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Assessing the Quality of Skilled Birth Attendants in Rural Nepal

ENHANCING RURAL HEALTHCARE

Acknowledgement:

We would like to thank all the participants (SBAs) district health officials of from 15 districts who have involved in the program. We also would like to acknowledge the continuous support and contributions from SBAs Traniers and National Health Training Center.

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Background

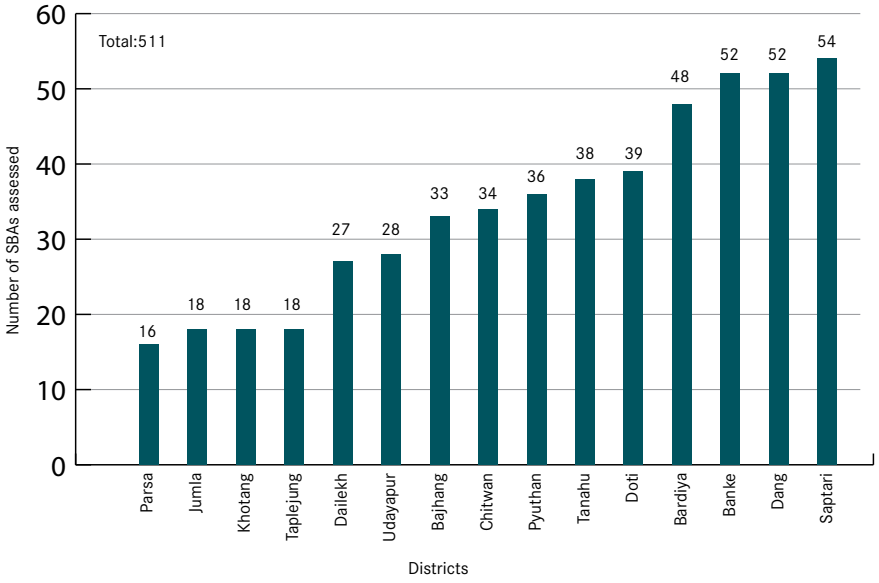
When Nepal became one of the first countries to meet its maternal mortality targets [1] in 2013, its investment in skilled birth attendants was widely celebrated as critical to its success. With the government's implementation of a National Policy on Skilled Birth Attendants, Nepal has trained over 7,000 skilled birth attendants (SBAs) since 2006 - no small feat as SBA utilization is used globally to monitor progress in maternal health. A deeper analysis, however, revealed persistent in equalities in access to and outcomes of care, with maternal deaths unacceptably high or mounting in mountainous districts, among lower socioeconomic classes, even in health facilities where SBAs work [2, 3, 4].

A new consideration dawned: perhaps simply training more SBAs would not suffice to achieve further reductions in maternal mortality [5]: More attention must be directed to their knowledge and skills, and whether these are maintained over time across the variety of environments in which they must work.

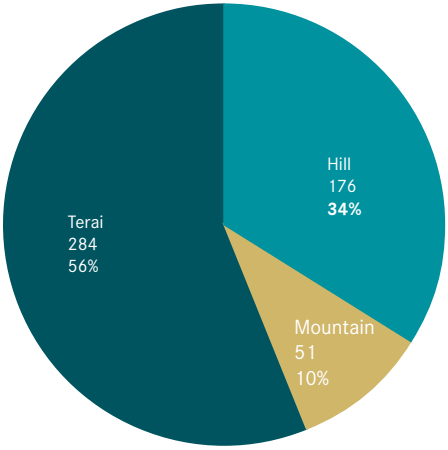
Accordingly, this study measures the level of knowledge, the degree of skill retention, and the productivity of a nationally representative sample of Nepal's SBAs. We were particularly interested in post-training follow up in the field: what do SBAs actually do after training? Our results describe their challenges and contributions in rural Nepal.

