



Maternity Foundation

Safe Delivery App Data Report

Ethiopia Country Case

2016 – 2017

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1 Intro: Safe Delivery App - Ethiopia Case

This report compiles the data collected and analyzed in connection with the “Dissemination and implementation of the Safe Delivery App in Ethiopia” project (2015 – 2017) financed by Merck for Mothers. This data report forms part of the overall final report.

The Safe Delivery App was introduced in Maternity Foundation’s new Maternal and Newborn Health project in September-November 2016 to a total of 107 midwives in a total of 14 districts as a job-aid. The midwives received a one-day introduction training, and were baseline tested on knowledge, skills and confidence. Midterm follow-up was conducted after 6- 9 months and a final follow up will be conducted after 12 – 15 months.

This report is the output for one of the specific objectives of the project; namely to compile a data compendium based on the documented experiences and impact of the implementation of the Safe Delivery App into this project.

2 Results

2.1 USER PROFILES

METHODOLOGY: Background information of the total sample consisting of 107 users¹ of the Safe Delivery App was collected both through interviews, questionnaires and follow-up calls.

FINDINGS: The Safe Delivery App users in the sample were mainly female (79%), with a midwifery diploma degree corresponding to 2 years’ education (97%). More than a third of these midwives were relatively new in their profession and graduated 1- 4 years ago (38%), which also means their years of experience are limited. 98% received in-service BEmONC training, predominantly within recent years.

Population characteristics of Safe Delivery App users (midwives)		n (%)
Sex		
Female		85 (79.4)
Male		22 (20.6)
Education		
Diploma (1-2 years)		102 (97.1)
Degree (3-4 years)		3 (2.9)
Years since graduation		
1-4		74 (72.6)

¹ In the remaining data in this report, not all 107 users are represented due to unanticipated conditions in the field, e.g. work replacement, absence, etc.

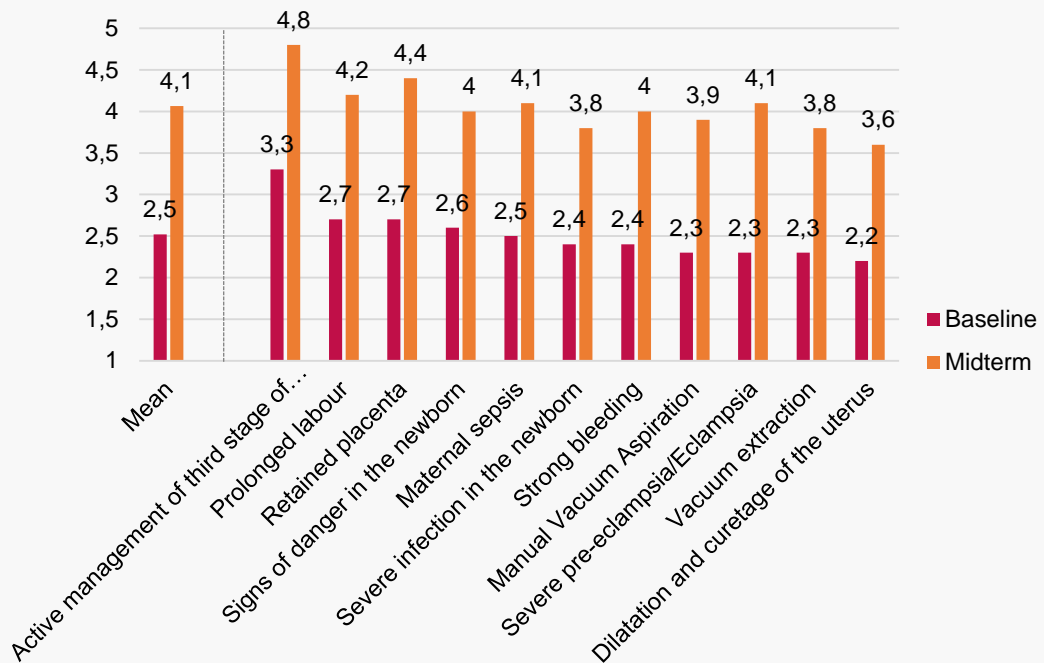
5-8	23 (22.0)
8+	5 (4.9)
BEmONC training	
Yes	100 (98.0)
No	2 (2.0)
Year of BEmONC training	
Before 2013	16 (16.2)
2014-15	47 (47.5)
2016-17	36 (36.4)
Deliveries assisted last month	
0-10	10 (17.2)
11-30	45 (77.6)
30+	3 (0.05)
Work experience	
1-4	38 (66.7)
5-8	16 (27.6)
9+	3 (5.2)

2.2 CONFIDENCE

METHODOLOGY: The confidence level of 64 users was tested using a simple self-assessment questionnaire. In the questionnaire, the midwife rates how confident he/she feels in managing each emergency on a scale from 1 (panic) to 5 (confident). Midterm data was collected 6-9 months after baseline.

