SBA FEP

Skilled Birth Attendant Follow-up & Enhancement Program

April 2011

NSI
Nick Simons Institute

Executive Summary

Provision of a skilled birth attendant at deliveries is foundational to the goal of reducing maternal mortality and meeting the millennium development goals. For this reason, Nepal's Ministry of Health and Population is involved in a large-scale program of training 5000 skilled birth attendants by 2012; so far over 2000 have been produced.

Recognizing the gap between training site and service site, the National Health Training Center (NHTC) has a policy that 30% of its training participants are to be followed up in the field. So far, the Support for Safer Motherhood Project (SSMP) had conducted the the first post training SBA follow-up (2009); they recommended wide-scale institutionalization of the follow-up process.

Under NHTC's direction, in 2011, the Nick Simons Institute (NSI) developed a 'Follow-up Enhancement Process' (FEP) which goes beyond assessment to include coaching/mentoring, feedback to supervisors, introduction of an institutional quality improvement (QI) tool, and feedback to MoHP and training sites.

This FEP followed-up 116 SBAs, of whom **109 SBAs** were in clinical practice: 81 ANMs, 19 Staff Nurses, and 9 SBA trainers. 35% of SBAs visited were within one year of SBA training and 80% were within two years. They were located in **53 institutions** in **5 districts** of diverse geography. Just over half of the institutions visited were health posts or sub-health posts. **9 FEP coach/trainers** visited SBAs, each follow-up visit lasting **one - two day**. Public health nurses assisted the coach/mentor in conducting the FEP. The total NSI FEP took **2.5 months** and had an average cost of **Rs. 7000 per SBA** visited.

SBA Participant Assessment

- Out of 109 SBAs fully evaluated, 14% (8) of staff nurses and 14% (11) of ANMs performed normal delivery scored of competency level which is above 85%.
- We found the number of deliveries by all the assessed facilities were 2279 within three months. Very few deliveries and complicated procedures were being conducted in PHCs and S/HPs.
- Knowledge assessment found all groups averaging over 75%, including ANMs, and scores for PPH management were high.
- For each of six skills tested, average performance was less than 65%. Normal delivery was 59%. Only 14% of ANM and 42% of staff nurses scored over 85% in conducting normal deliveries. Skill scores were significantly lower for ANMs than Staff Nurses and for Health Post than Hospital SBAs.
- Enabling environment scores across each component – availability of infrastructure, equipment, drugs, and documentation - varied mainly by level of health facility, with hospitals scoring highest and sub-health posts or health posts scoring lowest. Many SBA trainees at the SHP/HP level complained about not being able to utilize their new skills due to lack of equipment like vacuum sets.

- SBAs found it difficult to implement their action plans and sometimes felt unsupported by facility management structures. Management felt that they lacked the skills necessary to properly support SBAs.
- Introduction of the QI tool exposed large gaps in implementation of SBA skills and standards, especially in the key areas of infection prevention and patient education.

FEP Process Assessment

- This FEP process was carried out efficiently: covering 5% of all SBAs at a modest expenditure of calendar time, trainer time, and financial cost. The FEP tool was found to be easy to use.
- There was a high level of SBA participant and supervisor satisfaction with the follow-up.
- The FEP was a good opportunity to introduce QI tools at PHC and HP level, and there appears to be a pressing need for this to be done more widely as part of an ongoing process.

Conclusions

The FEP found large gaps between ideal SBA training site standards and actual practice – especially in core SBA skills and institutional QI parameters. Our study indicates the need for a supportive environment that is properly equipped, with supportive management of the facility and the SBA. Without an enabling context, SBAs cannot maintain and practice their skills, and cannot provide the quality of care that they have been trained to provide. We have also shown that the reasons for low scores may be due to lack of practice, and therefore facilities need to make more efforts to encourage women to deliver in health facilities. These efforts should include improvement of the health facility, as well as community outreach to increase trust of community members in their health facility.

Together the SSMP and NSI follow-ups constitute over 10% of the total SBA production to date. The Ministry of Health and Population should seriously evaluate these results in order to produce a refined SBA follow-up tool that can be scaled up at the national level

Contents Page

1. Introduction

Maternal health is improving in Nepal. Reductions in maternal mortality have been observed in Nepal with the 2006 DHS reporting a drop from 539 to 281 per 100,000 live births. These data are encouraging and reinforce the need to maintain a national focus to meet Millennium Development Goals four and five. The presence of a skilled birth attendant (SBA) is a vital component in improving maternal and newborn survival, particularly in Nepal where only 19% of women deliver in a health institution (DHS 2006) and 42% of all maternal deaths occur in a health facility (Family Health Division 2010). In order to further progress towards the MDGs, Nepal Government's Ministry of Health and Population has set a target for 80% of deliveries to be attended by an SBA by 2017, and there has been a rapid expansion of newly accredited training sites with increased numbers of SBAs being trained. At the time of this study, approximately 2,000 SBAs had been trained in Nepal. Table 1 shows the breakdown of SBA production based on training sites as of July 2010.

