

**Title:** Participatory Monitoring and Evaluation Approaches That Influence Decision-Making: Lessons from a Maternal And Newborn Study In Eastern Uganda

**Reviewer 1:** J. Bradley Cousins

## **Reviewer's report**

### **General comments**

The article is well written and provides an interesting account of a participatory approach to M&E in the context of the design and implementation of a complex health intervention in a development setting. The study is essentially an instance of research on evaluation (RoE); the authors describe in great detail the implementation of the participatory M&E activities and stand off the evaluation to reflect and comment on effects, facilitators, and challenges to the approach.

Regrettably, the authors do not really frame the report as RoE which leads to certain points of confusion: (i) the motivation for the study is implicit at best and (ii) the authors have a tendency to co-mingle data in service of the research with data gathered during the implementation of the M&E approach.

The article is well written and clear and ample evidence in the form of narrative with supporting tables and figures is provided to illustrate the observed M&E practice and alleged effects. But given that this is a research study the question guiding the research and the motivation for it are not well grounded in the extant literature on participatory and collaborative evaluation practice. Much has been learned and documented over time about justifications for engaging with collaborative forms of evaluation (e.g., pragmatic, political, philosophical), the purposes of such practice (practical, transformative) and the form participation takes in practice (e.g., control of evaluation decision-making, diversity in stakeholder selection for participation, depth of participation in the technical aspects of M&E). Principles for collaborative approaches to evaluation have been developed and validated. The present study does not converse well with this literature.

An elaborate explication of the methods for generating and capturing data in support of the research narrative is missing. Only vague references were made to two reflective meetings held, one with three contributors and a second with only two. From these reflections claims about effects of participation are made as the M&E process is described (many such claims appear in tables 3, 4 and 5). Yet in the absence of corroborating evidence it is impossible to judge the trustworthiness of the claims that are made. The data appearing in Box 1 is an example but nothing is said about how such data were captured. Finally, the paper does not conclude with hard hitting implications for (i) participatory M&E practice or (ii) ongoing research in the area.

Having said all of this, I am persuaded that the case is of high interest and potentially rich in insights that it can provide into doing and using participatory M&E. I liked the balance in the discussion between what worked well and what challenges emerged. I also liked the attention to unintended consequences of the intervention in the M&E process. I believe a serious revision of the paper would enable it to provide a significant contribution to the development evaluation literature.

### **Major compulsory revisions**

I recommend that the authors attend to the following revisions in order to make the paper more publishable:

- Better frame the study as RoE and ensure adequate distinctions between data for research and evidence supporting the descriptive narrative of the actual M&E implementation
- Enrichen the literature review on participatory approaches to evaluation in order to better justify the question for research and to provide fodder for discussion and determination of implications for practice and research
- Provide added detail in the description of the M&E process to clarify its: justification (why was the participatory approach chosen in the first place, and by whom?); purpose (was the approach predominantly practical, [which seems likely]? To what extent were there transformative intentions [not much said about that]?); and form (who controlled decision making? Who selected stakeholders for participation? To what extent did the range of stakeholders participate in all aspects of the M&E process?)
- Work to provide support for the reflective claims that were made. For example, the article is co-authored by several people, presumably all involved at some level in the process and representing different stakeholder perspectives. Making clear the extent to which different stakeholder participants concur with the reflective narrative would help to support claims. Were there points of divergence of opinion? The data appearing in Box 1 also provide support for claims. Are there similar data available to be used in this way? Elaborate on how these data were collected.

Provide a thoughtful section on implications for M and E practice as well as an agenda for ongoing inquiry in this area. In doing so the contribution of the study will become much more apparent.

#### **Minor essential revisions**

No essential concerns. 'Data' should be plural.

#### **Declaration of competing interests**

None

**Reviewer 2:** Katharine Shelley

## **Reviewer's report**

### **General comments**

This paper succeeds at describing participatory M&E approaches useful in identification of implementation issues and subsequent problem solving through engaging a variety of stakeholders at the community- and district-levels. This research adds to a growing evidence-base around the importance of stakeholder engagement in data use for decision-making, and the participatory methods described are widely applicable to community- and district health systems strengthening initiatives.

### **Major compulsory revisions**

1. More elaboration on capacity building is required given the thrust of the paper is on participatory M&E. For example, did the project team endeavour to strengthen the capacity of any local or district-level stakeholders to continue these participatory M&E approaches once the 3-year implementation period was over? If not, then more details should be provided about why capacity building was either outside the scope of the project and/or too difficult to incorporate. While "capacity building of leaders in management" is one of the key interventions of the MANIFEST project (p.5), the authors have only made brief mention of capacity building (p.17). The paper would be greatly improved by tackling this topic in more detail.

Data triangulation is briefly mentioned, and supported by evidence, at the beginning of the discussion. Subsequently, the authors suggest triangulation is THE key strength of the paper. If it is the key strength, then I suggest introducing triangulation earlier in the paper, in methods and/or results, to set the reader up for how the various M&E approaches come together to triangulate findings and support decision making. For example, at the quarterly stakeholder meetings were there explicit efforts to triangulate data from multiple sources? As currently written, the M&E approaches appear largely standalone pieces of the larger project.

### **Minor essential revisions**

As indicated in the comments embedded within the Word document, I have noted where minor revisions would help to clarify content and improve the overall flow of the manuscript. Because there are numerous minor comments, I have not listed them individually here.

### **Declaration of competing interests**

I declare I have no competing interests.

Please note I am a recent PhD graduate of the International Health Department at Johns Hopkins School of Public Health, to which several of the co-authors are affiliated. I have collaborated with Ligia Paina, Asha George, and David Peters on several projects, but I am not connected in any way to the research in Uganda upon which this paper is based nor to the work of *Future Health Systems*.

1 **Reviewer 2:** Katharine Shelley

2 **Reviewer's report – comments on manuscript**

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5 **Participatory Monitoring and Evaluation Approaches That Influence Decision-Making:**  
6 **Lessons from a Maternal And Newborn Study In Eastern Uganda**

7

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1 **Abstract**

2 **Background:** The use of participatory monitoring and evaluation (M&E) approaches is  
3 important for guiding local decision-making, promoting the implementation of effective  
4 interventions, and addressing emerging issues in the course of implementation. In this article,  
5 we explore how participatory M&E approaches helped to identify key design and  
6 implementation issues and how they influenced stakeholders' decision making in Eastern  
7 Uganda.

8 **Method:** The data for this paper is drawn from a retrospective reflection of various M&E  
9 approaches used in a maternal and newborn health project that was implemented in three districts  
10 in Eastern Uganda. The methods included qualitative and quantitative M&E techniques (e.g. key  
11 informant interviews, formal surveys, and supportive supervision), as well as participatory  
12 approaches, notably Participatory Impact Pathway Analysis (PIPA).  
13

14 **Results:** At the design stage, the M&E approaches were useful for identifying key local  
15 problems and feasible local solutions and informing the activities that were subsequently  
16 implemented. During the implementation phase, the M&E approaches provided evidence that  
17 informed decision-making. They helped to identify emerging issues, such as weak  
18 implementation by some village health teams, health facility constraints such as poor use of  
19 standard guidelines, lack of placenta disposal pits, inadequate fuel for the ambulance at some  
20 facilities, and poor care for low birth weight babies. Sharing this information with key  
21 stakeholders prompted them to take appropriate actions. For example, the sub county leadership  
22 constructed placenta disposal pits; the district health officer provided fuel for ambulances, and  
23 health workers received refresher training and mentorship on how to care for newborns.