FINDINGS: The average increase in confidence level for SDA users went from 2.54 at baseline to 4.09 at follow up, constituting a mean increase of 1.55. The highest increases in confidence levels are those for managing pre-eclampsia (1.8); retained placenta (1.7) and strong bleeding (1.6).

CONFIDENCE LEVELS - BASELINE AND MIDTERM

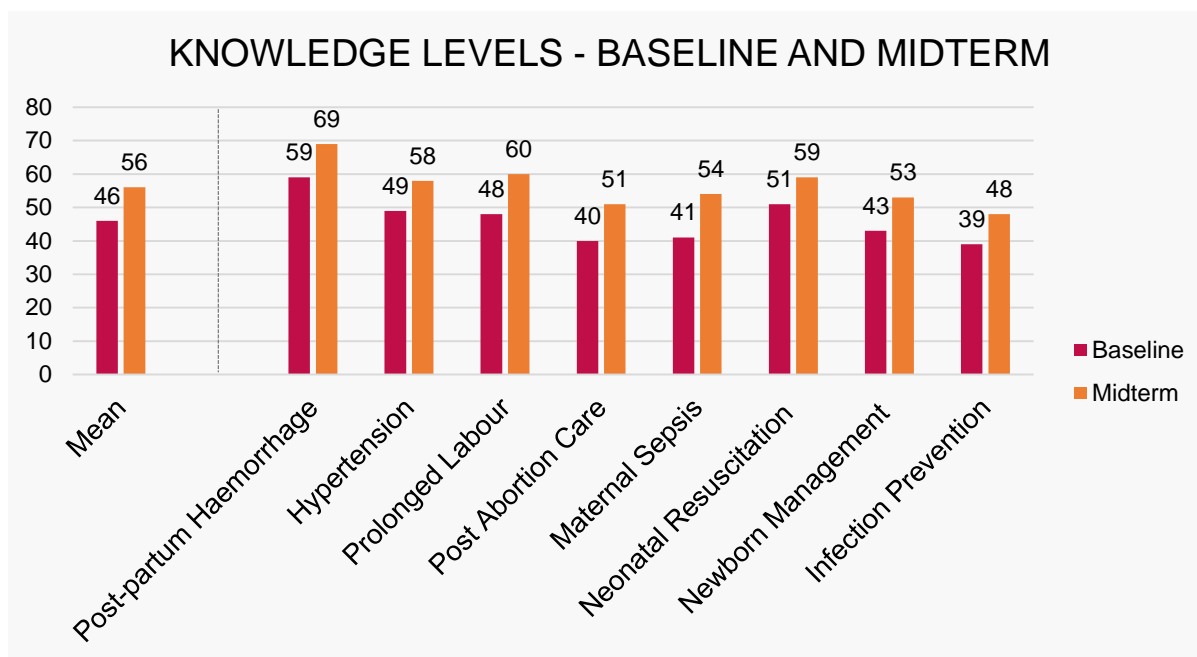


ANALYSIS: Confidence is important as it influences reaction and rapid response in emergencies and we therefore use it as a proxy indicator for potential impact on quality of care during emergencies. Our findings show that users of the Safe Delivery App show marked improvements in confidence levels after 6-9 months of use. However, the improvements may not be ascribed solely to the Safe Delivery App itself, as about a third of users received BEmONC training during the baseline to midterm period in 2016-2017.

2.3 KNOWLEDGE

METHODOLOGY: Knowledge is measured by the Key Feature Questionnaire (KFQ), which was developed and scientifically validated for the randomized controlled trial of the Safe Delivery App in 2013 – 2014. The KFQ tests skilled birth attendants' practical application of knowledge based on clinical case scenarios. The KFQ includes 15 cases and 55 questions. 87 midwives completed the KFQ at baseline and 76 (of the original 87) at the 6-9 month midterm follow up.

FINDINGS: The mean baseline score of skilled birth attendants on the KFQ was 46% and the mean midterm score was 56%, with a mean improvement 10%-points.



