

**A Self-Paced Learning Package for Training in the
No-Scalpel Vasectomy Technique:**

**The Experiences of
Trainers and Participants in Nepal**

JHP-15

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ABBREVIATIONS AND ACRONYMS

ADRA	Adventist Development and Relief Agency International
BAMMS	Bachelor of Ayurvedic Medicine and Modern Science
CFWC	Chettrapati Family Welfare Center
FHD	Family Health Division
FP	Family planning
FPAN	Family Planning Association of Nepal
HLD	High-level disinfection
IP	Infection prevention
MBBS	Bachelor of Medicine Bachelor of Surgery
MD	Doctor of Medicine
MOH	Ministry of Health
MS	Master of Surgery
NFCC	Nepal Fertility Care Center
NHTC	National Health Training Center
NSV	No-scalpel vasectomy
USAID	United States Agency for International Development
VSC	Voluntary surgical contraception

EXECUTIVE SUMMARY

Since 1968, when the first vasectomy procedures were performed in Nepal, vasectomy has become an important component of the Nepal family planning (FP) program. In the early 1990s, providers began using the no-scalpel vasectomy (NSV) technique, and in 1994, the NSV technique was formally incorporated into the Nepal FP program. Most training in NSV was done using a group-based training approach. NSV trainers, however, had difficulty accommodating group-based training demands because of their competing responsibilities as FP healthcare providers at their respective sites. In addition, because of the limited vasectomy caseload during training, a training site can only have one to two participants at a time for NSV training. To address these challenges, in 1999 JHPIEGO and the National Health Training Center (NHTC) introduced a self-paced learning package for NSV designed to lessen the amount of time NSV trainers needed to conduct training so they could maintain their clinical responsibilities. The self-paced learning package consisted of a guided, self-paced training module with a manual and associated audiovisual aids. From 1999 to 2000, 30 NSV providers were trained using the self-paced learning approach. JHPIEGO and the NHTC conducted an evaluation from December 2000 to April 2001 to document the experience of trainers and participants with the self-paced learning approach for NSV, and to assess the job performance of these trained providers.

The sample consisted of healthcare providers trained in courses conducted from September 1999 to March 2000 (n=27) and all NSV trainers (n=6) from three training centers. The evaluation team contacted healthcare providers by telephone to conduct interviews. Nine providers were observed conducting the NSV procedure, and 5 of these providers were observed at their posts where the supplies and equipment were also assessed. Trainers were given structured self-administered questionnaires to complete and then were briefly interviewed.

Most participants (26) characterized the training as “very effective.” Five of the 6 trainers said the self-paced learning approach was “very effective” in transferring knowledge and skills. Four of the 5 trainers with previous NSV group-based training experience said the self-paced training approach for NSV was more effective than the group-based approach, while 1 trainer characterized them as equally effective.

Trainers reported reduced training time to be a major advantage of the self-paced learning approach. Trainers and participants indicated that the practical and clinical skills of the self-paced learning package were important elements of the training. Five of the 6 trainers, however, said that some participants were “not comfortable with learning on their own,” and some of the participants (22%) expressed a lack of comfort as well.

Thirteen of the participants and 4 of the trainers felt that the recommended duration of the training (17 days) was appropriate, but those with a Doctor of Medicine (MD) or Master of Surgery (MS) qualification were more inclined to recommend shortening the course. Participants with previous vasectomy experience or with a MD or MS needed less time on the knowledge portion as compared to those without these qualifications. Participants needed between 3 to 11 days of supervised NSV procedures before they were assessed as competent. Those with previous vasectomy experience required less time (3 to 8 days) compared to those without previous vasectomy experience. Participants reported that they conducted 2 to 4 NSV cases per day during the clinical practice portion of the training. When trainers were asked how many cases were required for participants to reach competency, 2 said 3 to 7 cases, 3 said 10 to 15 cases, and 1 said 20 cases.

A key finding was that most of the trainers (5 of 6) said they were able to fulfill their clinical duties adequately while conducting self-paced training. Participants reported they received a mean of 2 hours per day with the trainer, although they felt they needed 3 hours.

After training, 18 of the 27 participants reported providing NSV services at post, and 11 of the 18 had provided services at FP field camps. The number of cases performed ranged from fewer than 20 (5 participants) to more than 100 (9 participants). Participants reported that a caseload of fewer than 20 was insufficient to retain their skills. Providers with lower caseloads were more likely to report wanting refresher courses. Fewer MD or MS graduates felt they needed support as compared to the participants with other qualifications.

The evaluation team found that 5 of the 9 NSV self-paced training participants observed were competent in all 16 critical steps on the NSV observation checklist—two of whom had not provided any NSV services since returning to post. Postoperative infection prevention practices were very good as well. Three of the providers observed did not have any NSV sets at their posts and thus were unable to provide services.

Several recommendations emerged from this evaluation:

- ◆ Because self-paced learning was a relatively new idea to most of the participants in the study, participants should be provided with a short, introductory session on methods for self-learning at the onset of training.
- ◆ Trainings should be scheduled for the early part of the winter season (from October to January) to provide a higher caseload for participants.
- ◆ A sufficient number of NSV sets needs to be distributed to participants at the end of training (through the Family Health Division).
- ◆ Participants with previous vasectomy experience and MD or MS qualifications should attend shorter training courses.

From September 1999 to March 2000, self-paced learning was the only means used for training NSV providers in Nepal, during which time 30 NSV providers were trained to competency in the procedure. One year after training, 27 participants were followed up for this assessment, with two-thirds of them reporting having provided the procedure. Although only 13 of those 18 participants consider their current caseload to be sufficient to maintain the skills they acquired, all have expressed confidence in the self-paced training method. This assessment documents the success of the self-paced learning approach to NSV, and the recommendations made above will strengthen the approach in the future.

A Self-Paced Learning Package for Training in the No-Scalpel Vasectomy Technique: The Experiences of Trainers and Participants in Nepal

INTRODUCTION

This report describes the results of an evaluation to assess trainer and participant experience with a self-paced learning approach as a method of teaching the no-scalpel vasectomy (NSV) technique to healthcare providers in Nepal. This learning approach, implemented in September 1999, represented a departure from the traditional, lecture-based didactic form of instruction.¹ Anecdotal evidence indicated that it had been well received by both trainers and participants. Trainers from the three NSV training centers in Nepal and participants in NSV self-paced training courses conducted from September 1999 to March 2000 were contacted to document their experiences.

BACKGROUND

Vasectomy in Nepal

The first recorded vasectomy procedures in Nepal were performed in the winter of 1967/68, with 873 cases carried out under the Family Planning Association of Nepal (FPAN) program and 179 through the Ministry of Health (MOH), Family Health Division (FHD), His Majesty's Government of Nepal. Since then, vasectomy has become an important component of the national family planning (FP) program. By the early 1990s, practitioners began using the NSV technique² on an individual basis, and the MOH felt that NSV should be standardized and incorporated within the national FP program.