24 **Conclusion:** Diverse sources of information and perspectives can help researchers and decision  
25 makers understand and adapt evidence to contexts for more effective interventions. Supporting  
26 districts to have crosscutting, routine information generating and sharing platforms that bring  
27 together stakeholders from different sectors is therefore crucial for the successful implementation  
28 of complex development interventions.  
29

30 **Keywords:** Participatory monitoring and evaluation, implementation research, maternal and  
31 newborn health, Uganda

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## 1 Introduction

2 The availability of accurate, timely, and consistent data at the national and sub-national levels is  
3 assumed to be crucial for development programs to effectively manage health systems, allocate  
4 resources according to need, and ensure accountability for delivering on health commitments [1–  
5 3]. A comprehensive Monitoring and Evaluation (M&E) system should enable program  
6 implementers, decision makers, and budget planners to learn which strategies work and what  
7 needs to be improved so that resources can be better targeted towards saving lives [4]. Timely  
8 evidence from research during the course of implementation can inform and influence policy  
9 development, the identification of good practices and the development of sustainable health  
10 systems [4–6]. To support community-level change, putting these notions into practice requires  
11 M&E approaches that allow information gathering and sharing in participatory ways so as to  
12 influence decision-making and action by key community-level stakeholders [7].

13  
14 In contexts where maternal and newborn mortality is high, both demand and supply-side  
15 challenges exist side-by-side [2]. Comprehensive M&E systems are important for identifying  
16 such challenges that can eventually be mitigated. For instance, providing appropriate maternity  
17 care is a complex process that involves a wide range of preventive, curative, and emergency  
18 services as well as several different levels of care—from the community to the facility and beyond  
19 [2, 8]. At the household level, there is a need to recognize maternal and newborn danger signs by  
20 family members so that appropriate services can be sought [8,9]. At the facility level, equipment,  
21 supplies and medicines must be available to enable the health provider make the correct  
22 diagnosis, provide appropriate treatment and make timely decisions so as to save the life of the

**Comment [SK1]:** Here you've jumped from household level to facility level. It might be worthwhile to include a sentence about the "community" level given the focus on VHTs and community providers in this paper.

1 mother and her newborn [8, 9]. Addressing these barriers to access should be informed by  
2 periodic collection of data that tracks implementation changes and challenges, which can be  
3 shared regularly/systematically with community stakeholders (such as community health  
4 workers (village health teams) and community local leaders), health service providers, and  
5 decision makers at district and national level. Translating implementation findings for  
6 stakeholders enables them to gain a better understanding of the intervention and its possible  
7 effects [10, 11]. This helps in engaging stakeholders in defining the problem and availing the  
8 solutions to address identified problems [2, 9, 11, 12]. Furthermore, information sharing with  
9 local stakeholders helps to redesign and improve programs that do not reach their intended  
10 beneficiaries [13, 14]. This strategy also regularly connects decision makers, implementers and  
11 researchers and promotes accountability to their constituent communities. For example, it is  
12 important to be able to track whether health workers are adhering to national and international  
13 guidelines and if they are not to discuss and agree what can be done to mitigate it.

14 We used a range of participatory monitoring and evaluation approaches during the  
15 implementation of a maternal and newborn health project called Maternal and Neonatal  
16 Implementation for Equitable Systems (MANIFEST) in three districts of Eastern Uganda from  
17 2013 to 2015. To encourage flexibility in how the intervention could be implemented over time,  
18 and to be able to respond to the changing concerns of stakeholders, we opted to use M&E  
19 methodologies that collect information beyond the key outcomes and process/input indicators,  
20 such as unanticipated project implementation changes and challenges, while also paying  
21 attention to understanding stakeholders and their influence.

## 22 **The MANIFEST project**

**Comment [SK2]:** For readers unfamiliar with Uganda's health system, it would be helpful to define the VHT. Is it synonymous with CHWs?

1 MANIFEST had several key interventions, which were implemented using a participatory action  
2 research approach. They included 1) community mobilization and empowerment through the  
3 community health workers home visits, community dialogue meetings, radio talk shows and  
4 messages; 2) improvement of financial and geographical access to care by promoting savings for  
5 delivery care and organizing local transport; and 3) health systems strengthening through training  
6 of health workers, mentorship, supportive supervision and capacity building of leaders in  
7 management. These interventions were provided only in the intervention area except for the  
8 radio talk shows and messages, which were aired on radios with listenership in the control areas  
9 as well and support supervision, which was routinely provided by the district health team in both  
10 the control and intervention area. More details about the intervention are available in the  
11 MANIFEST study design paper [15]

12 The MANIFEST project had a multisectoral group of stakeholders who played different roles.  
13 The research team comprised of members from the district level (district health officers, and  
14 district reproductive health focal persons) and researchers from the Makerere University School  
15 of Public Health and Johns Hopkins University School of Public Health. They were responsible  
16 for designing the intervention and implementing it in collaboration with the other district, Sub  
17 County and community level stakeholders.

18 The community level stakeholders included men and women of reproductive age, local transport  
19 providers, saving group leaders and village health team (VHT) members. The men and women  
20 of the community were important stakeholders; since they made decisions about seeking  
21 appropriate care for mothers and newborns and preparing for birth by ensuring that they had the  
22 financial resources required in addition to planning transport and purchasing other requirements

**Comment [SK3]:** Suggest re-ordering this community stakeholder list according to the order you describe the stakeholders: men & women; VHT members; savings group leaders; and transporters.



1 needed for the mother and newborn. The VHT members were responsible for doing home visits  
2 and conducting community dialogues, which were community meetings established to discuss  
3 maternal and newborn health issues. Saving group leaders and transporters provided relevant  
4 services that contributed to increasing access to cash and transport for maternal and newborn  
5 health. The sub county and district level stakeholders comprised of the health workers, various  
6 community leaders and decision makers (religious leaders, political leaders and technocrats). The  
7 health workers, facility and district managers were responsible for ensuring that quality services  
8 were provided while the **policy makers** at sub county and district level were responsible for  
9 providing oversight and ensuring that required decisions were made about maternal and newborn  
10 health during sub county and district council meetings or other such fora.

**Comment [SK4]:** Is this equivalent to “decision makers” in prior sentence?

11 During study implementation, the research findings were analyzed, synthesized, and shared  
12 **regularly** with the different stakeholders in the intervention area. The purpose of this paper is to  
13 examine how the participatory M&E approaches used were able to identify emerging  
14 implementation **issues**, and how they influenced decision making by community and district  
15 level stakeholders.

**Comment [SK5]:** It could help to define how regularly, on average, this occurred... i.e. quarterly? Bi-annually? As needed when key findings emerged?

Was this operating as continuous learning platform type of approach?

## 16 **Methods**

### 17 ***Study area and design***

18 The MANIFEST study was conducted in three rural districts of Kamuli, Kibuku and Pallisa in  
19 Eastern Uganda. The estimated population in this area is 1,106,100 (Kamuli-500, 200, Kibuku-  
20 209, 000 and Pallisa-396, 900) [16]. The three districts have 104 health facilities, 33 in Pallisa,  
21 17 in Kibuku and 54 in Kamuli [16]. **In these areas**, only about 1 of 2 **pregnant** women attend

**Comment [SK6]:** By “issues” here do you mean the M&E approaches focused on emerging implementation challenges and bottlenecks? Or did the M&E also explore best practices as “issues”? Maybe this is clarified below, I’ll keep reading!

Circling back to this point – in Table 1 there appears to be a focus on “lessons learned” at the quarterly meetings, but that wasn’t obvious to me until getting to the table.

**Comment [SK7]:** Is this the DHS figure for the districts? Region?

1 four or more antenatal care visits or deliver in health facilities, which is less than the nationwide  
2 average [17]. The MANIFEST baseline study estimated the neonatal death rate to be 34 per  
3 1,000 live births [18].