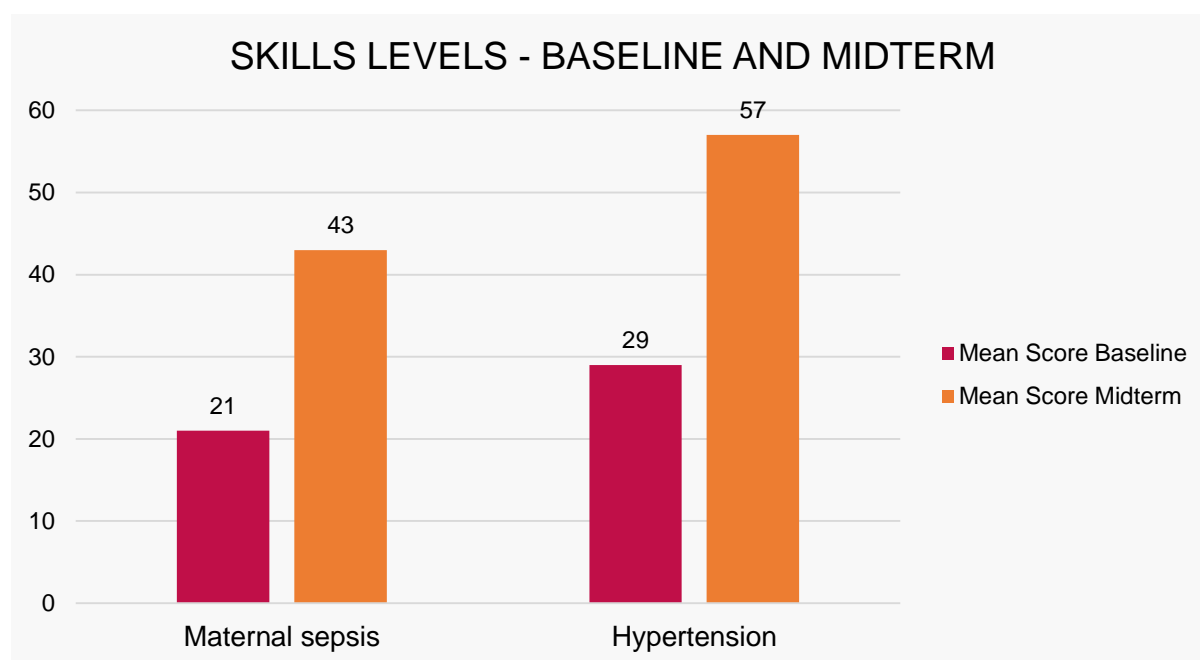
ANALYSIS: The trend of an increase in knowledge after 6-9 months use of the Safe Delivery App is in alignment with the results from the Randomized Controlled Trial conducted in 2013-14. In the RCT we found an improvement from baseline to midterm (6 months after introducing the App) in knowledge for neonatal resuscitation at 22%-points and for post-partum hemorrhage 12%-points. At 12 months after baseline in the RCT we found a further slight increase in knowledge for post-partum hemorrhage, but not for neonatal resuscitation. The level of supervision was higher in the RCT in comparison with the present project. We therefore expected the results to be more significant in the RCT, but the new results show the same increase in terms of knowledge, suggesting the positive impact of the App on knowledge in a non-research controlled setting. However, other factors, such as trainings, may also have contributed to the improvements in this uncontrolled trial.

2.4 SKILLS

METHODOLOGY: Skills were measured by an assessment tool - Objective Structured Assessment of Technical Skills (OSATS), which was developed specifically for the Safe Delivery App by University of Copenhagen, University of Southern Denmark, and Maternity Foundation. The OSATS is a form of role play, where health workers are asked to manage fictive clinical scenarios. Health workers have access to birth simulators (dolls), essential drugs, and medical equipment during the assessment. The scenario is read out to them, and they then demonstrate what they would do in the actual situation, using the available supplies. Their performance is scored on a scoring sheet by two OSATS trained midwives. In our assessment, 31 midwives completed the baseline OSATS and 25 of these midwives went on to complete the midterm follow up which was completed 6-9 months after baseline. Only 2 districts were selected to complete the OSATS, as it is time consuming and due to limited

capacity and resources, this was not possible in all districts. Two BEmONC signal functions were used as proxies including management of maternal sepsis and hypertension.

FINDINGS: The mean scores for correct management of maternal sepsis and hypertension respectively were 21% and 29% at baseline and 43% and 57% at midterm. Thus the mean improvements from baseline to midterm were 22%-points and 27%-points respectively.