In 1994, the National Health Training Center (NHTC), as a part of the Department of Health Services within the MOH, began providing structured training in FP methods. The NHTC functions as the central coordinating body for all FP and postabortion care training. The trainings took place in either government or nongovernmental organization service delivery sites. JHPIEGO/Nepal worked directly with the NHTC to develop the training management document that outlines the national training strategy, including training in the techniques for performing vasectomy. In 1995, the NSV technique was formally incorporated into the Nepal FP program with a number of physicians trained in group-based training events. Since then, there has been a gradual shift away from the conventional vasectomy technique toward the use of NSV because of its ease of performance and reduced risk of complications. NSV training is now available for all new healthcare providers at the Doctor of Medicine in General Practice, Master of Surgery (MS), Bachelor of Medicine Bachelor of Surgery (MBBS) and Bachelor of Ayurvedic

¹ At the time of the evaluation, Nepal was the first and only developing country to use the self-paced learning approach for NSV. China, India and Bangladesh have since expressed interest in using this approach as well. NSV has been taught in the US using the self-paced approach, including practice with an anatomic model, since at least 1990.

² The NSV technique was first introduced in 1974 in China as a less invasive, safer method of male sterilization than traditional vasectomy that is easier for the clinician to learn and is believed to reduce the apprehension of men toward vasectomy because no incision is made (Antarsh 1988). Over the intervening years, clinical reports have documented the safety, efficiency and convenience of the procedure.

Medicine and Modern Science (BAMMS) levels and offered as inservice training to existing providers so that more clinics will be able to provide the services on demand.

In 1997, the NHTC conducted NSV training using a group-based training approach at FPAN, Chettrapati Family Welfare Center (CFWC) and Adventist Development and Relief Agency International (ADRA). During the first year, NHTC trained 25 participants, and in the following year, the organization trained 27 more participants. Training takes place in the winter months, primarily November through March, because most clients seek services during this time period (this is due, in part, to cultural beliefs that they will heal more quickly in winter than in summer [especially during the monsoon]). During the other months of the year, NSV caseload is very limited and insufficient for training purposes.

A Self-Paced Learning Approach to Training in No-Scalpel Vasectomy

The limited vasectomy caseload at an individual training site in Nepal means that a training site can host only 1 or 2 NSV training participants at a time. In addition, NSV trainers also serve as FP healthcare providers at their sites. As such, group-based training for NSV tends to be time- and energy-intensive, requiring numerous courses to be conducted annually to meet the nationwide demand for NSV providers. In response to this situation, JHPIEGO and the NHTC introduced a self-paced learning approach for NSV that would maximize the ability of NSV trainers to conduct NSV training and maintain their clinical work while ensuring that providers were trained appropriately. Supporting this was a growing movement in Nepal within the education sector as well as other sectors encouraging learners to take a more active role in their learning process to promote more personal responsibility on the part of students. In view of the strong tradition of didactic rote learning, this movement signified change that required a fundamental transformation in attitudes.

In January 1999, the NHTC and JHPIEGO/Nepal, in conjunction with the Learning and Performance Support Office at JHPIEGO/Baltimore, converted the NSV group-based course into a self-paced learning package. The theoretical portion was changed from a group-based, illustrated lecture format into a guided, self-paced training module with a reference manual. As with all NHTC FP clinical skills courses, the NSV training course has two main components:

- ◆ A manual-based, theoretical portion with associated audiovisual aids to strengthen participant knowledge
- ◆ A clinical practice portion to develop competency, first with anatomic models and then with clients

Self-paced learning places more responsibility for learning on the participants, enabling them to progress at their own pace and giving the trainer more time to maintain clinical responsibilities. Similar to the NSV group-based courses, however, participants had to travel to a central training site, which required time away from their clinical responsibilities at their posts (NSV training sites were only available in the Kathmandu valley). Also, some participants reported that the government per diem rate they received for Kathmandu was inadequate to cover their lodging and meals.

During the initial days of NSV self-paced training, the trainer meets with the participants in the morning and afternoon to review the theoretical content, conduct discussion sessions and work through problem solving. While the participants review material presented in the morning session and complete related exercises in the workbook, the trainer returns to the clinic to

provide services. During the afternoon session, the day's material is reviewed. As participants progress in the theoretical portion, they use learning guides to begin simulated clinical practice with anatomic models. By the end of the theoretical portion, participants should be fully competent in performing the procedure with an anatomic model. They then begin clinical services with clients under the trainer's supervision, and after several cases (as determined by the trainer), are assessed on competency. Currently, the expected length of the course is 17 days.

From 1999 to 2000, self-paced learning was the only means used for training NSV providers, and 30 NSV providers were trained to competency during this period. Anecdotal evidence showed that the trainers were pleased with this method because of the reduced time required in the classroom, and thus felt more capable of undertaking additional training work. At the Chitwan FPAN training center, for example, one physician functioned as both a NSV service provider and NSV clinical trainer. Using the self-paced learning package, this physician was able to conduct two NSV courses (a total of 4 providers) while also fulfilling his clinical responsibilities. At present, three training centers in the Kathmandu valley (FPAN, CFWC and ADRA Banepa) conduct NSV training, each of which also conducts training in other FP methods. There are 5 trainers based at the three centers. Each of the training centers has good client flow for vasectomy, averaging about 5 to 10 cases in a day during the winter season (November through March), which is typically a time of high demand for FP services in Nepal, particularly sterilization.

At the end of the training, participants are given a basic NSV supply kit to take back to their place of work. This kit has been supplied through the Nepal Fertility Care Center (NFCC) with funding from the United States Agency for International Development (USAID), and was developed collaboratively by FHD, JHPIEGO and NFCC. The **Appendix** contains a list of the contents of the kit.

No special facilities are required for the performance of NSV. It is expected that practitioners should be able to work in any setting where the basic necessities for hygiene and client accommodation can be met, whether this setting is a small rural hospital or health post, a temporary health camp or a hospital in Kathmandu.

RATIONALE AND OBJECTIVES FOR THE EVALUATION

JHPIEGO, NHTC and FHD felt there was a need to assess the NSV self-paced training methodology to ascertain the training experience of participants, their job performance doing NSV and the extent to which participants were providing NSV services after training. Assessing the benefits of self-paced learning compared with group-based learning was also deemed to be important.³

The specific objectives of the evaluation were to:

1. Document the trainer and participant opinions and perceptions of the NSV self-paced learning package

³ Because NSV group-based courses were no longer being conducted, it was not possible to document and directly compare different aspects of the two learning approaches in this study, e.g., time to competency, participant satisfaction and post-training experience.

2. Examine the effectiveness of the NSV self-paced training for participants
3. Investigate the ability of NSV trainers to maintain their clinical responsibilities while conducting a NSV self-paced training course
4. Investigate the need or potential for any further modifications in the mode of delivery and scheduling of the NSV self-paced learning package
5. Assess the need for further support for participants after their return to post
6. Gain an understanding of the constraints that prevent participants from practicing the NSV technique in preference to conventional vasectomy after their return to post
7. Assess the quality of NSV services provided by training participants after they return to their posts⁴

The evaluation addressed several key questions, grouped into the following three categories:

- ◆ Effectiveness of the self-paced learning approach
- ◆ Maximizing NSV trainer time
- ◆ Provision of NSV services

Effectiveness of the Self-Paced Learning Approach

- ◆ Do trainers and participants feel that the self-paced learning approach is an effective way to gain NSV knowledge and skills?
- ◆ What are the advantages and disadvantages of using a self-paced learning approach for learning how to perform NSV?
- ◆ Which elements of the self-paced learning package did trainers and participants find the most and least useful?
- ◆ Is the recommended number of days for the NSV self-paced training appropriate?
- ◆ Do the number of days and cases needed to attain competency vary by participant background characteristics?
- ◆ Do trainers and participants have any recommendations for improving the way in which the NSV self-paced learning package is designed and implemented?

