. If you have any questions or concerns about your rights in taking part in this research study, you may contact the vice chairperson of the National Health sciences Research Committee who reviewed and approved this study, Professor Joseph Mfutso Bengo on 0999957805.

Do you agree to take part in this study? Please indicate whether you agree or not by putting your signature or thumbprint in the box next to your decision

Yes

No

Do you agree to provide the health passport and TTV card of the deceased? These materials will be returned to you at the end of the Community Maternal Death Review Process.

Yes

No

Health passport attached?	Yes <input type="checkbox"/> No <input type="checkbox"/> specify passport number: _____
TTV card attached?	Yes <input type="checkbox"/> No <input type="checkbox"/> specify TTV card number: _____

Part 1: Personal details of the deceased		
1.1	On what date was (NAME) born?	dd/mm/yy __ __ / __ __ /19 __ __
1.2	How old was (NAME) when she died?	__ __ years
1.3	On what date did (NAME) die?	dd/mm/yy __ __ / __ __ /20 __ __
1.4	At what stage of pregnancy did (NAME) die?	1 = During pregnancy 2 = During delivery 3 = After birth 4 = Don't know
1.5	Where did (NAME) die?	1 = Home 2 = On the way to treatment 3 = Mchinji District Hospital 4 = Other health facility in Mchinji specify _____ 5 = Other health facility outside Mchinji 6 = Other specify _____ 7 = Don't know
Part 2: Previous pregnancy and birth history		
2.1	Please tell me about (NAME's) health in the six months before she became pregnant this time <i>PROMPTS</i> <i>Health problems, illnesses, operations, medications</i>	
2.2	How many times had (NAME) been pregnant in total?	__ __ 99 = Don't know
2.3	Please tell me about these previous pregnancies <i>PROMPTS</i> <i>Miscarriages, stillbirths, other complications</i>	
2.4	How many of these pregnancies resulted in a live born baby?	__ __ → If 0 go to 3.1 99 = Don't know
2.5	How many of these live born babies are still alive?	__ __ 99 = Don't know
Part 3: Recent pregnancy		
3.1	When did (NAME) start antenatal during this pregnancy?	__ __ weeks of pregnancy 98 = Did not go for antenatal care 99 = Don't know
3.2	How many times did she attend antenatal during this pregnancy?	__ __ times 99 = Don't know

3.3	Please tell me about (NAME's) most recent pregnancy <i>PROMPTS</i> Health problems (eg: bleeding, fever, convulsions), illnesses, operations, medications, care during pregnancy, where she went for ANC, care during ANC, who attended her during ANC?	
3.4	How many months pregnant was (NAME) when she went into labour?	__ __ months 99 = Don't know
3.5	Please tell me about (NAME's) delivery (if applicable) <i>PROMPTS</i> Health problems (e.g: heavy bleeding, long labour, delivery of placenta), illnesses, operations, medications, where she delivered, care during delivery, who attended her during delivery, is the child still alive?	
3.6	Please tell me about (NAME's) health following delivery (if applicable) <i>PROMPTS</i> Health problems (e.g: bleeding, fever, convulsions, offensive vaginal discharge), illnesses, operations, medications, where she went for postnatal care, care during postnatal care, who attended her during postnatal care, is the child still alive?	
3.7	Please tell me about the last 7 days of (NAME's) life <i>PROMPTS</i>	

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

	<i>Problems (e.g: fever pain, bleeding, convulsions, difficulty breathing, pallor, swelling, offensive vaginal discharge), illnesses, operations, medications, where she went for health care, health care provided, who attended her during health care</i>	
Part 4: Health care		
4.1	How long did it take between identifying the problem and deciding to seek care?	<div><div></div><div></div> minutes</div> <div><div></div><div></div> hours</div> <div><div></div><div></div> days</div> <div>99 = Don't know</div>
4.2	<p>Please tell me what happened between identifying the problem and deciding to seek care?</p> <p><i>PROMPTS</i> <i>Who made the decision, any delay in making the decision, reasons for delay. Other health care visits (e.g: TBA, sing'anga)</i></p>	
4.3	How long did it take to get to the health facility?	<div><div></div><div></div><div></div> minutes</div> <div><div></div><div></div> hours</div> <div>99 = Don't know</div>
4.4	<p>Please tell me about the journey to the health facility?</p> <p><i>PROMPTS</i> <i>How did she travel, any delay in getting to the health facility, reasons for delay</i></p>	
4.5	How long did it take to receive care after arriving at the health facility?	<div><div></div><div></div><div></div> minutes</div> <div><div></div><div></div> hours</div> <div>99 = Don't know</div>
4.6	<p>Please tell me about the care (NAME) received at the health facility?</p> <p><i>PROMPTS</i> <i>Any delay in receiving care, reasons for delay Was there enough staff, drugs and equipment, was she treated with respect?</i></p>	

Part 5: Contributing factors and strategies

5.1	<p>Please tell me the factors that you think contributed to (NAME's) death</p> <p><i>PROMPTS</i> <i>Factors which contributed to her poor health, individual factors, family factors, community factors, health facility factors</i></p>	
5.2	<p>Please tell me how you think women could be prevented from dying in the future</p> <p><i>PROMPTS</i> <i>Strategies for women, families, communities, health facilities</i></p>	
5.3	<p>Is there anything else you would like to add?</p>	

This is the end of the interview. Thank you for sharing with us the details of the recent death of (NAME). We hope that we will be able to learn from her experiences and help other mothers in Mchinji district in future. The information you have given will now be seen by the community MDR team and the health facility MDR team to help them think of strategies to prevent deaths in the future. The community MDR team will visit you before the community feedback meeting in 2 weeks time.

Instructions to volunteer and HSA: You should now take this form, together with the health passport and TTV card to the GVH for the Community MDR meeting.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

COMMUNITY MATERNAL DEATH REVIEW
TEAM SUMMARY
Section 2

Instructions to Community MDR Teams: One person should read the following to the rest of the team:

We all know that ‘no woman should die giving life’ but many women continue to die. Every death that occurs can help us to prevent a death in future if we think about the factors that led to the death.

The family of (name of deceased woman) have been interviewed, the health passport and TTV card have been collected (where possible) so we can learn about the problems that led to her death.

The purpose of this meeting is to consider these problems and think about anything that the community and the health facility can do in future to prevent other women from dying. In this form please summarise factors mentioned by the family or that arise from the health passport and TTV card. Also summarise the factors that the members of the Community MDR Team think may have contributed to the death and record anything you think individuals, families, the community as a whole and the health facility could do to prevent future deaths. You can use the ‘making great strategies’ diagram and the contributing factors section of the manual to help your discussions.

The purpose of this meeting is NOT to find fault with any individual or to put blame on the woman, the family, the community, or the health staff. The purpose is to give everyone an opportunity to think about how things could be improved IN FUTURE.

Following this meeting, the HSA will take this form, the health passport and TTV card to the local Health Facility MDR Team or District Hospital MDR team, who will also review the information to identify contributing factors and strategies to prevent similar deaths in the future.

MDR management team staff will support the Community MDR Teams in this process. Please feel free to invite them to join the meetings or for any advice by calling them on: 0999630450/or 0999422348/0999630755.

Please read the Maternal Verbal Autopsy (Section1) the health passport and the TTV card to the whole team. The HSA should then complete the form below.

Date of meeting: ____/____/____		
Persons present		
Position	Name	Present?
1.GVH		Yes/No
2.HSA		Yes/No
3.HSA		Yes/No
4.HSA		Yes/No
5.Volunteer		Yes/No
6.Volunteer		Yes/No
7.Volunteer		Yes/No

Part 1: Summary of community contributing factors and suggested strategies		
1.1	Community factors which may have contributed to (NAME's) death? Think 'but why' to identify each of the contributing factors	
1.2	For each contributing factor record the strategy that will help us get from where we are now (contributing factor causing deaths) to where we want to be (contributing factor no longer exists)	
Part 2: Summary of health facility contributing factors and suggested strategies		
2.1	Health facility factors which may have contributed to (NAME's) death? Think 'but why' to identify each of the contributing factors	
2.2	For each contributing factor record the strategy that will help us get from where we are now (contributing factor causing deaths) to where we want to be (contributing factor no longer exists)	

This is the end of the Community MDR Team Summary. Thank you for taking part.

Instructions to the HSA: Please now take this form, together with the health passport and TTV card (if available) to Mchinji District Hospital if the woman died there or to the nearest health facility.

HEALTH FACILITY MATERNAL DEATH REVIEW

TEAM SUMMARY

Section 3

Instructions to Health Facility MDR Teams: The chairperson should read the following to everyone present:

We all know that ‘no woman should die giving life’ but many women continue to die. Every death that occurs can help us to prevent a death in future if we think about the factors that led to the death.

The family of(name of the deceased woman) have been interviewed and the passport and TTV card have been collected(where possible)so we can learn about the problems that led to her death. This information has been reviewed by the Community MDR Team. They have made suggestions of community and health facility strategies to prevent other women from dying.

The purpose of this meeting is to consider these problems again and to particularly think about anything the health facility can do in future to prevent other women from dying. In this form please summarise factors mentioned by the family, factors that arise from the health passport and TTV card and factors summarised by the Community MDR Team. Also record the MDRs opinion of the likely medical cause of death and summarise the factors that the members of the Health Facility MDR Team think may have contributed to the death. Then record anything you think the community, the health centre and the district hospital could do to prevent future deaths. You can use the ‘making great strategies’ diagram and the contributing factors section of the manual to help your discussions.

The purpose of this meeting is NOT to find fault with any individual or to put blame on the woman, the family, the community, or the health staff. The purpose is to give everyone an opportunity to think about how things could be improved IN FUTURE. Please be careful with your feedback as blaming the community or individuals may result in a negative reaction. If you blame individuals you may be asked to leave the meeting.

MaiMwana project staff will support Health Facility MDR Teams in this process. Please feel free to invite them to join the meetings by calling them on: 0999630450/01906175.

The community HSA will now read the Maternal Verbal Autopsy (Section1), the Community MDR Team summary (Section 2), the health passport and the TTV card to the whole team. Please assign someone to complete the form below, using this information in addition to health facility records and any remembered events.

Date of meeting: ____/____/____		
Persons present		
Position	Name	Present?
1. Health centre in charge		Yes/No
2. Community HSA		Yes/No
3. District hospital representative		Yes/No
4.		Yes/No
5.		Yes/No
6.		Yes/No
7.		Yes/No
8.		Yes/No
9.		Yes/No

10.		
11.		
12.		

Part 1:		
1.1	Please summarise all the events leading up to (NAME's) death	
1.2	What health care seeking actions did (NAME) take when she became ill? Was there any delay in deciding to seek care?	
1.3	Were there any problems in getting to a health facility?	
1.4	Were there any problems with her care at the health facility?	

1.5	<p>What is the primary cause of death in the opinion of the health facility MDR team?</p> <p>Please assign a code by circling the cause of death from the list opposite.</p>	<p>1=Haemorrhage (antepartum or postpartum) 1A=Placenta previa/ 1B=Abruption placentae/ 1C=Atonic uterus/ 1D=Retained products of conception/ 1E=Prolonged labour/ 1F=Prior foetal death</p> <p>2=Early pregnancy death 2A=Sepsis and induced abortion/ 2B=Sepsis and spontaneous abortion/ 2C=Haemorrhage and induced abortion/ 2D=Haemorrhage and spontaneous abortion/ 2E=Haemorrhage and ectopic pregnancy</p> <p>3=Sepsis 3A=Prolonged rupture of membranes/ 3B=Obstructed labour/ 3C=Retained products of conception / 3D=Iatrogenic factors/ 3E=Prior foetal death</p> <p>4=Eclampsia/convulsions</p> <p>5=Obstructed labour/ruptured uterus 5A=Malpresentation/ 5B=Cephalo pelvic disproportion/ 5C=Iatrogenic factors</p> <p>6=Indirect cause 6A=Malaria/ 6B=AIDS/ 6C=TB/ 6D=Tetanus/ 6E=Hepatitis/ 6F=Pneumonia/ 6G=Anaemia/ 6H=Assault/ 6I=Accident/ 6J=Suicide/ 6K=Heart diseases/ 6L=Other indirect cause</p>
-----	--	--

Part 2: Summary of community contributing factors and suggested strategies		
2.1	<p>Community factors which may have contributed to (NAME's) death?</p> <p>Think 'but why' to identify each of the contributing factors</p>	
2.2	<p>For each contributing factor suggest a strategy that could help us get from where we are now (contributing factor causing deaths) to where we want to be (contributing factor no longer exists)</p>	

You should now consider the health centre and the district hospital separately.