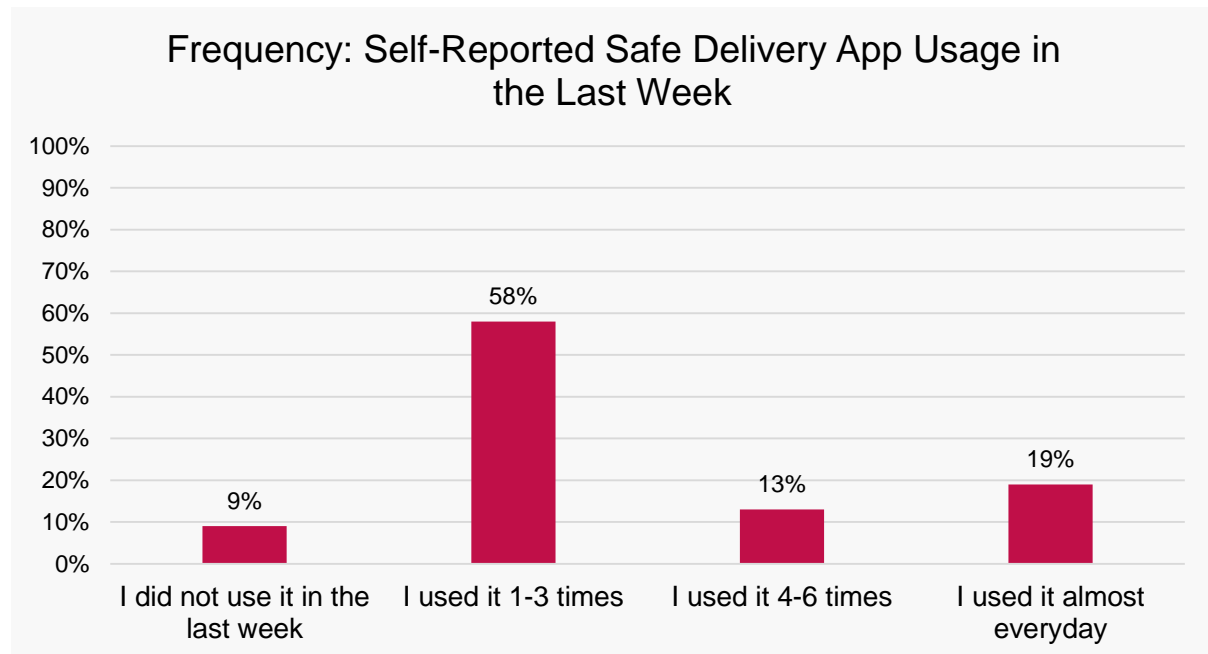
ANALYSIS: As with the results in the knowledge assessment, we found similarities between the results of the skills assessment compared with the results from the RCT from 2013-14. In the recent skills assessments (OSATS), we found continuous improvement in skills from baseline to midterm (6 months after introducing the App to users) and again after 12 months. After 6 months of using the Safe Delivery App, the skilled birth attendants in our assessment increased by 24%-points their ability to correctly manage neonatal resuscitation and 32%-points for post-partum hemorrhage. After 12 months, the increase for neonatal resuscitation was 14%-points and for post-partum hemorrhage 10%-points. In the RCT we likewise found a continuous improvement in skills over time, suggesting that the positive impact of the Safe Delivery App on skills may be sustained over a 12-month period. As we found a substantial improvement from baseline to midterm at 6 months in this new project, we hypothesize that the trend may continue and thus we would see a positive improvement for both knowledge and skills in an additional 6 months' time. However, we take into account that this monitoring is uncontrolled, and as such training and other factors may influence our findings.

2.5 USAGE

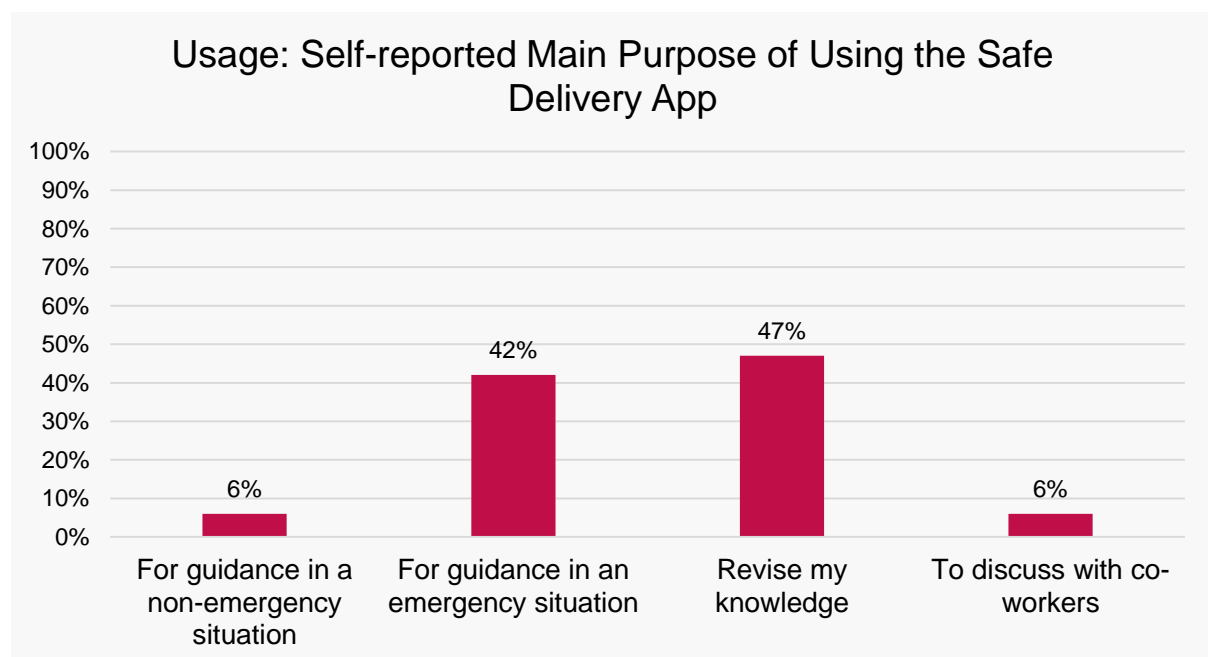
METHODOLOGY: Users' usage and perceptions of the App were measured with MagPi, a paperless mHealth data collection tool that uses data sharing via smartphone and internet connection. The survey results provide an overview of user perceptions and experiences,