Maximizing NSV Trainer Time

- ◆ Can trainers adequately maintain their clinical responsibilities while conducting a NSV self-paced training?
- ◆ How much time did trainers spend with participants during the knowledge and clinical portions of the training, and are participants satisfied with this amount of time?

⁴ It was anticipated that after the completion of training, some participants might not have had sufficient clinical cases to retain their skills—an important issue to be addressed through this evaluation.

Provision of NSV Services

- ◆ After returning to their posts, have the NSV self-paced training participants been providing NSV services? If not, why not?
- ◆ After returning to their posts, did any of the NSV self-paced training participants need additional support either initially or at the present time? If so, what kind of support?
- ◆ Are the NSV self-paced training participants who are currently providing NSV services still performing to standard?
- ◆ Do the NSV self-paced training participants who are currently providing NSV services have access to the supplies and equipment they need to provide quality services?

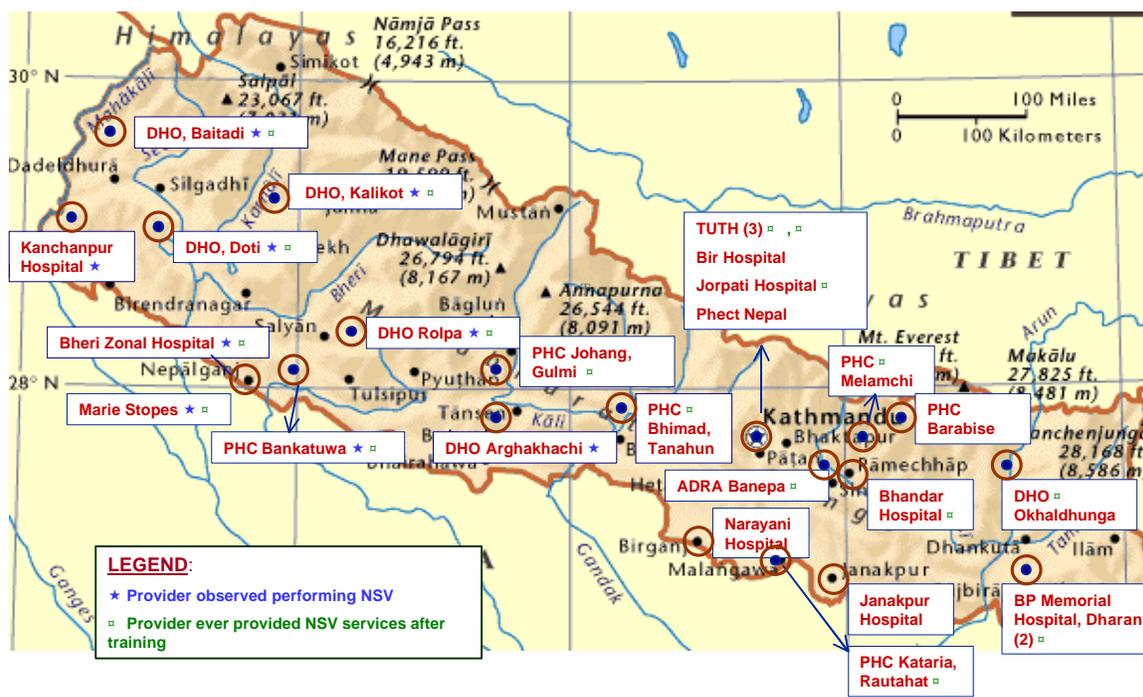
METHODOLOGY

Evaluation Design

JHPIEGO and the NHTC conducted the evaluation between December 2000 and April 2001. The evaluation team obtained a list of all NSV providers trained from September 1999 to September 2000 (n=30) from the NHTC. The team identified the locations for 27 providers and interviewed them by telephone. The 27 providers were posted at 7 sites in the Kathmandu valley and at 20 sites across Nepal (**Figure 1**).

Figure 1. Sites Where No-Scalpel Vasectomy Self-Paced Training Participants Were Posted

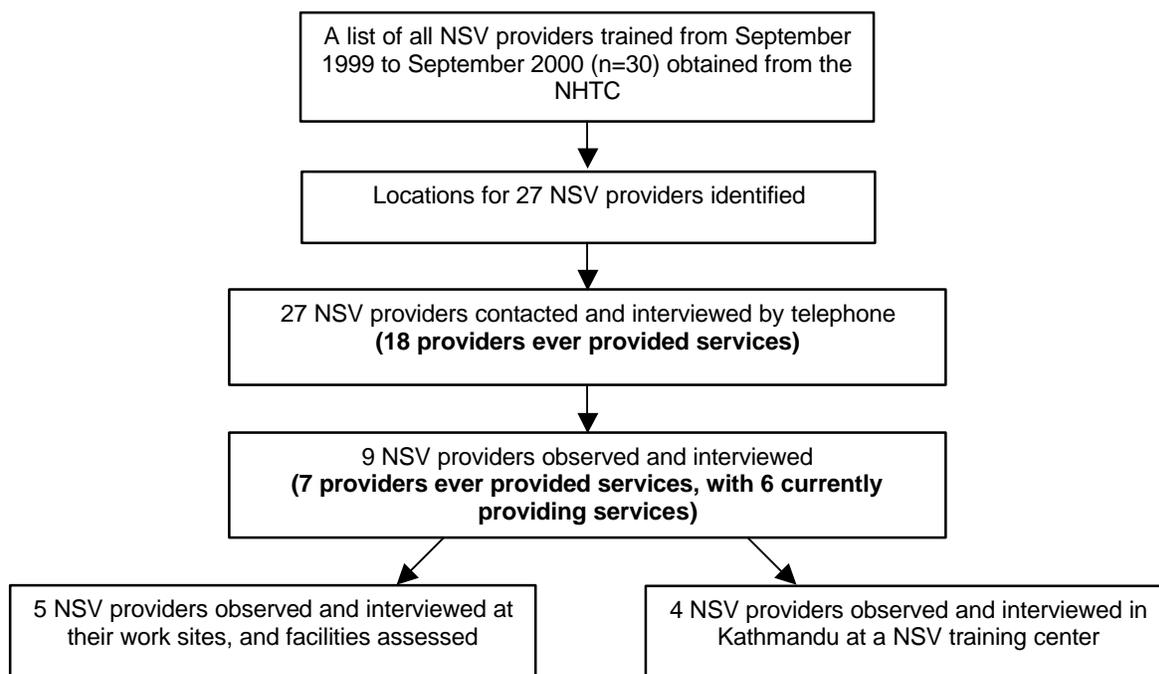
NSV SITES



Notes: DHO=District Health Office, PHC=Primary Health Center, TUTH=Tribhuvan University Teaching Hospital

Of the 27 NSV training participants interviewed by telephone, 18 reported that they had provided NSV services after training. Nine were observed doing an NSV procedure, 5 at their posts and 4 at a NSV training center in Kathmandu. In instances where there were no clients present at the site, a simulated NSV procedure was observed with an anatomic model. Of the 9 providers observed, 7 had provided services at their posts and 2 had never provided NSV services post-training. For a number of financial and logistical reasons, it was not possible to visit or bring to Kathmandu the remaining 11 NSV providers who had provided services after training. **Figure 2** shows the breakdown of the NSV provider sample interviewed and observed for this evaluation.

