Skilled Birth Attendant Follow-up Enhancement Program 2011-13

National Health Training Centre
Government of Nepal

NSI
Nick Simons Institute

ENHANCING RURAL HEALTH CARE

SKILLED BIRTH ATTENDANT

(SBA)

FOLLOW-UP ENHANCMENT PROGRAM

(FEP)

(2011-13)

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EXECUTIVE SUMMARY

Background

Towards the goal of meeting the Millennium Development Goals 4 and 5, the Government of Nepal's Ministry of Health and Population (MoHP) has trained over 4000 Skilled Birth Attendants (SBAs), with a target of 7,000 more in the next two years. With follow-up rarely done, there are large information gaps about these SBA graduates: their case loads, knowledge and skill retention, working environment and attitudes. Under the National Health Training Center (NHTC), this Follow-up Enhancement Program (FEP) worked towards the objectives of acquiring this vital information and providing coaching to SBAs and feedback at various levels.

Methods

Over five phases from 2011-13, this FEP followed up SBAs in 12 districts. The trainer-coaches assessed knowledge and 7 skills (using models and case studies) and provided need-based coaching; they assessed case load, working environment, personal attitudes. The information has been fed back to trainers, training sites, the NHTC, the Family Health Division (FHD), and the SBA Forum.

Findings

- **This FEP followed-up 339 SBAs (81% auxiliary nurse midwives (ANMs) and 19% staff nurses) in 180 health facilities, over a wide range of institution type and location.**
- **Only 11% of SBAs studied conducted over 15 deliveries per month (the WHO minimum requirement to retain competency). 62 (18%) were working either in hospital non-birthing units or in rural non-birthing centers.**
- **SBAs were strongest in overall knowledge and management of post-partum hemorrhage (PPH) and weakest in management of shock and conducting vacuum deliveries. Certain ANMs were extremely weak in general. Infection prevention was surprisingly weak.**
- **On univariate analysis staff nurses (vs ANMs), hospital posting (vs. other smaller institutions), CEOC institution, age under 34, and graduation in the last 18 months were all found to be significantly associated with better knowledge or skills. On multivariate analysis, only staff nurse and hospital posting were independently associated with improved performance.**
- **Each of the 7 skills was broken down into its components to identify areas in need of greater training emphasis.**
- **Analysis of graduate performance showed that different SBA training sites were teaching concepts differently.**
- **Equipment was usually missing: Only 8% of institutions visited had one complete delivery set: 100% of CEOC hospitals and 21% of birthing centers had vacuum set.**
- **Though 85% of SBAs made an action plan during training, only 26% have implemented them.**

- **66% of those interviewed identified 'lack of supportive supervision' as a barrier to applying their SBA competency.**
- **SBA FEP is an essential tool to assuring that training competencies are fully utilized.**

Recommendations

→ **FHD** should monitor appropriate posting of SBAs to birthing units.

→ **NHTC** should screen SBA candidates so that under-qualified ANMs are not admitted to the course.

→ **NHTC/Training Sites/SBA Forum** should revise SBA learning resource package and training emphasis to address weak areas, such as vacuum delivery, shock management, use of partographs for decision-making, and birthing of the head during normal delivery.

→ **Training Sites/DHO** should emphasize the use of complication and referral record keeping.

→ **NHTC** should institute regular refresher to assure uniformity in teaching across sites.

→ **Training sites/DHO** should assure that Actions plans are SMART and that they are followed-up in the field.

→ **FHD and DHO** should use Facility checklists to monitor equipment and reallocate its budget to fill the gaps.

→ **FHD/MoHP** should identify the clinical supervisor of the SBA – with further training and support, this person could be the Public Health Nurse (PHN) with support from nearby SBA trainers.

→ **FHD** should facilitate the writing and dissemination of improved SBA job descriptions.

→ **MoHP** should integrate the FEP into the regular government system.

→ **NHTC** should embed the FEP tool in all LRPs.

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1. BACKGROUND

1.1 Introduction

Millions of women in developing countries experience life threatening and other serious health problems related to pregnancy of childbirth. Complications of pregnancy and childbirth cause more deaths and disability than any other reproductive health problems (EC/UNFPA, 2000). The complications include both mother and baby's health. These situations are more common in developing countries like Nepal due to lack of skilled service providers and inadequate access of health and also poor utilization of health services in the rural areas particularly in the hilly and mountain region.

Nepal Government's Ministry of Health and Population has set a target for 80% of deliveries to be attended by an SBA by 2017.

However, there were reductions in maternal mortality, with the 2006 DHS reporting a drop from 539 to 281 per 100,000 live births.(DHS,2006) These data are encouraging and still need reinforcement for continuation to maintain a national focus to meet Millennium Development Goals four and five. This improvement may be partly a result of good effort of skill birth attendants (SBA) in providing delivery services even in very remote areas of Nepal. Therefore, the presence of a skilled birth attendant is a vital component in improving maternal and newborn survival, particularly in Nepal where only 44% of women are delivered by a skilled birth attendant and 44% of all maternal deaths occur in a health facility (FHD 2012). In order to speed progress towards the Millennium Development Goal, Nepal Government's Ministry of Health and Population has set a target for 80% of deliveries to be attended by an SBA by 2017(MoHP, 2006).

To support MDG goals, the program division (Family Health Division, FHD) had led the goal to provide 40% of all birth assisted by skilled birth attendants by 2005, 50% by 2010 and 60% by 2015. To achieve this goal, National Health Training(NHTC) Center has trained over 4000 SBAs. Table 1 shows the breakdown of SBA production based on training sites as of July 2013.

Table 1. Total Number of SBAs Produced

Training Site	No.	Training Site	No.
Maternity Hospital	603	Sagarmatha Zonal Hospital	155
Koshi Zonal Hospital	411	Mid-west Regional Hospital, Surkhet	162
Bharatpur Hospital	381	Dhulikhel Hospital	129
Bheri Zonal Hospital	248	Narayani Sub-regional Hospital	103
AMDA, Damak	241	HDCS Hospital, Lamjung	96
Western Regional Hospital, Pokhara	215	Janakpur Hospital	83
Dhaulagiri Zonal Hospital	213	Rapti Sub-Regional Hospital, Dang	88
Seti Zonal Hospital	328	TUTH	73
Lumbini Zonal Hospital	204	Bhim Hospital	76
TMH	185	AMDA, Butwal	27
Sagarmatha Zonal Hospital	155	Dadeldhura Hospital	10
Total = 4031			

Source: NHTC, Ashad, 2070(5)

Until now, 4031 SBAs were trained by NHTC excluding 10 Master Trainers. 2585(64%) were ANMS and 1038 were staff nurses (SN, registered nurse). Among SN, 88 were working in different Nursing campus as lecturer. However, 2 PHN had taken SBA training from the post of MNH service provider from hospital and 14 MDGPs received SBA training. The detail is shown in the Table 2 below:

Table 2. Cadre of SBAs Produced

Cadre	No.
Auxiliary Nurse Midwives	2585
Staff Nurses	950
Lectural	88
Public Health Nurse	2
OB/GYN	60
Medical Officers	44
MDGP	14
Not Mentioned	288
Total	**4031**

Source: NHTC, Ashad, 2070

1.2 Previous Post Training SBA Follow-ups

Support for Safer Motherhood Programme, 2009

In 2009, a study was done by SSMP on "Post Training Follow-up for Skilled Birth Attendants. In this study 119 SBAs who had been trained from nine training sites were followed up by trainers from five training sites. Among the SBAs, 58 ANMs, 52 staff nurses, and 9 were doctors from 38 service sites.

The skill were assessed on both models and patients. The follow-up found that most of the SBAs were confidently using their new skills – such as MVA, vacuum delivery, NBR, PPH

management. It was also mentioned that it is difficult for those ANMs posted in remote health posts to retain all their skills, as caseloads may be low and they may be the only person with SBA training (and therefore have no professional support). That follow-up recommended adopting the strategy for addressing these issues by providing rotational posting at district hospitals. They also recommended that follow-up be scaled-up and institutionalized in the government.