usage patterns and what parts of the App users find of most value and help in their daily work. The MagPi survey was completed by 54 midwives.

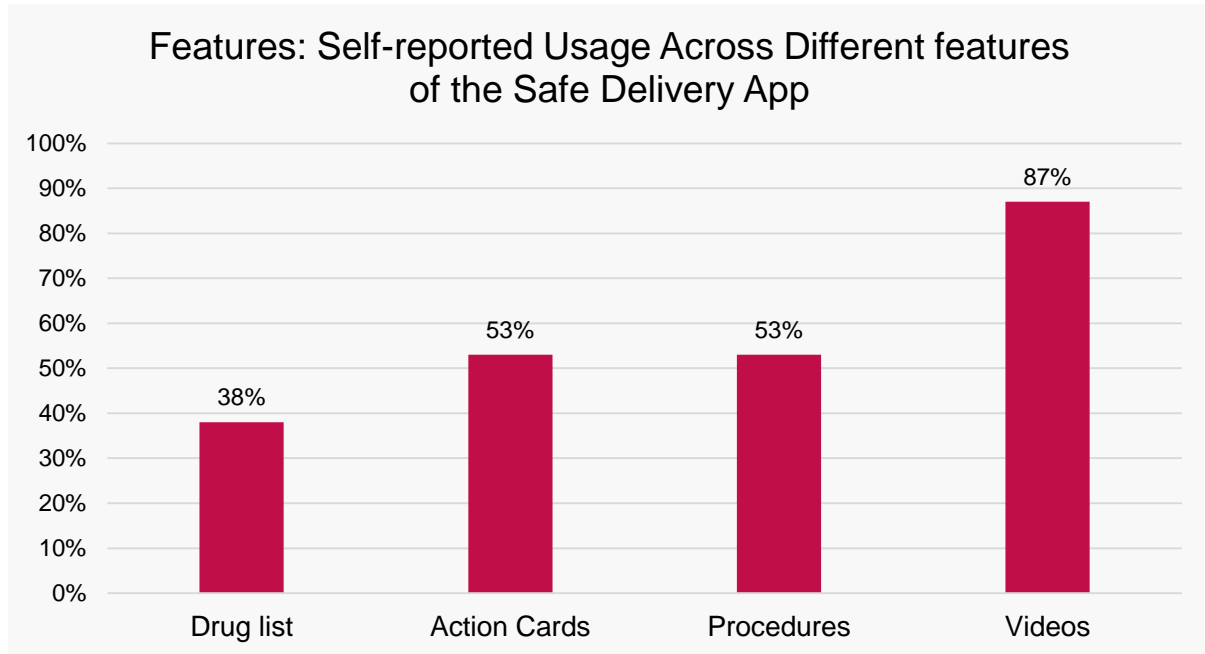
FINDINGS: Findings are discussed under each graph presented below.



FREQUENCY: 91% of users surveyed reported to use the App weekly. 50% said they used it “a couple of times a week” which could indicate they use it in specific situations. The number of midwives who reported using the App every day is higher than those who reported using it 4-6 times per week. Only 9% said they did not use it all in the last week.