Table 1. Total Number of SBAs Trained

S/N	Name of Training Sites	No. of SBAs Trained
1	Training for Trainers (NHTC)	10
2	AMDA Hospital, Damak	101
3	Baglung	97
4	Bharatpur	195
5	Bheri Zonal Hospital	88
6	Dang	31
7	Dhulikhel	30
8	Koshi Zonal Hospital	206
9	Lumbini Zonal Hospital	92
10	Maternity Hospital	316
11	Surkhet	70
12	Sagarmatha Zonal Hospital	71
13	Seti Zonal Hospital	125
14	TUTH	46
15	Tansen	62
16	Pokhara	114
17	Birgunj	20
	TOTAL	**1674**

Source: NHTC, Ashad 2067

2. Rational for a Follow-up

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. 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 or undercuts the worker, and there may be an absence of refresher training.

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 a set

targets that a minimum of 30% of all trainees should receive follow up visits from adjoined training sites.

Despite the importance of SBA training in Nepal, only one previous follow-up was conducted. In 2009, the Support for Safer Motherhood Program (SSMP) followed up 119 SBAs at 38 service sites, using 24 trainers for the assessment, and taking an average of 3 days per participant followed-up. Their reports of clinical experience data did not report periods of time and their skills testing used both clients and models. They nevertheless concluded that SBAs were generally putting their skills to good use and that most were >85% competent. They also called for institutionalization of the follow-up process.

Apart from the need for further data on the retention of skills and knowledge and on environmental factors – 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, which was undertaken in early 2011.

3. FEP Objectives

Research objectives:

- To assess knowledge, skills, and current practice of SBAs after training.
- To explore the reasons for skills and knowledge weaknesses
- To find out how much practical experience SBAs have in conducting deliveries and administering and key maternity procedures
- To describe what affects the ability of SBAs to implement the skills learned in training
- Assess the feasibility and suitability of the FEP tools, providing recommendations for subsequent FEP

Non research objectives:

- To provide on-site coaching in clinical skills for encouragement and intervention.

- To work with supervisors to help ensure that newly trained SBAs have the support needed to apply their new knowledge and skills at their job sites.

- To provide a short training on the use of Quality Improvement Tools to improve PHC, HPs and SHPs functioning as MNH service sites.

- To provide effective feedback to NHTC, GoN, NSI and other SBA Training sites.

4. 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 not be understood solely as a clinical study, but also as a method to strengthen the SBAs. After skill and knowledge assessment, assessors discussed the results with SBAs and provided coaching where necessary. The study was conducted from 6th January to 4th March 2011.

Sample

We purposively sampled SBAs on the basis of topography of their health facility, and type of health facility. Thereafter, we chose districts with a higher density of SBAs that had been trained in different training sites (Table 2). Our inclusion criteria were any SBA that was employed at a health facility who was in active practice as SBA. We excluded SBAs who were not in active practice.

Table 2. Number of SBAs & Institution district wise

Ecological Zones	Districts	Hospitals	No. of SBA	PHCs	No. of SBA	S/HPs	No. of SBA	Total	
								No of Institution	No of SBA
Mountain	Dolakha	1	2	2	3	7	9	10	14
Hill	Dhading	1	3	2	5	7	7	10	15
	Ilam	1	6	4	8	4	5	10	19
Terai	Kailali	2	12	5	12	3	3	10	27
	Jhapa	3	14	6	16	5	4	13	34
Total	**5**	**8**	**37**	**19**	**44**	**26**	**28**	**53**	**109**

Data collection

The FEP was conducted by SBA trainers, under the supervision of NSI consultants. Prerequisites for becoming an SBA trainer in Nepal are cadre status (doctor, nurse or ANM), completion of an SBA course as participant, successful completion of a Clinical Training Skills (CTS) course, and finally certification by NHTC. The SBA trainers conducting the FEP had between 1 and 4 years of experience as SBA trainers. For the purpose of this FEP these trainers are called ‘coaches’. The coaches were recruited from seven SBA training sites: Bharatpur, Biratnagar, Kailali, AMDA Damak, Baglung, Tribhuvan University Teaching Hospital, and the IOM Nursing Campus. In each district, two teams implemented the FEP. The composition of each team was one PHN and one SBA trainer, assisted by one NSI employee. 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.

Assessment

To describe our SBA population, we collected data on their designation, age and length of service since they received training. The FEP assessment took approximately 5 hours for each SBA. The assessment tool was developed from the SBA Learning Resource Package (LRP), Assessment of Skilled Providers from JHPIEGO and included 5 components:

- Knowledge tests
- Skills tests
- Practical experience related to emergency obstetric care (EoC)
- Enabling environment checklist
- Attitude and Motivation of SBAs

We also introduced and implemented the QI tool. This tool enables each health facility to assess the quality of care provided at their health facility and make an action plan to improve their facilities. This can be used as a baseline from which facilities can assess their progress.

1 - Knowledge test

General knowledge about procedures and dealing with complications was tested using 30 multiple choice questions, 15 of which were about the use of partograph, and 6 were about PPH. One question about newborn resuscitation was not understood correctly, and no respondent gave the correct answer. This question was therefore excluded from analysis.