**Comment [SK8]:** Please state the nationwide average so the reader has a comparison.

**Comment [SK9]:** Mortality?

**Comment [SK10]:** Suggest also stating the DHS estimated NMR for this area of the country, or at least at the national level.

#### 4 ***M&E approaches and stakeholder involvement***

5 The data for this paper is drawn from retrospective reflection on the various M&E approaches  
6 described in the forthcoming section. Two reflection meetings were held to discuss the benefits  
7 of using the participatory ~~M&-and-E~~ approaches and to discuss how they influenced decision  
8 making. The first meeting was attended by three of the authors of this paper, while the second  
9 was attended by only two of the authors. Figure 1 provides a summary of the ~~M&-and-E~~ data  
10 collection approaches and tools that were employed as well as the stakeholder engagements that  
11 were undertaken.

**Comment [SK11]:** Were the reflection meetings just with the three authors (1<sup>st</sup> meeting) and the two authors (2<sup>nd</sup> meeting)... or conducted with stakeholders?

If the former, I am wondering if it warrants any mention at all? I would consider meetings between the researchers only as part of the writing process (essentially outlining the main benefits of using participatory M&E and identifying how such efforts resulted in improved decision making. However, if stakeholders were engaged and present during these retrospective reflections then very much worth noting.

**Comment [SK12]:** Change to M&E for consistency with how you've referred to it throughout most of the paper.

**Comment [SK13]:** Figure 1 is a useful visual. Please see suggestions attached to the Figure on how to make it stronger.

12 **Figure 1**

#### 13 *Stakeholder involvement*

14 At the planning and the design stage, a planning meeting that involved the research team  
15 members, health providers, district leaders, sub county leaders and community members was  
16 conducted in order to identify community conditions/problems that lead to underutilization of  
17 maternal health services and contribute to maternal and newborn deaths. During the planning  
18 meeting, the stakeholders were asked to discuss how to address the problems identified using  
19 available resources and a given time frame. The involvement of the stakeholders at the planning  
20 stage provided a better understanding of the maternal and newborn problems and guided the  
21 selection of interventions that were implemented.

1 During the implementation phase, the stakeholders at the community and sub county levels in the  
2 intervention areas were engaged in addition to the district level stakeholders. They were engaged  
3 through quarterly group meetings that happened at sub county and district level, quarterly  
4 support supervision visits to the health facilities and quarterly group meetings with the VHTS  
5 and the communities (community dialogues). These stakeholder meetings have been described in  
6 **T**able 1. Results from study household surveys, health facility support supervision reports, key  
7 informant interviews, focus group discussions with the stakeholders/beneficiaries were presented  
8 at the stakeholder meetings. Based on the presentations and discussions, appropriate actions were  
9 then taken by district planning leaders, health workers, health managers and the research team.

10 Table 1

11 *Quantitative data collection*

12 Quantitative information was collected through household surveys, health facility support  
13 supervision visits, health information utilization data and reports from the community health  
14 workers. We conducted household surveys at baseline, mid-term, and end line so as to determine  
15 changes in the study outcomes, while we used Lot Quality Assurance Sampling (LQAS)  
16 techniques to conduct quarterly household surveys during the first nine months of the study to  
17 monitor the uptake of key intervention elements. The main outcomes for LQAS household  
18 surveys were changes in facility deliveries, ANC attendances, birth preparedness practices, and  
19 knowledge of birth preparedness, pregnancy, labor and newborn danger signs. Every quarter, we  
20 randomly selected 5 villages as supervision areas in each district (supervision units), from which  
21 we randomly sampled 19 eligible households for assessment. A team of 5 district-based persons

**Comment [SK14]:** Staff? Unclear are the five all district/government employees? Or study staff. Suggest rephrasing for clarity.

1 who included the biostatistician and HMIS focal person collected the data. Table 2 provides  
2 details of these data collection methods.

3 Table 2

4 *Qualitative data collection*

**Comment [SK15]:** Who collected the qualitative data via FGDs and KIIs?

5 The qualitative data were collected through focus group discussions and key informant  
6 interviews and quarterly review meetings at district and sub county level. They are described in  
7 more detail in table 2.

8 *Mapping and Theory of change*

**Comment [SK16]:** I suggest moving this section up to right after the "stakeholder involvement" sub-paragraph. It appears to flow more naturally from there.

9 At the design stage, stakeholders were consulted so as to identify local problems and feasible  
10 local innovations to address the identified problems. This stage guided the team to map out the  
11 possible study outcomes, influential stakeholders to be targeted, partnerships to be identified,  
12 strategies for addressing community and health providers' behaviors, and inputs needed for the  
13 implementation of different strategies. This information was used to develop a theory of change.  
14 The theory of change enabled the research team members to clarify not only the ultimate  
15 outcomes and impacts they hoped to achieve but also the avenues through which they expected  
16 to achieve them. This helped the research team and the local stakeholders build consensus on the  
17 implementation pathways. More details about the theory of change and how it was used are  
18 available in Paina et al (19).

**Comment [SK17]:** Repetitive with the stakeholder involvement section. If you move this section earlier to appear after "stakeholder involvement", this sentence can be deleted.

19 *Most significant change*

**Comment [SK18]:** I suspect the ToC is presented in this paper, but it might be helpful to also include it here... even if just a simplified version.

1 We used a modified version of the most significant change approach (MSC) to help us track the  
2 most significant changes experienced by the health providers and the community during the  
3 implementation phase[20] (Fig 1). We did this by collecting stories of change during focus  
4 group discussions with the community, key informant interviews with health providers and local  
5 leaders, and meetings (quarterly meetings, health workers symposia, and research team  
6 meetings). The stories spanned across several domains that included quality of care provided at  
7 the health facilities, health workers' attitudes, changes in health care management/leadership  
8 skills and behavioral changes among mothers in terms of birth preparedness and newborn care.  
9 We however did not rank these stories so as to identify the most significant change; rather we  
10 considered all of them as stories of change since our aim was to capture perceptions of change  
11 from the stakeholders view point.

#### 12 *Participatory impact pathway analysis (PIPA)*

13 We used participatory impact pathway analysis (PIPA) to identify key stakeholders involved in  
14 maternal and newborn health. The PIPA workshop was conducted in the first and second year of  
15 implementation. Details about how it was conducted are available in Ekirapa Kiracho et al (21).  
16 We used PIPA to analyze the type, role, and strength of each stakeholder, as well as how they  
17 were connected with one another in the context of maternal and newborn services. This helped  
18 the project team to understand the actors in maternal and newborn health, the resources that they  
19 possessed as well as the power and influence that they had in promoting achievement of the  
20 project objectives.

1 **Results**

2 In the subsequent sections, we present findings that illustrate how M&E information shared with  
3 each group of key stakeholders was linked to the decisions or actions taken.

4 ***Community level***

5 During the design phase of the program we held focus group discussions and stakeholder  
6 meetings with local stakeholders who included women, men, transporters, saving group leaders,  
7 district leaders and health workers. The purpose of these discussions were to identify local  
8 problems and feasible solutions, existing local resources including existing structures, human as  
9 well as financial resources. Through the discussions we were able to identify the problems that  
10 affect maternal and newborn health services in three main areas. The areas included birth  
11 preparedness; transport; and quality of MNH care services in the health facilities. The problems  
12 related to birth preparedness included: lack of awareness of its importance, negative cultural  
13 practices, men neglecting their roles, lack of knowledge about family planning, poor saving  
14 culture and poverty. The transport problems included: absence of ambulances, long distances to  
15 health units, lack of appropriate transport vehicles and high transport fares. The quality of care  
16 was being compromised by frequent essential drug shortages, inadequate number of delivery  
17 beds, understaffing, poor health workers' attitudes, irregular support supervision, staff  
18 absenteeism, informal charges and poor technical and managerial skills. This information was  
19 used to identify the interventions that were implemented. For instance, to address the challenge  
20 of low awareness about the importance of birth preparedness, home visits by community health  
21 workers were suggested and later included as one of the key interventions. To address poor

**Comment [SK19]:** Suggest deleting as you've already described who the community stakeholders include.

**Comment [SK20]:** Please clarify – do you mean governance structures?

1 managerial and technical skills, refresher training for health workers was proposed and provided  
2 as one of the interventions for health system strengthening.