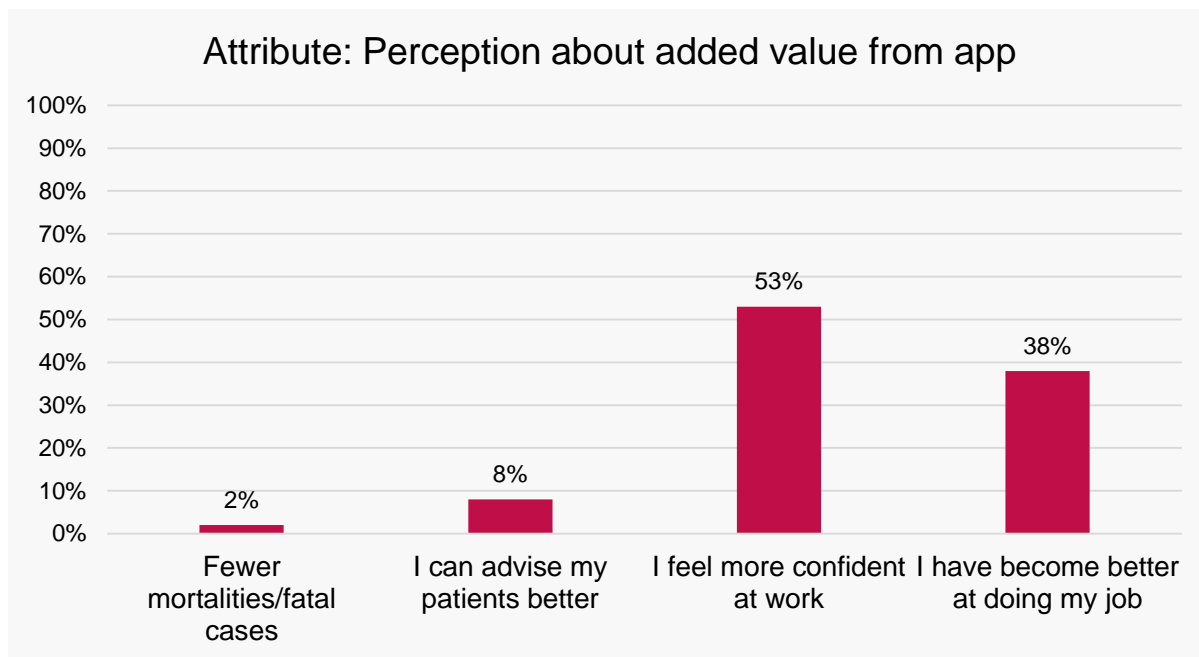


USAGE: The question on the main purpose of usage of the App was a single answer question even though midwives may use the app for several of the reasons listed as answers to the question. Responses to this question suggest that the app is mostly used by those surveyed primarily to revise their knowledge and for guidance in an emergency.

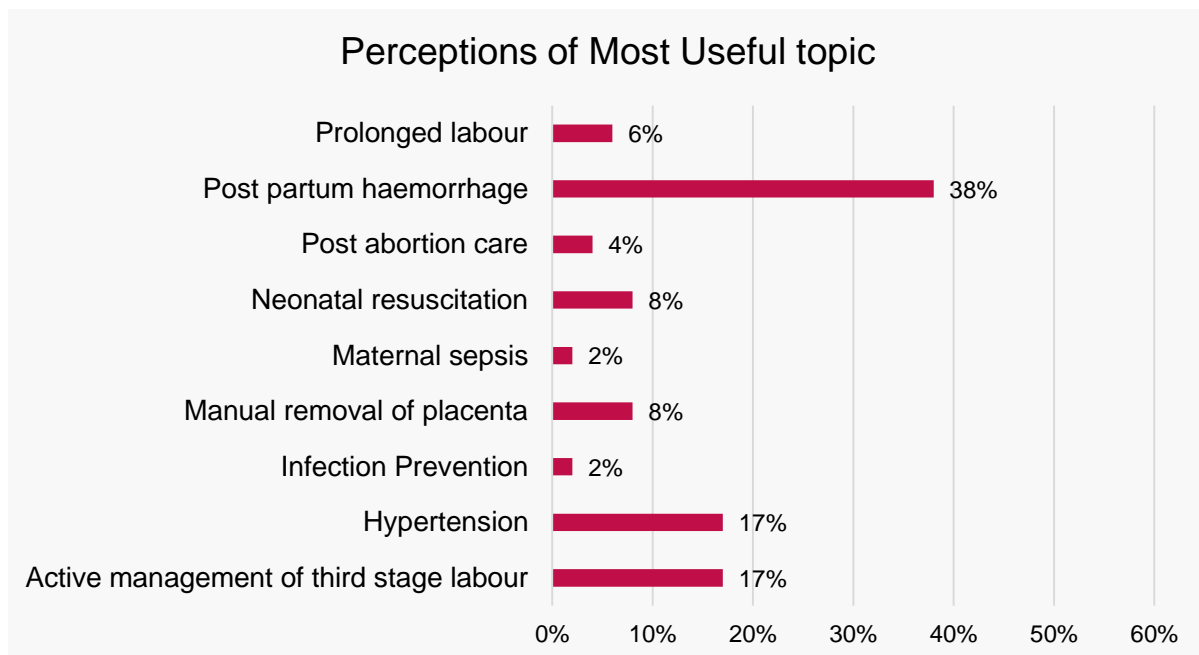


FEATURES: Answers to the question on self-reported usage of the different features of the Safe Delivery App show videos to be the most commonly used, action card and procedures list are highly used, and the use of the drug list is comparably lower. From the qualitative findings, we learned that midwives find many irrelevant drugs in the drug list (drugs that are not available to them) which may be explain why the drug-list was reported to be used less than the other features².