Methodology

- Data were collected by the Nick Simons Institute, with the collaboration of the Government of Nepal's National Health Training Center in 2013-2016.
- A retrospective registry review of 511 SBAs from select districts in each of Nepal's three ecological zones - the hills, mountains, and terai - and at each of four health service levels: sub-health posts, health posts, primary healthcare centers, and hospitals was conducted.
- Quantitative data collected were SBAs' age, position, recruitment status, level of experience, training program (continuously monitored and supervised site versus others which were not as rigorously and continuously monitored and supervised), district, facility type, and environmental characteristics.
- An enabling environment index was developed to score health facilities on the availability of up to 17 structural and inventory items judged essential to basic and emergency obstetric care.
- SBAs' knowledge and clinical skills were assessed using the FEP tool, a Nepal Ministry of Health and Population recognized and validated tool, consisting of multiple-choice surveys and standardized checklists on anatomical models, respectively. Of note, the skills assessment was not carried out on real-life deliveries.
- SBAs' productivity was measured by monthly delivery volume as recorded in facility delivery logs and verified in semi-structured interviews. Both normal and complicated deliveries were analyzed.



District wise coverage of data collection



Geographical coverage of data collection

Results

SBA Characteristics

- The average age of SBAs represented in the study was 33 years old.
- Over 90% of SBAs were auxiliary nurse midwives (ANMs), who have 18 months of pre-service training; the rest were staff nurses, who have 3 years of pre-service training.
- Hospitals had a higher percentage of permanent SBAs, while lower-level facilities (consisting of primary health centers, health posts and birthing centers) had a higher percentage of temporary SBAs.

Variables		Count (%) of SBAs	
		Lower-level Facilities	Hospitals
Age	Mean Age [SD]	33 [9]	33 [9]
Age Categories	<29	161 (42%)	53 (41%)
	30-39	130 (34%)	51 (40%)
	40-49	73 (19%)	12 (9%)
	>=50	19 (5%)	12 (9%)
Position	Staff Nurse	9 (2%)	37 (29%)
	Auxiliary Nurse Midwife	374 (98%)	91 (71%)
Recruitment	Permanent	185 (48%)	76 (59%)
	Temporary	197 (52%)	52 (41%)
	Total Nursing Experience, months [SD]	115 [89]	124 [105]
	Total SBA Experience, months [SD]	34 [25]	36 [31]
District	Mountains	54 (14%)	15 (12%)
	Hills	127 (33%)	31 (24%)
	Terai	202 (53%)	82 (64%)

SBAs' Work Environment

- Health facilities scored an average of 83% on the enabling environment index.
- Hospitals were found to have fairly high availability of basic infrastructural components like electricity and drinking water; as well as greater access to routine and emergency obstetric equipment.

Lower - Level Facilities Hospitals			
Total Score, % [SD]		81 [10]	89 [7]
General Requirements	Electricity	331 (91%)	128 (100%)
	Water	273 (75%)	113 (88%)
Routine Delivery	Partograph	302 (83%)	125 (98%)
Care	Fetoscope	364 (100%)	128 (100%)
	Baby weighing machine	360 (99%)	128 (100%)
	Blood pressure instrument	360 (99%)	120 (94%)
	Soap	357 (98%)	122 (95%)
	Gloves	364 (99%)	128 (100%)
	Autoclave	328 (90%)	127 (99%)
Basic EmONC*	Oxytocin	360 (99%)	128 (100%)
	Vacuum delivery set	124 (35%)	120 (94%)
	Tear repair set	288 (79%)	115 (90%)
	MgSO4*	331 (91%)	128 (100%)
	Newborn resuscitation sets	328 (90%)	128 (100%)
	I.V. set	349 (96%)	119(93%)

* EmONC: Emergency obstetric and newborn care; MgSO4: Magnesium sulfate

SBA Competency

- On written knowledge assessments, SBAs scored an average of 75%.
- SBAs were more likely to achieve higher knowledge scores if they were younger, if they were staff nurses (instead of as auxiliary nurse midwives) and had access to a better enabling environment at their work sites.
- On clinical skills assessments, SBAs scored an average of only 48%.
- SBAs were more likely to achieve higher clinical skills scores if they were younger, employed as staff nurses (instead of as auxiliary nurse midwives), working in a hospital, and with access to a better enabling environment.
- Among the clinical skills tested, SBAs demonstrated the greatest aptitude managing post-partum hemorrhages, while they particularly struggled in performing vacuum deliveries, especially at lower-level health facilities.