Figure 2. No-Scalpel Vasectomy Trained Provider Sample



The evaluation team conducted an audit of NSV-related supplies and equipment at the five clinical sites visited. The audit was limited to the NSV service area with a focus on what was required to ensure basic infection prevention (IP) and quality NSV service delivery. Each visit took one half-day.

Those training participants who had provided NSV services after training but who could not be visited were invited to come to Kathmandu where clinical observations were carried out at the CFWC training site. Site visits were not conducted at two of the NSV providers' worksites (Rolpa and Kalikot) because they were considered too remote and too great a security risk to visit due to the insurgent Maoist activity. In the other cases, the provider was on leave and one provider had been transferred to a management position and no longer provided NSV services.

All NSV trainers (n=7) working in Nepal at the time of the evaluation were contacted by telephone or site visit. Of these, 6 from the 3 NSV training sites located in the Kathmandu valley were included in the evaluation. The trainer outside the Kathmandu valley was not included because he had not trained any of the 27 participants contacted by telephone and since he was planning to leave his position to pursue higher studies. The 6 trainers were given a self-

administered questionnaire to complete, followed by a brief and informal interview to review their responses.

Data Collection

Five data collection instruments were used in this evaluation. **Table 1** provides details on each one.

Table 1. Data Collection Instruments

Instrument	Respondents	Topics Covered
Self-administered questionnaire	NSV trainers	Perceptions of the NSV self-paced training, including pros and cons for trainers and participants
Structured telephone interview guide	NSV providers	Perceptions of the NSV self-paced training, experience at their posts after training
NSV Observation checklist	NSV providers	NSV clinical and counseling skills
NSV facility assessment checklist	NSV service sites	Staffing details, availability of services, NSV equipment, IP supplies and practices, record keeping
Training participant interview guide	NSV providers	This instrument repeats some of the questions from the telephone interview, taking the opportunity provided by a face-to-face discussion to explore issues in more detail and to note the variations in individual situations.

The evaluation team consisted of staff from the JHPIEGO/Nepal Office (Dr. Kamlesh Giri, Dr. Jim Litch) and the JHPIEGO/Baltimore Office (Dr. Sue Brechin, Barbara Rawlins), as well as local consultants (Parmanand Bhatta, Cherry Bird and Dr. Ganesh Bhatt).⁵ Dr. Ganesh Bhatt, a former NSV trainer from FPAN, conducted the NSV skills observations. Annmarie Kearse and Dr. Saifuddin Ahmed from the JHPIEGO/Baltimore Office provided additional data form design and analysis support. Parmanand Bhatta conducted the telephone interviews and provided data entry support.

Data Analysis

The participant data were stratified by:

- ◆ Previous experience in the performance of vasectomy
- ◆ Qualifications:
 - Doctor of Medicine (MD) or MS (highest level allopathic health professionals with advanced training beyond the MBBS, including prior experience with surgery)
 - MBBS (Bachelors-level allopathic health professionals)
 - BAMMS (Bachelors-level ayurvedic health professionals)
- ◆ Training dates
- ◆ Rural or urban posting

⁵ JHPIEGO/Nepal: Dr. Kamlesh Giri is the Clinical Training Advisor. Dr. Jim Litch is the Reproductive Health Advisor. JHPIEGO/Baltimore: Dr. Sue Brechin was the Director of the Research and Evaluation Office at the time of this evaluation. Barbara Rawlins is an Evaluation Advisor in the Research and Evaluation Office.

FINDINGS

Demographic Characteristics of Participants and Trainers

Participants in NSV Self-Paced Training Courses

Table 2 presents information on the participants' previous provision of vasectomy services, where the participants received NSV training, their qualifications and other background characteristics. Nine providers were not providing NSV services at the time of the evaluation.

Table 2. Background Characteristics of Participants Interviewed (n=27)

Characteristic	n	%
Previous experience performing vasectomy		
Yes	8	30
No	19	70
Gender		
Male	25	93
Female	2	7
Training location		
ADRA	7	26
CFWC	11	41
FPAN	9	33
Qualifications		
MD	5	19
MS	1	4
MBBS	12	44
BAMMS	9	33
Location of worksite		
Rural	12	44
Urban	15	56

Eight of the participants had performed vasectomies before the NSV self-paced training, and 2 of these participants had received inservice training in conventional vasectomy. Of these 8 individuals, 3 had performed NSV only and 5 had performed conventional vasectomies only. The number of cases performed ranged from 6 to more than 1,000. The qualifications of these 8 participants included: 3 BAMMS, 2 MBBS, 2 MD and 1 MS.

There were 25 male and 2 female trained providers in the sample interviewed by telephone. The 27 providers worked in a variety of settings. Seven participants worked at sites within the Kathmandu valley, and 20 at sites across the rest of Nepal from some of the larger regional towns to villages in remote hill districts with low population densities and poor communications. Twelve of these sites were rural (rural was defined as a population of less than 10,000), and 15 were urban.

The self-paced learning approach was a new experience for all trainers and participants. Most of the NSV self-paced trainings were carried out during the winter months, November to March (**Table 3**), when there is a higher caseload for vasectomy.

Table 3. Months of Training and Number of Participants Trained

Month of Training	Number of Participants Trained (n=27)	
	n	%
September 1999	4	15
December 1999	5	19
January 2000	6	22
February 2000	2	7
March 2000	7	26
April 2000	2	7
September 2000	1	4
<i>TOTAL</i>	<i>27</i>	<i>100</i>

Trainers for NSV Self-Paced Training Courses

At the time of the evaluation, all 6 NSV self-paced trainers had previously conducted, or were conducting, trainings in other clinical skills areas. Five of the 6 trainers had previously conducted NSV group-based trainings, and were therefore able to compare the group-based approach with the self-paced approach for transferring NSV theory and skills.

Effectiveness of the Self-Paced Learning Approach

Do trainers and participants feel that the self-paced learning approach is an effective way to gain NSV knowledge and skills?

Most participants (26) thought the training was “very effective,” with only 1 person rating it as “somewhat effective.” The reasons given, in order of frequency, were: the opportunity for clinical practice, the learning methodology is good and practice with anatomic models.⁶

Five of 6 trainers said the self-paced learning approach was “very effective” in transferring NSV knowledge and skills, with only 1 trainer rating it as “somewhat effective.” Four of the 5 trainers with previous NSV group-based training experience said the self-paced training approach for NSV was more effective than the group-based approach, with 1 saying they were equally effective.