UNICEF, 2009
This follow-up was done by telephone interview. The follow-up was mainly focus on enabling environment, and professional support. From telephone interview find out that normal delivery is most using skill. But the reasons for not performing other skill were due to lack of equipments is also mentioned. However, there is stated that some reduction in refer to other facility.

Health Right International, 2011
Health Right International implemented the MNC QI Process in eight facilities (1 District Hospital, 1 PHC, 4 Health Posts and 2 Sub Health Post of Argakhanchi district to improve quality of maternal and newborn care through existing health system from July 2011-Sep 2012. It took 14 months to complete the process. The tools are used for self and peer assessment, job aids and program evaluation. The results showed that district-aggregated scores exceeded the 80% target across all tools by endline. The main outcomes were initiated partograph use, committed on following the IP practice. The health workers, HFOMC and village leaders were involved in identifying gaps and facility management.

1.3 Rational for a Follow-up of SBA Trainees

In the beginning, SBA training was given to those nurses who were working in rural areas and deployed in the rural health facilities. Till date, over 4000 SBAs has been trained from NHTC for governmental, non-governmental and private organization. But nobody knows that what the trainees had been doing in their workplace after returning from their training. Furthermore, there might be difference the reality between classroom and worksite. The study of BMEAT FEP stated that, 'it is well known that observations of training participants in the artificial environment of a training site do not always match the reality of their service delivery site' (BMEAT, 2009). In this regard, there is very little authentic data measuring the effectiveness beyond the training period. Until now, there has been now systematic attempt to assess the competence of SBAs in the country. Thus, there is little available information about the knowledge and skills of these providers. What is available is unpublished.

The National Health Training Center (NHTC) has a set a target that a minimum of 30% of all trainees should receive follow up visits from adjoined training sites.

On the other hand, in the context of our country, the SBAs in the periphery level is given a number of additional responsibilities that often have no relevance to the birthing process but are overburdened. As a result, she may no longer concentrate on conducting deliveries which diminishes her skill. For a number of reasons, there may be a gap between training and practice: Knowledge is forgotten, skills lost through lack of reinforcement, the practice environment may obstruct good care, supervision is lacking, and there may be an absence of refresher training.

In addition, anecdotal observation indicates that SBAs working in rural areas have inadequate central support and supervision. There is a shortage of reliable data concerning possible barriers for SBAs to maintain a good quality of performance in their clinical practice

after completion of training. For all of the above reasons, the National Health Training Center (NHTC) has set a target that a minimum of 20% of all trainees should receive follow up visits from adjoined training sites.

Despite the importance of follow up, few had been conducted previously. As the 2009 SSMP study showed, the effectiveness of training is heavily dependent on the support that trainees receive after returning to their place of work. This study also recommended that follow-up be scaled up (SSMP, 2009).

A follow-up process provides an excellent opportunity to do more than just collect data on health care workers. Follow-up should ideally create feedback loops, to:

→ SBAs (Coaching and personal support)
→ Supervisors (Feedback and advice about making the SBA more effective)
→ Trainers (Conducting the SBA courses, as well as doing follow up)
→ NHTC and SBA Forum (For course changes)
→ MoHP (For other policy changes as well as logistic support)

Therefore, under the NHTC's direction, the Nick Simons Institute (NSI) conducted a process called "Follow-up Enhancement Program" (FEP). This document describes the methods and findings of that process for Skilled Birth Attendants, which was undertaken since 2010 with plans to continue into the future.

2. OBJECTIVES

- Determine the situation of SBAs in their work place:
  - Knowledge and skill of SBAs after training
  - Enabling environment
  - Practical experience
  - Attitude of SBAs

- Provide:
  - Individual on-site coaching
  - Feedback to DHO/DPHO, training sites, NHTC, FHD, LMD, MoHP and stakeholders.

3. METHODS

3.1 Development of SBA FEP Tool

2010	–	Based on previous post training SBA follow-up, skatch SBA FEP tool.
8-9 Dec 2010	–	Working group meeting was organized on involving NHTC/FHD/SSMP and other stakeholders including SBA trainers for draft tool developed
4-Jan-11	–	The tool was pre-tested in Lele PHC.
6-Jan-11	–	SBA Follow-up was done in five districts(Dhading, Dolakha, Illam, Jhapa and Kailali) as a pilot study after necessary amendment in the tool
Apr-11	–	Dissemination of this follow-up was done involving GoN, SBA forum, SBA trainers & stakeholders.
25-Oct-11	–	Following the dissemination of findings of FEP, the tool was revised by SBA Forum under the chair of NHTC.

SBA Forum re-organized the FEP tool in which three complicated procedures: Newborn resuscitation, Eclampsia and shock management were added and omitted the breech delivery and MVA procedures.
The final tool was translated in Nepali.
November 2012 - March 2013 After finalization of this tool, the total seven skill assessment was implemented in Rupandehi, Baglung, Sindhupalchok, Gorkha, Gulmi, Kapilvastu and Sankhuwasava districts.

3.2 Sampling Methods

Study Area: We purposively sampled SBAs from the districts representing from three ecological zones. Thereafter, we chose districts with a higher density of SBAs that had been trained in different training sites.

Sample: Any SBAs who were employed at a health facility and actively practiced as SBAs

Exclusion Criteria: SBAs who received less than three months of training are excluded.

Operational definition: Definition of SBA: An SBA as someone trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth and the immediate postnatal period, and in the identification, management and referral of complications in women and newborns.

Sampling Procedure: Sampling frame is SBA trained from any training site which is more than 4000. District was choosing according to ecological zone, four districts from each ecological zone. Total sample size was 339.

Independent Variables: Age, Position, Post training experience, type of health facility.

Dependent variables: Knowledge and 7 skills of SBAs.

3.3 Assessment Methods

We used a mixed methods cross sectional study design to assess the knowledge and skills of SBAs. As stated above, the SBA FEP should be understood solely as a clinical study as well as a method to strengthen the SBAs. After skill and knowledge assessment, assessors discussed the results with SBAs and provided coaching where necessary. The follow up was conducted from Sep 2010 to March 2013.

SBA FEP Tool

A. Knowledge Assessment (MCQ)
B. Skills Assessment (7)
   - Normal Delivery (mannequin)
   - Vacuum Delivery (mannequin)
   - Newborn Resuscitation (mannequin)
   - Partograph (case-based discussion)
   - PPH management (case-based discussion)
   -Eclampsia management (simulation)
   - Shock management (simulation)
C. Enabling environment Assessment (checklist)
D. Practical Experience (registers and partographs)
E. Attitude and Motivation (interview)

A. Knowledge Assessment

General Knowledge about procedures and dealing with complications was assessed by using 20 multiple choice questions, 5 of which were about the use of partograph, 4 about eclampsia, 3 vacuum delivery and 2 were AMTSL, PPH, NBR and IP practice-related questions.

B. Skills test

Skills were assessed through various media: manquin-based skills, case-based discussion, problem identification and decision making skill. During FEP, three SBAs were absent during normal delivery and four during vaccum delivery skill assessment. Therefore, those were excluded from those analyses.

Mannequin based skill was assessed in the following 3 skills:

1. **Normal Delivery:**
   The first skill assessment was conducting normal delivery which was done in humanistic friendly mannequin. It includes from getting ready to post procedure task with step by step. There were 50 standard steps for this procedure.
2. **Vacuum Delivery:**
   This procedure was assessed in humanistic friendly mannequin. It includes 16 standard points with step by step. This procedure was assessed as if woman cannot deliver spontaneously. Then assess the procedure of vacuum delivery.
3. **Newborn Resuscitation:**
   The newborn resuscitation procedure includes 19 standard points with step by step. This is also assessed in humanistic friendly mannequin.

Case based discussion: Partograph & PPH management

The case based discussion is also included in the skill assessment which assessed the participants' level of decision making skill with further management. The case based discussion is in following topic.

4. **Partograph:**
   In the partograph, mainly focus on fetal monitoring, progress of labor monitoring and decision making. Based on the fetal and progress of labor indicate in partograph, how the SBAs are identified the problem and what they made a decision for timely management.

5. **PPH management:**
   This is mainly focus on to find out the cause of PPH. After find out the cause of PPH is due to cervical tear, the tool assess the skill of suturing technique of cervical tear repair.