Part 3: Summary of health centre contributing factors and planned strategies		
3.1	<p>Health centre factors which may have contributed to (NAME's) death?</p> <p>Think 'but why' to identify each of the contributing factors</p> <p><i>Suggested: maximum 2</i></p>	<p>Contributing factor 1:</p> <p>Contributing factor2:</p>
3.2	<p>For each contributing</p>	<p>Strategy1:</p>

	factor record the strategy that will help us get from where we are now (contributing factor causing deaths) to where we want to be (contributing factor no longer exists)	Strategy 2:
3.3	Break each strategy in to action points. These should be definite actions that can be done by individuals. Think 'who, how, when?' <i>Suggested: maximum 4 action points</i> Persons responsible for implementing these action points should sign the following declaration:	Action point 1: Person responsible: Signature:
		Action point 2: Person responsible: Signature:
		Action point 3: Person responsible: Signature:
		Action point 4: Person responsible: Signature:
3.4	Date of evaluation meeting to review progress with all action points <i>Suggested: 1 month</i>	
Part 4: Summary of District Hospital contributing factors and planned strategies		
4.1	District Hospital factors which may have contributed to (NAME's) death? Think 'but why' to identify each of the contributing factors <i>Suggested: maximum 2</i>	Contributing factor 1: Contributing factor2:
4.2	For each contributing factor record the strategy that will help us get from where we are now	Strategy1:

	(contributing factor causing deaths) to where we want to be (contributing factor no longer exists)	Strategy 2:
4.3	Break each strategy in to action points. These should be definite actions that can be done by individuals. Think ‘who, how, when?’ <i>Suggested: maximum 4 action points</i> Persons responsible for implementing these action points should sign the following declaration: <i>“I declare that I will implement this action point to the best of my ability, within the time frame we have agreed.”</i>	Action point 1: Person responsible: Signature:
		Action point 2: Person responsible: Signature:
		Action point 3: Person responsible: Signature:
		Action point 4: Person responsible: Signature:
3.4	Date of evaluation meeting to review progress with all action points <i>Suggested: 1 month</i>	

This is the end of the Health Facility MDR Team Summary.

Instructions: The HSA will now take this form back to the community. Please copy the contributing factors, strategies and action points on to the evaluation forms (Separate forms for health centre and district hospital). You will use the evaluation form to review progress at your monthly evaluation meetings and to report to the bimonthly progress meeting.

COMMUNITY FEEDBACK MEETING SUMMARY

Section 4

Instructions to HSA: Please write a summary of the events leading up to the death using only Section 1 (the verbal autopsy from the woman's relative). Use only information that will be useful to guide the discussion and do not include any other confidential information.

Introduction: The HSA should read out the following:

This meeting has been called to discuss the factors that may have contributed to the death of _____ from _____ village, who died on _____ at _____ and to discuss how to prevent maternal deaths in the future.

After the death occurred the family was visited by the Community MDR Team who conducted a Verbal Autopsy interview to gather information about the factors that led to death of this woman.

The Verbal Autopsy was then reviewed by the Community MDR Team and Health Facility MDR Team who identified factors that they thought may have contributed to the death. The health centre and district hospital have planned strategies to help prevent similar deaths in the future.

The purpose of this meeting is to consider community factors which may have contributed to the death and plan community strategies to prevent similar deaths occurring in the future. Whenever a woman dies there are many factors that may have led to the death. Thinking about these factors may help to identify things we can all do to prevent women from dying. You can use the 'making great strategies' diagram and the contributing factors section of the manual to help your discussions. ***It is not the fault of any individual person and the purpose of this process is not to blame anyone. If anyone tries to blame individuals they may be asked to leave the meeting.***

First the HSA will read a summary of events leading up to the death. Then he will read the contributing factors and strategies identified by the health facility MDR team for health centres and the district hospital. Then he will read the community contributing factors and strategies suggested by the Community MDR team and the Health Facility MDR Team. After reading this information we will discuss it in detail. Then we should discuss community factors we think may have led to the death and plan community strategies to help prevent deaths in future. We will identify people who will be responsible for putting these strategies in to action and then we will arrange monthly evaluation meetings to review our progress. Within 2 months the community HSA will report back to the District Hospital MDR team about our progress on our strategies.

Part 1: Summary of events leading up to death, to be read to the community

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Now read out the health centre contributing factors, planned strategies and action points identified by health facility MDR Team (Section 3, Part 3)

Now read out the district hospital contributing factors, planned strategies and action points identified by health facility MDR Team (Section 3, Part 4)

Now read out the community contributing factors and suggested strategies identified by the community MDR team (Section 2, Part 1) and the health facility MDR team (Section 3, Part 2)

Now discuss and complete the following table:

Part 2: Opinion of community on contributing factors to the maternal death and strategies to prevent future deaths		
2.1	Community factors which may have contributed to (NAME's) death? Think 'but why' to identify each of the contributing factors <i>Suggest maximum 2</i>	Contributing factor 1: Contributing factor 2:
2.2	For each contributing factor record the strategy that will help us get from where we are now (contributing factor causing deaths) to where we want to be (contributing factor no longer exists)	Strategy 1: Strategy 2:
2.3	Break each strategy in to action points. These should be definite actions that can be done by individuals. Think 'who, how, when?' Persons responsible for implementing these action points should sign the following declaration:	Action point 1: Person responsible: Signature:
		Action point 2: Person responsible: Signature:
		Action point 3: Person responsible: Signature:

		Action point 4: Person responsible: Signature:
2.4	Date of evaluation meeting to review progress on all action points <i>Suggested: 1 month</i>	

Date of meeting: ____/____/____	
Key persons present	
Position	Present?
1. TA	Yes/No
2. GVH	Yes/No
3. HSA	Yes/No
4. Health Centre Representative	Yes/No
5. District Hospital Representative	Yes/No
6. MaiMwana Representative	Yes/No
7. Other important individuals:	Yes/No
8. Number of women	
9. Number of men	
10. Number of young people	

This is the end of the Community MDR Feedback meeting.

Instructions: Please copy the contributing factors, strategies and action points on to the evaluation form. You will use the evaluation form to review progress at your monthly evaluation meetings and to report to the bimonthly progress meeting.

This form should now be taken back to the district hospital and should be kept safely in the boxfile.

DISTRICT HOSPITAL BIMONTHLY PROGRESS MEETING

Instructions for the chairperson of the bimonthly progress meeting: Please ensure that all representatives have their evaluation forms. Then read out the following:

You have all been invited to attend this meeting, to learn from each other about the strategies that health facilities and communities are using to prevent women from dying in the district.

The purpose of this meeting is to review progress on strategies and action points identified at the health facility MDR meeting and community feedback meeting.

First I will read out the health centre contributing factors, strategies and action points identified at the health facility MDR meeting. The health centre representative will then report progress on each action point and any modification they have made during their monthly evaluation meetings.

I will then read out the district hospital contributing factors, strategies and action points identified at the health facility MDR meeting. They will report progress on each action point and any modification they have made during their monthly evaluation meetings.

The community representative will report the community contributing factors, strategies and action points identified at the community feedback meeting. They will report progress on each action point and any modification they have made during their monthly evaluation meetings.

If the action points have been completed, we should congratulate those involved (and tick the 'completed' box next to each action point). If they have not been completed, we should discuss the action point and suggest how to improve progress or any modifications they should make. All representatives should feedback to their teams about the recommendations from this meeting and take further action as suggested. The progress will then be reviewed again at the next bimonthly meeting.

We should all take note of good ideas and good strategies that the health facility and community MDR teams have employed. The information will be summarised and will be disseminated to all the health facilities and TAs in the district so that everyone can be inspired to improve maternal health and prevent maternal deaths.

Date of meeting: ____/____/____	
Part 1: Health facility progress	
1.1: District Hospital Read out the District Hospital contributing factors, strategies and action points identified by health facility MDR Team (Section 3, Part 4) Record the action points below. The team representative should report progress including evaluation meeting discussions and outcomes.	
Progress on each action point. If progress has been good, congratulate those responsible.	Action point 1: Person responsible: Completed? <input type="checkbox"/> Progress:

If progress has been poor, those present should make suggestions for the district hospital MDR team.	Suggestions:
These suggestions should be fed back to the district hospital MDR team by the representative and re-evaluated at the next bimonthly progress meeting.	Action point 2: Person responsible: Completed? <input type="checkbox"/> Progress: Suggestions:
	Action point 3: Person responsible: Completed? <input type="checkbox"/> Progress: Suggestions:
	Action point 4: Person responsible: Completed? <input type="checkbox"/> Progress: Suggestions:
	Suggestions completed? <input type="checkbox"/> Progress:
Further bimonthly progress meeting (if applicable) Date: ____/____/____	Suggestions completed? <input type="checkbox"/> Progress:

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

1.1: Health Centre Read out the Health Centre contributing factors, strategies and action points identified by health facility MDR Team (Section 3, Part 3) Record the action points below. The team representative should report progress including evaluation meeting discussions and outcomes.	
Progress on each action point. If progress has been good, congratulate those responsible. If progress has been poor, those present should make suggestions for the health centre MDR team. These suggestions should be fed back to the health centre MDR team by the representative and re-evaluated at the next bimonthly progress meeting.	Action point 1: Person responsible: Completed? <input type="checkbox"/> Progress: Suggestions:
	Action point 2: Person responsible: Completed? <input type="checkbox"/> Progress: Suggestions:
	Action point 3: Person responsible: Completed? <input type="checkbox"/> Progress: Suggestions:
	Action point 4: Person responsible: Completed? <input type="checkbox"/> Progress:

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.
Erasmus Hogeschool

	Suggestions:
Further bimonthly progress meeting (if applicable) Date: ____/____/____	Suggestions completed? <input type="checkbox"/> Progress:
Part 2: Community Read out the community contributing factors, strategies and action points identified at the Community Feedback Meeting (Section 4, Part 2) Record the action points below. The team representative should report progress including evaluation meeting discussions and outcomes.	
Progress on each action point. If progress has been good, congratulate those responsible. If progress has been poor, those present should make suggestions for the community MDR team.	Action point 1: Person responsible: Completed? <input type="checkbox"/> Progress: Suggestions:
These suggestions should be fed back to the community MDR team by the representative and re-evaluated at the next bimonthly progress meeting.	Action point 2: Person responsible: Completed? <input type="checkbox"/> Progress: Suggestions:
	Action point 3: Person responsible: Completed? <input type="checkbox"/> Progress:

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

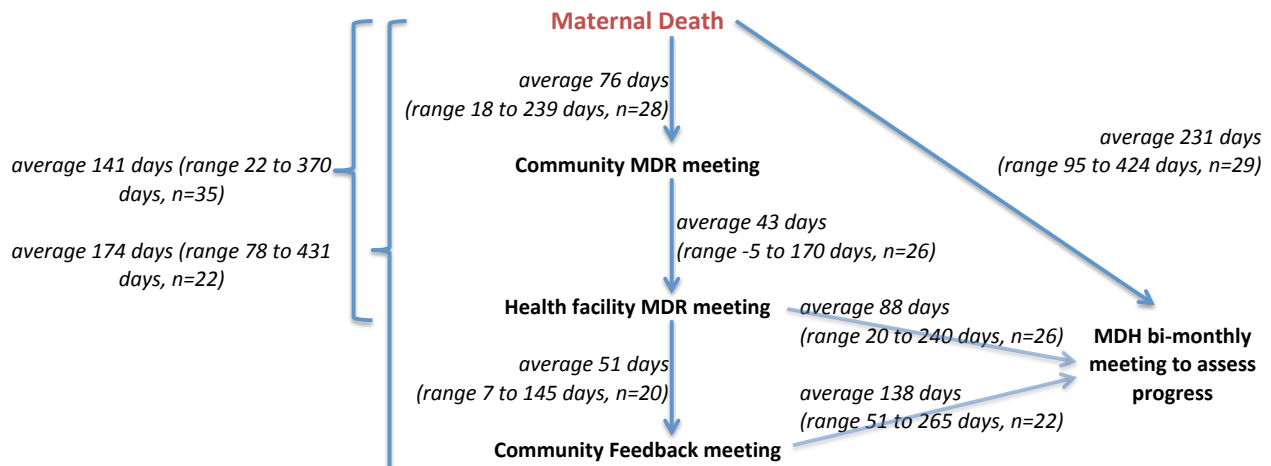
	Suggestions:
	Action point 4: Person responsible: Completed? <input type="checkbox"/> Progress: Suggestions:
Further bimonthly progress meeting (if applicable) Date: ____/____/____	Suggestions completed? <input type="checkbox"/> Progress:

This is the end of the bimonthly progress meeting. The community and health facility representatives should note down any suggestions on their evaluation forms. They must report these suggestions to their teams, to put them into action. If all action points have been completed there is no need for the death to be discussed at the next meeting. If action points have not been completed and modifications have been suggested, then the death will be discussed again at the next bimonthly meeting to ensure all action points have been completed.