2 - Skills test

The skill test included six different domains: assisting normal birth, active management of third stage of labor, newborn care, breech delivery, vacuum extraction and manual vacuum aspiration. Participants had to perform those six skills in the assessment. Each domain had a standardized check-list comprised of 8-15 skill steps. All of the skills were assessed on anatomical models. Occasionally patient/clients were available and in these situations we observed SBA skills during this time.

3 - Practical experience related to emergency obstetric care (EoC)

Information about deliveries and complications in the last three months were collected from the Maternity or MCH Register. Plotted partographs were also reviewed wherever these were present.

For collection of data about recent obstetric procedures by individual SBA, 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.

4 - Enabling Environment Assessment

The factors affecting whether the SBA has been able to use her skills were described through an equipment, drug and infrastructure audit, and semi structured interviews with the SBA and her supervisor. We also reviewed the maternity register and registers of antenatal care, admission/discharge referral, family planning and birth certification. We also reviewed partographs, and referral slips, to assess the extent to which documentation was maintained.

5 - Interviews of SBAs & Supervisor

Semi-structured interviews were used, containing 9 open ended questions. Interviews focused on the skills on 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.

6 - Introduction of "Quality Improvement Tool" for baseline evaluation of facility

We helped each facility assess the quality of care through the QI tool. This gave facilities baseline information regarding the measurement of MNC quality improvement. All personnel working in the facility, plus Health Management Committee members completed a self evaluation of their facility using the QI tool. This tool has two sections. Section one is about the Management and other one is about the clinical skills. The management section covers four areas such as general management, maternal neonatal health management (MNH), patient education issues (PE), and infection prevention (IP). Clinical skills assessment was not part of the QI. The coaches (NSI employee or SBA Trainer) helped the health facility team to implement this tool, supported them in developing an action plan, and encouraged them to evaluate their own facility every four months using this tool. Finally, they were encouraged to report their evaluation to DHO through the Public Health Nurse.

7. Data management and analysis

Immediately after the district assessment was completed, the field workers entered quantitative data in Excel and presented a descriptive analysis immediately to the site of evaluation, the DHO and training site. Further data analysis was conducted in Kathmandu using STATA. SBAs were given a score out of 100 for each assessment and we compared these scores with the standard minimum of 85/100. We examined the associations between the type of facility and level of skill and knowledge, and type of SBA and level of skill and knowledge.

5. FINDINGS

5.1. PARTICIPANTS

A total of 116 SBAs working in a public and private facility from five districts were assessed. There were 81 ANMs, 19 Staff Nurses and 9 Trainers. They were trained from eight different training sites and over half of SBAs were trained by AMDA Hospital and Seti Zonal hospital. Their post-training experience ranged from less than one year to over 3 years. Table 3 provides characteristics and the working place of the SBAs in this FEP. Of the SBAs that were assessed, around 50% of SBAs were from S/HP, 36% from PHCs, and 8% from Hospital.

Table. 3. Characteristics & Working area of SBAs (n=109)

Categories	Percent (n=109)
Auxiliary Nurse Midwife	74 (81)
Staff Nurse	18 (19)
SBA Trainer	8 (9)
Age	**Percent (n)**
20 -29	24 (26)
30 - 39	37 (40)
40 - 49	23 (25)
>50	16 (18)
Years since SBA training	**Percent (n)**
<1	35 (38)
above1 - 2 years	45 (49)
above 2 - 3 years	11 (12)
more than 3 years	9 (10)
No. of SBAs in each Facility (n =53)	**Percent (n)**
Hospitals	15 (8)
PHCs	36 (19)
S/HPs	49 (26)

5.2. KNOWLEDGE ASSESSMENT

5.2.1. Multiple choice test

Table 4 shows results of the knowledge assessment. Staff nurses have better knowledge than ANMs in all areas except in regard to intrapartum care. However, almost all ANMs had less knowledge on infection prevention which is the most important component of standard care.

Table 4. Average Score of knowledge in different areas

Areas of Knowledge	Average score of S.N % (n = 19)	ANM % (n = 81)
ANC	80	72
Intrapartum	77	74
Post Natal Care	85	81
Newborn Care	85	77
Eclampsia	93	77
Complication Mgmt	84	79
Infection Prevention	87	56

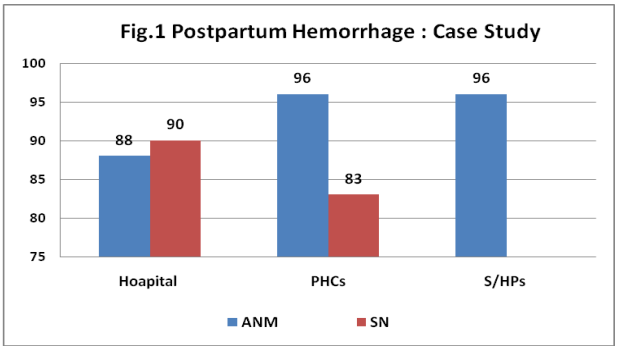
Overall knowledge assessment shows staff nurses demonstrated better knowledge than ANMs with the median score were 87 and 76 respectively (Table 5).