Problem identification and management by simulation:

Problem identification and management: simulation

Two cases of simulation were also included in the FEP tool. The main focus of the simulation is to provide appropriate care for a life threatening emergency situation in a quick, efficient and effective manner. The simulations are as follow:

6. **Eclampsia Management**
   It assesses participant's problem identification and management of complicated procedure at the time of eclamptic fits during her duty time. These activities are carried out in the most realistic setting possible such as labor room where equipment and supplies are available for emergency intervention. The SBA trainee should be assuming her role as she would be in practice setting.
7. **Shock management:**
   It assesses participant's ability to find out the major life threatening complications and carried out timely, efficiently management of shock due to PPH during their duty hour.

C. Enabling Environment Assessment

The factors that affected whether the SBA has been able to use their skills were described through an equipment, drug and infrastructure audit, and semi structured interviews with the SBA and her supervisor. We also reviewed partographs and referral slips to assess the extent to which documentation was maintained.

D. Practical experience related to emergency obstetric care (EoC)

This tool is based on governmental health management information system (HMIS) developed tally sheet (9) 'Emergency Obstetric Procedure Monitoring form'. This tool gathers information about deliveries and complications in the last three months which were collected from the Maternity or MCH Register. Plotted partographs were also reviewed wherever partographs were present.

For collection of data about recent obstetric procedures by individual SBAs, the emergency obstetric procedure monitoring form was used. Procedures dating back three months were collected. There were possible errors in the emergency obstetric procedure performance monitoring, due to misreporting by SBAs. For example, it was noted that complicated deliveries which were referred to hospitals were not always documented in the register, especially in PHCs and S/HPs.

E. Attitude and Motivation: Interviews

To assess attitude & motivation of SBA trainees, semi-structured interviews were used, containing nine open ended questions. Interviews focused on the skills for conducting deliveries, managing complications, challenges they faced in implementations skills, and the action plan which was developed during training.

Supervisors were also interviewed with five questions regarding length of supervision, support to the SBA and challenges faced in supervising SBAs.

Interviews were reviewed, and recurrent themes identified. Qualitative data were categorized under different themes, and responses were counted and tabulated.

3.4. Selection of Coach and Process of FEP

SBA FEP were conducted by SBA trainers. Prerequisites for becoming an SBA trainer in Nepal are cadre status (doctor or nurse), completion of an SBA course as participant, successful completion of a Clinical Training Skills (CTS) course, and finally certification by NHTC. For the purpose of this FEP these trainers are called 'coaches'. The coaches were recruited from fourteen SBA training sites: Bharatpur, Koshi Zonal, Seti Zonal, AMDA Damak, AMDA Butwal, Dhaulagiri Zonal, Western Regional, Lumbini Zonal, Bhim, Tansen Mission, Sagarmatha Zonal, Maternity, Tribhuvan University Teaching Hospital, and the IOM Nursing Campus.

This SBA FEP tool was administered to individual SBAs by 'Coaches' (SBA trainers), under the supervision of NSI consultants. The SBA trainers conducting the FEP had between 1 and 4 years of experience as SBA trainers. The coaches were assisted by Public Health Nurses (PHN) and NSI staff. For each district, two teams implemented the FEP in parallel. The composition of each team was one PHN and one SBA trainer. Prior to the FEP, all SBA trainers and PHNs attended a two-day orientation on SBA FEP tools. The first day consisted of theoretical familiarization with the assessment tools and the second day practical sessions using the tools. The FEP assessment took approximately 5 hours for each SBA. Data was checked by an NSI consultant immediately after completing the data collection sheet. If the data was not complete, inquiry with coaches and coordination with the respective SBA was done.

PHN of the district assisted to select the health facility having SBAs for field visit. Participants were informed just one day before the event to reduce bias. All the test and feedback session was done separately where more than one SBA was present to reduce bias.

Data management and analysis were by using statistical package for the social science software (SPSS version18) to perform frequency distribution, mean, median. Association between independent variable and knowledge and skill were tested by univariate and bivariate analysis using.

4. FINDINGS

Findings are divided into 5 parts: demographic information, practical experience, knowledge and skill assessment, enabling environment and interview.

4.1 Demographic Information

The FEP assessed 339 SBAs. There were 276(81%) ANMs and 63(19%) staff nurses from180 facilities in 12 districts within 3 ecological zone and trained from 17 training site, mean age of 34. Table 3 shows the detail of ecological zone, district, institution and number of SBAs. 236 SBAs were from below the district hospital level where as 103 from hospitals.

Table 3. SBAs from different ecological zone, district and health facility:

Ecological Zone	Districts	Hospital	SBA	PHC	SBA	HP	SBA	SHP	SBA	T.#Inst	T.SBA
Mountain	**Dolakha**	1	2	2	3	7	9	0	0	**10**	**14**
	Sindhupalchok	1	4	3	5	10	14	11	12	**25**	**35**
	Gorkha	2	13	2	6	4	6	9	9	**17**	**34**
	Sankhuwasabha	1	5	1	2	7	9	3	4	**12**	**20**
Hill	**Dhading**	1	3	2	5	7	7	0	0	**10**	**15**
	Ilam	1	6	4	8	5	5	0	0	**10**	**19**
	Baglung	1	7	3	5	9	9	13	13	**26**	**34**
	Gulmi	2	5	2	4	5	6	2	2	**11**	**17**
Terai	**Kailali**	2	12	5	12	3	3	0	0	**10**	**27**
	Jhapa	3	14	6	15	5	5	0	0	**14**	**34**
	Rupandehi	3	20	4	9	5	18	6	14	**18**	**61**
	Kapilbastu	3	12	1	1	7	8	6	8	**17**	**29**
Total	**12**	**21**	**103**	**35**	**75**	**74**	**99**	**50**	**62**	**180**	**339**

Similarly, Table 4. shows the detail demographic information of SBAs. 66% of SBAs were between age 20-40 years of age and only two were less than 20years. They were evenly split between those more than 18 months and less than 18 months since their SBA training.

Table 4. Demography of SBAs:

Cadre	N	%	Post training Exp.	n	%	Age	n	%
Staff nurse	63	19	< 18months	175	52	<20	2	.6
						20-29	112	33
ANM	276	81	>18 months	164	48			
						30-39	113	33
						40-49	73	22
						50-59	39	12
Total	**339**	**100**		**339**	**100**		**339**	**100**

The SBAs involved in the FEP were trained from seventeen different training sites. Table 5 shows the number of FEP SBAs trained from different training site. Most SBAs were trained from Amda Damak and least from Bheri Zonal and Rapti sub regional hospital. The reason for high SBAs from AMDA Damak and Lumbini Zonal were that Jhapa and Rupandehi district were selected districts for FEP.

Table 5. FEP SBAs' Training Sites

Training site	Number
Amda Damak	47
Lumbini Zonal Hospital	43
Koshi Zonal Hospital	38
Dhaulagiri Zonal Hospital	36
Maternity Hospital	33
Bhartpur Hospital	33
Seti Zonal Hospital	25
Tansen Mission Hospital	23
Pokhara Western Regional Hospital	15
Lamjung Hospital	12
Bhim Hospital	11
Dhulikhel Hospital	10
Narayani Su Regional Hospital	4
Sagarmatha Zonal Hospital	4
Amda Butwal	3
Bheri Zonal Hospital	1
Rapti Sub Regional Hospital	1

4.2 Practical Experience

The FEP process recorded data on deliveries conducted and complicated deliveries as well as complication management within last three months by each SBA. The data was converted into a monthly average.

Though the WHO recommends a minimum of 15 deliveries per month to retain SBA skills, only 11% of SBAs studied achieved this level.