We should all take note of good ideas and good strategies that the health facility and community MDR teams have employed. The information will be summarised and will be disseminated to all the health facilities and TAs in the district so that everyone can be inspired to improve maternal health and prevent maternal deaths.

Instructions: Information from this form should now be recorded on the database. The form should now be filed by the safe-motherhood co-ordinator. The MaiMwana team will also take a copy for the project file.

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.
ErasmusHogeschool



BMJ Open

Community-linked maternal death review (CLMDR) to measure and prevent maternal mortality: a pilot study in rural Malawi

Journal:	BMJ Open
Manuscript ID:	bmjopen-2015-007753.R1
Article Type:	Research
Date Submitted by the Author:	12-Mar-2015
Complete List of Authors:	Bayley, Olivia; UCL Institute for Global Health, Chapota, Hilda; MaiMwana Project, Kainja, Esther; MaiMwana Project, Phiri, Tambosi; MaiMwana Project, Gondwe, Chelmsford; Mchinji District Health Management Team, Safe Motherhood King, C.; UCL Institute for Global Health, Nambiar, Bejoy; UCL Institute for Global Health, Mwansambo, Charles; Government of Malawi Ministry of Health, Kazembe, Peter; Baylor College of Medicine Children's Foundation, Costello, Anthony; UCL , Institute for Global Health Rosato, Mikey; Women and Children First, Colbourn, Timothy; UCL Institute for Global Health,
Primary Subject Heading:	Global health
Secondary Subject Heading:	Public health, Patient-centred medicine, Obstetrics and gynaecology, Epidemiology, Communication
Keywords:	Maternal medicine < OBSTETRICS, AUDIT, HEALTH SERVICES ADMINISTRATION & MANAGEMENT

SCHOLARONE™
Manuscripts

Community-linked maternal death review (CLMDR) to measure and prevent maternal mortality: a pilot study in rural Malawi

Olivia Bayley¹, Hilda Chapota², Esther Kainja², Tambosi Phiri², Chelmsford Gondwe³, Carina King¹, Bejoy Nambiar¹, Charles Mwansambo^{4,6}, Peter Kazembe^{5,6}, Anthony Costello¹, Mikey Rosato⁷, Tim Colbourn^{1§}

¹ University College London Institute for Global Health, 30 Guilford Street, London, WC1N 1EH, UK
² MaiMwana Project, Mchinji, Malawi
³ Safe Motherhood, Mchinji District Health Management Team, Mchinji, Malawi
⁴ Government of Malawi Ministry of Health, Lilongwe, Malawi
⁵ Baylor College of Medicine Children’s Foundation Malawi
⁶ Parent and Child Health Initiative (PACHI), Lilongwe, Malawi
⁷ Women and Children First, London, UK

§ corresponding author: t.colbourn@ucl.ac.uk

Olivia Bayley	oliviabayley@yahoo.co.uk
Hilda Chapota	hchapota@gmail.com
Esther Kainja	estherkainja@gmail.com
Tambosi Phiri	tambosiphiri@gmail.com
Chelmsford Gondwe	chelmsgondwe@yahoo.co.uk
Carina King	c.king@ucl.ac.uk
Bejoy Nambiar	b.nambiar@ucl.ac.uk
Charles Mwansambo	cmwansambo@gmail.com
Peter Kazembe	pnkazembe@baylor-malawi.org
Anthony Costello	anthony.costello@ucl.ac.uk
Mikey Rosato	mikeyrosato@gmail.com
Tim Colbourn	t.colbourn@ucl.ac.uk

Key words: Community-linked Maternal Death Review, Maternal Mortality, Malawi

Words: abstract: 279 article: 5036

Abstract

Background

In Malawi maternal mortality remains high. Existing maternal death review fails to adequately review most deaths or capture those that occur outside the health system. We assessed the value of community involvement to improve capture and response to community maternal deaths.

Methods

We designed and piloted a Community-linked maternal death review (CLMDR) process in Mchinji district, Malawi, which partnered community and health facility stakeholders to identify and review maternal deaths and generate actions to prevent future deaths. The CLMDR process involved five stages: community verbal autopsy, community and facility review meetings, a public meeting and bimonthly reviews involving both community and facility representatives.

Results

The CLMDR process was found to be comparable to a previous research-driven surveillance system at identifying deaths in Mchinji district (population 456 500 in 2008). 52 maternal deaths were identified between July 2011 and June 2012, 27 (52%) of which would not have been identified without community involvement. Based on district estimates of population (500 000) and crude birth rate (35 births per 1000 population) the maternal mortality ratio was around 300 maternal deaths per 100 000 livebirths. Of the 41 cases that started the CLMDR process 28 (68%) completed all five stages. We found the CLMDR process to increase the quantity of information available and to involve a wider range of stakeholders in MDR. The process resulted in high rates of completion of community-planned actions (82%) and district hospital (67%) and health centre (65%) actions to prevent maternal deaths.

Conclusions

CLMDR is an important addition to the established forms of maternal death review. It shows potential as a maternal death surveillance system, and may be applicable to similar contexts with high maternal mortality.

Strengths and weaknesses

- This pilot study in Mchinji district, central region of Malawi shows that a CLMDR process identified twice as many maternal deaths as the existing facility review process, yielded richer data and led to more actions being taken after the review.
- Communities and health facility representatives worked in partnership to investigate and respond to maternal deaths occurring in communities and health facilities.
- Confidentiality of the death review was limited to allow participation of, gain information from, and spur action from the community. No adverse effects of this openness were reported.
- Our pilot study delineated key issues to consider for scale-up: the CLMDR process adds to existing workload especially for community health workers, was not started for some cases of death, and can take over six months for each case (although we believe this can be beneficial). Raising the status of the community involved is essential to ensure the sustainability of the process.

1
2
3
4
5
6
7
8
9
Introduction

Around the world, women continue to die as a result of pregnancy and childbirth. In 2013 an estimated 292 982 maternal deaths occurred worldwide [1], most preventable with proven interventions. The UN Secretary General’s Commission on Information and Accountability recommends the introduction of better methods to count maternal deaths and to review and monitor progress [2].

10
11
12
13
14
15
16
17
18
19
20
21
Maternal death audit is an important tool to prevent maternal deaths, and uses knowledge of the circumstances of a death to help prevent future deaths. Maternal Death Audit covers three approaches: confidential enquiry into maternal deaths, facility-based maternal death review (MDR) and community-based data-gathering known as verbal autopsy. The World Health Organisation defines facility-based maternal death review as a "qualitative, in-depth investigation of the causes of, and circumstances surrounding, maternal deaths which occur in health care facilities" [3 4]. The process involves identifying cases of maternal death, collecting and analysing information regarding the contributing factors, using this information to formulate recommendations for action and evaluating the outcomes of these actions.

22
23
24
25
26
27
28
29
30
31
32
The existing system in Malawi fails to adequately achieve these objectives due to weaknesses in the six key areas detailed in the methods section below. Although the Malawi Ministry of Health does conduct national-level confidential enquiries into maternal deaths, they are mainly limited to the use of facility-based MDR [5]. In practice, however, facility-based MDR is fraught with problems and there is no routine system for conducting community-based verbal autopsy [6]. In order to address the limitations of the present system, in partnership with the Malawian Ministry of Health, we designed and piloted an alternative Community-linked MDR system (CLMDR), combining the strengths of facility-based MDR and community verbal autopsy.

33
34
35
36
37
38
39
The WHO and UNFPA recognise the value of accurate and timely investigation of maternal deaths to stimulate actions to prevent maternal deaths in future. They recommend MDSR (Maternal Death Surveillance and Response) to combine verbal autopsy with facility death review [7 8]. The availability of community level data for this MDSR system is currently limited in scope so innovative methods are required to develop a sustainable model.

40
41
42
43
44
Our study describes the Malawian context and identifies six weaknesses of the current MDR system. We present the pilot study of the CLMDR process over a one-year period and the results of how it can overcome these weaknesses and provide an estimate of maternal mortality. We conclude with thoughts on the added value and applicability of the CLMDR approach.

45
46
47
Methods

48
49
Location

50
51
52
53
54
55
56
57
58
59
60
Malawi has a high, though declining, maternal mortality ratio [9]. The most recent national survey estimated 574 maternal deaths/100 000 live-births during the period 2008–2014 [10]. The leading biological causes of maternal death in Malawi are postpartum haemorrhage, postpartum sepsis, ruptured uterus, complications of abortion, antepartum haemorrhage, pregnancy-induced hypertension and as indirect causes anaemia and HIV/AIDS [11]. Behind each death is a complex story of social, behavioural, economic, logistical and health system factors which can be grouped into the ‘three delays’ model [12]. A delay by the family in the decision to seek care, a delay in reaching appropriate care once the decision has been made and a delay in receiving adequate care after arriving at the health facility may all contribute to a maternal death [13]. A recent study found

that in Malawi, delay in receiving adequate care was the commonest delay due to referral delays, missed diagnoses, lack of blood, lack of drugs, inadequate care or severe mismanagement [13]. The health system struggles with shortages of personnel, with insufficient knowledge and low morale, inaccessible facilities and irregular drug supplies [14 15].

Weaknesses of the current MDR system

1. Maternal death identification

Whilst a maternal death is a notifiable event in Malawi, the Ministry of Health notification system attempts to identify only those maternal deaths that occur in hospital. However, one third of all deaths are known to occur outside health facilities, either at the woman's home, the home of a traditional healer or in transit to a facility and these are presently not identified by the hospital-based notification system [16].

2. Review of maternal deaths

The Ministry of Health aims to review all maternal deaths occurring in health facilities, but in reality this is not achieved. A review of emergency obstetric care services in Malawi in 2010 found that only 89 of 309 health facilities (29%) had conducted MDRs and only 153 of 597 (26%) maternal deaths recorded were included in these reviews [17]. Barriers to effective MDR include missing medical charts, poor documentation and record keeping, shortage of senior staff to conduct the reviews, a fear of blame and a lack of resources, commitment, and knowledge or skills for the proper conducting of reviews [6 11 18]. MDR is not even attempted for deaths occurring in the community where many women are either unable to access quality healthcare or avoid the formal health sector [19].

3. Quality and quantity of information available

The outcome of an MDR process is dependent on the quality of the data gathered. Current data comes from hospital records, which often fail to adequately record patient history, examination findings, monitoring, results, and management [18]. In one study less than 20% of post-natal women's charts were correctly completed [20]. The lack of accurate written data may be compounded by a culture of blame that inhibits staff from sharing valuable information [6]. In a context where sub-standard care has been found to contribute to approximately one third (38%) of institutional deaths [21] good quality data is essential to the MDR process.

4. Stakeholder involvement

Only a limited number of hospital staff are involved in the MDR process [22]. Individuals whose actions may affect maternal outcomes are not represented, such as community health workers and non-clinical staff such as pharmacists, laboratory technicians, or transport coordinators [6]. There is no involvement of the woman's community, meaning that her family and traditional leaders are unable to contribute their insights to the process or put forward ideas for action.

5. Community mobilization and action

A recent study in Mchinji district, Malawi added to the evidence that communities themselves have significant potential to reduce maternal and neonatal mortality when they are involved in planning and implementing community actions [23 24]. Failing to involve communities in MDR therefore fails to utilize this potential.

6. Accountability of health workers

When health workers plan to take action following a MDR there is no official monitoring of whether these actions are taken, as completion of the maternal death follow-up form is almost non-existent

[6]. There is also no forum for communities to hold health workers accountable for the actions identified to prevent future deaths. Motivation for MDR among health-workers is reported to be low, whilst communities are highly motivated to take steps to prevent maternal deaths [6 23].