Table 5. Overall Knowledge test by staff cadre

Categories of staff	N	Median	Mean	(95% conf. Interval)
ANM	81	76	74.7	72.2 – 77.1
Staff Nurse	19	87	83.3	77.7 – 88.8
Trainer	9	84	85.9	80.9 – 90.8

5.2.2 Postpartum Hemorrhage Management: Case Study

The Fig1. Shows all SBAs are able to manage postpartum hemorrhage due to cervical tear. ANMs who are working in PHC and S/HP have better knowledge which contributes to save lives in rural communities. This may be part of the reasons why there has been a remarkable reduction of maternal death due to PPH complication in the current context.



5.3. SKILLS ASSESSMENT

5.3.1 Partograph Case Study

The decision making skill test based on the partograph case study show all the SBA has good knowledge on the fetal and maternal monitoring. SBAs scored very low on decision making for referral, and have less skills in progress of labor monitoring, especially ANMs. (Table 6)

Table 6. Average score on decision making skills using the Partograph

Decision making skills	S.N % (n = 19)	ANM % (n = 81)
Fetal Monitoring	83	79
Progress of Labor Monitoring	80	63
Maternal Monitoring	93	85
Decision Making for referral to the CEOC center based on nursing diagnosis.	58	53

When we reviewed the completed partographs wherever they were present, none of the SBAs completely or correctly plotted the partographs. Most of the SBAs used the partograph just for monitoring the fetal heart rate. Most of the facilities did not have partograph forms, usually because of a lack of supply from DHO, and failure of health facility management to deal with the lack of forms.

"I am working here for the last 11 years and I have requested many times to make available the Partograph...But no one is listening from either the HFMC or the In-charge."

Service Provider
PHC, Kailali

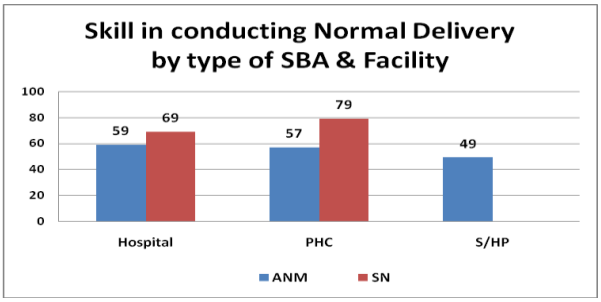
5.3.2. Normal Delivery Procedure

The Table 7 shows that 42% (n=8) of Staff Nurses and 14% (n=11) of ANMs performed normal delivery at a level of competency which is above 85%. This includes the steps of pre-procedure and post procedure. Few SBAs, about 5% (n=1) S/N, and 9% (n=7) ANM scored below 40%. Most of the participants did better in pre and post procedure task, usually scoring above 85%. However the reasons that most participants had low scores in conducting deliveries was because they did not complete steps of (1) feeling around the baby's neck for the cord and response appropriately, (2) lifting the baby's head anteriorly to deliver the posterior shoulder and (3) supporting the rest of the body with one hand as the baby slides out. Therefore most SBAs were not dangerously incompetent in assisting normal deliveries, despite low scores.

Table 7. Scores in conducting normal delivery.

Score out of 100	ANM	SN
<40	**9% (7)**	**5% (1)**
41-84	**78% (63)**	**53% (10)**
85-100	**14% (11)**	**42% (8)**
Total	**100 (81)**	**100 (19)**

When we examined skills in conducting the major steps of normal delivery by type of health facility, we found that Staff nurses in PHCs had better scores. ANMs consistently scored lower than SN, and in S/HPs average score was only 49%. This may be due to less exposure to normal deliveries in these facilities.



The strong finding of the procedure which is included in normal delivery was the Active Management of Third Stage of Labor (AMTSL) revealed that almost all SBAs performed very well except for a few ANMs in Illam and Jhapa. It was due to the failure to administer oxytocin 10 units at the right time.

5.3.3. Overall Skill test by Type of facility

Table 9 provides a summary of skill test scores by procedures. The assessment revealed that conducting normal delivery, AMTSL, and MVA procedure were accomplished slightly better than other skills; with the median scores were 70, 75, and 71 respectively. NBC and breech delivery were in the same range. Scores for conducting vacuum delivery were disappointingly low.

Some SBAs refused to conduct the skill test for breech (n = 8), vacuum (n = 11), and MVA procedures (n = 1), because they had had no experience at conducting these procedures (Table 8). These were excluded from the analysis.

Table 8. SBA performance for all skills assessed

Skill	SBAs Observed (n)	Median	Mean	(95% Conf. Interval)
Normal Delivery	109	**70**	**58.8**	54.8 – 62.8
Active Management of Third Stage of Labor	109	**75**	**69.2**	65.2 – 73.3
Newborn Care	109	**67**	**59.7**	55.6 – 63.7
Breech Delivery	101	**67**	**60.0**	55.7 – 64.2
Vacuum Delivery	98	**62**	**58.3**	53.3 – 63.3
Manual Vacuum Aspiration	108	**71**	**62.2**	57.5 – 67.0

The reason for low skills of SBAs as shown at above table was usually due to laboring woman requesting referral to the hospital upon confirmation of true labor by SBAs of PHC and S/HPs. Similarly the reasons behind not handling the complicated deliveries in such facilities were due to the lack of support from their In-charges as well as the HMC Chairman. However, skills of complication management, like PPH management, were well demonstrated. All the ANMs of PHCs and S/HPs have scored over 95% except in hospitals.