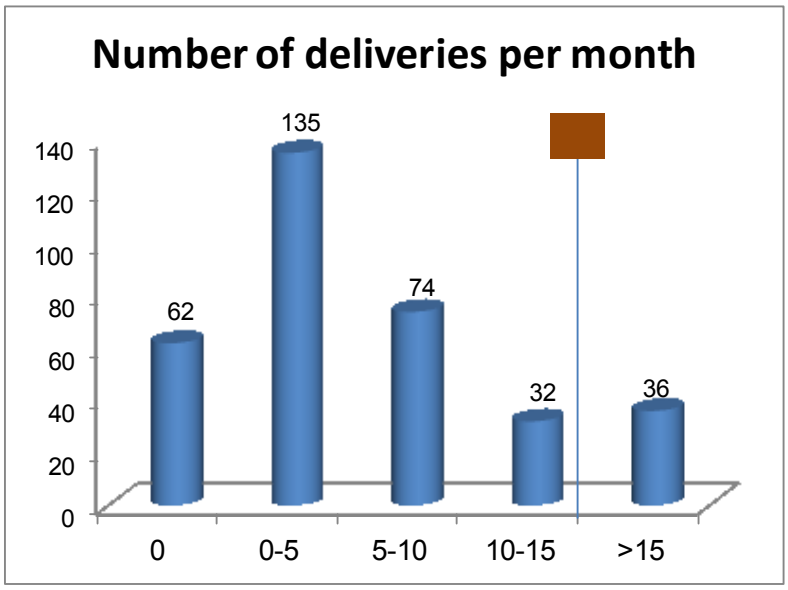


Figure shows only 36 (11%) of SBAs were performing over 15 deliveries in a month. Among 339, 135 conducted 0-5 deliveries per month, 229 SBAs did not performed any complicated deliveries (vacuum delivery, breech delivery) and 154 were not performing complication management at all. The reasons might be 18% of SBAs were non-SBA job

Table 6 shows 15 (15%) among 103 SBAs of hospital were engaged in non-SBA job whereas 47 (20%) of 236 SBAs in below the district level are working in Non-birthing center.

Table 6. SBA involved in non SBA Job

District	Non SBA Job(Hospital)	NBC (Below District Level)
Dhading	1	0
Dolakha	0	1
Jhapa	1	5
Ilam	0	2
Kailali	0	2
Baglung	3	12
Rupandehi	6	1
Sindhupalchok	0	9
Gulmi	1	1
Kapilbastu	1	9
Gorkha	1	5
Sankhuwasabha	1	0
Total	**15(15%)**	**47(20%)**

4.3 Knowledge & Skill Assessment

4.3.1. Knowledge Assessment

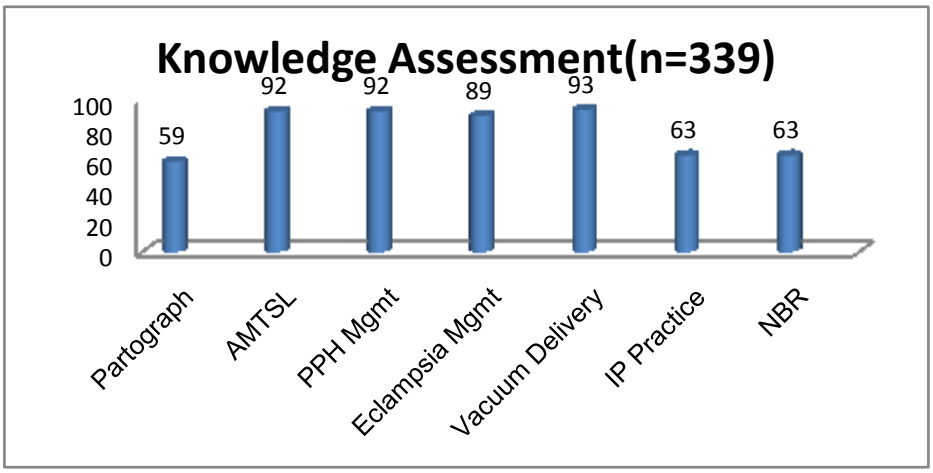
The mean overall knowledge score was 78%. Only minimal coaching was required. Table 7 shows the result of the knowledge assessment. Age below 34, staff nurse and working in hospital were significantly higher in knowledge.

Table 7. Knowledge Assessment Score

Age of SBAs	N	Mean	P value
<34	182	80	<.01
>34	157	75	
Cadre	**N**	**Mean**	**P value**
Staff nurse	63	82	<.05
ANM	276	77	
Type of facility	**N**	**Mean**	**P value**
Hospital		80	<.05
PHC/HP/SHP		77	
Working in	**N**	**Mean**	**P value**
BC	277	79	<.01
NBC	62	73	

In knowledge assessment of the partograph, 32% of SBAs did not know the information needed to plot a partograph. More than 50% of SBAs did not know the starting point of plotting the partograph. We found that most of the SBAs were unwilling to fill partograph and feel extra burden in work to fill partograph. It might be because most of the health facilities have only one SBA who has to perform lots of other jobs unrelated to pregnancy and delivery work. Another cause is that most of the patients come to hospital late in labor – leaving little time to fill partograph. In addition to that, most of the facilities lack partograph forms to put into practice: our findings showed that the majority (61%) of SBAs worked in health facility without necessary forms.

Figure 1. Knowledge Assessment

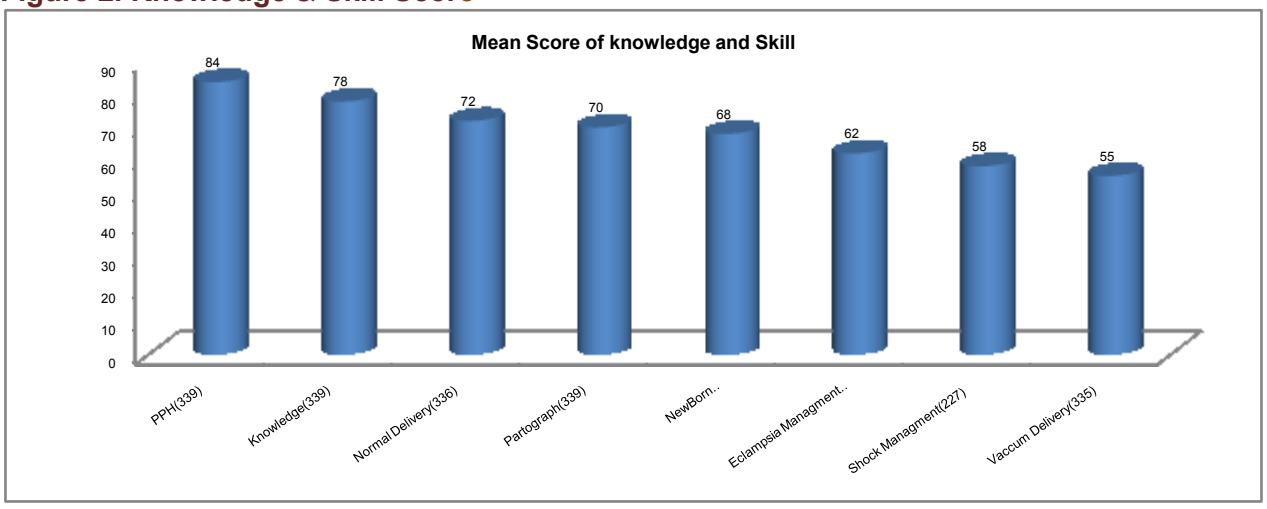


Though infection prevention practice is a basic low cost component of every training, we found that the majority of SBAs had less knowledge on IP practices and were not following this practice. Some of SBAs completely forgot the process of IP especially the High level disinfectant' (HLD). It is due to no boiler, momo cooker or autoclave in the facility and the terminology: HLD is also difficult to understand. However, knowlwdge in other areas were found good. Therefore no need to consume more time on coaching on knowledge .