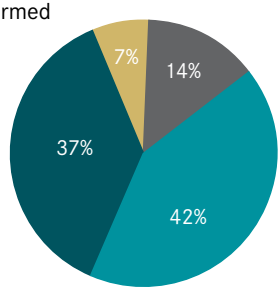
Training Site	SBA Knowledge (% Score)	SBA Clinical Skills (% Score)	SBA Productivity (Deliveries/ Month)
HDCH Lamjung	84 [7]	57 [11]	1.6 [1.5]
PMWH Thapathali	84 [10]	53 [14]	2.7 [3.8]
Dhulikhel Hospital	78 [4] v	65 [3]	1.3 [0.9]
Bhim Hospital	77 [12]	47 [18]	1.8 [1.5]
AMDA Butwal2	77 [12]	45 [15]	11.2 [10.1]
Mahakali Zonal Hospital2	76 [17]	44 [17]	2.9 [2.2]
Koshi Hospital	76 [14]	53 [16]	4.2 [4.1]
Bharatpur Hospital2	76 [11]	51 [14]	15.5 [34.2]
Bheri Zonal Hospital Nepalgunj	76 [11]	47 [14]	5.5 [5.5]
Lumbini Zonal Hospital	75 [9]	50 [13]	7.4 [5.2]
Narayani SR Hospital Birgunj	75 [15]	56 [10]	6.4 [6.3]
Janakpur Hospital	75 [15]	44 [20]	7.2 [8.0]
Pokhara Hospital	75 [14]	51 [20]	5.9 [11.4]
MWRH Surkhet	74 [8]	42 [14]	4.8 [3.9]
AMDA Damak2	74 [10]	53 [13]	2.4 [1.9]
SZH Kailali	73 [13]	42 [15]	4.5 [3.2]
Sagarmatha Hospital Rajbiraj	73 [12]	47 [16]	6.7 [7.9]
TMH Tansen2	72 [12]	48 [20]	6.3 [8.4]
Rapti SR Hospital Dang	72 [11]	48 [12]	5.6 [6.2]
Dhaulagiri Zonal Hospital	58 [16]	34 [18]	1.7 [1]

SBA Productivity

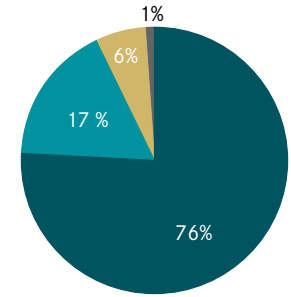
- Only 7% of SBAs on average met the productivity bar set by the World Health Organization (WHO) for maintaining minimal competency: 15 deliveries per month. This proportion was even lower on average at lower- level facilities.
- SBAs' productivity was highest in hospitals, and in the terai districts.
- 16% of SBAs at hospitals, and 21% at lower-level facilities, conducted an average of zero deliveries per month. These SBAs were on average older, more experienced, and auxiliary nurse midwives (instead of staff nurses)1. They were also significantly more likely to be permanent (than temporary) contract nurses.
- The majority of SBAs managed zero complications over a three-month period

SBAs by Monthly Deliveries Performed

Monthly Deliveries Performed	Percentage
0	14%
< 4	42%
4 to 15	37%
> 15	7%



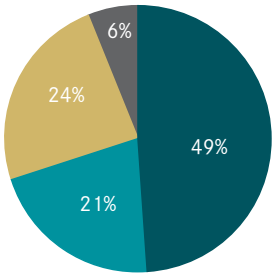
Over a 3-month period, volume of complications managed per SBA, by facility type, n=511 SBAs