⁶ Answers to both of these questions were prompted.

What are the advantages and disadvantages of using a self-paced learning approach for learning how to perform NSV?

When asked to select the most important advantage of the self-paced learning approach for NSV (with choices prompted by the interviewer), the top three chosen by participants were:

- ◆ Equal clinical participation for all participants (30%)
- ◆ Learning style promotes self-learning (26%)
- ◆ Saving of time (22%)

Forty-one percent of participants felt there were no disadvantages to the self-paced learning approach, while the remainder identified:

- ◆ Difficulties with “learning alone” (22%)
- ◆ Not enough time spent by trainer with participants (22%)
- ◆ Flexible timetable/loose schedule (15%)

The five trainers who had previous experience with the group-based NSV training agreed that the self-paced approach for NSV has the following advantages:

- ◆ Promotes self-learning (5 of 5)
- ◆ Saves teaching time in that the trainer spends less time per day with participants because s/he is able to leave them working on assignments (5 of 5)
- ◆ Enables trainer to provide normal clinical services in between meeting with participants (4 of 5) and to take care of other administrative duties (3 of 5)
- ◆ Ensures the transfer of knowledge (through the course structure and components) leaving the trainer to focus on the clinical coaching (4 of 5)

The disadvantage of the NSV self-paced learning approach pointed out by 5 of the 6 NSV trainers was that some participants were “not comfortable with learning on their own.” One said “trainer not able to spend enough time with participants,” while 1 trainer said there were no disadvantages. Two of the 6 trainers said that some participants had difficulty in completing the self-paced learning package.

Which elements of the self-paced learning package did trainers and participants find the most and least useful?

All 27 participants felt that every element of the learning package was useful. The three most useful were:

- ◆ Coaching from trainers during cases (16 of 27)
- ◆ Clinical practice with models (15 of 27)
- ◆ Multiple cases for practice to reach competency (13 of 27)

The elements of the package rated as most useful by the NSV trainers were:

- ◆ Multiple cases for practice to reach competency (5 of 6)

- ◆ Clinical practice with models (4 of 6)
- ◆ Chapter exercises (3 of 6)
- ◆ Trainers can leave participants working on their own (3 of 6)

Only 2 of the 6 trainers indicated the video sets and reference manual were the most useful. No trainer rated any element of the package as “not useful.”⁷

Is the recommended number of days for the NSV self-paced training appropriate?

Although 48% of all participants (13 of 27) felt that the recommended length of the course (17 days) was about right, 37% found it too long and 15% too short.

For providers with previous vasectomy experience (n=8), 4 thought the course should remain the same length or be longer, and 4 thought it should be shortened. For providers without previous experience (n=19), two-thirds felt it should remain the same length or be longer. When findings were disaggregated by the qualifications of the participants, those with a MD or MS were more inclined to recommend shortening the training (**Table 4**).

Table 4. Number of Days Providers Recommended for No-Scalpel Vasectomy Training by Previous Vasectomy Experience and Qualifications

Background Characteristic	Number of Days Recommended for Training (n=27)			
	7 to 15 days		17 to 21 days	
	n	%	n	%
Previous Vasectomy Experience				
Yes	4	15	4	15
No	6	22	13	48
Qualifications				
MD or MS	4	15	2	7
MBBS	4	15	8	30
BAMMS	2	7	7	26

Four of the 6 trainers thought that the length of the course was “adequate/just right,” and 2 trainers thought it was too long, suggesting that 12 days would be sufficient.

Do the number of days and cases needed to attain competency vary by participant background characteristics?

Participants were asked to recall how many days they spent on the knowledge and clinical practice portions of the NSV self-paced course and on which day they started clinical practice. During the initial knowledge stage, participants were also expected to practice with the anatomic model. Most participants (67%) spent 6 to 7 days on the knowledge portion. The amount of time needed to complete this section of the training, however, differed by participant background, i.e., previous experience with performing vasectomy and qualifications (**Table 5**).

⁷ This question was multiple response.

Table 5. Number of Days Spent on Knowledge Portion by Previous Vasectomy Experience and Qualifications

Background Characteristic	Number of Days on Knowledge Portion (n=27)			
	3 to 5 days		6 to 9 days	
	n	%	n	%
Previous Vasectomy Experience				
Yes	4	15	4	15
No	3	11	16	59
Qualifications*				
MD or MS	4	15	2	7
MBBS	2	7	10	37
BAMMS	1	4	8	30

* Significant at $p < .05$

Half of those with previous experience performing vasectomy spent 3 to 5 days on the knowledge portion, and half spent 6 to 9 days. For the group without prior vasectomy experience, only 16% completed the knowledge portion in 3 to 5 days, while the majority (84%) needed 6 to 9 days. The MD or MS providers needed fewer days on the knowledge portion, with two-thirds completing it in 5 days or less as opposed to only 17% of the MBBS and 11% of the BAMMS ($p < .05$). Those with a MBBS or BAMMS generally needed more time on the knowledge portion.

Twenty-two percent of participants began performing NSV procedures with clients on the sixth day, 26% on the seventh day and 22% on the eighth day of the NSV course. Only 7 participants began NSV surgery earlier.

Participants ($n=8$) with previous experience doing vasectomy reported working with clients sooner than those without previous experience ($n=19$); 63% started working with clients on days 3 to 6. Among the participants without experience, only 42% started working with clients on days 3 to 6. This difference was significant when examined by participant qualifications, with all of the MD or MS participants ($n=6$) beginning clinical work on the third to sixth days, but only one-third of the MBBS ($n=12$) and BAMMS ($n=9$) participants starting early ($p < .05$) (**Table 6**).

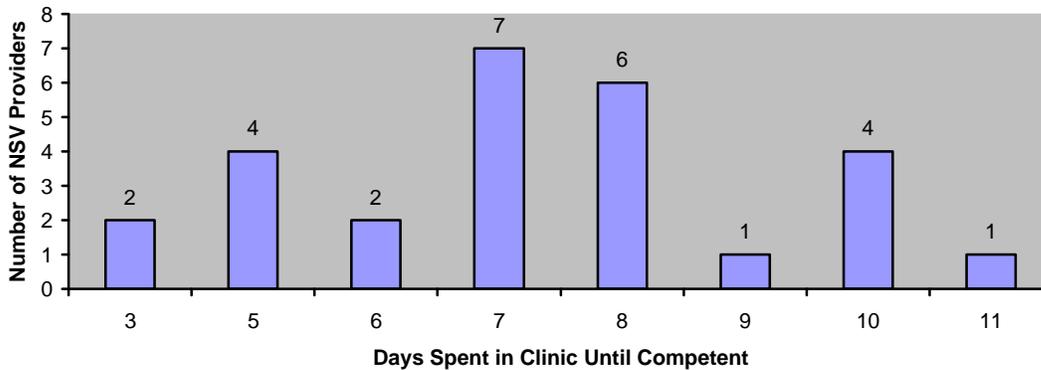
Table 6. Training Day Participants Began Working With Clients by Previous Vasectomy Experience and Qualifications

Background Characteristic	Training Day Began Working With Clients (n=27)			
	3 rd to 6 th day		7 th to 9 th day	
	n	%	n	%
Previous Vasectomy Experience				
Yes	5	18	3	11
No	8	30	11	41
Qualifications*				
MD or MS	6	22	0	0
MBBS	4	15	8	30
BAMMS	3	11	6	22

* Significant at p<.05

There was a wide range in the number of days participants needed to practice in the clinic before being assessed as competent working with clients. Fifteen percent required 5 days, almost half (48%) needed 7 or 8 days and 15% needed 10 days. (See **Figure 3.**)

Figure 3. Number of Days Spent in Clinic Until Providers Were Assessed as Competent



Participants with previous vasectomy experience required fewer days to reach competency in the clinical portion of the training as compared to those participants without previous experience, but this was not a significant difference (**Table 7**). Two of the 6 MD or MS participants needed only 3 to 6 days in the clinic before being assessed as competent while 5 of 12 MBBS participants and 1 out of 9 BAMMS participants managed with the shorter time.