We hoped that these limitations could be overcome by involving the woman’s community in all stages of the process, from identifying the death, to holding review meetings and monitoring the completion of planned actions. We aimed for a blame-free process to review all maternal deaths, including those occurring in the community; supplement the limited hospital data with rich descriptive information from the community; and include a wider group of health facility staff and community representatives. We hoped that this new process would catalyse health facility and community actions to address the determinants of maternal death; improve the accountability of health workers; and, by elevating the community to partners in the process, generate a self-sustaining MDR process fuelled by community motivation to prevent maternal deaths.

Design of the CLMDR process

The CLMDR system was designed by MaiMwana - a Malawian non-governmental organisation focusing on women and children’s health, University College London, UK and Ministry of Health of Malawi staff, taking into account evidence from published work on MDR and discussions with maternal death review experts. To design the process we drew on evidence from a number of studies that have used social autopsy to enhance maternal health programmes. In Indonesia, social autopsy and medical records were used together to review deaths, with some community involvement [25]. Another programme, based in India, used community-based maternal verbal social autopsies to generate data regarding maternal deaths, which was then shared with the community to encourage participatory development of health interventions [26]. A number of studies of child deaths have also used verbal autopsy data to feed back to communities, but to a lesser degree [27].

The CLMDR project was discussed with local leaders who gave their consent and input. The project was initially piloted in four of the 12 health centre catchment areas in Mchinji district. Following feedback from all participants and the Malawi national-level safe motherhood taskforce the process was modified (shortening and combining reporting into one form) and then rolled out across the whole district for a one-year period (July 2011-June 2012). Project staff trained 350 community teams, made up of the group village headman, community health workers (called Health Surveillance Assistants (HSA) and volunteers. Health centre teams were created at all 12 health centres providing maternity care in the district. The existing MDR team at the district hospital was expanded (to include non-health professionals – drivers, pharmacy, laboratory, support staff) and strengthened with further training on their roles and responsibilities.

Overview of the CLMDR process

The process (Figure 1) was triggered in the event of any maternal death, by community CLMDR team members hearing about a death in their area. Stage one began with the woman’s family giving consent for the process, followed by a verbal autopsy, or structured interview, including multiple open-ended free-text questions about the events leading up to her death. This form (Web Appendix 1) was used to record data at all stages of the process and designed to facilitate discussion and communication between participants.

Stage two was a meeting held in the woman’s local area by the community team. They recorded factors they believed contributed to the woman’s death and suggested strategies to prevent future deaths.

Stage three was a meeting held at the woman's local health facility or at the district hospital dependent on where the death occurred, with a broad spectrum of health centre staff, district hospital staff and the HSA. The HSA reported the information from the verbal autopsy and the community team discussions. Participants agreed on a medical cause of death and health facility factors that may have contributed to the death, after which they recorded the strategies that they planned to prevent future deaths. Action points were assigned to individual health centre and district hospital staff to implement.

Stage four was a public meeting held in the woman's local community, attended by district hospital and health centre representatives, the HSA, community leaders and community members – all were welcome to attend. The HSA sought the family's consent to summarise the case in order to facilitate an open discussion of all relevant factors. The health workers presented their planned action points. The community agreed on community factors that may have contributed to the death and planned their own strategies, assigning action points for individuals to implement.

Stage five was a bimonthly meeting, which provided an opportunity for community and health facility representatives to hear about progress on implementing action points, celebrate successes and to identify and overcome any barriers to action. An additional meeting of traditional leaders was held quarterly in order to share innovations and lessons learned across the whole district.

Sample

Over a one-year period, from July 2011 until June 2012, we attempted to review every maternal death of a woman resident in Mchinji district. The district population was 456 500 in the 2008 census. With a growth rate of 2% the population at the time of the study was probably close to half a million. A maternal death was defined as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes [28]. All maternal deaths of Mchinji women were included even if they died outside the district, such as at the central hospital in the capital city, Lilongwe. Women who died in the district but who were resident outside the district (i.e. from neighbouring Zambia, Mozambique or surrounding Malawian districts) were excluded from the sample as it would be impossible to complete the CLMDR process without involvement of a community team in the woman's home village.

Data collection and indicators of success

Data collection was via the combined form (Web Appendix 1), completed by either the community CLMDR team or the health facility CLMDR team at each stage of the process. Process data was collected by the research team and included information on who initiated the process, numbers of people attending the community feedback meetings, and feedback from all participants during the pilot and roll-out phases of the project.

We assessed the CLMDR process against the weaknesses of the pre-existing MDR process. We measured indicators relating to each identified weakness of the existing system (Table 1).

Data management and analysis

Each form was collected by the study team once the maternal death review process had been completed. A total of two forms could not be traced after completion and are therefore not included in this analysis. Descriptive statistics (counts and percentages) were produced from the

quantitative data, which was analysed in Stata 12.1 for Mac. Qualitative data was extracted (following translation of the relevant sections of the forms) and grouped into themes.

Ethics

Confidentiality is a norm of MDRs, enforced in order to improve the accuracy of reporting events, to protect the confidentiality of the deceased woman and her family and to protect health workers from blame and recriminations resulting from the publication of their actions. The potential negatives of a more open process were carefully considered during the design phase. On balance, we hoped that the motivation of a community affected by a death would be one of the drivers of the process. The community required some details of the case in order to draw meaningful conclusions and generate relevant actions. Family consent (both written and verbal) was an absolute prerequisite of the CLMDR process and this was also sought again formally prior to the public community feedback meeting. It could also be withdrawn at any stage. The HSA publicized only the summary of the case that had been previously agreed with the family prior to the meeting. All other discussions were confidential and this was reinforced in training and at the beginning of each meeting using a standardized text read out by the chairperson.

We recognized that discussion of a maternal death can result in blame and recriminations. In order to avoid this, the blame-free nature of the process was emphasized during training and was reiterated at the beginning of each meeting using standardized text on the form (Web Appendix 1). This study was approved by the National Health Sciences Research Committee of Malawi, protocol 785.

Results

1. Maternal death identification

The CLMDR process increased the number of maternal deaths identified compared to the Ministry of Health notification system alone. During the study year 52 maternal deaths were identified. Of these, 25 maternal deaths (48%) were identified by the existing notification system at the district hospital. A total of 43 maternal deaths (83%) were identified by community CLMDR teams. Of note, this included 4 deaths that occurred at the district hospital, which had been overlooked by the hospital system.

In addition to the community and health facility CLMDR teams identifying deaths, a further death was identified through a radio broadcast about deaths of transient workers on a tobacco estate. The process also identified four deaths of women who lived outside the district. These were excluded from the study as having no community maternal death review team covering their home village meant they could not undergo the full process.

The study findings give an estimate of the maternal mortality ratio: 52 deaths from a population of 500 000 and a crude birth rate of 35 births per 1000 population results in a ratio of around 300 maternal deaths per 100 000 livebirths. The national crude birth rate from the 2008 census was 39.5 [29] but we allowed for a secular fall.

2. Review of maternal deaths

The CLMDR process resulted in an increase in maternal deaths being subject to review, including those deaths that occurred outside the district hospital. Overall, of the 52 maternal deaths, 45

(86%) were subject to some form of review. 37 (71%) were discussed at a community CLMDR meeting, 44 (85%) were discussed at a health facility CLMDR meeting, 32 (62%) were discussed at a community feedback meeting and 35 (67%) were discussed at a bimonthly review meeting. Of the 41 maternal deaths that started the CLMDR process, 28 cases (68%) completed all five stages. Non-completion of one or more stages was due to family declining community feedback meeting in five cases; community CLMDR meeting not occurring in three cases; HSA failing to organise a meeting in two cases; the form being lost in two cases; and death outside the district preventing health facility MDR meeting in one case.

Of the 11 cases that did not start the process, in eight cases it was not possible to trace the woman's next of kin (in five cases she was a transient worker or her family moved away following the death); in two cases the family declined consent to start the process; and in one case no details were known about the woman's death, which occurred outside the district. Nonetheless, of these 11 cases, five still underwent a health facility CLMDR meeting.

From the date of the maternal death, there were on average 76 days to the community CLMDR meeting, 141 days to the health facility CLMDR meeting, 174 days to the community feedback meeting, and 231 days to the bi-monthly review meeting (Web Appendix 2).

3. Quantity of information

The verbal autopsy form was available in 39 of the 44 cases that were discussed at health facility CLMDR meetings during the study period. The form contained a minimum of closed questions (which are more difficult to share in a meeting context) and used open ended, free-text questions, which described events and invited discussion of factors that may have delayed her decision to seek care or reach care as well as delays in receiving care. Such factors included disrespectful treatment by health workers, being turned away from health centres, misdiagnoses, slow referral pathways, lack of hospital transport and unavailability of life-saving treatments. This generated a more informed process, which participants found more satisfactory than using hospital records alone. For example, a midwife in charge of one of the health centres said:

"Using information from the deceased family together with hospital records during reviews assists to come up with a root cause of the problem which enables us to come up with real contributing factor and good strategies"

and a supervisor of community health workers said:

"detailed verbal autopsy gives a true picture of what happened and generates discussion with communities and health facility personnel"

4. Stakeholder involvement

The CLMDR process significantly increased the number of people involved in MDR activities. Over the course of the year, the CLMDR process involved a total of 3166 participants (although many may have attended more than one meeting). Numbers of attendees were not recorded for all meetings, but where data was recorded, on average, community CLMDR meetings were attended by 10 people (a total of 376 people), health facility CLMDR meetings were attended by 11 people (a total of 356 people) and community feedback meetings were attended by 98 people (a total of 2434 people; Table 2). Community feedback meeting participants represented a broad spectrum of the community, with women making up 53%, men 35%, young people 6% and traditional leaders, health workers and MaiMwana staff making up the remaining 6%.

1
2
3 **5. Community mobilization and action**

4 In addition to drawing large crowds to discussions about each maternal death, the CLMDR process
5 resulted in concrete community actions to improve maternal health. Action points included:
6 community meetings to explore traditional beliefs; instituting bye-laws to prevent traditions posing
7 a risk to pregnant women; educating men on their roles and responsibilities in supporting women
8 during pregnancy, delivery and the post-partum period; lobbying the health facility advisory
9 committee for more respectful treatment of women during antenatal care and delivery; establishing
10 a mobile antenatal clinic; mobilizing community funds for bicycle ambulance maintenance;
11 establishing a youth club, and organizing young female counsellors to support pregnant women.
12
13

14
15 Where data was recorded (in 25 cases of the 32 completing stage 4), on average 2.2 action points
16 (range 1–4) were made per community feedback meeting and 1.8 action points (range 0–4) were
17 reported completed. 82% of all proposed community action points were reported completed and in
18 84% of cases at least one action point was reported completed.
19

20
21 **6. Accountability of health workers**

22 During the community feedback meetings, health workers presented their planned actions to the
23 community. At the bimonthly meetings community representatives could question them about
24 whether their planned actions had been successfully completed. Action points included designing a
25 new antenatal form to better capture risk factors, improving drug supplies to ensure adequate
26 stocks of anti-hypertensive drugs, training sessions for clinicians following maternal deaths, health
27 education events for communities on maternal health topics, improved provision of emergency
28 transport, including a motorcycle ambulance, increased fuel allowance and changing protocols to
29 improve access to rural hospitals.
30
31

32
33 Where action points were recorded for the health centre (in 13 of 44 cases) on average 2.4 action
34 points (range 1–4) were made per meeting and 1.5 (range 0–3) were completed. At health centre
35 level 65% of all action points were reported completed and in 77% of cases at least one action point
36 was reported completed. Where action points were recorded for the district hospital (in 26 of 44
37 cases) on average 2.2 action points (range 1–4) per meeting were made and 1.5 (range 0–3) were
38 completed. At district hospital level 67% of all action points were reported completed and in 73% of
39 cases at least one action point was reported completed.
40
41

42
43
44 **Discussion**

45
46 Our study showed that the CLMDR process improved the identification of maternal deaths
47 compared to the national reporting system and provided a good estimate of the maternal mortality
48 ratio (MMR). Our estimated MMR of 300 maternal deaths per 100,000 is close to the findings of a
49 trial conducted in the district in which the last reported value was 328 per 100 000 (21/ 6408 births)
50 collected from prospective surveillance during 2009 [23]. Of note, community teams succeeded in
51 identifying maternal deaths overlooked by hospital staff, as well as deaths occurring outside the
52 health sector and outside the district. Unlike community-based surveillance systems, which struggle
53 to maintain the motivation of key informants without incentives, the CLMDR process is driven by
54 intrinsic community motivation to prevent maternal deaths. The community is elevated from
55 passive ‘data collectors’ to active partners in maternal death surveillance and response, thereby
56 generating a potentially self-sustaining source of maternal death data.
57
58
59
60

The CLMDR process doubled the number of maternal deaths being reviewed, with 86% of identified maternal deaths being reviewed. Supplementing health facility records with verbal autopsy data significantly improved the quality of MDR discussions by exposing delays in seeking and reaching care as well as providing an alternative perspective on care received. These important insights from the community prevented health-workers from jumping to simple conclusions about the reasons women died, such as blaming the woman for not presenting to a health facility sooner, and fuelled valuable discussions about quality of care. They also generated awareness of how negative experiences of healthcare affects care-seeking behaviours. Each health facility CLMDR resulted in the assignment of a medical cause of death. Whilst it is recognised that health workers may not be as accurate as expert analysis, it is known that the accuracy of facility-assigned cause of death may be improved by using verbal autopsy data in addition to hospital records [18]. An accurate stream of data on medical cause of death is essential for health services to monitor changing patterns of mortality and response to health interventions. The CLMDR process therefore provides improved data for evidence-based decision making at district and national level. Data was not gathered at monthly strategy evaluation meetings so the value of this aspect of the process remains unknown. These monthly evaluations may in fact be superseded by the bimonthly meetings attended by both community and facility representatives.