6. PRACTICAL EXPERIENCE

6.1. Number of deliveries conducted in the past three months facility wise

Table 9 shows that around 50% of the normal deliveries were conducted in hospitals. We found that very few SBA have ever done Emergency obstetric (EoC) procedure in PHCs or S/HPs, and SBAs usually referred cases of vacuum or breech delivery to hospitals. Many participants said that the reason for referral was because of lack of support from their supervisors (46%), the Health Facility Management Committee members (23%) and the community (31%).

Table 9. Number of deliveries conducted in the past three months in different type of facilities

Facility	No of Normal Delivery (%)	No of Breech Delivery (%).	No of Vacuum. Delivery(%)	Total Deliveries (%)
Hospital (8)	**1029(50)**	**28(56)**	**164(91)**	**1221(54)**
PHC(19)	**744(36)**	**21(42)**	**10(6)**	**775(34)**
S/HP(26)	**275(13)**	**1(2)**	**7(4)**	**283(12)**
Total	**2048**	**50**	**181**	**2279**

While reviewing the maternity register book, we found the number of deliveries conducted by eight hospitals was only 1029. Hence, we tried to find out the reason for low delivery at hospitals, there was different version from each ecological zone with others. SBAs and supervisors told us that the reason for this in the terai was because laboring women preferred to go to the private hospitals because doctors are not always available at public hospitals. An SBA from the Terai region reported that in hilly and mountain regions, women still prefer home delivery due to no access of road.

7. ENABLING ENVIRONMENT AND PERSONAL FACTORS AFFECTING PERFORMANCE

7.1. Enabling Environment ASSESSMENT (n= 53 institutions)

Table 10 demonstrates how the environment that SBAs work in is often not adequate for them to practice their skills, or provide quality service. S/HPs have insufficient antenatal care rooms and delivery rooms, but the hospitals and PHCs in our study have adequate rooms. We found that some facilities do not have toilets. None of the facilities have standard delivery sets and PHCs and S/HPs were particularly lacking 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. In some places, both the IUCD set and IUCD were not available in S/HPs. This equipment must be accessible to use with reproductive age woman. We found that the reason for this shortage was because the copper T has not been supplied from the logistics department for the last 2-3 months. The antidote of MgSo4 was also found only in 88% of the hospital setting. It must be present in the referral site such as hospital. Surprisingly, partograph paper was also found in only 88% of hospitals and was in inadequate supply in both PHCs and S/HPs.

> *"I feel very embarrassed to say that I could not use the skills from SBA training due to lack of equipment (in the health facility). Recently, I have managed to get a vacuum set from the VDC level and I have asked for other necessary equipment. I am hopeful that the VDC will get equipment so that I can deliver the services, (but we don't believe that DHO will give us equipment ").*
>
> *Service Provider, HP, Ilam*

We found more referral slips, (recently developed by HMIS) in PHCs and S/HPs than in hospitals. SBAs reported that the slips were not appropriate from the view of medical aspects as it does not have a space to write about the condition of woman, nor treatment already carried out. This was the reasons they were reluctant to use this referral slip.

Table 10. Enabling environment assessment

Type of Facility	Infrascturetru			Equipment				Drugs			Documentation		
	ANC room (%)	Delivery room (%)	Toilet (%)	Delivery set (%)	Vaccum Set (%)	MVA set (%)	IUCD (%)	MgSo4 (%)	Antidote of MgSo4 (%)	Oxytocin (%)	Maternity Register (%)	Partograph (%)	Referal Slip (%)
Hospital (8)	**100**	**100**	**88**	**100**	**100**	**100**	**88**	**100**	**63**	**100**	**78**	**88**	**25**
PHC (19)	**100**	**100**	**84**	**95**	**58**	**84**	**63**	**84**	**16**	**100**	**66**	**53**	**68**
S/HP (26)	**73**	**92**	**96**	**58**	**42**	**31**	**18**	**54**	**15**	**100**	**62**	**50**	**58**

Lack of equipment and lack of privacy while conducting examination and delivery, resulted in difficulties to provide regular EoC services even though there are an adequate number of SBAs at the facility.

Regarding the documentation, we found that the number of deliveries was only recorded in the maternity registered book properly in the EoC procedure column. All most all the facilities failed to maintain the records of referrals and complication management.

7.2. Personal Factors affecting Performance

A total of 109 SBAs and 100 supervisors were interviewed about the performance of SBAs. Despite their low scores, most SBAs reported that they were confident in conducting normal delivery procedures. 70% of supervisors reported that they didn't know about the training curriculum of SBA, so they were unable to supervise them. However they stated that patients load in ANC and delivery cases were increasing after SBA had received training. Almost all supervisors asked for an orientation about the SBA program so that they can effectively monitor as well as help SBAs to work in a team in the facility.