3 The, local resources that we identified included existing structures such as the sub county  
4 committee, community development officers, local transporters, savings groups, radio stations  
5 and VHTs. These resources were subsequently deployed during the project implementation,  
6 which employed a participatory approach.

**Comment [SK21]:** Not clear. An example might help clarify.

7 During the implementation phase, we shared information about uptake of the intervention  
8 elements and progress with implementation of the intervention with the community level  
9 stakeholders. Table 3 provides a summary of key issues that were identified at the community  
10 level and shared with community stakeholders, as well as the actions that were recommended by  
11 these stakeholders.

12 Table 3

13 Data from the household surveys provided information about the uptake of various aspects of the  
14 intervention. For example, in some of the hard-to reach areas, newborn deaths were high and  
15 most of the women were delivering at home with assistance from traditional birth attendants.

16 Data collected from community health workers also helped the research team and district health  
17 office capture the number of newborn deaths and maternal deaths more completely and  
18 accurately. Previously the district only had data from the facility, which reflected a much smaller  
19 number of maternal and newborn deaths. The focus groups were used to explore the reasons  
20 behind these home deliveries and newborn/maternal deaths in more depth and to identify  
21 possible solutions that could be undertaken by community, facility or district level stakeholders.

1 Table 4 provides a summary of the ~~main factors contributing to maternal and newborn main~~  
2 ~~circumstances surrounding the~~ deaths and solutions that were proposed.

3 Table 4

4 The main factors ~~causing maternal and neonatal deaths~~ included delays in deciding to seek care,  
5 inadequate care at the health facilities with delays in deciding to refer mothers at the health  
6 facilities. Some of the problems that had been identified during the problem identification phase  
7 were still present even at the design ~~phasing~~ of the study. Their persistence during the  
8 intervention showed that more attention needed to be given to addressing them. These issues  
9 were then brought to the attention of Local leaders, health providers including VHTs, and district  
10 planners in the community. For example, through the community dialogues, we emphasized the  
11 importance of delivering in health facilities and preparing for birth by saving money so that  
12 transport could be availed in case a mother was referred to a more specialized facility. We also  
13 emphasized the importance of monitoring mothers using a partograph so that delays in labour are  
14 detected early and referrals done on time.

15 As alluded to earlier we did surveys with the VHTs; to identify their knowledge about danger  
16 signs and areas of weakness in conducting health education and referral during home visits.  
17 Results from the second monitoring data collection exercise (6 months after the intervention  
18 started) during which interviews were done with VHT's, revealed that only 46% knew at least  
19 three newborn danger signs, ~~signifying low level of knowledge about newborn danger signs.~~  
20 Furthermore only 29% of the VHTs ~~were well versed~~ with the transport and savings component  
21 of the intervention (Table 3). These results were shared with the VHT's during the quarterly  
22 group meetings and refresher training was provided in these weak areas. The VHT's also ~~did~~

**Comment [SK22]:** Suggest removing. Implied.

**Comment [SK23]:** Unclear what you mean by "well versed" here.



1 | performed role-plays that reminded them of the information that they were to share with the rest  
2 of the community. We also used the quarterly group meeting as a method of obtaining feedback  
3 from the VHT's about how the health workers were responding to the clients. For example, early  
4 in the study, the VHT's reported that the health workers rejected some of the referrals made by  
5 them. This information was shared with the health workers, who explained their response by  
6 saying that sometimes the VHT's did not assess the patients well before referring them. For  
7 example, some of them referred all women with big legs to the facility thinking they had  
8 oedema. This feedback was in turn given to the VHT's through quarterly meetings who were  
9 then asked to ensure that they assessed the patients well before referring them.

10 The PIPA workshops were used to identify stakeholders involved in maternal and newborn  
11 health and their roles in improving access to MNH care. They enabled us to identify other  
12 implementing actors who could contribute to achieving the project objectives. For instance  
13 default from payment was a challenge in the saving groups. During the workshop it was  
14 recommended that the police could equip the community development officers with information  
15 about how to seek legal redress so that they are able to ensure that the saving groups can recover  
16 their money or protect the money from being borrowed illegally. The PIPA workshop was also  
17 able to demonstrate to the community members that a multisectoral approach was required in  
18 increasing access to care for mothers and newborns, since they were able to appreciate the role  
19 that women's husbands, village health teams (VHTs), transporters, family members, and health  
20 workers played in influencing where women delivered from. This increased their willingness to  
21 participate in activities that were geared at saving the lives of mothers and newborns.

22

1 **Health facility level**

2 At facility level, the M&~~and~~-E data helped us to track MNH service availability and gaps. Table  
3 5 provides a summary of issues that were identified and actions that were recommended.

4 Table 5

5 The quarterly support supervision visits that involved both the research team and the district  
6 leaders helped the team to identify service delivery gaps, which were reported to the respective  
7 health facility teams and district health office for their action. For instance, in some facilities,  
8 health workers were not using partographs to monitor the labor progress, but during support  
9 supervision by the district support supervision team, health workers were reminded about the  
10 importance of using partographs and provided with refresher training on use of partographs  
11 (Table 5). In addition, some health facilities were found to have no essential birth items and  
12 equipment. In some cases, the facilities had these equipment in their stores, but they were not  
13 aware of it. For example, at least five lower level health facilities in Kibuku and the health  
14 district store in Pallisa had manual vacuum aspiration sets that they were able to put to use. The  
15 support supervision report was discussed in the district quarterly review meetings, which tasked  
16 the health facility and district teams to find alternative means of addressing these problems.

17 The periodic household surveys helped us identify newborn care gaps, for example, midterm  
18 survey results indicated that few mothers with low-birth weight babies received information on  
19 how to care for small babies (36.8%), and only 5.3% received kangaroo mother care (midterm  
20 2014 report). These findings were shared with the health workers during support supervision and  
21 mentorship visits and the district health office during quarterly meetings. As a result, the district

1 health offices and the Makerere research team decided to support the health facilities to put in  
2 place strategies to strengthen the newborn care services focusing on care for low birth weight  
3 (LBW) babies that were suggested by the health workers. Hospitals and health centers in each of  
4 the districts set up newborn care corners. In addition, the study team put more emphasis on  
5 building skills related to the management of newborn babies by adding a paediatrician to the  
6 mentorship team and provided more skills building sessions on low birth weight babies screening  
7 and management of pre-term babies with a focus on newborn resuscitation skills and kangaroo  
8 mother care.