CLMDR involves large numbers of participants in discussions around maternal health and problem-solving, which resulted in creative solutions and high rates of completion of planned activities. Whilst we cannot postulate any effect on maternal death rates, when communities are empowered to identify maternal health problems and implement their own solutions to these problems, there can be significant reductions in maternal deaths [23 24]. By harnessing community capacity, the CLMDR process might contribute to reductions in maternal deaths over time.

The process aimed to improve health workers motivation and accountability to the community they serve. We believe that publicising their plans at the community feedback meetings and reporting on the outcomes of their activities at bimonthly meetings may have increased health workers motivation to fulfil their commitments. Community participants reported improved trust in the health system, with potential benefits for uptake of available healthcare. The CLMDR process created a forum for health-workers and communities to discuss the challenges they face in relation to maternal health. Traditionally, health-workers occupy an elevated status in Malawi. By contrast, patients have limited power, with little choice and poor recourse in the event of inadequate treatment. By deepening understanding and creating partnerships between health-workers and the communities they serve, CLMDR challenges the existing power hierarchy and contributes to a positive cultural change in patient-provider relationships.

Issues for scale-up of CLMDR

Box 1 describes how the process is being rolled-out across Malawi. Piloting the process raised the following issues to be considered for scale-up.

Whilst we propose this system as an alternative to the existing MDR system, we recognize it may strain already limited resources especially in high maternal mortality settings. CLMDR can result in double the number of deaths being reviewed, and requires increased staff attendance at health facility CLMDR meetings. In addition, a senior healthworker is required to attend community feedback meetings and bimonthly reviews. We experienced good attendance at CLMDR meetings. It is not known whether this would be sustained if the process was adopted into routine practice. We believe that the CLMDR process is a valuable use of staff time and that it may reduce workload by

potentially preventing serious morbidity and mortality in the long-term. The process particularly relies on community health workers (HSAs), who have a lot of other responsibilities, to link the health service and the community. Where HSAs failed to identify families or organise meetings, the process failed. Scale-up should consider intensified training for all HSAs. The process is lengthy, but this may maintain attention to the issues raised by the death and allow sufficient time to organise and take actions. Nonetheless, it should remain short enough to maintain commitment and motivation.

To enable participation of the community in the process we accepted a reduced level of confidentiality compared to traditional MDR. While this was essential and no known adverse events occurred, we recognize the potential risk of information being shared beyond the intended audience. We recognize that public discussion of health workers actions could prevent disclosure or result in recriminations. We believe that emphasising the blame-free culture of the process was sufficient to avoid this in our pilot study but these issues should be carefully considered with reference to each cultural context where CLMDR is introduced. A single data-collection form travelling between the community and the health facility had benefits for communication but raised the risk of information being lost or confidentiality being breached. The CLMDR management team making a copy of the form at each stage might help to mitigate this risk.

Whilst CLMDR dramatically improved identification of deaths, the process may struggle to identify or follow up maternal deaths of transient workers due to the reduced coverage of community teams in transient communities (e.g. tobacco estates). Transient tenant farmers may have little social support and may be more vulnerable to maternal death so efforts to improve identification and follow up of these deaths would be worthwhile. In at least three of the seven cases where consent was declined or withdrawn, abortion or HIV contributed to the woman's death, so it seems the CLMDR process was not always able to facilitate the discussion of these sensitive topics. It is important that regardless of family consent, all identified deaths should undergo at least a confidential health facility MDR. Women dying outside the district prevented the process from being completed during the pilot study, however rolling out CLMDR across neighbouring districts would potentially enable completion of the process regardless of place of death.

The CLMDR process attempts to challenge the existing power imbalance between health workers and the communities they serve. Project staff noted that even though a community might be highly motivated to pursue the process, where the HSA failed or the health facility was slow to organize a meeting, the community had little recourse to push it forward. Any rollout of CLMDR should try to elevate the status of the community and hold all stakeholders to account, perhaps through written agreements or parallel advocacy activities. The Traditional Authority (or chief) rarely attended community feedback meetings, instead being represented by a Group Village Headman. Raising TA involvement from the beginning might be an effective strategy to improve the sustainability of the process in the long term.

Conclusion

CLMDR is a new and effective method of maternal death audit. By harnessing the motivation of communities to prevent maternal deaths CLMDR improves identification and review of deaths, improves the quality of maternal death review meetings, provides opportunities for education on maternal health and stimulates action in communities and health facilities. The potential of CLMDR has been recognized by the Malawi Ministry of Health who have begun rollout nationwide. CLMDR is relevant to similar settings with high maternal mortality and needs further assessment.

Acknowledgements

We thank all the community and health facility participants of the CLMDR process and hope they found it valuable. We also thank all staff at MaiMwana Project who helped with the logistics and management of the project.

Contributors

OB and HC conceived the study, which was further developed by EK, TP, MR and CG. OB, HC, EK, TP and CG were involved in data collection. TC and OB analysed the quantitative data and HC, MR and OB analysed the qualitative data. OB wrote the first draft of the paper with significant input from MR and TC. All authors reviewed and revised the paper and approved the final version of the paper.

Funding

This study was funded by a grant from Engender Health, no.: GMH-103-01

Competing Interests

None

Data Sharing:

No additional unpublished data is available

Figure caption

Figure 1: Flowchart of CLMDR process. CLMDR: Community-linked Maternal Death Review; GVH: Group Village Headman; HSA: Health Surveillance Assistant; TA: Traditional Authority.

Table 1: Identified weaknesses of existing MDR process and indicators used to assess CLMDR

Identified weakness	Indicator used to assess CLMDR
1. Maternal death identification	Source of identification of maternal death, i.e. community CLMDR team, health facility CLMDR team or another source
2. Review of maternal deaths	Completion of each section of the form indicating completion of the relevant stage in the process
3. Quantity of information available	Availability of section 1 (verbal autopsy data) at the health facility CLMDR meeting
4. Stakeholder involvement	Numbers of participants present at each stage of the CLMDR process and breakdown
5. Community mobilization and action	Planned action points and rates of completion of action points
6. Accountability of health workers	Planned action points and rates of completion of action points

Table 2: Participants at CLMDR meetings

	Number of meetings with data	Total participants	Average participants per meeting ^a (range)
Community CLMDR meeting participants			
Community members	37	195	5 (1 – 7)
Group Village Headman	34	34	1 (1 – 1)
Community Health Workers ^b	34	83	2 (1 – 4)
Volunteers	32	64	2 (1 – 4)
<i>Total</i>		376	10 (8 – 14)
Health facility CLMDR meeting participants			
Health facility staff	34	258	8 (1 – 13)
Health facility in-charge	34	33	1 (0 – 1)
Community Health Workers ^b	33	32	1 (0 – 1)
Mchinji District Hospital Representative	33	33	1 (1 – 1)
<i>Total</i>		356	11 (5 – 16)
Community Feedback meeting participants			
Traditional Authority	22	3	0 (0 – 1)
Group Village Headman	24	21	1 (0 – 1)
Community Health Workers ^b	25	25	1 (1 – 1)
Health Facility Representative	26	26	1 (1 – 1)
Mchinji District Hospital representative	25	24	1 (0 – 1)
MaiMwana representative	21	21	1 (1 – 1)
Other Very Important People	17	16	1 (0 – 1)
Women	25	1283	51 (14 – 260)
Men	25	860	34 (8 – 200)
Young people	23	155	7 (0 – 40)
<i>Total</i>		2434	98 (40 – 271)

^a rounded to nearest whole number^b called Health Surveillance Assistants in Malawi

Box 1 Timeline of events following the CLMDR pilot study

14th August 2012 – UNFPA consultants from Uganda and Malawian Reproductive Health Unit (RHU) Ministry of Health staff discuss the CLMDR model for adoption into Malawi’s Maternal Death Surveillance and Response (MDSR) system. They visit MaiMwana Project and the Mchinji district health office to learn about CLMDR.

December 2012 – stakeholder meetings, lobbying by the district health officer and community leaders for continuation of CLMDR through incorporation into the annual costed district implementation plan.

April 2013 – Malawian Ministry of Health and UNFPA hold MDSR briefing in Lilongwe for maternal health stakeholders to review the CLMDR model, which is presented by MaiMwana, with a view to incorporating it into the MDSR system. CLMDR data collection tools were reviewed and most aspects of them were adopted to be included in the MDSR tool.

30th September to 3rd October 2013 – MaiMwana participate in a capacity building workshop held by RHU in Blantyre to present CLMDR to stakeholders in maternal health including UNFPA, health officers from all five health zones (groups of districts) in Malawi, UNICEF, Save the Children, College of Medicine, MCHIP.

11th October, 2013 – National dissemination to Malawian Ministry of Health and maternal, newborn and child health organisations and stakeholders. Held in Lilongwe as part of dissemination of the results of trials of MaiMwana women’s group and infant feeding interventions.

5th to 9th November, 2013 – MaiMwana involved in development of the MDSR verbal autopsy tool in a workshop organised by the Malawian Reproductive Health Directorate (formerly RHU), Ministry of Health and UNFPA. Malawian Ministry of Health adopt MaiMwana CLMDR verbal autopsy tools to be used in MDSR.

June 2014 – Capacity building workshop held in Lilongwe for partners showing interest in CLMDR and MDSR.

July 2014 – Evidence for Action (E4A), a pan-African project funded by the UK government, support the Malawian Ministry of Health in Salima district and engage MaiMwana and Mchinji district health office to finalise tools for verbal autopsy and a training manual for verbal autopsy use in MDSR in Salima.

September 2014 – Training of trainers for implementing CLMDR as part of MDSR in the six districts of Malawi where E4A operates and five districts of Malawi where UNFPA operates.

October to December 2014 – Training and revamping of CLMDR teams in two Traditional Authorities in Mchinji district to act as beacons from which other organisations can learn about the CLMDR process. Other organisations and projects seeking to support CLMDR and MDSR in the remaining of Malawi’s 28 districts include Concern Worldwide and MCHIP.