Table 7. Number of Days in Clinical Portion Until Competent for Participants With and Without Previous Vasectomy Experience

Previous Vasectomy Experience	Number of Days in Clinical Portion Until Competent (n=27)					
	3 to 6 days		7 to 8 days		9 to 11 days	
	n	%	n	%	n	%
Yes	3	11	5	19	0	0
No	5	18	8	30	6	22

Most participants reported that they were able to do between 2 and 4 cases per day during training, with 1 person managing 6 and 4 participants doing only 1 case. Participants were asked their opinion about whether or not the daily caseload they received during the clinical practice portion of the NSV self-paced training was sufficient. Their responses are listed in **Table 8**.

Table 8. Average Cases Per Day by Participants' Estimation of Whether Caseload Was Sufficient

Caseload at Clinical Practice Site Sufficient	Average Number of NSV Cases Done Per Day During Training (n=27)									
	1 case		2 cases		3 cases		4 cases		6 cases	
	n	%	n	%	n	%	n	%	n	%
Yes	0	0	5	19	3	11	5	18	1	4
No	4	15	5	19	2	7	2	7	0	0

Results indicate that a caseload of only 1 per day during NSV training was perceived as insufficient ($p < .05$), while 2 or more cases per day were perceived as adequate (**Table 9**).

Table 9. Average Cases Per Day by Participants' Estimation of Whether Caseload Was Sufficient*

Caseload at Clinical Practice Site Sufficient	Average Number of NSV Cases Done Per Day During Training (n=27)			
	1 case per day		2 to 6 cases per day	
	n	%	n	%
Yes	0	0	14	52
No	4	15	9	33

* Significant at $p < .05$

When trainers were asked how many cases, on average, were required for participants to reach competency, opinions were divided across a range of 3 to 20, with 2 saying 3 to 7, 3 saying 10 to 15 and 1 saying 20 (**Table 10**).

Table 10. Trainers' Perspectives on Number of Cases to Competency

Average Number of Cases to Competency	Number of Trainers (n=6)
3 to 7 cases	2
10 to 15 cases	3
20 cases	1

Do trainers and participants have any recommendations for improving the way in which the NSV self-paced learning package is designed and implemented?

Training participants made a number of suggestions for improving the NSV self-paced training course. By far the most common response (n=17) was the need for more clinical practice (i.e., more cases and/or time). Suggestions that garnered more than one response follow:

- ◆ Ensure more time/cases for clinical practice (17 responses).
- ◆ Conduct the training during winter season at the time of FP camps, and conduct practice in camps (6 responses).
- ◆ Use selection criteria for participants to ensure that providers trained together come from the same background, according to qualifications or previous experience (6 responses).
- ◆ Provide more practice with the anatomic models (3 responses).
- ◆ Provide NSV sets (2 responses).
- ◆ Ensure more trainer time during the knowledge portion (2 responses).
- ◆ Establish regional training centers (2 responses).

Responses from the trainers showed that 5 of the 6 felt that additional training materials were needed for the NSV self-paced course. Four of the 5 suggested “additional audiovisual materials” and 2 suggested “modifications to the participant manual.”

Maximizing No-Scalpel Vasectomy Trainer Time

Can trainers adequately maintain their clinical responsibilities while conducting NSV self-paced training?

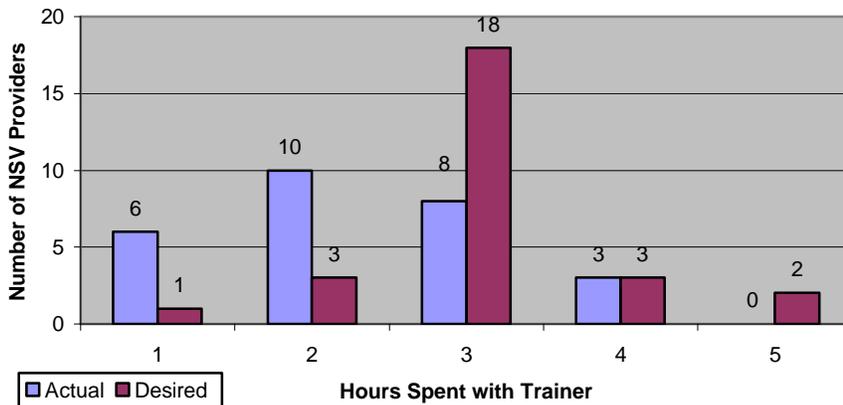
Most trainers (5 of 6) said they were more able to fulfill their clinical duties using a self-paced learning approach than when using a group-based approach. While participants studied the knowledge portion of the course, the trainers were able to spend time in their clinics. During the clinical portion, participants provided services with the trainer, providing more help as they progressed. Conversely, all 5 of those who had previously conducted group-based NSV trainings said they were not able to fulfill their clinical duties while conducting a group-based training.

When asked about the possibility of overlapping two NSV self-paced trainings, trainers were almost unanimous (5 of 6) in saying that this arrangement would not be feasible.

How much time did trainers spend with participants during the knowledge and clinical portions of the training, and are participants satisfied with this amount of time?

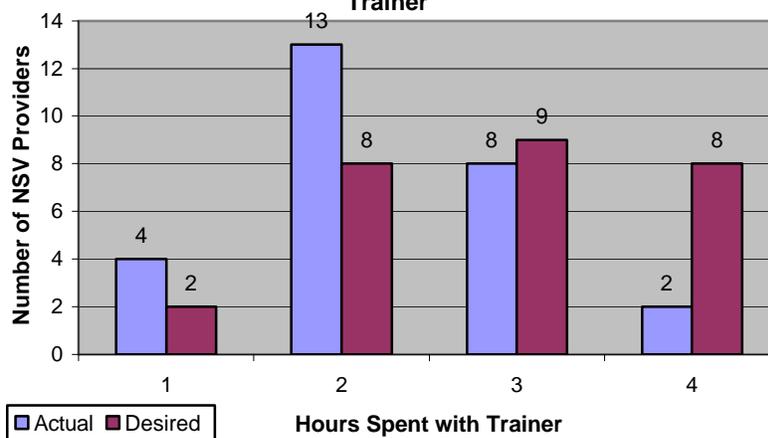
Most participants (93%) felt that they needed 2 to 4 hours per day (mean=2.85 hours; median=3 hours) with the trainer during the knowledge portion of the course (**Figure 4**).