Table 11. Shows that starting Birthing Centres and BEOC services was the most common action that SBAs had taken to implement their action plan. They also reporting having taken action to prevent infection, but during our visit to the facilities, the overall cleanliness seemed poor.

Table 11. Implementation of the Action Plan.

Actions	Ranking
Start BC, BEOC services	1st
Infection Prevention	2nd
Physical set-up for LR	3rd
Implementation of Partograph	4th
Stopped traditional practice	5th
Arrangement of equipments for BC	6th
Advocate to the HMC to support to start Delivery Service	7th
Start IUCD service	8th

During interviews we found out about some of the challenges or barriers faced by SBA to implement their Action Plan and bringing new changes after their training. 46% of SBAs reported that there was no monitoring and supervision from the DHO level and central level. If there were such a system, they would feel more empowered to make changes regarding improving maternal health services in the community. In addition to this, 31% of SBAs felt that there was a lack of support from the community and 23% said there was lack of support from the HMC. HMCs did not play an active role in supporting the delivery of new services to the community. One reason was that often the chairperson of the HMC many times was a VDC secretary from another VDC.

"I have been working here in contract basis since 5/10/2066 as ANM for 24 hours delivery service. One incident occurred on 25/7/067 during my assignment in the HP. One night I was in resting at night time, as there was no patient to look after. About 23:00 hours a group of 5 people heavily drunk came to the HP pretending as emergency patient and asked for Sancho (herbal medicine) and to open the door for them. When I refused they have demanded to give some condom. In that situation I could not came outside, because they were using slang word regarding sex. I locked the door and wept whole night in that small room. Next morning I raised this issue with the HMC meeting and they assured me for our safety and security. So I was working as usual even with some fear internally.

After some days, I was given a termination letter from HP in-charge and HMC. I asked the reason for this letter, the reply was that we don't have budget. After few days, I came to know that just few days before I discussed with in-charge about the payment transportation to the woman who came for delivery. Mostly in-charge was giving to the woman only Rs.200/- at the time of discharge. This is intolerable to me so discussed with in-charge about that issue. That time in-charge told me that is out of my right to asked. Since that day I was treated badly and along with that issue a bad event was also happened after few days".

SBA
Dolakha

The whole safe motherhood program except family planning comes under the district Public Health Nurse (PHN). Each district has one PHN assigned for monitoring and supervision of the each program activity. During our visit, Dolakha District didn't have a PHN. Therefore, the family planning officer monitored the program. Four PHN from five districts, reported that they cannot monitor the skills of SBAs, because they do not have training. All the PHN were given one week orientation of SBA program which they felt was not enough to supervise and monitored the skills of SBAs.

8. SUMMARY OF BASE LINE EVALUATION THROUGH QI TOOL

Table 14. Shows that the QI evaluation revealed that almost all facilities scored badly in general management which ranged from 39-46 out of 100. Surprisingly S/HPs were slightly better managed than PHCs. This might be due to the absence of the in charge in most of the PHCs. Two of the PHCs had only one staff member.

"I have been working here for 5 years as an ANM. Being a trained SBA, my first responsibility is to provide MNH services. But working here alone, I have to work in all roles – from the office assistant to the doctor. There is no time to concentrate on managerial issues."

ANM, Ilam

There were no job descriptions for employees except in one HP and one PHC. This created confusion among employees. None of the facilities had a system to obtain suggestions from clients or community members. This type of feedback mechanism may help to build positive relationships between health facilities and communities.

Table 13. Mean Percentage score on enabling environment by type of facility

Type of Facility	Management (%)	MNH (%)	Patient Education (%)	Infection Prevention (%)
PHC (n=19)	39	66	35	58
S/HP (n=26)	46	56	33	62

MNH management

The MNH has nine standards set up for providing quality MNH services. PHCs had better management of MNH services than health posts, and several PHCs and hospitals were managing MNH services excellently.

> *As directly observed, the MNH service provided to this community is excellent. I observed that there was a good team spirit with the service providers and HMC was involved actively in the expansion of services and their vision was to upgrade to a model PHC within that district.*
>
> *Coach*
> *Bharatpur Hospital*

In S/HPs, there were problems of lack of availability of equipment, lack of infrastructure in terms of separate rooms for delivery, drugs, and having one SBA. No facility maintained a standard delivery set which contained one sponge holder, two artery forceps, one pair of cord cutting scissors, four drapers and one bowl. This was usually because the facility supervisor had not bought the equipment, or the office assistant was not performing their duties.

Patient Education

We found all the health facilities had displayed posters on the wall to disseminate the health messages to the community. None of the facilities organized IEC materials that were kept in an accessible place for the patient who attended the facility. Also, none of the facility had plans to give health education to the community.

9. EVALUATION OF THE SBA FEP PROCESS

In the last part of the SBA FEP, participants were requested to evaluate the follow up program, tools, and effectiveness of tools. 91% felt it was beneficial to have time to time assessment with coaching and supervision. Interestingly, only 76% of participants strongly agreed that the SBA FEP will help them to maintain SBA standards in clinical care including Infection Prevention. This is because this is dependent on a regular supply from DHO level and action to be taken when supplies have run out or are missing (Table 15).