References

1. Kassebaum NJ, Bertozzi-Villa A, Coggeshall MS, et al. Global, regional, and national levels and causes of maternal mortality during 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013. *The Lancet*; **384**(9947):980-1004 doi: [http://dx.doi.org/10.1016/S0140-6736\(14\)60696-6](http://dx.doi.org/10.1016/S0140-6736(14)60696-6) [published Online First: Epub Date]].
2. WHO. Keeping promises, measuring results. Commission on information and accountability for women's and children's health. Geneva: World Health Organisation, 2011.
3. Lewis G. Beyond the Numbers: reviewing maternal deaths and complications to make pregnancy safer. *British Medical Bulletin* 2003;**67**:27–37
4. Lewis G. Reviewing maternal deaths to make pregnancy safer. *Best Practice & Research Clinical Obstetrics and Gynaecology* 2008;**22**:447–63
5. Mataya R, Malawi National Confidential Committee on Enquiry into Maternal Death. Report on the Confidential Enquiry into Maternal Deaths in Malawi (2008-2012). Lilongwe, Malawi: Reproductive Health Unit, Ministry of Health, 2013.
6. Kongnyuy EJ, van den Broek N. The difficulties of conducting maternal death reviews in Malawi. *BMC Pregnancy and Childbirth* 2008;**8**:42
7. Danel I, Graham WJ, Boerma T. Maternal death surveillance and response. *Bulletin of the World Health Organization* 2011;**89**(11):779-79A
8. Hounton S, De Bernis L, Hussein J, et al. Towards elimination of maternal deaths: maternal deaths surveillance and response. *Reproductive health* 2013;**10**:1 doi: 10.1186/1742-4755-10-1 [published Online First: Epub Date]].
9. Colbourn T, Lewycka S, Nambiar B, et al. Maternal Mortality in Malawi, 1977-2012. *BMJ Open* 2013;**3**:e004150
10. National Statistical Office [Malawi]. Malawi MDG Endline Survey 2014, Key Findings. Available at: [http://www.nsomalawi.mw/images/stories/data_on_line/demography/MDG_Endline/Malawi MDG Endline Survey Key Findings Report .pdf](http://www.nsomalawi.mw/images/stories/data_on_line/demography/MDG_Endline/Malawi_MDG_Endline_Survey_Key_Findings_Report.pdf) (accessed 17th December 2014). Zomba, Malawi: National Statistical Office, 2014.
11. Kongnyuy EJ, Mlava G, van den BN. Facility-based maternal death review in three districts in the central region of Malawi an analysis of causes and characteristics of maternal deaths. *Womens Health Issues*. 2009;**19**(1):14-20
12. Thaddeus S, Maine D. Too far to walk: maternal mortality in context. *Social Science & Medicine* 1994;**38**(8):1091-110
13. Combs Thorsen V, Sundby J, Malata A. Piecing Together the Maternal Death Puzzle through Narratives: The Three Delays Model Revisited. *PLoS One* 2012;**7**(12):e52090
14. Bayley O, Colbourn T, Nambiar B, et al. Knowledge and perceptions of quality of obstetric and newborn care of local health providers: a cross-sectional study in three districts in Malawi. *Malawi Medical Journal* 2013;**25**(4):110-13
15. Mueller DH, Lungu D, Acharya A, et al. Constraints to implementing the Essential Health Package in Malawi. *PLoS One* 2011;**6**(6)
16. Colbourn T, Nambiar B, Costello A. MaiKhanda - Final evaluation report. The impact of quality improvement at health facilities and community mobilisation by women's groups on birth outcomes: an effectiveness study in three districts of Malawi. Available at <http://www.health.org.uk/publications/maikhanda/> (accessed 11/03/2015). London: The Health Foundation, 2013:1-364.
17. Republic of Malawi Ministry of Health. Malawi 2010 EmONC Needs Assessment Final Report, 2010.
18. Combs Thorsen V, Sundby J, Meguid T, et al. Easier said than done!: methodological challenges with conducting maternal death review research in Malawi. *BMC Medical Research Methodology* 2014;**14**:29
19. Yoder PS, Rosato M, Riad M, et al. Women's recall of delivery and neonatal care: A study of terms, concepts and survey questions. Calverton, Maryland, USA: Macro International, 2010.

20. Ashwood-Smith H, Simpson H. An observational study of obstetric care quality in Southern Malawi. Malawi Safe Motherhood Report., 2003.

21. Ratsma E, Lungu K, Hofman J, et al. Why more mothers die: confidential enquiries into institutional maternal deaths in the Southern Region of Malawi. Malawi Medical Journal 2005;**17**(3):75-80

22. Vink NM, de Jonge HCC, Ter Haar R, et al. Maternal death reviews at a rural hospital in Malawi. International Journal of Gynaecology & Obstetrics 2013;**120**(74-77)

23. Lewycka S, Mwansambo C, Rosato M, et al. Effect of women’s groups and volunteer peer counsellors on rates of mortality, morbidity and health behaviours in mothers and children in rural Malawi (MaiMwana): a factorial, cluster-randomised controlled trial. Lancet 2013;**381**:1721-35

24. Prost A, Colbourn T, Seward N, et al. Women’s groups practising participatory learning and action to improve maternal and newborn health in resource-limited settings: systematic review and meta-analysis. Lancet 2013;**381**:1736–46

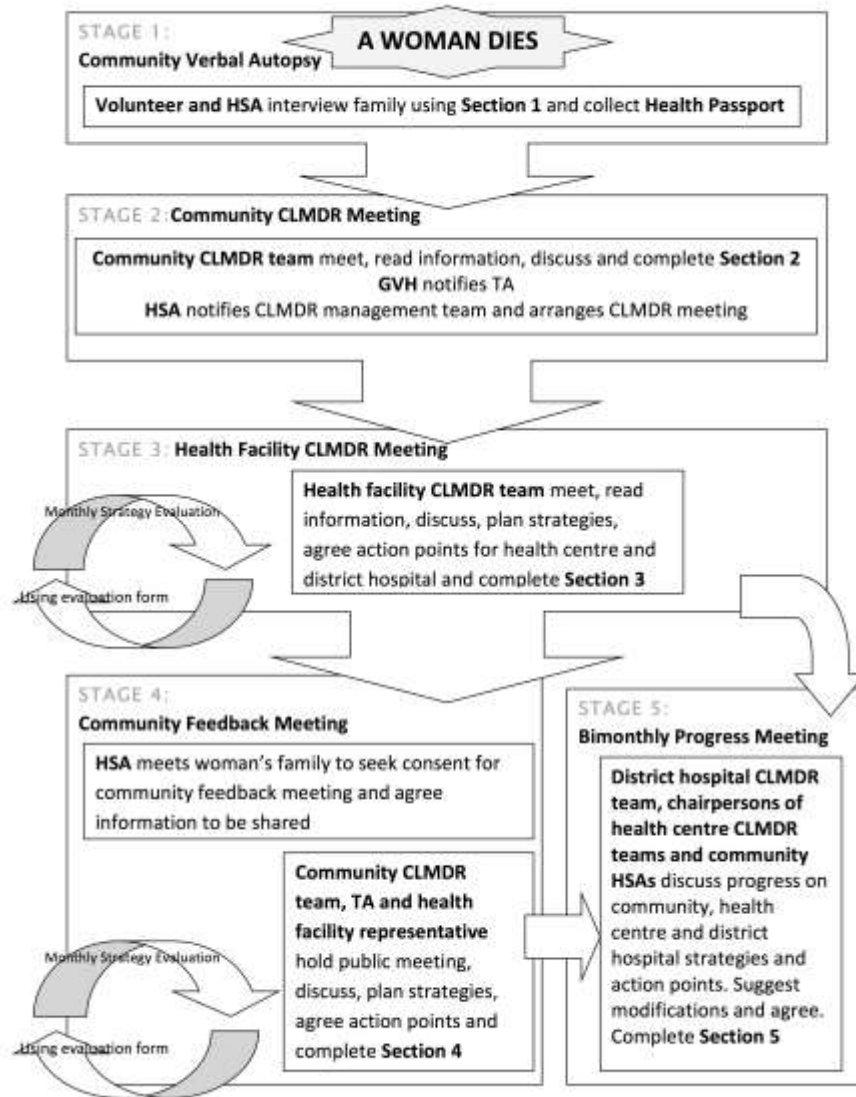
25. Supratikto G, Wirth ME, Achadi E, et al. A district-based audit of the causes and circumstances of maternal deaths in South Kalimantan, Indonesia. Bulletin of the World Health Organisation 2002;**80**(3):228-34

26. UNICEF. Maternal and Perinatal Death Inquiry and Response: Empowering communities to avert maternal deaths in India (available at: http://www.unicef.org/india/MAPEDIR-Maternal_and_Perinatal_Death_Inquiry_and_Response-India.pdf accessed 17th December 2014). New Dehli: UNICEF, 2008.

27. Kalter HD, Salgado R, Babilie M, et al. Social autopsy for maternal and child deaths: a comprehensive literature review to examine the concept and the development of the method. Population Health Metrics 2011;**9**(45)

28. WHO. International statistical classification of diseases and related health problems. 10th Revision. Vol. 2. Instruction Manual. 2010 Edition. Geneva: World Health Organisation, 2010:134.

29. National Statistical Office [Malawi]. Census of Malawi 2008, Main Report. Lilongwe, Malawi: National Statistical Office, Government of Malawi, 2010.



Flowchart of CLMDR process. CLMDR: Community-linked Maternal Death Review; GVH: Group Village Headman; HSA: Health Surveillance Assistant; TA: Traditional Authority.
 215x279mm (300 x 300 DPI)

COMMUNITY FOCUSED
MATERNAL DEATH REVIEW FORM

This form should be used by Community and Health Facility MDR teams to record information and to document all discussions. **It must be kept safely and must not be shown to anyone outside the community focused MDR process.** Each section begins with instructions about how to use the form and ends with instructions about what to do next. Follow all instructions carefully. If you are not sure what to do, check the manual or contact the Safe-Motherhood Co-ordinator or MaiMwana team.

Name of the deceased		Traditional Authority	
Date of death		GVH name	
Place of death		Village name	
Nearest health facility		HSA name	

Please record the maternal death ID number at the bottom of each page.

REMINDER: This is a blame-free process. The purpose is to learn lessons to prevent future maternal deaths, not to assign blame to individuals. Anyone found blaming individuals may be asked not to participate.

VERBAL AUTOPSY
Section 1

Name of Volunteer		Date of interview	___/___/___
Name of HSA			

Instructions for Volunteer and HSA: 2 weeks after a maternal death, you should go to the home of the deceased woman to interview close relative.

On arrival at the respondent’s house:

- 1. Greet and condole the respondent
- 2. Ask for a private place to sit and talk away from other people
- 3. Ask the respondent to bring the health passport and TTV card of the deceased (if available)
- 4. Engage the respondent in a general discussion e.g.; about the weather, to make them feel relaxed

Consent: Read out the following:

My name is _____ a volunteer working with Mchinji District Health Office and MaiMwana Project. We are in the process of trying to improve the health of mothers and babies in Mchinji District. In particular we are working to strengthen communities and health services in relation to mother and child health.

We are in the process of implementing Community Maternal Death Review (MDR).

I am here today to conduct an interview with you because you are a friend or relative of(deceased name) who died recently during pregnancy, delivery or up to 42 days (6 weeks) after birth. We feel that you are in the best position to be able to tell us more about the events leading up to this woman's death and thus initiate the Community Maternal Death Review process. After this interview the information you give us will be reviewed by the Community MDR Team and the Health Facility MDR Team and will be reported back to your community. We assure you that any information you provide will be treated with respect and will only be used to assist individuals, communities and health facilities to understanding the contributing factors and learn how to prevent maternal deaths in future.

The purpose of this project is NOT to find fault with any individual or to put blame on the woman, the family, the community or health staff. The purpose is to give everyone an opportunity to think about how things could be improved IN FUTURE.

The interview will take approximately 45 minutes to complete. Your participation is absolutely voluntary. You may choose not to participate, or withdraw your consent for any reason at anytime, without jeopardising your care by our team and any health worker. If you do not wish to take part, this will not affect your right to treatment at any health facility or participation in MaiMwana activities now or in the future.

I will answer any questions you may have about the study but should you have any further questions or issues you should call Mrs Tambosi Phiri on 0999277303 or Dr Chipiliro Kadzongwe on 0888516439. If you have any questions or concerns about your rights in taking part in this research study, you may contact the vice chairperson of the National Health sciences Research Committee who reviewed and approved this study, Professor Joseph Mfutso Bengo on 0999957805.

Do you agree to take part in this study? Please indicate whether you agree or not by putting your signature or thumbprint in the box next to your decision

Yes

No

Do you agree to provide the health passport and TTV card of the deceased? These materials will be returned to you at the end of the Community Maternal Death Review Process.