### 9 ***Sub county and district level***

10 During the sub county and community quarterly review meetings research team, district health  
11 team and health workers provided an update about the uptake of various aspects of the  
12 intervention (home visits by VHT's, maternal and newborn care practices, attendance of  
13 community dialogues, formation of saving groups and linkages with transporters), gaps in health  
14 service delivery and challenges faced (table 3 and 5). The sharing of these findings enabled the  
15 community leaders and decision makers to learn about local conditions and problems affecting  
16 the communities and they were able to take actions to respond to those problems. For example,  
17 during supportive supervision visits, we were able to find out that some facilities did not have  
18 placenta pits where they could dispose of placentas, essential drugs and supplies, electricity and  
19 fuel for the ambulance. The sharing of this information in the review meetings at sub county and  
20 district level prompted the leaders and decision-makers to take the required action. The district  
21 and sub county offices availed the funds required for construction of the placenta pits, repairing  
22 of health facilities as well as repairing of the ambulance and fuel provision (Table 5).

1 Information sharing also helped district officials to identify additional resources and partnerships  
2 that could be made available. For example, the Member of Parliament in Pallisa district bought  
3 motorized ambulances to ease the transport problem and the sub-county leaders considered  
4 procurement of tricycles and facilitation of community health workers in their budget planning  
5 (Table 5).

6  
7 The involvement of the health district leaders and health facility managers in planning,  
8 monitoring and evaluation has also strengthened their capacity in the use of data for advocacy,  
9 planning and decision-making. As a result, some district health offices have learnt the  
10 importance of information sharing in advocacy and resource allocation. For instance, Kibuku  
11 district now uses the health information data collected to determine the facilities that need to be  
12 expanded or that require more staffing (Box 1).

**Comment [SK24]:** This is the first you touch on capacity building, which is great, but also makes me wonder if there were capacity building elements to the other participatory M&E approaches described?

**Comment [SK25]:** Very helpful illustrative example

## 14 Discussion

15 This paper describes the participatory M&E methodologies and tools used to identify key  
16 implementation issues and solve problems and how they influenced decision making. Use of a  
17 combination of M&E approaches and tools had several benefits. Firstly, they allowed  
18 triangulation of data from different sources leading to more complete reporting and a better  
19 understanding of some of the issues noted. This allowed the stakeholders to get a comprehensive  
20 picture of how different factors were interacting to influence maternal and newborn health  
21 outcomes. For example several newborn deaths were reported in the intervention area. Hence, it  
22 was important for the district health management team, health workers and other key

1 stakeholders to understand the circumstances that led to the deaths, so that measures could be put  
2 in place to stop similar occurrences. The qualitative interviews that were done with women who  
3 had lost their babies therefore aided in the identification of the factors that contributed to these  
4 deaths. The district and sub county level stakeholders were then able to take actions to solve  
5 some of the problems identified. Other researchers have also indicated the importance of  
6 combining quantitative assessments of pre-specified mediating variables with qualitative  
7 investigation of participant responses in testing and redefining the causal intervention  
8 assumptions [9, 13, 22, 23].

9 Secondly, combining qualitative and quantitative data collection methods also allowed  
10 identification of unanticipated pathways, and in-depth exploration of pathways which are too  
11 complex to be captured using one method [22]. For instance to encourage male involvement,  
12 facilities prioritize women who come with their partners and sometimes decline to work on  
13 women who do not come with their partners during antenatal care. However we noted that this  
14 becomes a barrier to seeking formal delivery care services for women who have no partners.

15 These women feel discriminated against and decide to shun all the facility services, as described.  
16 ~~This was the reason given for home delivery~~ by a woman who gave birth at home and later lost  
17 her baby.

**Comment [SK26]:** Forgo?

**Comment [SK27]:** Could you end this paragraph by explaining the solutions/decisions that resulted from these findings from triangulating multiple sources?

18  
19 Thirdly the frequent interactive monitoring of the implementation allowed us to identify gaps in  
20 implementation and to identify practical solutions that could be implemented by those who were  
21 responsible for improving service delivery. During supportive supervision, we realized that  
22 whereas some of the implementation was constrained by factors that were beyond the control of

1 | the facilities or health workers, such as inadequate essential equipment and supplies and skilled  
2 | motivated health workers [24–26], in several cases there was something that the health workers  
3 | could do. For example some newborn babies were dying without being resuscitated and  
4 | partographs were not being filled in some facilities simply because the health workers lacked the  
5 | skills to do so. Availing information on these health facility gaps, and emphasizing the fact that  
6 | the health workers could change this situation if supported, encouraged the facility and district  
7 | management to take action whenever there was a problem that they could solve. Other  
8 | researchers have indicated the importance of engaging clinical and management staff in  
9 | discussion of implementation barriers and facilitators [25–27]. However for this monitoring to  
10 | lead to improvement in service delivery, the gaps must be clearly specified, actions that are to be  
11 | taken to mitigate them must be identified and persons responsible indicated, and follow up must  
12 | be done to ensure that the required action was taken, otherwise the problems simply continue to  
13 | persist.

**Comment [SK28]:** Very well articulated.

14 | Lastly, the participatory M&E methods ~~that we used~~ promoted interaction and dialogue between  
15 | the stakeholders. We realized that the dialogue enhanced the ability of stakeholders to hold each  
16 | other accountable, which was an unanticipated positive outcome. Other studies have also  
17 | emphasized the need for information sharing with stakeholders at each stage of implementation  
18 | [5, 9], which strengthens appropriate decision making, advocacy and resource sharing [12, 28,  
19 | 29]. We however noted that in the absence of the research team, things tended to slide back to  
20 | business as usual implying that strengthening of such accountability processes requires time and  
21 | local champions before it can become entrenched into local systems.

**Comment [SK29]:** Jargon. Suggest rephrasing. What is meant by “business as usual”... that dialogue lessened? And/or then the accountability reduced?

22

1 In spite of the above benefits, we note that there were several challenges that may hinder use of  
2 participatory M&E approaches for decision-making especially in low and middle-income  
3 countries. One of the major challenges was that often the available resources were not adequate  
4 for taking the required actions. One of the key weaknesses noted was in the referral system,  
5 which needed a comprehensive set of communication and transport facilities at the community  
6 and the facility level. Although some progress was made through the purchase of a motorcycle  
7 ambulance and trailers, and purchase of motorized ambulances by politicians these were not  
8 enough. Persistent inability to address problems identified as a result of inadequate financial  
9 resources often frustrate health workers and managers who are willing to bring about change.  
10 These are one of the challenges that have been noted in decentralized settings in developing  
11 countries. Although local leaders have the power to make decisions that can improve service  
12 delivery, this decision making space is limited by the resources that are available to them (30).  
13 The resources available to managers must therefore be expanded if they are to make significant  
14 changes towards improving service delivery.

15 Another factor that limited the ability of managers to make positive decisions was the power  
16 dynamics in the district. Local political and technical leaders wield a lot of power in  
17 decentralized settings. Managers and leaders in other key positions are therefore often unwilling  
18 to take decisions that may spoil their relationships with such local leaders. A district health  
19 officer may therefore find himself unable to discipline a health worker who is closely related to a  
20 high-ranking district officer.

21 Other challenges included inadequacies in data collection and analysis, report writing and  
22 information use at district offices as well as health facilities [31]. Some of the inadequacies were  
23 related to inadequate skills for checking the data collected and reported by the facilities to the

1 districts. Another included inability to analyse the data collected appropriately. When we noted  
2 this we planned to conduct a data quality assessment and to provide refresher training for the  
3 district biostatistician and records officers. Unfortunately we were not able to do this because we  
4 had only one monitoring and evaluation officer, and did not have adequate funds for conducting  
5 the quality assessment, training the district biostatistician and providing continuous supportive  
6 supervision of their work. Another related challenge was linked to the way key decisions were  
7 often made by managers and district leaders. These decisions were often not driven by the data  
8 but rather by the tacit knowledge of the stakeholders (ref- 32). This therefore meant that there  
9 was low demand for data for decision making both at facility and district level. Projects that aim  
10 at influencing decision making at district, community and facility level therefore need to budget  
11 funds for strengthening data collection, analysis and evidence generation. If district leaders have  
12 such training and an intrinsic desire to promote accountability then they could spear head similar  
13 activities that are geared at changing the status quo and improving service delivery.