4.3.2. Skill Assessment

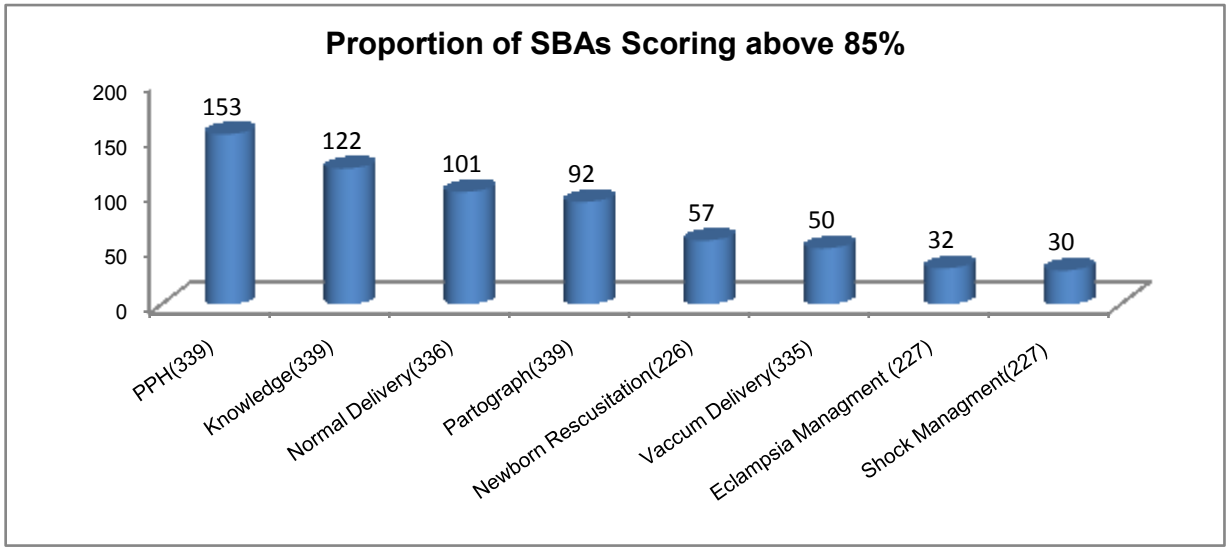
Figure 2 shows a summary of Mean score of knowledge and 7 skills. The assessment revealed that PPH management, knowledge test, conducting normal delivery and partograph were accomplished better than other skills – with the mean scores were 84, 78. 72 and 70%. Scores for shock manamgent and vacuum delivery were lowest.

Figure 2. Knowledge & Skill Score



Similarly, Figure 3. shows the number of SBAs scoring more than 85% in each skill and knowledge. The number of SBAs scoring more than 85% was relatively high in PPH

Figure 3. Proportion of SBAs scoring above 85%



management and a lower in shock management. In average, only 24% of SBAs achieved competency level in skill and 36% of SBAs in knowledge assessment.

Table 8 shows the total skill score age wise, cadre wise, facility wise and availability of delivery room in health facility. Staff nurse, less than 18 months of post training experience and working in hospital have significantly high in mean of total score than ANM, more than 18 months working experience and working in PHC, HP and SHP.

Table 8. Skill Assessment against variables

Variable			
Training	**N**	**Mean**	**P value**
<18 months	104		<.06
> 18 months	122		
Age	**N**	**Mean**	**P value**
<34	124	70	<.01
>34	102	63	
Cadre	**N**	**Mean**	**P value**
Staff nurse	30	75	<.01
ANM	196	65	
Facility	**N**	**Mean**	**P value**
Hospital	63	71	<.05
PHC/HP/SHP	163	65	
Working in	**N**	**Mean**	**P value**
BC	277	71	<.01
NBC	62	65	

Logistic regression analysis shown that none of the factors were independently associated with higher knowledge/skill, except for Staff Nurse.

4.3.3 Breakdown of Competencies

In this section, we breakdown each of the 7 skills into component parts, which identifies weak and strong areas in the training process.

4.3.3.1 Conducting Normal Delivery

Figure 4. Conducting Normal Delivery

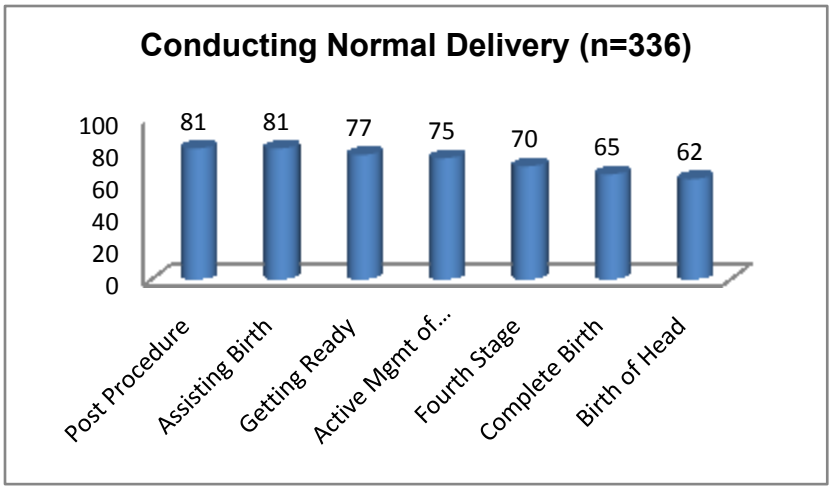


Figure 4. shows the areas of excellence and weakness in the conducting normal delivery procedure.

The assessment revealed that getting ready, assisting birth, active management of third stage and post procedure were accomplished better than completing birth and birth of head; with the mean scores were 81, 81, 77, 75 and 70 respectively. The reason behind low score for the delivery of head and completing birth may be that different training sites taught different techniques.

The procedure of AMTSL was satisfactory whereas fourth stage of management care score is low as this procedure was not included in SBA training previously.

4.3.3.2 Vacuum Delivery

Figure 5. Conducting Vacuum Delivery

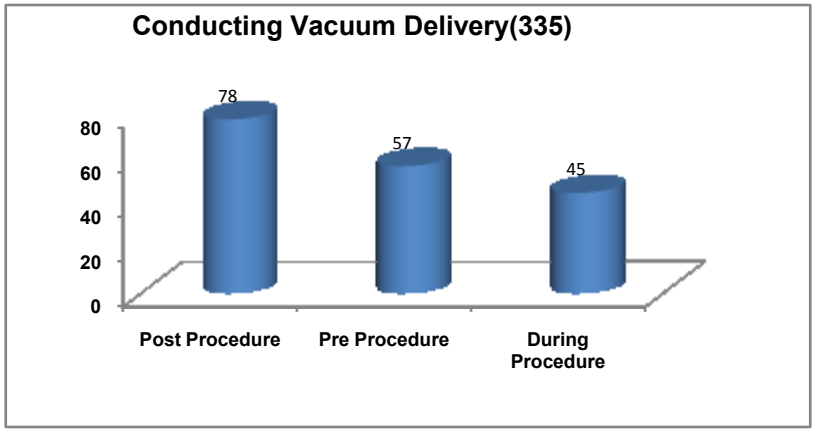
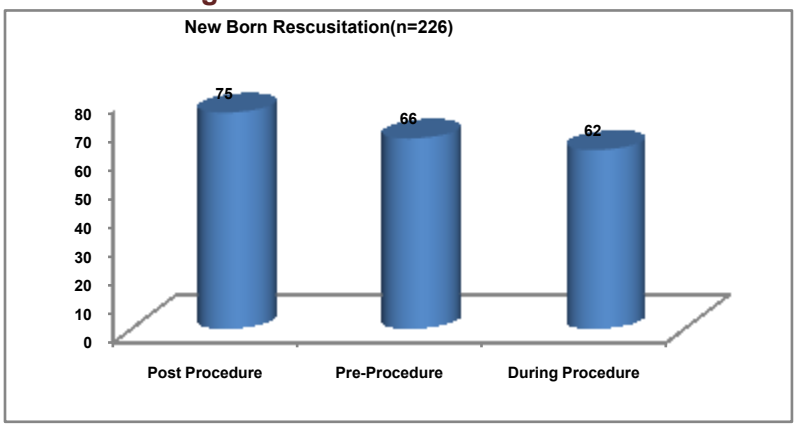


Figure 5 shows the score of conducting vacuum delivery procedure step by step. The assessment revealed that post procedure was accomplished better than pre procedure and during procedure; with the mean scores were 78.The main procedure of vacuum delivery 'during procedure' scores was unacceptably low. This is because of less exposure due to lack of support from facility in-charge and community.

There is no clear guideline for SBAs to perform vacuum delivery below BEOC center, therefore they are in doubt to conduct this procedure. However, they often refer the patients on time for complicated deliveries. In addition to this only 21 out of 98 Birthing Center and 17 out of 25 BEOC have availability of Vacuum set.