Yes

No

Health passport attached?	Yes <input type="checkbox"/> No <input type="checkbox"/> specify passport number: _____
TTV card attached?	Yes <input type="checkbox"/> No <input type="checkbox"/> specify TTV card number: _____

Part 1: Personal details of the deceased		
1.1	On what date was (NAME) born?	dd/mm/yy __ __ / __ __ /19 __ __
1.2	How old was (NAME) when she died?	__ __ years
1.3	On what date did (NAME) die?	dd/mm/yy __ __ / __ __ /20 __ __
1.4	At what stage of pregnancy did (NAME) die?	1 = During pregnancy 2 = During delivery 3 = After birth 4 = Don't know
1.5	Where did (NAME) die?	1 = Home 2 = On the way to treatment 3 = Mchinji District Hospital 4 = Other health facility in Mchinji specify _____ 5 = Other health facility outside Mchinji 6 = Other specify _____ 7 = Don't know
Part 2: Previous pregnancy and birth history		
2.1	Please tell me about (NAME's) health in the six months before she became pregnant this time <i>PROMPTS</i> <i>Health problems, illnesses, operations, medications</i>	
2.2	How many times had (NAME) been pregnant in total?	__ __ 99 = Don't know
2.3	Please tell me about these previous pregnancies <i>PROMPTS</i> <i>Miscarriages, stillbirths, other complications</i>	
2.4	How many of these pregnancies resulted in a live born baby?	__ __ → If 0 go to 3.1 99 = Don't know
2.5	How many of these live born babies are still alive?	__ __ 99 = Don't know
Part 3: Recent pregnancy		
3.1	When did (NAME) start antenatal during this pregnancy?	__ __ weeks of pregnancy 98 = Did not go for antenatal care 99 = Don't know
3.2	How many times did she attend antenatal during this pregnancy?	__ __ times 99 = Don't know

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.
ErasmusHogeschool

3.3	Please tell me about (NAME's) most recent pregnancy <i>PROMPTS</i> Health problems (eg: bleeding, fever, convulsions), illnesses, operations, medications, care during pregnancy, where she went for ANC, care during ANC, who attended her during ANC?	
3.4	How many months pregnant was (NAME) when she went into labour?	__ __ months 99 = Don't know
3.5	Please tell me about (NAME's) delivery (if applicable) <i>PROMPTS</i> Health problems (e.g: heavy bleeding, long labour, delivery of placenta), illnesses, operations, medications, where she delivered, care during delivery, who attended her during delivery, is the child still alive?	
3.6	Please tell me about (NAME's) health following delivery (if applicable) <i>PROMPTS</i> Health problems (e.g: bleeding, fever, convulsions, offensive vaginal discharge), illnesses, operations, medications, where she went for postnatal care, care during postnatal care, who attended her during postnatal care, is the child still alive?	
3.7	Please tell me about the last 7 days of (NAME's) life <i>PROMPTS</i>	

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

	<i>Problems (e.g: fever pain, bleeding, convulsions, difficulty breathing, pallor, swelling, offensive vaginal discharge), illnesses, operations, medications, where she went for health care, health care provided, who attended her during health care</i>	
Part 4: Health care		
4.1	How long did it take between identifying the problem and deciding to seek care?	<div><div></div><div></div> minutes</div> <div><div></div><div></div> hours</div> <div><div></div><div></div> days</div> <div>99 = Don't know</div>
4.2	<p>Please tell me what happened between identifying the problem and deciding to seek care?</p> <p><i>PROMPTS</i> <i>Who made the decision, any delay in making the decision, reasons for delay. Other health care visits (e.g: TBA, sing'anga)</i></p>	
4.3	How long did it take to get to the health facility?	<div><div></div><div></div><div></div> minutes</div> <div><div></div><div></div> hours</div> <div>99 = Don't know</div>
4.4	<p>Please tell me about the journey to the health facility?</p> <p><i>PROMPTS</i> <i>How did she travel, any delay in getting to the health facility, reasons for delay</i></p>	
4.5	How long did it take to receive care after arriving at the health facility?	<div><div></div><div></div><div></div> minutes</div> <div><div></div><div></div> hours</div> <div>99 = Don't know</div>
4.6	<p>Please tell me about the care (NAME) received at the health facility?</p> <p><i>PROMPTS</i> <i>Any delay in receiving care, reasons for delay Was there enough staff, drugs and equipment, was she treated with respect?</i></p>	

Part 5: Contributing factors and strategies

5.1	<p>Please tell me the factors that you think contributed to (NAME's) death</p> <p><i>PROMPTS</i> <i>Factors which contributed to her poor health, individual factors, family factors, community factors, health facility factors</i></p>	
5.2	<p>Please tell me how you think women could be prevented from dying in the future</p> <p><i>PROMPTS</i> <i>Strategies for women, families, communities, health facilities</i></p>	
5.3	<p>Is there anything else you would like to add?</p>	

This is the end of the interview. Thank you for sharing with us the details of the recent death of (NAME). We hope that we will be able to learn from her experiences and help other mothers in Mchinji district in future. The information you have given will now be seen by the community MDR team and the health facility MDR team to help them think of strategies to prevent deaths in the future. The community MDR team will visit you before the community feedback meeting in 2 weeks time.

Instructions to volunteer and HSA: You should now take this form, together with the health passport and TTV card to the GVH for the Community MDR meeting.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

COMMUNITY MATERNAL DEATH REVIEW
TEAM SUMMARY
Section 2

Instructions to Community MDR Teams: One person should read the following to the rest of the team:

We all know that ‘no woman should die giving life’ but many women continue to die. Every death that occurs can help us to prevent a death in future if we think about the factors that led to the death.

The family of (name of deceased woman) have been interviewed, the health passport and TTV card have been collected (where possible) so we can learn about the problems that led to her death.

The purpose of this meeting is to consider these problems and think about anything that the community and the health facility can do in future to prevent other women from dying. In this form please summarise factors mentioned by the family or that arise from the health passport and TTV card. Also summarise the factors that the members of the Community MDR Team think may have contributed to the death and record anything you think individuals, families, the community as a whole and the health facility could do to prevent future deaths. You can use the ‘making great strategies’ diagram and the contributing factors section of the manual to help your discussions.

The purpose of this meeting is NOT to find fault with any individual or to put blame on the woman, the family, the community, or the health staff. The purpose is to give everyone an opportunity to think about how things could be improved IN FUTURE.

Following this meeting, the HSA will take this form, the health passport and TTV card to the local Health Facility MDR Team or District Hospital MDR team, who will also review the information to identify contributing factors and strategies to prevent similar deaths in the future.

MDR management team staff will support the Community MDR Teams in this process. Please feel free to invite them to join the meetings or for any advice by calling them on: 0999630450/or 0999422348/0999630755.

Please read the Maternal Verbal Autopsy (Section1) the health passport and the TTV card to the whole team. The HSA should then complete the form below.

Date of meeting: ____/____/____		
Persons present		
Position	Name	Present?
1.GVH		Yes/No
2.HSA		Yes/No
3.HSA		Yes/No
4.HSA		Yes/No
5.Volunteer		Yes/No
6.Volunteer		Yes/No
7.Volunteer		Yes/No

Part 1: Summary of community contributing factors and suggested strategies		
1.1	Community factors which may have contributed to (NAME's) death? Think 'but why' to identify each of the contributing factors	
1.2	For each contributing factor record the strategy that will help us get from where we are now (contributing factor causing deaths) to where we want to be (contributing factor no longer exists)	
Part 2: Summary of health facility contributing factors and suggested strategies		
2.1	Health facility factors which may have contributed to (NAME's) death? Think 'but why' to identify each of the contributing factors	
2.2	For each contributing factor record the strategy that will help us get from where we are now (contributing factor causing deaths) to where we want to be (contributing factor no longer exists)	

This is the end of the Community MDR Team Summary. Thank you for taking part.

Instructions to the HSA: Please now take this form, together with the health passport and TTV card (if available) to Mchinji District Hospital if the woman died there or to the nearest health facility.

HEALTH FACILITY MATERNAL DEATH REVIEW

TEAM SUMMARY

Section 3

Instructions to Health Facility MDR Teams: The chairperson should read the following to everyone present:

We all know that ‘no woman should die giving life’ but many women continue to die. Every death that occurs can help us to prevent a death in future if we think about the factors that led to the death.

The family of(name of the deceased woman) have been interviewed and the passport and TTV card have been collected(where possible)so we can learn about the problems that led to her death. This information has been reviewed by the Community MDR Team. They have made suggestions of community and health facility strategies to prevent other women from dying.

The purpose of this meeting is to consider these problems again and to particularly think about anything the health facility can do in future to prevent other women from dying. In this form please summarise factors mentioned by the family, factors that arise from the health passport and TTV card and factors summarised by the Community MDR Team. Also record the MDRs opinion of the likely medical cause of death and summarise the factors that the members of the Health Facility MDR Team think may have contributed to the death. Then record anything you think the community, the health centre and the district hospital could do to prevent future deaths. You can use the ‘making great strategies’ diagram and the contributing factors section of the manual to help your discussions.

The purpose of this meeting is NOT to find fault with any individual or to put blame on the woman, the family, the community, or the health staff. The purpose is to give everyone an opportunity to think about how things could be improved IN FUTURE. Please be careful with your feedback as blaming the community or individuals may result in a negative reaction. If you blame individuals you may be asked to leave the meeting.

MaiMwana project staff will support Health Facility MDR Teams in this process. Please feel free to invite them to join the meetings by calling them on: 0999630450/01906175.

The community HSA will now read the Maternal Verbal Autopsy (Section1), the Community MDR Team summary (Section 2), the health passport and the TTV card to the whole team. Please assign someone to complete the form below, using this information in addition to health facility records and any remembered events.

Date of meeting: ____/____/____

Persons present

Position	Name	Present?
1. Health centre in charge		Yes/No
2. Community HSA		Yes/No
3. District hospital representative		Yes/No
4.		Yes/No
5.		Yes/No
6.		Yes/No
7.		Yes/No
8.		Yes/No
9.		Yes/No

10.		
11.		
12.		

Part 1:		
1.1	Please summarise all the events leading up to (NAME's) death	
1.2	What health care seeking actions did (NAME) take when she became ill? Was there any delay in deciding to seek care?	
1.3	Were there any problems in getting to a health facility?	
1.4	Were there any problems with her care at the health facility?	

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

1.5	<p>What is the primary cause of death in the opinion of the health facility MDR team?</p> <p>Please assign a code by circling the cause of death from the list opposite.</p>	<p>1=Haemorrhage (antepartum or postpartum) 1A=Placenta previa/ 1B=Abruption placentae/ 1C=Atonic uterus/ 1D=Retained products of conception/ 1E=Prolonged labour/ 1F=Prior foetal death</p> <p>2=Early pregnancy death 2A=Sepsis and induced abortion/ 2B=Sepsis and spontaneous abortion/ 2C=Haemorrhage and induced abortion/ 2D=Haemorrhage and spontaneous abortion/ 2E=Haemorrhage and ectopic pregnancy</p> <p>3=Sepsis 3A=Prolonged rupture of membranes/ 3B=Obstructed labour/ 3C=Retained products of conception / 3D=Iatrogenic factors/ 3E=Prior foetal death</p> <p>4=Eclampsia/convulsions</p> <p>5=Obstructed labour/ruptured uterus 5A=Malpresentation/ 5B=Cephalo pelvic disproportion/ 5C=Iatrogenic factors</p> <p>6=Indirect cause 6A=Malaria/ 6B=AIDS/ 6C=TB/ 6D=Tetanus/ 6E=Hepatitis/ 6F=Pneumonia/ 6G=Anaemia/ 6H=Assault/ 6I=Accident/ 6J=Suicide/ 6K=Heart diseases/ 6L=Other indirect cause</p>
-----	--	--

Part 2: Summary of community contributing factors and suggested strategies		
2.1	<p>Community factors which may have contributed to (NAME's) death?</p> <p>Think 'but why' to identify each of the contributing factors</p>	
2.2	<p>For each contributing factor suggest a strategy that could help us get from where we are now (contributing factor causing deaths) to where we want to be (contributing factor no longer exists)</p>	

You should now consider the health centre and the district hospital separately.

Part 3: Summary of health centre contributing factors and planned strategies		
3.1	<p>Health centre factors which may have contributed to (NAME's) death?</p> <p>Think 'but why' to identify each of the contributing factors</p> <p><i>Suggested: maximum 2</i></p>	<p>Contributing factor 1:</p> <p>Contributing factor2:</p>
3.2	<p>For each contributing</p>	<p>Strategy1:</p>

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.
ErasmusHogeschool

	factor record the strategy that will help us get from where we are now (contributing factor causing deaths) to where we want to be (contributing factor no longer exists)	Strategy 2:
3.3	Break each strategy in to action points. These should be definite actions that can be done by individuals. Think 'who, how, when?' <i>Suggested: maximum 4 action points</i> Persons responsible for implementing these action points should sign the following declaration:	Action point 1: Person responsible: Signature:
		Action point 2: Person responsible: Signature:
		Action point 3: Person responsible: Signature:
		Action point 4: Person responsible: Signature:
3.4	Date of evaluation meeting to review progress with all action points <i>Suggested: 1 month</i>	
Part 4: Summary of District Hospital contributing factors and planned strategies		
4.1	District Hospital factors which may have contributed to (NAME's) death? Think 'but why' to identify each of the contributing factors <i>Suggested: maximum 2</i>	Contributing factor 1: Contributing factor2:
4.2	For each contributing factor record the strategy that will help us get from where we are now	Strategy1:

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

	(contributing factor causing deaths) to where we want to be (contributing factor no longer exists)	Strategy 2:
4.3	Break each strategy in to action points. These should be definite actions that can be done by individuals. Think ‘who, how, when?’ <i>Suggested: maximum 4 action points</i> Persons responsible for implementing these action points should sign the following declaration: <i>“I declare that I will implement this action point to the best of my ability, within the time frame we have agreed.”</i>	Action point 1: Person responsible: Signature:
		Action point 2: Person responsible: Signature:
		Action point 3: Person responsible: Signature:
		Action point 4: Person responsible: Signature:
3.4	Date of evaluation meeting to review progress with all action points <i>Suggested: 1 month</i>	

This is the end of the Health Facility MDR Team Summary.