14 The major strength of this paper is that it draws its data from several data sources and so there  
15 was adequate triangulation of data sources. However, one limitation of the paper was that it does  
16 not indicate the actual amount spent on M&E activities and yet these activities were very  
17 resource intensive. To promote sustainability of the approaches used in this paper we suggest  
18 that similar programs embed their data collection needs within existing routine systems of data  
19 collection so as to limit the additional cost of data collection. Similarly feedback to stakeholders  
20 can be embedded within other existing stakeholder and programme meetings.

**Comment [SK30]:** Perhaps this level of detail is not necessary. I wonder if this could be summarized under the challenge of capacity building around data use for decision making and a lack of resources within the project to adequately carry out the required capacity building needs.

**Comment [SK31]:** Not listed in reference lists – but I’m curious to see the citation and it looks like an interesting paper!

**Comment [SK32]:** The paper doesn’t really focus on triangulation of sources – in fact, it’s only mentioned once in the beginning of the discussion.

What about other strengths? You seem to dwell mostly on weaknesses... I like the sustainability angle and suggest this could be expanded.

What about the prospective nature of the participatory M&E as a strength of the approach?

21

22



1 **Conclusions**

2 | Our implementation experience has revealed that a combination of participatory M&~~and~~E  
3 approaches and feedback to stakeholders are very useful in tracking progress and identifying  
4 emerging implementation challenges, which help in facilitating planning and decision-making  
5 during implementation. Borrowing from our implementation experience, supporting districts to  
6 have cross-cutting routine information generating and sharing platforms that bring stakeholders  
7 from different sectors is crucial for the successful implementation of complex development  
8 interventions. However there is a need to strengthen the skills of those responsible for data  
9 collection and analysis which is used to generate local evidence. Similarly the resources required  
10 for addressing identified problems also need to be expanded so as to enlarge the decision making  
11 space for key implementers and decision makers.

1 **Declarations**

2

3 ***Ethics Approval and consent to participate***

4

5 Ethics approval for this paper was part of the approval provided to the MANIFEST study which  
6 was approved by the Makerere University School of Public Health Higher Degrees and Research  
7 Ethics Board and the Uganda National Council for Science and Technology.

8

9 ***Consent for publication***

10

11 Not applicable

12

13 ***Availability of data and Materials***

14 Data sharing not applicable to this article as no datasets were generated or analysed during the  
15 current study.

16 ***Conflict of interest***

17 The authors report no conflicts of interest

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22 School of Public Health.

23 ***Authors' contributions***

24 RMK carried out data collection, analysis and led the writing of the manuscript with the  
25 contribution from all authors. LP, EEK, GN, and HNL participated in conceiving and reviewing  
26 the study, SNK, PW and AG participated in reviewing the study, and DHP provided general  
27 guidance in study design, data analysis and participated in drafting and reviewing the  
28 manuscript.

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31 Kibuku and Pallisa who consistently attended the project review meetings and took appropriate  
32 decisions to address the maternal and newborn challenges in the three districts. We are also  
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34 technical support during the design and the implementation of this study.

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1 **Table 1: Description of stakeholder involvement**

<b>Category</b>	<b>Participants</b>	<b>Aim</b>
Sub-county quarterly review meetings facilitated by sub county leaders	Sub county implementation committee (Technical, political and religious leaders at subcounty), District health team and the Makerere research team	Provide update on project implementation and uptake of interventions  Identify lessons learnt, implementation challenges and solutions
Quarterly Research team meetings facilitated by both district and Makerere team	District health officers, District project focal persons and the Makerere research team	Provide update on project implementation and uptake of interventions.  Identify lessons learnt, implementation challenges and solutions
District quarterly review meetings facilitated by district technical leaders	District implementation committee (Technical, political and religious leaders at district level), District health team and the Makerere research team	Provide update on project implementation and uptake of interventions  Identify lessons learnt, implementation challenges and solutions
Support supervision led by district support supervision team and supported by the Makerere team	Health workers from intervention and control area	Monitor availability of MNH services  Identify gaps in MNH service delivery  Agree on action points with facility staff  Follow up progress in addressing identified gaps
VHTs quarterly review meetings	All 1680 VHTs were involved in their respective sub counties	Provide feedback to the VHTs about their performance and the community behavioral practices.  Reinforce the knowledge and skills of VHTs
<b>Community dialogue</b> meetings led by VHT's	Community members	Discuss and promote local practices that influence MNH

and supervised by sub county implementation committee		<p>health positively and negatively</p> <p>Discuss and discourage local practices that influence MNH health negatively</p> <p>Encourage uptake of key intervention elements</p>
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**Table 2: Description of data collection methods**

Data collection methods	Participants	Type of data
Household surveys (Baseline, midterm, end line and quarterly monitoring surveys for the first three quarters of the intervention.	Women and men of reproductive age	Participant demographics, birth preparedness practices, MNH service utilization, newborn care practices, newborn death, saving practices, transport used to the health facility
Focus group discussions	Women and men of reproductive age	Perceived quality of MNH services, factors influencing MNH service utilization and delivery, newborn care practices, saving practices, attendance of community dialogues and associated factors, access to transport services, birth preparedness, male involvement, perceptions about the MANIFEST intervention implementation
Key Informant Interviews	Health workers, local leaders and district health management team	
Supportive Supervision	Facilities that provide MNH services	Availability of MNH services, availability of essential drugs, equipment and skilled health workers.
Health Facility Records Review	Facilities that provide MNH services	MNH service utilization data, stillbirths, newborn deaths and maternal death
VHT monthly reports	VHTs from 840 villages in the intervention area	Monthly reports on newborn deaths, maternal deaths, women reached during home visits disaggregated by age
VHT surveys	VHT's	Knowledge about danger signs during pregnancy, delivery and postpartum, Knowledge about the savings and transport component

6 **Table 3: Community level information and actions taken**

Emerging issues	Data collection methods and avenues for information sharing	Actions suggested and taken
<b>Uptake of interventions by the community</b>	Data was collected through household surveys and shared during quarterly review meetings conducted at sub-county and district level	Conduct maternal and newborn audits at the community and health facilities to find out the reasons for the deaths
Some mothers still deliver at home and so maternal and newborn deaths reported in some communities		More health education about newborn care practices during home visits, community dialogues and at the
Mothers continue to bath newborns immediately within		

Emerging issues	Data collection methods and avenues for information sharing	Actions suggested and taken
12 hours after birth (86%)		health facility
Mothers continue to put local herbs on newborn cord (44%)		
Poor attendance of community dialogues partly attributed to lack of involvement of local council leaders.	Data was collected through key informant interviews and focus group discussions and shared during review meetings held at sub-county and district level.	Sensitization meetings held for local council leaders to inform them about their role in the study.
<b>Factors influencing competence of VHT's in performing their duties</b>		
VHTs lacked adequate knowledge about newborn danger signs (46%)	Data was collected through VHT surveys and shared with VHTs at VHT quarterly review meetings	Refresher training done during the quarterly group meeting and a change was noted (46% to 60%)
VHTs were not encouraging mothers to join saving groups and link up with transporters	Data was collected through VHT surveys and shared with VHTs at VHT quarterly review meetings	Refresher training of VHT's was done during quarterly group meeting and more information provided about transport and savings component. List of saving groups also given to VHT's.