Figure 5. Clinical Portion: Hours Spent with Trainer



Eighty-nine percent of participants said they needed 2 to 4 hours per day (mean=3.07 hours) during the clinical practice portion (**Figure 5**). When asked to recall how much time trainers actually spent with them during the two parts of the training, 78% said they received 2 to 3 hours (mean=2.3 hours) during the theory portion (**Figure 4**). Sixty-seven percent said they received 2 to 3 hours (mean=2.3 hours) during the clinical practice part (**Figure 5**). On average, participants spent about 1 hour per day less with the trainer during both sections of the training than they desired.

Figure 4. Knowledge Portion: Hours Spent with Trainer



Four of the 6 trainers reported spending an average of 2 hours per day with participants during the knowledge portion of the course, while 2 trainers reported spending an average of 3 hours per day. During the clinical practice portion, the trainers were more varied in the time they reported, with 2 saying 2 hours per day, 2 saying 3 hours per day and 2 saying 4 hours per day.

Provision of No-Scalpel Vasectomy Services

After returning to their posts, have the NSV self-paced training participants been providing NSV services? If not, why not?

Opportunities for participants to apply their newly acquired NSV skills varied, with some having routine caseloads at their clinical sites, some providing services at FP field camps for intense periods of activity and others having had no opportunity at all to provide services. Since completion of training, 18 of the 27 participants reported that they had provided NSV services at their posts, and 11 of the 18 reported that they had provided services at FP camps. **Tables 11 and 12** distinguish these two groups by previous vasectomy experience and qualifications.

Table 11. No-Scalpel Vasectomy Services Provided at Post After Training by Previous Vasectomy Experience and Qualifications

Background Characteristic	NSV Services Provided at Post After Training (n=27)			
	Yes		No	
	n	%	n	%
Previous Vasectomy Experience				
Yes	5	19	3	11
No	13	48	6	22
Qualifications				
MD or MS	4	15	2	7
MBBS	7	26	5	19
BAMMS	7	26	2	7

Table 12. No-Scalpel Vasectomy Services Provided in Family Planning Camps After Training by Previous Vasectomy Experience and Qualifications

Background Characteristic	NSV Services Provided in FP Camps After Training (n=27)			
	Yes		No	
	n	%	n	%
Previous Vasectomy Experience				
Yes	3	11	5	18
No	8	30	11	41
Qualifications				
MD or MS	2	7	4	15
MBBS	5	19	7	26
BAMMS	4	15	5	19

The estimated total number of cases performed since returning to post ranged from less than 20 (5 of 18 participants who had ever provided services) to more than 100 (9 of 18). Thirteen of the 18 felt that they had sufficient caseload to retain their skills (**Table 13**).

Table 13. Estimated Caseload by Whether Caseload Was Sufficient to Remain Competent

Caseload Sufficient to Remain Competent	Estimated Number of NSV Cases Done After Training (n=18)							
	< 20		21–40		41–60		> 100	
	n	%	n	%	n	%	n	%
Yes	1	6	1	6	2	11	9	50
No	4	22	0	0	1	5	0	0

Of the 13 who felt their caseload was sufficient, 12 had performed more than 20 cases since the training. Of the 5 participants who did not feel their caseload had been sufficient to retain their skills, 4 had done fewer than 20 cases. A caseload of fewer than 20 since completion of NSV training was not sufficient ($p < .01$) for participants to feel that they had retained their skills. The timing of the training may have been an important factor affecting caseload because the 5 participants who were trained at the end of the winter season in March had not performed any cases, and all wanted followup support.

The reported reasons for not providing NSV services (n=9) since completing the NSV training course included:

- ◆ Selection for higher study (2 participants)
- ◆ Transfer to another job (2 participants)
- ◆ Lack of NSV sets (3 participants)
- ◆ No clients (1 participant)
- ◆ NSV services not provided at place of work (1 participant)

Findings show that slightly more of the rural participants were providing NSV services at post than urban participants, and they were slightly more likely to have worked in FP camps providing NSV services.

After returning to their posts, did any of the NSV self-paced training participants need additional support either initially or at the present time? If so, what kind of support?

Immediately after returning to post, most participants (74%) did not feel the need for any additional support. At the time of this evaluation, however, 74% felt they did need extra support, identifying “followup visit from the trainer,” “provision of NSV sets” and “refresher training.” Three of the 5 participants who had a caseload of less than 20 since training wanted refresher training, while only 4 of the 13 who had a caseload greater than 20 wanted it. Of the 9 who had done no cases since training, only 3 wanted refresher training.

Only half of the MD or MS graduates felt they needed support, with 75% of the MBBS and 89% of the BAMMS wanting it (**Table 14**). Findings also suggest that rural participants were slightly more likely to feel the need for support at the time of the survey than those from urban areas.

Table 14. Support Needed Now by Previous Vasectomy Experience and Qualifications

Background Characteristic	Support Needed Now (n=27)			
	Yes		No	
	n	%	n	%
Previous Vasectomy Experience				
Yes	6	22	2	7
No	14	52	5	19
Qualifications				
MD or MS	3	11	3	11
MBBS	9	33	3	11
BAMMS	8	30	1	4

Are the NSV self-paced training participants who are currently providing NSV services still performing to standard?

Nine NSV training participants were interviewed in person and observed performing the NSV procedure—5 at their posts and 4 at the CFWC training site in Kathmandu. Of these 9, 7 had provided NSV services⁸ after training and were observed while serving clients. The 2 who had not provided NSV services after training⁹ were observed with an anatomic model. The 3 providers who were not providing NSV services reported that they did not have any NSV sets at their sites. The 6 who were currently providing NSV were providing this vasectomy method exclusively.

Among the 7 NSV training participants who had provided services after training, 5 had provided services at FP camps in addition to providing services at their posts. When asked about the total number of cases performed since training, 6 reported having done 2 cases or more, and 4 reported having done more than 100:

- ◆ Fewer than 20 NSV cases (1)
- ◆ 21 to 40 NSV cases (1)
- ◆ 41 to 60 NSV cases (1)
- ◆ More than 100 NSV cases (4)

The 6 providers who were currently providing NSV services felt that their present caseload (between 7 and 115 cases per month in winter [mean = 65] and between 0 and 14 cases the rest of the year [mean = 3]) was sufficient to remain competent in the NSV technique. All but 1 of the 9 providers observed felt that an average of 10 to 20 NSV cases was required per month to remain competent, with the remaining provider saying 50 to 100 cases were required.

To be considered competent in the NSV procedure, providers had to perform all 16 critical steps on the NSV observation checklist competently. Five of the 9 (56%) providers observed were

⁸ One of these providers was no longer providing NSV services.