² Since the survey a new country adapted version for Ethiopia has come out, which may impact on the perceived relevance of the drug list, as the drug list has been adapted.



ATTRIBUTE: The midwives surveyed reported that the App helps them feel more confident at work and helps them become better at their jobs when asked “In your opinion, what is the most important quality for the App? (pick only one)” This is in line with findings from the assessments conducted on knowledge and skills discussed in the prior sections of this report.



USEFULNESS OF TOPICS: Among our sample group of midwives from West Wollega, Ethiopia, Post Partum Haemorrhage (PPH) was reported by most midwives as the most useful subject area covered in the Safe Delivery App followed by hypertension and Active Management of Third Stage Labour (AMTSL). PPH and hypertension are both preventable and recurrent complications and thus largely relevant to most midwives whereas for example prolonged

labor and vacuum delivery require special skills and equipment. AMTSL is likewise largely useful to most midwives being a normal procedure performed routinely at each delivery.

ANALYSIS: The sample from the MagPi survey is relatively small and the findings can therefore not be generalized. The purpose of this user acceptability survey was to identify trends to be further explored during qualitative interviews and focus groups at a later stage.

2.6 USER EXPERIENCES

METHODS: Qualitative research consisting of focus group discussions (FGD), and key informant interviews (KII) were completed in March and April 2017 during the midterm data collection. These interviews supported and complimented the quantitative findings presented above and are key to our understanding of how the App is perceived and how it is used both at home and at work. The qualitative findings are not elaborated in detail in this report, where only main findings are summarized to give an overview of key findings in triangulation with the quantitative results.

The qualitative study consisted of 10 KIIs and 4 FGDs. Interview guides were developed, to understand user perceptions towards and user acceptability of the app. Informants consisted of midwives from the new and old districts in West Wollega, Ethiopia (including a few who took part in the RCT) health center directors, SDA-integrated BEmONC training participants and trainers. This was in order to get a diverse set of views on the perceived usefulness of the App.

FINDINGS: Below is a synthesis of the main take-aways from the qualitative data.

➔ Increased Confidence

In the narratives from the focus groups, we can derive that the app drives an increased feeling of assurance. These feelings of assurance from using the Safe Delivery App were attributed to two factors- the first being that the app is a tool that contains correct and easy understandable guidelines, and the second being that the App provides a basic feeling of security as an aid that helps midwives to react in crucial situations.

➔ Strengthening of knowledge at facilities

The quantitative results show a strong self-reported knowledge increase. The main attributes the midwives mentioned about the app in the focus groups were how the App aids in their revision, upgrading and scale up of knowledge over time. Health workers' knowledge and awareness (factors closely related to improvement of the quality of care) were reported as important parameters to improve attendance rates and drive more women to seek care at the health facilities.

➔ Better management of emergencies

Confidence and skills in the management of complicated deliveries was a prevalent theme in the midwives' narratives. Managing specific complications – especially PPH, hypertensive disorders and vacuum delivery – were often mentioned as cases where the midwives reported

experiencing a significant change (in their ability to correctly manage complications) before and after having access to the app.

➔ Empowerment of midwives and improved relations with community

The midwives reported that they experience in their professional lives a close and important link with the community, and they feel highly responsible for the practices at the facility. As the midwives' performance at the facility and the woman's experience of the service she receives is crucial to the midwives' self-perception and sometimes even reputation. The midwives reported that the App encourages them to learn and improve their knowledge further in order to improve their relationship with the community. In this way the App was reported to be not only a tool to aid the midwife, but a tool to serve the community at large.

ANALYSIS: Overall the App was reported to be a very beneficial addition to midwives' work and many expressed how much more confident they felt in their work. The increased confidence was experienced by the midwives both in handling normal deliveries but also when abnormal situations occur. When asked about if there were any changes before and after receiving the App, an increase in the confidence to perform difficult procedures in emergencies was most commonly cited. Often, they said before using the App, they feared to act and instead referred women to hospitals but now they feel empowered to try and help. Many reported specific cases where they said previously they would have panicked but due to the App they were able to act and had very positive outcomes and reactions from the community. This indicates the important link with the community and the strong responsibility the midwives feel toward the population; an empowering but also demanding position that can become critical if something turns out wrong. As such, the report that the App is a tool to help them become perform better and with an increased confidence. One midwife explained that "it creates trust in the communities when a midwife has handled well a delivery". When emergencies have been managed well it further creates trust for women to go to the clinics. The midwives surveyed offered examples of times they had used the App to deal successfully with postpartum hemorrhage or manual vacuum delivery during prolonged labour.