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**Table 4: Factors contributing to maternal and newborn deaths and solutions proposed**

Key issue identified	Solutions proposed
Delay in deciding to seek care for ANC and delivery Delay in deciding to refer the mother to hospital  <i>"The first time she attended ANC, she was advised to go to the hospital. However, she never went because she thought using the local herbs would cure her. When the time for delivery reached, she went to HC III (immediately the labor started-8:00am). When the facility staff failed, they referred her to the Hospital at 11:00Pm (at night). The hospital opted for a caesarian. After the operation,</i>	Religious leaders, community health workers, and local leaders to continue participating in sensitizing their communities on the importance of accessing maternal health services from health facilities during home visits and community dialogues Strengthen monitoring of women in labour using partographs through mentorship and support supervision so that referrals are not delayed

**Comment [SK33]:** Is there any tracking to know whether these solutions were enacted?



Key issue identified		Solutions proposed
<p>she bled too much and this resulted in her death. Fortunately, the baby survived". <b>Deceased's Sister</b></p>		
<p>Poor health worker attitudes</p> <p><i>"I went to the facility when my pregnancy was 2 months but was denied access to services because I had not gone with my husband. I again went there when it was 6 months and the same happened. .... I tried to explain to the health worker but she could not listen to me. When the time for delivery reached, I decided to deliver from home because I feared to go back to the facility. Two days after delivery, my child died". <b>Mother 35 Yrs., gravid 5 and above</b></i></p>		<p>Health workers advised to relax the policy of only working on women who attended antenatal care with their partners</p>
<p>Delay in deciding to refer the mother Lack of immediate transport for referral</p> <p><i>"I reached the HC at 2:00PM but was referred to Hospital at 3:00am... the health workers found that they could not manage me and I was referred to the regional referral Hospital. Unfortunately, the driver for the ambulance was not around, The vehicle was got at 4:00am.... When I reached Regional Hospital a decision was made to do a caesarian. Unfortunately the baby died immediately after delivery". <b>Mother, 29 Yrs., gravid 5 and above</b></i></p>		<p>Strengthen monitoring of women in labor using partographs through mentorship and support supervision so that referrals are not delayed District health office to work with CAO to make sure the ambulance driver and fuel are always available to ease referral.</p>
<p>Lack of health worker skills in managing obstructed labor</p> <p><i>"I attended ANC four times at HC III. During delivery, the baby's head came out but other parts could not come out. I tried to push but it could not come out. Unfortunately, it died before even coming out. I think it was too big". <b>Mother 24 yrs., gravid 3</b></i></p>		<p>Obstetricians and gynecologists to continue mentoring midwives on how to handle complications during delivery through mentorship</p>

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2 **Table 5: Health facility level information and actions taken**

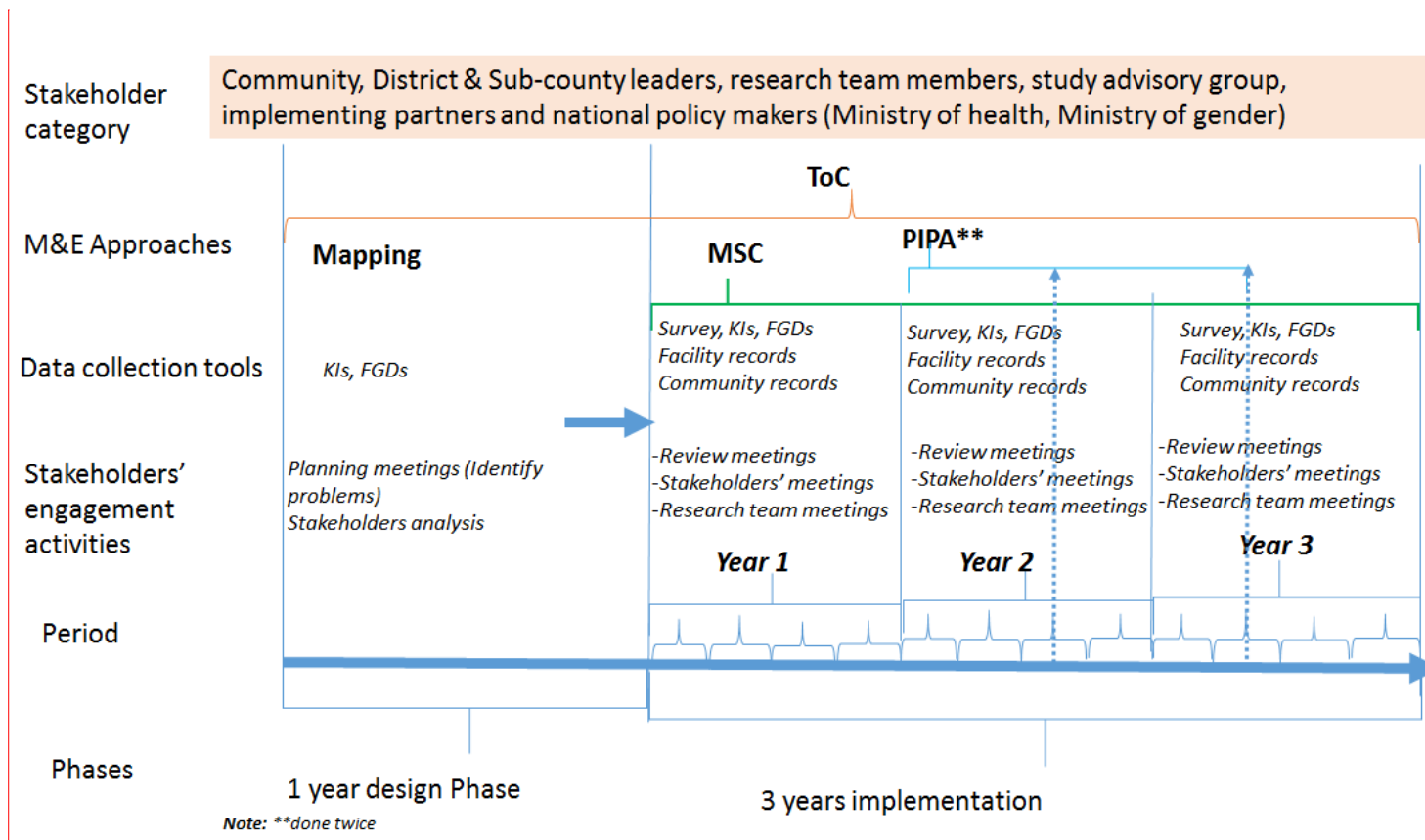
<b>Emerging issues</b>	<b>Data collection methods and avenues for information sharing</b>	<b>Actions suggested and taken</b>
<b>Monitoring of women in labour</b>		
Limited use of partographs to monitor the progress of labor	Information collected through supportive supervision visits and shared through district review meetings	Training of the health workers on the use of the partograph through mentorship program and support supervision. Training was done and health facilities started putting aside money for buying partographs.
Maternal and newborn death high in some health facilities	Data was collected through records review and shared during quarterly review meetings	Maternal and newborn death audits were recommended. The District reproductive health focal person found that in one hospital the nurses did not know how to resuscitate newborns, so she did refresher training. In another facility unnecessary augmentation of labor was being done leading to foetal distress and stillbirths so the midwife was given guidance about when to augment labor.
<b>Care for newborns</b>		
Poor care of small babies – neonatal resuscitation and using Kangaroo Mother Care	Data was collected through household surveys and shared during quarterly review meetings	Health workers were trained on how to care for small babies through the mentorship program.  Newborn care corners started at the health facilities. Pediatrician was added to the mentorship team so as to improve newborn care.
<b>Resources for providing maternal and newborn services</b>		
Stock out of maternal and newborn essential drugs and supplies	Information collected through supportive supervision visits and shared through	Training the health facility managers on proper drug requisitioning during the certificate course on management. Facilities that had excess shared with

	district review meetings	facilities that had inadequate amounts.
Four health facilities did not have a placenta Pit for disposal of placentas.		The sub county leadership was informed at the sub county review meeting and they availed funds to construct the placenta pits
Some hospitals and health center IVs did not have an ambulance	Where is the content for this box?	Political leaders to lobby politicians and other stakeholders to buy ambulances- members of parliament in Pallisa district bought 4 motorized ambulances.  One sub county bought a motorcycle ambulance  Fundraising was done and 10 trailers for motorcycle ambulances purchased
Ambulances have mechanical problems and cannot transport women		Medical superintendent for the hospital was asked to ensure funds allocated for repair of the ambulance during district review meeting and this was done (Pallisa district).
No fuel for the hospital ambulance		The district health officers availed money for fuel for the ambulance from his budget line at district level (Kibuku district)

**Comment [SK34]:** Is this to be blank?

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1 | Figure 1: M&E tools, approaches, and activities used at different stages of program design and implementation.