4.3.3.3 Newborn Resuscitation

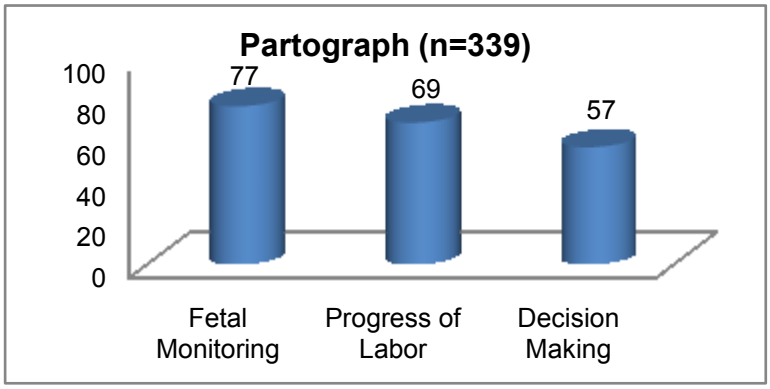
Figure 6. New Born Resuscitation



Newborn resuscitation is a major procedure to overcome birth asphyxia in remote health facility. To meet MDG goal 4 that to reduce neonatal death, newborn resuscitation is the major procedure which has to be performed by SBA. Figure 6 shows the performance of newborn resuscitation procedure step by step. The assessment revealed that post procedure was accomplished better than pre procedure and during procedure; with the mean scores were 75. Scores for 'during procedure' is 62% which is considered to be low. However, SBAs in CBNCB implemented districts, performed better. We also found that SBAs below the age of 34 have higher mean score on NBR than above 34 which is statistically significant(P <.01).

4.3.3.4 Partograph

Figure 7. Partograph

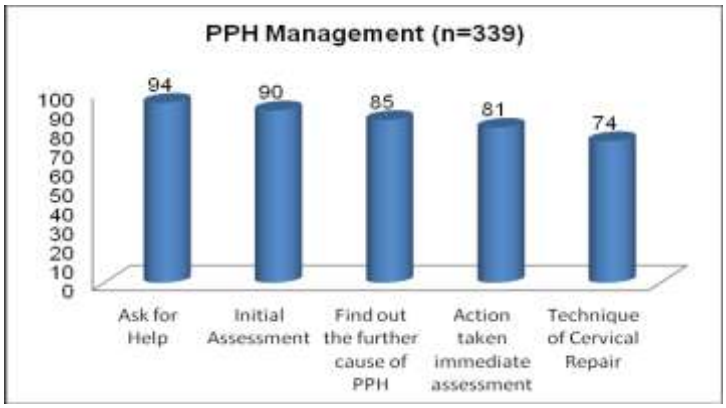


Partograph is a basic tool for management of labor and timely diagnosis of complications of labor. In partograph, the assessment was done in mainly three area: fetal monitoring, progress of labour and decision making which scored 77%, 69% and 57% respectively (Figure 5). We found that only 132 SBAs were using partograph in their workplace and majority of them used Partograph only for fetal monitoring. This might be the reason for low score in decision making.

4.3.3.5 PPH Management due to cervical tear

Figure 8. PPH Management

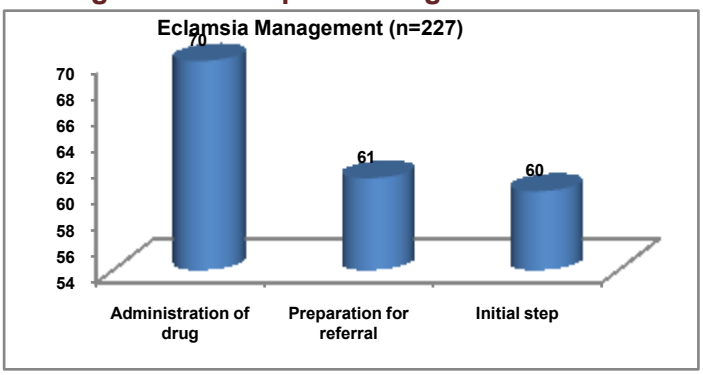
Figure 8. shows the areas of excellence and weakness of performing PPH management. The assessment revealed that all the steps of PPH management is satisfactory but slightly lower in technique of cervical repair. The reason might be due to less exposure to case during training.



4.3.3.6 Eclampsia Management

Figure 9. Eclampsia Management

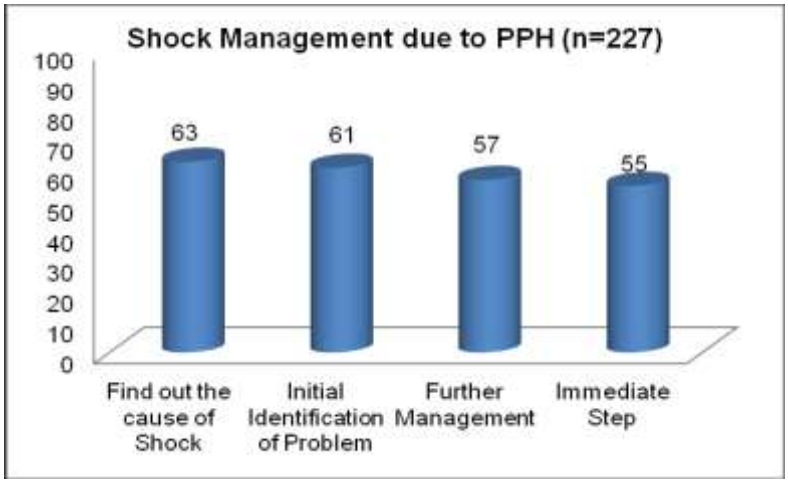
Figure 9. shows the score obtained in performing Eclampsia Management. The mean score obtained was 62. The assessment revealed that most of the SBAs know about the administration of drug. But they were found lacking in initial step like 'call for help', prevent from injury, etc. and preparation for referral as they did not have any protocols for referral.



4.3.3.7 Shock Management:

Figure 10. Shock Management

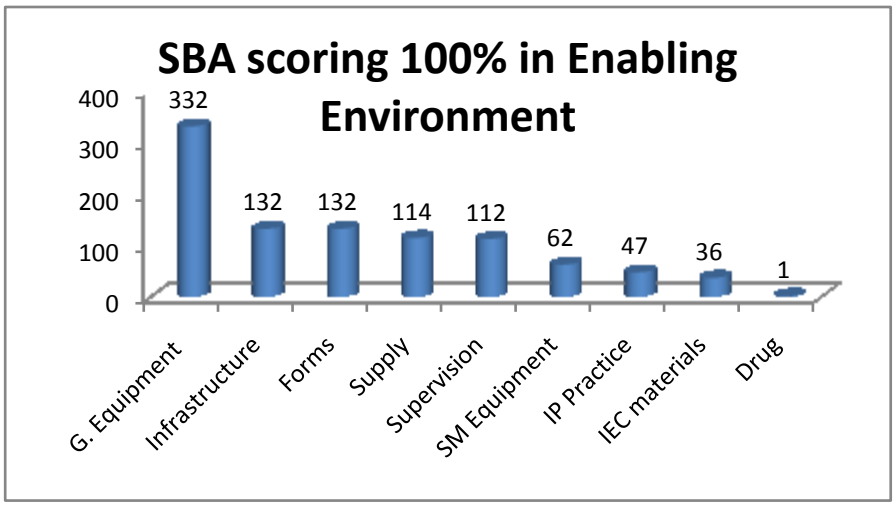
Figure 10 shows the scores obtained in performing Shock management due to PPH. The overall mean score was 58%. The assessment revealed that all the steps of shock management are not satisfactory.



During the procedure of shock management, we found that most of the SBAs were concentrating on management of PPH instead of 'immediate step' for shock management which needs be done immediately. And also, some of the SBAs were not confident to find out the cause of shock which is vital step of PPH Management. This also might be due to less exposure to Shock cases during training and in their workplace.