They reported high levels of usage, generally several times a week and emphasized how this helped them gain and retain their knowledge. Many said they mostly used the App by themselves, but several midwives also mentioned that they use the App together at the facility. One day, when the interviewer came to the facility, the midwives were together watching the vacuum delivery video to discuss it as one of the midwives had successfully performed vacuum delivery 2 days ago. Even those that had the App since the RCT (so for 3- 4 years) reported using it weekly to remind themselves of procedures or look up drug doses etc.

Many midwives said they used the App to revise things they had learnt at college and emphasized the App's superiority over trying to remember things

"Everything I learned was theoretical. But now, with the Safe Delivery App, I am able to see what I am supposed to do in visual form"

Midwife user, Sayo Nole
District, West Wollega

from a book. The shift from theory to practice seems to be driver for the feeling of increased confidence: one midwife from the town of Sayo Nole explained that everything she had learnt was just theoretical but now she is able to see what she is supposed to do in theory and in visual form and improve what she knows and check-up what she should have done in critical situations. The App thus can be a tool to revise and reconsider what should have been done in prior situations in order to manage it better in the future.

The midwives also often used it to revise content together or with health officers at their facility or to teach each other about a particular procedure. As we found in these cases in the acceptability study, midwives reported finding the videos to be the most useful feature and were very positive about their audiovisual nature for understanding the content and remembering it. Some also said they use the App for infection prevention and some non-emergency procedures, but this was more rarely reported compared to using it to gain knowledge about what to do in emergencies.

In terms of use in emergency situations, midwives reported not wanting to use the App whilst with a client. A midwife from Sayo Nole explains this by saying that she worries “that the woman might think that she [the midwife] does not have the confidence or the qualifications to help her [the woman] if seen to be using an aid or she may think the midwife is watching videos so relaxing and not concentrating properly.” Honor and pride in terms of the midwife’s work is at stake when she finds herself in this situation. If the midwife is working with a woman or client the App is then an aid, both has to be used in the “right” way and context. Thus, the App was more often used when the midwife had a chance to leave the room to fetch equipment or whilst another colleague was looking after the woman. Despite the reported fear of a delivering woman’s negative reaction to the App use during care, in general, it was reported that the midwives had a good relationship with clients and women *did* want to come to the health center to give birth.

Another midwife says she watched videos in her leisure time at home or while waiting for delivering women at the facility. In this case, action cards were often used as a quick reference or as a good way to check if the procedure had been performed correctly afterwards.

3.0 Conclusion

During the Safe Delivery App scale-up in West Wollega, the impact of the Safe Delivery App is being documented and used to build the case for national scale as well as to develop and fine-tune the implementation models of the App in other contexts.

We documented a self-reported **usage frequency where 90%** of our sample used the App weekly. This level of usage frequency may be a factor in the improvements in confidence, knowledge and skills, although it should be remembered that there are a variety of other factors which may be at play.

We found a strong increase in the **Confidence Levels** where the midwives’ confidence in emergency situations increased in average 1.5 on a scale from 1-5 (1=panic and 5=confident).

In other words, most of the midwives advanced at least one step from baseline to midterm assessment, for example from anxiety to manageable, or from manageable to confident.

The average increase in **knowledge** was 10%-points from baseline to midterm. And when looking at **skills**, we saw an even bigger improvement from baseline to midterm including averages of 22% and 27% in management of maternal sepsis and hypertension. This resonates with the findings from the Randomized Controlled Trial in 2013-14.

In our **user acceptability** test, we assessed how well the content and guidelines in the App were deemed useful by users. While many of the midwives found the practical procedures and action cards helpful, the videos were still more popular and used due to the animated audio format.

We found that the App was **experienced by users** as an important and resourceful aid as it did not only strengthen knowledge and skills within the facility, but also because the impact of the App reaches *beyond* the health facility- in West Wollega, the interviews carried out found that the App is understood and experienced as something that indirectly serves the community as a whole. These qualitative findings also resonate with the qualitative findings on user experiences from the trial in 2013 – 2014.

Thus, through a wide range of quantitative and qualitative methods we have assessed the role and significance of the App in the local setting among the midwives enrolled in the program. The results are based on routine monitoring and data collection in an uncontrolled setting, where other project activities are implemented simultaneously. This entails the Safe Delivery App being integrated with other activities to improve quality of care. For example, 36% of the users received BEmONC training in 2016-17, which together with the App will most likely have a positive influence to increase midwives' skills and knowledge. Nevertheless, it is noteworthy that the results follow the results and patterns that we observed in the randomized controlled trial. We will continue to monitor and follow the midwives' progress throughout Maternity Foundation's project in West Wollega.