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**Comment [SK35]:** This is a very helpful visual!

I have a couple of comments and suggestions on improving the visual.

1. Is the "Stakeholder categories" box across the top meant to include all types of stakeholders were engaged throughout the course of the program and implementation phase? If not, stakeholder categories engaged in each type of M&E approach should be specified.

2. It looks like MSC was repeated annually, or was an ongoing activity throughout. Therefore, is it necessary to repeat that the text through the data collection tools and stakeholder engagement activities? Similarly, is it necessary to eliminate the repetitive text for PIPA using asterisks or other indicators to denote that it was repeated (similar to the asterisks denoted for PIPA).

3. The dotted arrows leading from the PIPA line are distracting, and it's not clear if it's necessary to the reader to know that PIPA occurred in each year. A single PIPA line probably sufficient detail to indicate that it occurred in Years 1, 2, and 3.

4. What is the purpose of the quarterly brackets in the timeline area of the graphic? – just to emphasize quarterly meetings occurred?

5. Where is the "quantitative data collection" in this graphic? – please describe the quantitative data collection.

1 **Box 1: Data use for decision making Story of Change**

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*“.....as a result of MANIFEST study, we now use a lot of our data in planning and budgeting. For example, not long ago we did not have adequate resources to construct maternity wards in every Sub-county, so we had to use our data and we said ok, which place has a biggest ANC deliveries, which place is having big out-patient attendances. We then decided that we have the general ward constructed in Kadama health center III, in Kadama Sub-county. So, we are now using our data because it is now available contrary to what was there before, where you would ask like how many delivery do you have on average per month and you’re like a aaa---- oba this number [guessing]. But now we can easily check, all the health indicators because we have data center where all our information is readily available. So, we can use our data for planning and decision making, and even staff allocation. For example we decided to allocate more midwives and other health workers in facilities that have high number of ANCs/deliveries and outpatient respectively. In addition, we have use this information to justify the need for health works, which has convinced the Ministry of health to consider relaxing the ban on the recruitment of health workers.*”

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## Author's response to reviews

We have responded to the reviewers' comments and we hope the paper has now improved

Reviewer 1: J. Bradley Cousins

**1. Better frame the study as RoE and ensure adequate distinctions between data for research and evidence supporting the descriptive narrative of the actual M&E implementation**

Thank you very much for this comment. We have revised the manuscript and tried to frame it more as research on evaluation.

**2. Enrichen the literature review on participatory approaches to evaluation in order to better justify the question for research and to provide fodder for discussion and determination of implications for practice and research**

Thank you very much for this advice. We have provided more literature on participatory M&E approaches see lines 12- 23 (pg 4), lines 1-20 page 5 and Line 1-10 page 6

**3. Provide added detail in the description of the M&E process to clarify its: justification (why was the participatory approach chosen in the first place, and by whom?); purpose (was the approach predominantly practical, [which seems likely]? To what extent were there transformative intentions [not much said about that]?); and form (who controlled decision making? Who selected stakeholders for participation? To what extent did the range of stakeholders participate in all aspects of the M&E process?)**

Thank you very much for this advice. We have revised the description of the M&E process by pointing out the reasons for the participatory approach (Page 10/11 under M&E Approaches' section). The participatory approach was mainly practical. Although the project aimed at addressing the needs of the marginalised, we feel that the transformative component was mainly in relation to empowering the community with knowledge about maternal and newborn health and with information and the means to improve their financial preparedness. We have also indicated how participatory the approach was by indicating the roles of various stakeholders (page 10/11 under stakeholders involvement section) and how different stakeholders were engaged at different levels (page 10/11 and Figure 1).

**4. Work to provide support for the reflective claims that were made. For example, the article is co-authored by several people, presumably all involved at some level in the process and representing different stakeholder perspectives. Making clear the extent to which different stakeholder participants concur with the reflective narrative would help to support claims. Were there points of divergence of opinion? The data appearing in Box 1 also provide support for claims. Are there similar data available to be used in this way? Elaborate on how these data were collected.**

We have provided more evidence (Stories of Change) and we have included the source of information.

Regarding the divergence of opinions what was common was for several suggestions to be made about how to resolve a problem and eventually a decision would be made to choose the most feasible. So there were no major controversies we therefore have not provided more data on this.

- 5. Provide a thoughtful section on implications for M and E practice as well as an agenda for ongoing inquiry in this area. In doing so the contribution of the study will become much more apparent.**

We had provided the key implications for M and E practise in our conclusions and still see these as the major implications for M and E from our work. We have however proposed suggestions for further inquiry as suggested.

#### **Reviewer 2: Katharine Shelley**

- 2. More elaboration on capacity building is required given the thrust of the paper is on participatory M&E. For example, did the project team endeavour to strengthen the capacity of any local or district-level stakeholders to continue these participatory M&E approaches once the 3-year implementation period was over? If not, then more details should be provided about why capacity building was either outside the scope of the project and/or too difficult to incorporate. While “capacity building of leaders in management” is one of the key interventions of the MANIFEST project (p.5), the authors have only made brief mention of capacity building (p.17). The paper would be greatly improved by tackling this topic in more detail.**

Thank you very much for this advice. The capacity building approaches that were used in the project included the trainings that were done for various groups of implementers and the learning by doing approach in which the project was implemented with the district stakeholders ( district health management team and sub county implementation committee, VHT's, community development officers) taking leading roles in implementation of the study. We have added this in the section where we describe the MANIFEST project. More details of this are also available in the design paper to which we have referred the readers. See lines 21- 23 (page 7/8)

- 3. Data triangulation is briefly mentioned, and supported by evidence, at the beginning of the discussion. Subsequently, the authors suggest triangulation is THE key strength of the paper. If it is the key strength, then I suggest introducing triangulation earlier in the paper, in methods and/or results, to set the reader up for how the various M&E approaches come together to triangulate findings and support decision making. For example, at the quarterly stakeholder meetings were there explicit efforts to triangulate data from**

**multiple sources? As currently written, the M&E approaches appear largely standalone pieces of the larger project.**

Thank you for this comment however we believe that we had indicated in the methods section that we were collecting data from several sources using several data collection methods. In addition, figure 1 highlights different data collection methods such as surveys, health facility assessment, formal meetings, focus group discussion, key informant interviews and records reviews. In the results section for example under the section on the community we also show how these different methods were used to estimate the actual number of deaths and explain the high number of maternal deaths see lines 4-14 (pg 15 ), lines 9 page 17– line 7 page 18 and Line 1-11 page 19. We also collected data during support supervisions that were conducted every quarter at each of the health facility and household surveys (page 22).