4.4 Enabling Environment

Figure 11. SBA scoring 100% in Enabling



Having skilled birth attendants functioning within an enabling environment is crucial to improve maternal health and reduce maternal mortality. An 'enabling environment' initially defined as including adequate supplies and equipment, transport and supportive supervision (Skilled birth attendance-lesson learnt, 2009) Figure 11. demonstrates how the environment that SBAs work in is often not adequate for them to practice their skills, or provide quality service. Among 339 SBAs, only 62 SBA (18%) had 100% safe motherhood service equipment and only 1 SBA had 100% drugs necessary for delivery service. Most of the facilities were missing essential drugs like calcium gluconate and injectable antibiotics.

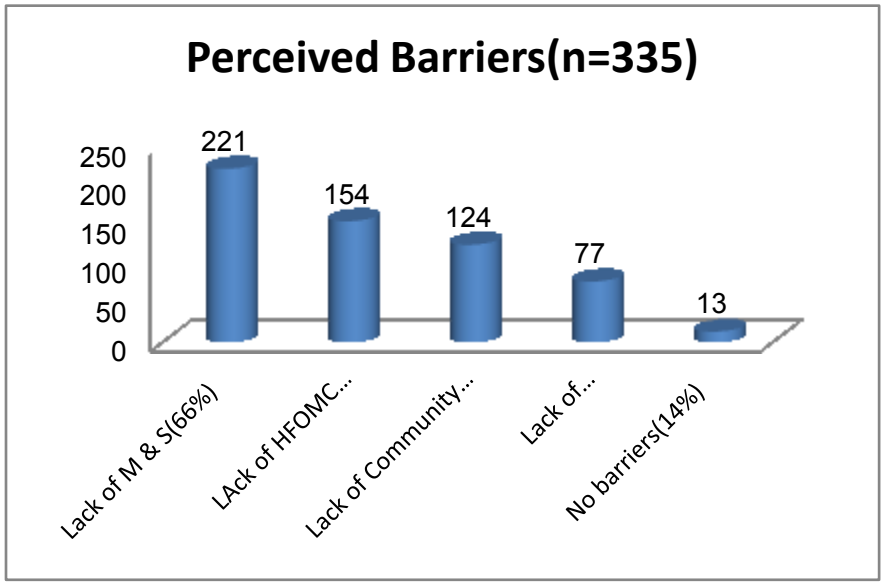
Table 9 shows the health facility wise fulfillment of general equipment, safe motherhood service equipment, infrastructure, forms, supply, material for infection prevention practice, IEC materials and drugs. Most of the hospitals had no problem in enabling environment, one of the hospital does not have vacuum set and NBR set, nine of the hospital had cervical repair set . Surprisingly, even oxytocin was not available in some hospitals. Below the district level, we found even larger gaps in enabling environment. PHCs and S/HPs were particularly lacking in the equipment for delivery. The instruments for complicated procedure such as vacuum delivery and MVA sets were also lacking both in PHCs and S/HPs as well. The details are given in the table below.

Table 9. Availability of SM Equipments in health facility (n=180)

List of Item (%)	Hospital(n=21)	PHCC(n=35)	HP(n=77)	SHP(n=48)
Delivery set	100	80	47	33
Vacuum set	95	43	18	8
Cervical repair set	43	17	3	2
MVA set	90	74	13	13
New Born Resuscitation set	86	54	27	35
ANC room	100	100	90	77
Delivery room	100	97	90	65
Electricity	100	94	90	65
Water supply	90	86	71	56
Toilet	95	89	94	83
Road access	100	91	77	69
Linen supply	86	37	40	40
Partograph form	86	43	22	27
Inj Oxytocin	81	91	79	60
Inj MGSO4	95	77	60	58
Inj Calcium Gluconate	67	14	16	10
Chlorine solution	95	63	53	54
Autoclave/boiling	90	89	61	42
Management committee	95	100	84	73
Regular meeting	76	80	52	50
MNH issues raised	38	49	35	21
Referral form	62	57	43	23
Maternity Register	100	80	44	19

4.5 Attitude and Motivation

Figure 12. Perceived Barriers



A total of 335 SBAs were interviewed to determine how the SBA training impacted on their attitudes, motivation and actual practice. SBAs reported during interviews that they have some challenges to practice what they learned from SBA training. Figure 12 shows their perceived barriers to practice. According to them, lack of monitoring and supervision, HFOMC support, community support and lack of equipment/supplies/drugs were the main barriers to implementing their knowledge and skill in their health facility. Among these, lack of monitoring and supervision was the most mentioned barrier.

Figure 13 and 14 show the action plan made during training and implementation status of the plan. Among 335 SBAs, 286(85%) have made action plan during training. Among them only 26% have implemented completely, 32% have partially and 22% failed to Implement.

Figure 13. Action Plan Made

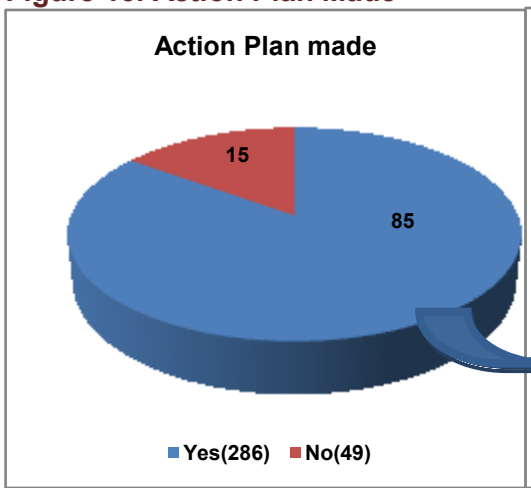
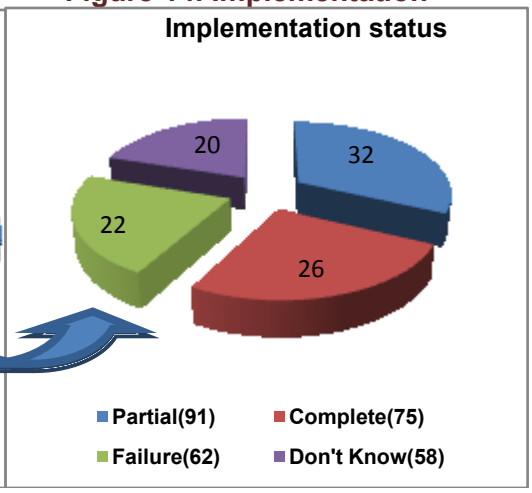


Figure 14. Implementation



CONCLUSIONS / DISCUSSION

In total 339 trainees were followed up from September 2010 to March 2013. The follow-up was developed in such a way that support in retention of clinical skills with further enhancement of knowledge and skill of SBA. Hence, it is not only collection of data but coaching/ mentoring based on assessment and performance of SBA, feedback to SBA, health facility, DHO to MoHP including training site.

The conclusions of FEP are discussed here according to the sections of Findings:

Assessing Knowledge & Skill

Some factors were associated with knowledge and skill of SBA. SBAs age below 34 , working in hospital/CEOC(P< .05) and Staff nurse scored higher in knowledge(P <.01) and skill than SBAs age > 34, working below in hospital/CEOC and ANM, which is statistically significant(P <.05). It might be due to staff nurse are mostly working in hospitals. Findings shows, out of 63 staff nurse, 47(75%) are working in hospital whereas out of 276 ANM, only 56(20 %) are working in hospital. More number of ANMs are working in below the district health facilities which mean they have less exposure to cases.

Findings also show that in last three months 3108 deliveries took place in hospitals whereas its half of deliveries were conducted in PHC and less than half in Health post and SHP in the same time. Similarly, 228 complicated delivery conducted in hospital whereas less than 60 in PHC and HP. But when we did statistical test on practical experience vs. skill, these were not associated. Age is significantly associated with skill of the SBA (P value <.01).There is a positive correlation between knowledge and skill (p .01).

In Normal Delivery, SBAs scored lower in the process of birth of head and completing birth. This is particularly due to inconsistency in the process of delivery taught in different training sites. It shows that trainers should also be given refresher training from time to time to achieve consistency across training sites.

As we mentioned above, the overall mean score for vacuum delivery is lowest. SBAs were weak in the components of vacuum application like pressure for applying vacuum, application of cup, and method of pulling. This is due to less exposure in complicated delivery in their workplace. They feel very insecure due to fear of community attack if bad outcomes occur.