Table 14. Feedback from Participants

STATEMENT	% Strongly Agree	% Moderately Agree
It is important to have time to time assessment, coaching, and supervision.	**91**	9
This type of follow-up will help me to maintain SBA standards in clinic care including IP.	**76**	24
The FEP coaches gave good coaching in knowledge and skills.	**94**	6
I received a good introduction, understanding and encouragement for future use of QI Tools.	**72**	28

The most positive finding was that almost all respondents reported that this was the first time they had experienced this type of follow up and coaching with demonstration and re-demonstration.

> ***This follow up is really practically orientated with effective on the spot coaching which is incredibly useful especially in the rural setting. If this type of follow up existed in our health system, it would definitely bring drastic changes in the quality of service in MNH and in the overall health care system as well.***
>
> ***In charge***
> ***Maidi Health Post***

10.SBA FEP limitations

- The skills assessment was conducted by SBA trainers, and they have a vested interest in SBAs scoring highly. We dealt with this bias by emphasising that the FEP was not a test of the competency of SBA training, but an evaluation of the practice of SBAs and a chance for them to refresh their skills. Assessment tools were also very detailed, often using checklists to reduce the chance of subjective evaluation. During piloting of the assessments, we were able to cross check assessments by trainers and NSI employees and discuss any differences in measurement. Assessments were also observed by NSI employees, which also served to reduce the incidence of bias.

- We were not always able to assess SBA skills through management of real situations with patients, because of the low numbers of deliveries at PHCs and S/HPs. We used anatomical models and role-plays to create as realistic a situation as possible.

- We used the emergency obstetric procedure monitoring form to collect data about the experience of SBAs. There may have been errors in this form, and we found that complicated deliveries that were referred to hospitals were not always documented in the register. This was particularly the case for PHCs and S/HPs. (how might this have affected the study?? Under reporting of cases?)

- Nine of the SBAs that were assessed were SBA trainers. We excluded these from the analysis, as they are not representative of the SBA population.

- As this was a pilot study, we conducted the FEP in only five districts. We tried to ensure diversity in our sample, and chose Districts that were topographically different, with a high density of SBAs. When we compared the enabling environment in different topographical areas, we found there was little difference.

- We found that in evaluating how effective the FEP was for facilities, that most responded positively. Although this is encouraging we were unable to gain much information from this part of the study and therefore we will revise the tool to capture areas that were most and least useful and ask for suggestions for improvement.

11. DISCUSSION

Follow-up Logistics

- This NSI follow-up was completed using the encouragement and the findings of SSMP follow-up 2009 as a starting point. The NSI follow-up developed some additions to a classic assessment model of follow-up. The main points of the Follow-up Enhancement Process (FEP) were not simply data collection, but coaching/mentoring based on the assessments and performance of SBA, feedback to SBA, within the health facility and to training sites, and introduction of a QI process. Each of these additions alters paradigms: SBA training becomes 2 months at site plus routine field follow-up coaching; the institution establishes a longer-term pact to work on quality improvement in partnership with some external agency such as NHSSP, UNICEF, Save the Children, and Jhpiego.
- Inclusion of the Public Health Nurse in the FEP was positive: they became more familiar with the nurses and institutions in their area. It is essential that Public Health Nurses receive SBA training so that they can supervise and mentor ANMs and Staff Nurses in their district.

- Compared to the SSMP process, which used 24 trainers, NSI reduced field contact time using 8 trainers public health nurses to conduct an efficient and economical follow-up.

Assessing Knowledge

Knowledge is foundational for every SBA in order to provide quality maternal and newborn care. During knowledge assessment, we found that staff nurse has better knowledge than an ANM. All most all ANMs have less knowledge on IP which is a very important component of providing quality care. Trainers should have excellent knowledge, but they did not always succeed in scoring over 85%.

Assessing Skills

- Regarding the skill on monitoring the labor and decision making skill using the partograph, we found fetal & maternal monitoring skills were very good, but SBAs were less skilled in the main areas of monitoring the progress of labor, and decision making. Using the partograph has internationally reduced maternal deaths due to obstructed labor and fetal death. The reason behind the gap in using the partograph might be due to lack of regular supply of partograph and also lack of realization of the in charge about the importance of using the partograph. Some of the SBAs reported that the did not use the partograph because of human resource shortages in the facility.

- In response to the conducting normal delivery, only 42% of staff nurse and 14% of ANM scored over 85%, including all the steps - from getting ready to post procedure tasks. Although scores were low for conducting normal deliveries, even in the hospital setting, we felt that many SBAs were not dangerously incompetent in assisting normal birth despite their low scores.

- When reviewing the maternity register book, delivery attendance was very low during the times when there was no doctor (vacant or leave) in the hospital and PHC. An SBA from the Terai region reporting that during the time of when a doctor was unavailable, laboring women preferred to go private hospitals. In hilly and mountain region, women still preferred to have a home delivery due to lack of road access.