No. of Complications Managed	Percentage
0	76%
< 4	17%
4 to 15	6%
> 15	1%

Lower-Level Facilities

No. of Complications Managed	Percentage
0	49%
< 4	21%
4 to 15	24%
> 15	6%



Hospitals

Key Findings

- Trained SBAs demonstrated stark deficiencies of both knowledge and clinical skills.
- Fewer than 1 in 10 SBAs are delivering enough babies to meet the WHO criteria for minimal competency: 15 deliveries per month.
- 14% of SBAs had conducted 0 deliveries in the last month.
- SBAs conducted higher numbers of deliveries if they:
    - Were temporary contract nurses instead of permanent nurses
    - Had trained at a more continuously monitored and supervised training site2
    - Worked at a health facility situated in a more positive enabling environment
- While countries like Nepal have made important investments in SBA programs, these healthcare workers may not be receiving the training and practice they need to stay clinically competent and knowledgeable in the field.

Policy Recommendations

Policy
A policy institutionalizing the Follow-up Enhancement Program (FEP) to mandate nationally standardized, regular post-training SBA assessments should be enforced.
The concerned departments within the Ministry of Health should think about redesigning trainee selection, such that those who are already engaged in clinical care like auxiliary nurse midwives and obstetric nurses - receive training, whereas those who are engaged in community work - like public health nurses - do not.
Nepal's Ministry of Health and Population must coordinate a proper strategy in terms of what SBAs at lower level facilities can and should be managing and empower them with the skills and tools needed to do this.

References:

1. National Planning Commission, Government of Nepal. Nepal Millennium Development Goals Progress Report 2013. Government of Nepal, Kathmandu, Nepal; 2013.
2. Central Bureau of Statistics. Nepal multiple indicator cluster survey 2014, final report. Central Bureau of Statistics and UNICEF Nepal, Kathmandu, Nepal; 2015.
3. National Planning Commission, Government of Nepal. Sustainable Development Goals 2016-2030: National (Preliminary) Report. Government of Nepal, Kathmandu, Nepal; 2015.

Justification for policy
Regular post-training follow-up is critical to assuring continued competence of SBAs. Indeed, none of our own findings would have come to light without the post-training follow-up conducted by Nepal's National Health Training Center in coordination with NSI. If training programs are to be held accountable and SBAs are to be relied upon for quality maternal care, more frequent, nationally standardized post-training assessments must be imposed.
The high proportion of SBAs conducting zero average monthly deliveries challenges the current quota-driven SBA training targets. Of what value is producing more SBAs, if they're not carrying out their intended function: conducting quality deliveries? One of the reasons for this is poor trainee selection. Under the current system, all nurses and health professionals eligible for SBA training are recruited, even though only a fraction of them may intend to attend births thereafter.
The vast majority of SBAs oversaw normal deliveries, with fewer than 15 percent managing complicated deliveries, particularly at lower-level facilities. There are many reasons for this, including a lack of experience and confidence of SBAs, poor referral and transportation systems to CEOC facilities and lack of trust by the community. For example, if we want SBAs at lower level facilities to simply carry out normal deliveries, then we should not waste too much time during the SBA training on complicated deliveries but rather focus on making the SBA extremely adept at normal deliveries. On the other hand, if we do want SBAs to manage complicated deliveries at lower level facilities, then we must institute plans to empower lower-level facilities and the SBAs that staff them, to prevent these lower level facilities from being bypassed for higher level care.

4. Suvedi BK, Pradhan A, Barnett S, Puri M, Chitrakar SR, Poudel P, et al. Nepal Maternal Mortality and Morbidity Study 2008/2009: Summary of Preliminary Findings. Kathmandu: Family Health division, Department of Health Services, Ministry of Health, Government of Nepal; 2009.

5. Harvey SA, Blandwón YC, McCaw-Binns A, Sandino I, Urbina L, Rodríguez C, et al. Are skilled birth attendants really skilled? A measurement method, some disturbing results and a potential way forward. B World Health Organ. 2007; 85(10):783–90.

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