SBAs were found poor in partograph: progress of labor monitoring and decision making. In this regards, SBA Forum need to give focus on innovative way for teaching the partograph. It is also true that unavailability of form in timely encourage SBA to develop hesitation to use the partograph for laboring women. Therefore, it need to further study about the availability and utilization of partograph along with capability of use.

Problem identification and decision making skill is also found very low in Shock management. It is due to lack of team spirit in the facility. As we know that shock management and other complicated procedure needed team involvement for timely as well as effectively managed. But in real situation, in-charge and other staffs do not want to involve in EOC service as they are unaware of EOC management and they think that SBAs should be solely responsible for EOC service. Therefore, SBA orientation should be given to in-charge and other staffs.

Enabling Environment:

Only 18% of SBAs were found that they are working in full equipped facility for providing delivery services. However, general equipments were available in almost all the facility whereas there was a great lacking in safer motherhood equipments, supplies, material for infection prevention practice, and some necessary forms. Hence, FEP found that there was a big gap from logistic part. To fill this gap, there need to include a system: each participant needs to fill the Facility Supervision Checklist (Ama Program Supervision Checklist) and submit to training coordinator before starting of SBA Training. Then Facility Supervision Checklist has to be given to DHO/DPHO or FHD/Logistic department. Those departments have to be taken responsible to provide required equipment to all trainees at least one day before completing the training. This system will fill the gap of equipment problem. However, regarding the infrastructure, there is no such problem in hospital, but some of the HPs and SHPs have only one room where the delivery service was performing.

As GoN health law recommends that HFOMC has to be formed in all facilities. FEP found that they were not aware about their responsibility regarding the facility improvement due to lack of terms of reference. MoHP should develop this and circulate. However, the facilities where the HFOMC is active, the management of facilities was found to be excellent such as Wana HP in Sankhuwasava, Maidi HP in Dhading, and Hatiya HP in Baglung. There were many other health facilities well managed by HFOMC.

Practical experience:

Looking at the practical experience of SBAs, it was found that they had very low experience in conducting normal delivery, as well as complicated delivery and complication management. According to register review, 61 out of 339 SBAs never attempted any delivery case, and any complication management during last 3 months. We also found that 47 SBAs were working in non birthing centre. However, SBAs working in hospital got more cases for exposure than the SBAs in peripheral level health facilities. According to WHO recommendations, a minimum of 15 delivery per month is required for retention of skills in SBAs. We found that only 11% of SBAs were conducting more than 15 deliveries. Therefore, there should be proper posting of SBA or facilitate to start delivery service where SBA is available. Otherwise skills will be lost and our training investment will be like pouring water into sand**.**

Barriers to use skills

Among 335 SBAs interviewed, 322 mentioned about at least one barrier and only few have mentioned no barrier which is from hospital. Majority of the SBAs complained about lack of supportive supervision and monitoring. They also mentioned that no support from HFOMC for further extension of service after their training. They also reported lack of equipment, supplies and drugs for utilization of their training. Study from UNICEF also found that lack of supportive supervision (supervision from trainers from training site) was a major barrier to practice skill in health facility. Lack of equipment, other trained staff and community support were also mentioned as barriers in that study. We found that there is a significant difference between SBAs working in good infrastructure and those working in poor infrastructure.

There was significant mean difference in normal delivery skill of SBAs with supply availability.

Action Plan implementation
As a part of SBA training, majority of SBAs developed action plan at the end of their training but only 26% were able to fully implement their action plan in their work places. However, we found most of the action plan were not outcome-oriented (SMART goal) action plans.

Therefore trainers should facilitate trainees to develop outcome oriented action plans which address the gaps of their facility. The trainer must explain to trainees that it should be share with facility team including HFOMC member and to be shown to SBA FEP team during the time of follow-up.

In addition, the training coordinator should submit their Action Plan to DHO, NHTC, Trainees and Training site. After receiving their Action Plan, the DHO must make the respective facility in-charge aware to implement the action plan by SBA.

Empower PHN for FEP
PHN are the focal persons for Safe Motherhood Program in districts. They are solely responsible for providing quality safe motherhood related service by each facility beyond the district. Unfortunately, none of the PHNs was given SBA training till date. During our FEP visits, PHN were actively involved in coordination, facility assessment and advocating for quality service but they did not want to be involved during the time of skill assessment. This is solely because they did not have SBA training. Since, PHN are designated as focal person of Safe Motherhood Program, SBA Training must be provided to them. This will motivate the PHN to continue FEP in future.

Active Involvement of Trainers in FEP
FEP provided a good opportunity to know about ground reality between training site and service site which is very important to know for providing effective training utilization by trainees. Hence, it is recommend to involve the trainers in FEP activities. This will support in the implementation of NHTC stated policy of follow-up of trainees.

Refresher Training to trainers
As the skills were taught differently from different training site, it is urgently needed to give refresher training to all trainers from all training sites based on the gap findings from FEP.

FEP tool embedded in Trainer's LRP
As there is a policy of follow-up of trainees, the FEP tool should be embedded in the Trainer's LRP. This will promote use of the FEP tool by trainers. Recently FEP Review Meeting also strongly recommended to embedded the tool in trainers' LRP. This still has to get consensus of the SBA Forum.

Logbook system to provide Certificate
Logbook system needs to be reinforced to provide final Certificate to SBA Training. There must be criteria that require certain number of cases to be conducted before getting the certificate by SBA in their workplace. This system forces SBAs to implement their knowledge and skill in practice. Ultimately, the facility with SBA will provide delivery service to the community and it will help SBAs to retain their skills as recommended from WHO.

Homogenous participants' selection
NHTC should select the participants in homogenous manner so that marginal group (ANM) will be equally benefitted by this system. This includes easy environment which leads to effective and understandable language for them..

Beyond the FEP finding Issue
Beyond this assessment, FEP found that none of the facilities had job descriptions of employees. JD is important for organizations. So this is urgently needed to be developed by management division and distributed to all employee of organization.

Integration of FEP into GoN health system
Follow-up Enhancement Program is the process by which SBA and SBA FEP team review the quality of care provided, reinforcing effective and appropriate practices and offering effective or constructive feedback. For SBA to function effectively there is a need to refocus on ensuring a system of adequate follow-up after their training. Therefore, FEP should be continued in order to inform policy makers on the progress and impact of implementation of training by trainees for every delivery in a variety of setting is needed. It should be integrated into GoN health system. In the process of the FEP review meeting, the program division (FHD) and NHTC had accepted that to integrated it into GoN system.

Ownership of FEP
FEP is the part of in-service training. NHTC's policy states that 20% of trainees need to be follow-up each year after training. So NHTC should take the ownership in coordination with FHD. FHD should make the trainers available for FEP visits as Coaches.

RECOMMENDATIONS

Based on the results of this follow up, following are the principal recommendations:

1. FEP should be continued and it has to be integrated into GoN health system.
2. NHTC should take FEP ownership in coordination with FHD.
3. Either properly post SBAs in birthing centers or facilitate to start delivery service where SBA is available.
4. Facility Supervision Checklist system should be implemented to fill the gap of equipment problem.
5. The Terms and reference of HFOMC need to be developed and issued by MoHP without further delay.
6. Since, PHN are designated as focal person of Safe Motherhood Program, SBA training must be provided to them.
7. Logbook system needs to be reinforced to provide final Certificate to SBAs.
8. Institute homogenous participants' selection to ensure marginal trainees will be benefited equally.
9. Actively involve trainers in FEP, which will help to improve the quality and effectiveness of the training.
10. SBA Forum needs to give focus on innovative ways for teaching the partograph.
11. Refresher Training must be given to trainers to bring uniformity in the clinical skill practice.
12. FEP tool must be embedded in the Trainer's LRP with consensus from SBA.
13. Training site should encourage trainees to develop outcome-oriented Action Plans.
14. Recommend for a further study about the availability and utilization of partograph along with capability of using it.
15. Urgently develop Job Descriptions by Management Division and distribute to all employees of organizations.
16. SBA orientation must be given to the In-charge and other staffs of health facility

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