Instructions: The HSA will now take this form back to the community. Please copy the contributing factors, strategies and action points on to the evaluation forms (Separate forms for health centre and district hospital). You will use the evaluation form to review progress at your monthly evaluation meetings and to report to the bimonthly progress meeting.

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.
Erasmushogeschool

COMMUNITY FEEDBACK MEETING SUMMARY

Section 4

Instructions to HSA: Please write a summary of the events leading up to the death using only Section 1 (the verbal autopsy from the woman's relative). Use only information that will be useful to guide the discussion and do not include any other confidential information.

Introduction: The HSA should read out the following:

This meeting has been called to discuss the factors that may have contributed to the death of _____ from _____ village, who died on _____ at _____ and to discuss how to prevent maternal deaths in the future.

After the death occurred the family was visited by the Community MDR Team who conducted a Verbal Autopsy interview to gather information about the factors that led to death of this woman.

The Verbal Autopsy was then reviewed by the Community MDR Team and Health Facility MDR Team who identified factors that they thought may have contributed to the death. The health centre and district hospital have planned strategies to help prevent similar deaths in the future.

The purpose of this meeting is to consider community factors which may have contributed to the death and plan community strategies to prevent similar deaths occurring in the future. Whenever a woman dies there are many factors that may have led to the death. Thinking about these factors may help to identify things we can all do to prevent women from dying. You can use the 'making great strategies' diagram and the contributing factors section of the manual to help your discussions. ***It is not the fault of any individual person and the purpose of this process is not to blame anyone. If anyone tries to blame individuals they may be asked to leave the meeting.***

First the HSA will read a summary of events leading up to the death. Then he will read the contributing factors and strategies identified by the health facility MDR team for health centres and the district hospital. Then he will read the community contributing factors and strategies suggested by the Community MDR team and the Health Facility MDR Team. After reading this information we will discuss it in detail. Then we should discuss community factors we think may have led to the death and plan community strategies to help prevent deaths in future. We will identify people who will be responsible for putting these strategies in to action and then we will arrange monthly evaluation meetings to review our progress. Within 2 months the community HSA will report back to the District Hospital MDR team about our progress on our strategies.

Part 1: Summary of events leading up to death, to be read to the community

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Now read out the health centre contributing factors, planned strategies and action points identified by health facility MDR Team (Section 3, Part 3)

Now read out the district hospital contributing factors, planned strategies and action points identified by health facility MDR Team (Section 3, Part 4)

Now read out the community contributing factors and suggested strategies identified by the community MDR team (Section 2, Part 1) and the health facility MDR team (Section 3, Part 2)

Now discuss and complete the following table:

Part 2: Opinion of community on contributing factors to the maternal death and strategies to prevent future deaths		
2.1	Community factors which may have contributed to (NAME's) death? Think 'but why' to identify each of the contributing factors <i>Suggest maximum 2</i>	Contributing factor 1: Contributing factor 2:
2.2	For each contributing factor record the strategy that will help us get from where we are now (contributing factor causing deaths) to where we want to be (contributing factor no longer exists)	Strategy 1: Strategy 2:
2.3	Break each strategy in to action points. These should be definite actions that can be done by individuals. Think 'who, how, when?' Persons responsible for implementing these action points should sign the following declaration:	Action point 1: Person responsible: Signature:
		Action point 2: Person responsible: Signature:
		Action point 3: Person responsible: Signature:

		Action point 4: Person responsible: Signature:
2.4	Date of evaluation meeting to review progress on all action points <i>Suggested: 1 month</i>	

Date of meeting: ____/____/____	
Key persons present	
Position	Present?
1. TA	Yes/No
2. GVH	Yes/No
3. HSA	Yes/No
4. Health Centre Representative	Yes/No
5. District Hospital Representative	Yes/No
6. MaiMwana Representative	Yes/No
7. Other important individuals:	Yes/No
8. Number of women	
9. Number of men	
10. Number of young people	

This is the end of the Community MDR Feedback meeting.

Instructions: Please copy the contributing factors, strategies and action points on to the evaluation form. You will use the evaluation form to review progress at your monthly evaluation meetings and to report to the bimonthly progress meeting.

This form should now be taken back to the district hospital and should be kept safely in the boxfile.

DISTRICT HOSPITAL BIMONTHLY PROGRESS MEETING

Instructions for the chairperson of the bimonthly progress meeting: Please ensure that all representatives have their evaluation forms. Then read out the following:

- You have all been invited to attend this meeting, to learn from each other about the strategies that health facilities and communities are using to prevent women from dying in the district.
- The purpose of this meeting is to review progress on strategies and action points identified at the health facility MDR meeting and community feedback meeting.
- First I will read out the health centre contributing factors, strategies and action points identified at the health facility MDR meeting. The health centre representative will then report progress on each action point and any modification they have made during their monthly evaluation meetings.
- I will then read out the district hospital contributing factors, strategies and action points identified at the health facility MDR meeting. They will report progress on each action point and any modification they have made during their monthly evaluation meetings.
- The community representative will report the community contributing factors, strategies and action points identified at the community feedback meeting. They will report progress on each action point and any modification they have made during their monthly evaluation meetings.
- If the action points have been completed, we should congratulate those involved (and tick the 'completed' box next to each action point). If they have not been completed, we should discuss the action point and suggest how to improve progress or any modifications they should make. All representatives should feedback to their teams about the recommendations from this meeting and take further action as suggested. The progress will then be reviewed again at the next bimonthly meeting.
- We should all take note of good ideas and good strategies that the health facility and community MDR teams have employed. The information will be summarised and will be disseminated to all the health facilities and TAs in the district so that everyone can be inspired to improve maternal health and prevent maternal deaths.

Date of meeting: ____/____/____	
Part 1: Health facility progress	
1.1: District Hospital Read out the District Hospital contributing factors, strategies and action points identified by health facility MDR Team (Section 3, Part 4) Record the action points below. The team representative should report progress including evaluation meeting discussions and outcomes.	
Progress on each action point. If progress has been good, congratulate those responsible.	Action point 1: Person responsible: Completed? <input type="checkbox"/> Progress:

<p>If progress has been poor, those present should make suggestions for the district hospital MDR team.</p>	<p>Suggestions:</p>
<p>These suggestions should be fed back to the district hospital MDR team by the representative and re-evaluated at the next bimonthly progress meeting.</p>	<p>Action point 2:</p> <p>Person responsible:</p> <p>Completed? <input type="checkbox"/> Progress:</p> <p>Suggestions:</p>
	<p>Action point 3:</p> <p>Person responsible:</p> <p>Completed? <input type="checkbox"/> Progress:</p> <p>Suggestions:</p>
	<p>Action point 4:</p> <p>Person responsible:</p> <p>Completed? <input type="checkbox"/> Progress:</p> <p>Suggestions:</p>
<p>Further bimonthly progress meeting (if applicable) Date: ____/____/____</p>	<p>Suggestions completed? <input type="checkbox"/> Progress:</p>

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

1.1: Health Centre Read out the Health Centre contributing factors, strategies and action points identified by health facility MDR Team (Section 3, Part 3) Record the action points below. The team representative should report progress including evaluation meeting discussions and outcomes.	
Progress on each action point. If progress has been good, congratulate those responsible. If progress has been poor, those present should make suggestions for the health centre MDR team. These suggestions should be fed back to the health centre MDR team by the representative and re-evaluated at the next bimonthly progress meeting.	Action point 1: Person responsible: Completed? <input type="checkbox"/> Progress: Suggestions:
	Action point 2: Person responsible: Completed? <input type="checkbox"/> Progress: Suggestions:
	Action point 3: Person responsible: Completed? <input type="checkbox"/> Progress: Suggestions:
	Action point 4: Person responsible: Completed? <input type="checkbox"/> Progress:

	Suggestions:
Further bimonthly progress meeting (if applicable) Date: ____/____/____	Suggestions completed? <input type="checkbox"/> Progress:
Part 2: Community Read out the community contributing factors, strategies and action points identified at the Community Feedback Meeting (Section 4, Part 2) Record the action points below. The team representative should report progress including evaluation meeting discussions and outcomes.	
Progress on each action point. If progress has been good, congratulate those responsible. If progress has been poor, those present should make suggestions for the community MDR team.	Action point 1: Person responsible: Completed? <input type="checkbox"/> Progress: Suggestions:
These suggestions should be fed back to the community MDR team by the representative and re-evaluated at the next bimonthly progress meeting.	Action point 2: Person responsible: Completed? <input type="checkbox"/> Progress: Suggestions:
	Action point 3: Person responsible: Completed? <input type="checkbox"/> Progress:

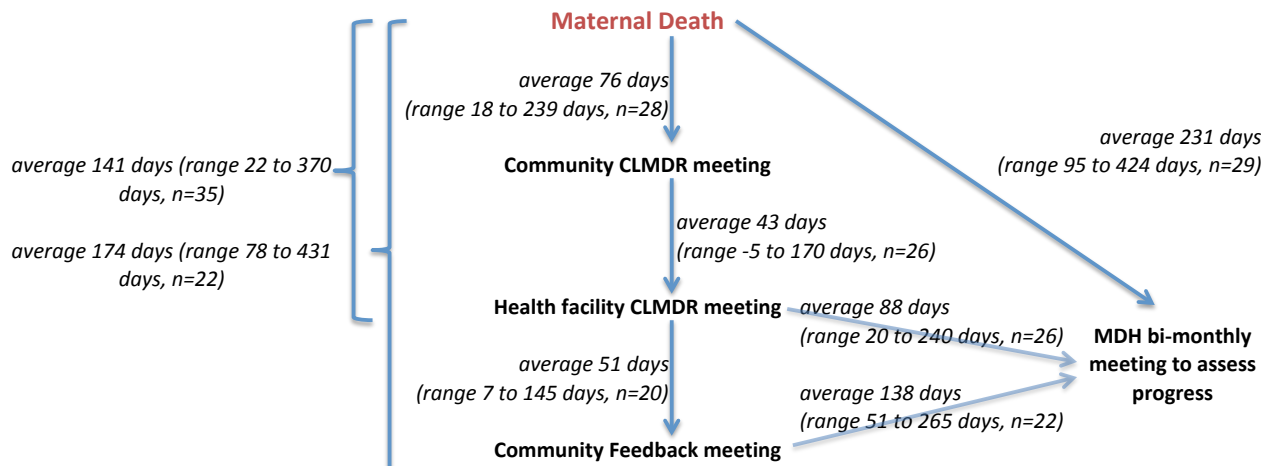
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

	Suggestions:
	Action point 4: Person responsible: Completed? <input type="checkbox"/> Progress: Suggestions:
Further bimonthly progress meeting (if applicable) Date: ____/____/____	Suggestions completed? <input type="checkbox"/> Progress:

This is the end of the bimonthly progress meeting. The community and health facility representatives should note down any suggestions on their evaluation forms. They must report these suggestions to their teams, to put them into action. If all action points have been completed there is no need for the death to be discussed at the next meeting. If action points have not been completed and modifications have been suggested, then the death will be discussed again at the next bimonthly meeting to ensure all action points have been completed.

We should all take note of good ideas and good strategies that the health facility and community MDR teams have employed. The information will be summarised and will be disseminated to all the health facilities and TAs in the district so that everyone can be inspired to improve maternal health and prevent maternal deaths.

Instructions: Information from this form should now be recorded on the database. The form should now be filed by the safe-motherhood co-ordinator. The MaiMwana team will also take a copy for the project file.



or peer review only