- We also found, over 50% of deliveries conducted in the hospital. Complicated deliveries like vacuum delivery did not tend to be conducted in PHCs and S/HPs. Usually, the referred those cases to the hospital. Most laboring woman requested to be referred to the hospital after knowing the true labor reported by SBA from PHC & S/HPs. Some of the SBA reported that the reason for not handling the complicated delivery in such facility due to lack of support from In-charge as well HMC chairman. However, the skill on complication management like PPH management shown very good. All the ANM of PHCs & S/HPs scored over 95% except in the hospital.

- Some of the SBAs refused to conduct MVA, vacuum and Breech Delivery as they felt that they had forgotten. The reason is they didn't have much experience of doing these procedures even during the time of training too.

- Nine of the SBAs assessed in the study are working as SBA trainers. This is not representative of all SBAs in Nepal. It could be assumed that SBA trainers are more familiar with the SBA training material, from which the assessment tools have been derived.

- We found that very few SBAs did Emergency Obstetric procedure (EoC) in PHCs and HPs and SBA usually referred cases of vacuum or breech delivery to the hospitals. Many participants said that the reason for referral was because of lack of support from their supervisors, the HMC members and the community.

- As per our interview to the SBAs and their in-charge, they reported that the services has been expanded by starting delivery service and Basic Emergency Care Services (BEoC) after their training from the PHCs and S/HPs.

- It was also reported that supervision and monitoring is severely lacking in performing the SBA's skill as their perception. As we discussed earlier, In-charge did not know about the SBA program and PHNs are unable to supervise them due to lack of training.

Enabling Environment

- We found mountains districts have poor infrastructure, long transport times to health care, scarce population, and poor access to urban resources. The hill districts have better infrastructure and more urban centers. Access to health care and urban resources are better in hill districts. The Terai districts are more densely populated than the others. Infrastructure is relatively good, and the majority of villages have access by road.

- In assessing the enabling environment regarding the equipment, there were no problems seen in the hospital. In spite of that we found none of the health facility has maintained

standard delivery set. It was due to not availability of autoclave or momo cooker, clothes for delivery set and problem of washing the clothes as reported by PHC & S/HPs. Hence, most of the S/HPs and PHCs are using the Sutkeri Samagri.

- Oxytocin was 100% available in all facilities, but Mgso4 was lacking in S/HPs & PHCs. Only 63% of hospital had kept Inj. Calcium gluconate (Antidote of Mgso4) in stock even though they are considered to be maternity referral centers.

- Regarding the infection prevention, we found that IP practices were followed poorly, and four health posts are not following guidelines at all. This is because of to non function of office assistance and no priority given to it by facility in-charge, HMC member and even by DHO.

Institutional Support

- The QI Tool process provided an objective and non-threatening way to initiate the quality improvement process. SBAs were familiar with the QI concept but the facility in-charges were not familiar. All the visited facility In-charge and HMC members reported that this tool should be mandatory to be implemented in all the health facilities to find out the gap. We found wide gaps in all four domains, and all were cause for concern.

12. Recommendations

1. SSMP made the recommendation that follow-up be taken to national scale. They found a large benefit/cost ratio. NSI's follow-up adds to the evidence base that there is a the need to make follow-up a regular event for all SBAs.

2. Using an accredited tool from the NHTC, the follow-ups will be carried out with common goals and objectives to maintain standardized use of and user friendly tools by all trainers.

3. This FEP raises the question of who will partner with the institution to address gaps identified. Without central level government support, (this could be NHTC or FHD), it is unlikely that the health posts and PHCs will continue to assess and improve. Likewise, there would need to be institutional funds made available to address the gaps that require purchases.

4. The issue of partograph decision making skills based on the progress of labor, and use of the partograph urgently needs to be addressed.

5. The topic of Infection prevention needs to be focused on more since training and highlight the dangers of neglecting the IP practice.

6. We recommend not to start Birthing service center nearby CEOC site in Terai region. There needs to start more birthing service center in the hilly and mountain region which may not support the UN recommend Process Indicator. According to EOC Process Indicator, one CEOC and 4 BEOC center for five million populations cannot fit for our geographical region wise distribution of services.

7. Provision of exchange visit (non-functional birthing center to functional birthing center) to the HMC members will be more beneficial in terms of positive support to the newly trained SBAs to implement their skill.

8. Coordination between training center and logistic department will help to maintain continuity of SBA skills, and skill retaintion.

9. For smooth running of birthing center, there need to posting of two SBAs for each birthing center to tackle the emergency situation.

10. Considering the cost in both HR and follow-up team composed of SBA trainer with PH nurses, it is important to give SBA training to the PHN for continue monitoring and supervision of SBAs performance and advocate to support the SBA's performance to the facility in charge as well as HMC member.

11. Consider a program to support QI implementation in all government facility, which support directly or indirectly to the SBA's work performance.

12. Orientation to the PHC or S/HPs in charge on the SBA curriculum will help to establish a team spirit in the facility.

13. In future monitoring of SBAs, it is important to measure the actual patient flow for normal and complicated deliveries.