⁹ One was using the traditional method and the other was not providing vasectomy services at all.

competent in all 16 critical steps, 2 of whom had not provided any NSV services since returning to post. Two of the providers were competent in 88% (14) of the critical steps, and the other 2 were competent in 75% (12) of the critical steps. Steps not performed were Step 1, “Verifies client’s identity and checks that informed consent was obtained” (n=3) and Step 15, “Instructs client to use condoms for at least 3 months” (n=2). Providers’ overall performance by critical step is detailed in **Table 15**.

Table 15. Provider¹⁰ Performance for Critical Steps in the No-Scalpel Vasectomy Procedure (n=9)

Critical Step	Performed Correctly	
	Yes	No
1. Verifies client’s identity and checks that informed consent was obtained.	6	3
2. Determines that sterile/high-level disinfected instruments and emergency tray are present.	8	1
3. Performs surgical scrub and puts sterile or high-level disinfected gloves on both hands.	9	0
4. Identifies, isolates and fixes the right vas deferens using 3-fingers technique.	9	0
5. Injects 1% local anesthesia over median raphe to raise a small wheal, and parallel to vas slowly injects 2–2.5 ml of local anesthesia in the sheath.	9	0
6. Identifies, isolates and fixes the left vas deferens using 3-fingers technique.	9	0
7. Through the previously anesthetized area over the median raphe, inserts the needle parallel to the left vas and slowly injects 2–2.5 ml of local anesthesia in the sheath.	8	1
8. Ligates and removes 1 cm of right vas.	8	1
9. Ensures hemostasis (right vas).	9	0
10. Ligates and removes 1 cm of left vas.	8	1
11. Ensures hemostasis (left vas).	9	0
12. Decontaminates needle and syringe. Disposes of needle and syringe or processes syringe for reuse and disposes of needle.	9	0
13. Decontaminates instruments by soaking in 0.5% chlorine solution for 10 minutes.	9	0
14. Briefly immerses gloved hands in chlorine solution. If disposing of gloves, places in leak-proof container or plastic bag. If reusing gloves, soaks gloves in chlorine solution for 10 minutes.	8	1
15. Instructs client to use condoms for at least 3 months.	7	2
16. Completes NSV card and records in client record.*	7	1

* There was one missing value.

Postoperative IP practices were generally very good. All 9 providers decontaminated and disposed of needles and syringes correctly. All 9 also decontaminated instruments in 0.5% chlorine solution correctly and disposed of waste materials. Eight of 9 providers immersed their gloved hands in chlorine solution and either disposed of the gloves correctly or soaked them in chlorine solution for 10 minutes so that they could be reused.

Non-critical steps in the NSV procedure where more than 1 provider did not perform to standard include:

- ◆ Asks client if he has washed his genital area (4 of 9)
- ◆ Checks for anesthetic effect before making puncture (3 of 9)

¹⁰ Only 1 provider did not correctly perform the surgical skill itself (steps 7, 8 and 10).

- ◆ Exposes right vas and delivers loop of vas through puncture hole (6 of 9)
- ◆ Exposes left vas and delivers loop of vas through puncture hole (6 of 9)
- ◆ Instructs client on care of wound and return visit:
 - Keep wound dry (7 of 9)
 - Return to clinic after one week for wound inspection (7 of 9)

Do the NSV self-paced training participants who are currently providing NSV services have access to the supplies and equipment they need to provide quality services?

The evaluation team conducted an audit of the NSV and IP supplies and equipment present in the NSV service delivery areas of the 5 sites visited. Two of the sites had no NSV sets. NSV self-paced training participants are supposed to collect two sets from FHD after their training. Some went to FHD but did not receive the set, either because none were available or they were told that a set was already available at their post (but discovered later that this was not the case). General supplies were adequate, except at one site where only catgut was available for use as ligation thread rather than sterile cotton thread or silk. The team observed that support staff needed to be trained in the maintenance of sharp instruments while disinfecting and storing.

Appropriate IP supplies and practices were in place. Each site had a sink and a reliable and clean source of water. Detergent for cleaning instruments and utility gloves were available and used for cleaning items at all sites. Instruments were decontaminated correctly and thoroughly cleaned and rinsed prior to high-level disinfection (HLD) or sterilization. Autoclaving was used at all 5 sites for HLD, while dry heat was used at 2 sites, boiling at 1 site, chemical disinfectants at 1 site and steaming at 1 site. All 5 sites had a plastic bucket with fresh decontamination solution, a container for sharps disposal and a leak-proof container for potentially infectious waste. Antiseptic solution and sterile/HLD gloves were available at all sites as well.

All clinic sites had a waiting area for clients near the NSV procedure room, and the sites usually provided benches (one was outside). One site did not have a separate counseling room, and so used the minor operation room instead. All sites had an area that served as the recovery room for NSV clients, although it was often shared with other post-operative clients. In the client counseling area, all sites had NSV registration forms, informed consent forms, informed choice informational materials and condoms present. All sites had a storage cabinet for contraceptives.

In the procedure area, all sites had an examination table, instrument tray and stethoscope. Four of 5 sites had a strong light source available as well. Drugs and medications available in the NSV service delivery area included local anesthesia, analgesics and antibiotics. Although all 5 sites had antibiotics, 2 reported they were not routinely used, 1 reported they were routinely used and 2 did not specify.

The evaluation team examined logbooks and client records for accuracy and regularity of reporting, even though record keeping was not taught as part of the NSV training. Client records were typically filed by the date of admission and serial or intake number. At 2 of the sites (1 where NSV services were not being provided), client records were missing information, and were of generally poor quality. Client records at the other 3 sites were of better quality, but did not have information on followup visits or complications. Providers said, however, that they often did not receive any feedback from clients regarding complications because return rates for followup visits were very low. In addition, very few clients (25–30% in urban areas, no data on rural clients) returned at 3 months for a semen analysis to confirm that the client was sterile.

This analysis should be done at the voluntary surgical contraception (VSC) service site, or, if that is not practical, at any other laboratory that the client is able to access.

Limitations of the Evaluation

One limitation of the evaluation was that participants were trained at different times, from 2 months to 1 year before the evaluation. Participants trained more than 6 months before the evaluation may not have remembered their experiences accurately.

In addition, Dr. Ganesh Bhatt, who conducted the site visits and observed trained providers performing the NSV procedure at their posts and at the NSV training site, is a NSV trainer and in some cases he observed participants whom he had trained. There is the possibility that his assessment of the providers' skills could be subject to observer bias, while their responses to his questions about their experience with the training course could be subject to courtesy bias.

Lastly, logistical problems arose due to an increase in activity among the Maoist insurgents in some rural areas of the country. Arrangements to bring some NSV providers to Kathmandu by the end of March 2001 were not possible because the providers had other commitments. These factors restricted the evaluation team's ability to randomly select sites and providers for observations. The results are thus subject to selectivity bias and they may not be generalizable to all NSV providers trained using the self-paced method.

DISCUSSION AND CONCLUSIONS

Acceptability and Perceived Advantages of the No-Scalpel Vasectomy Self-Paced Learning Package

Overall, it is clear that both trainers and participants found the self-paced approach to learning NSV knowledge and skills effective. A key finding is that trainers reported they were able to balance their clinical responsibilities with conducting the self-paced training, which they said would not be possible using a traditional group-based approach.

One of the major advantages of the self-paced approach stated by participants was the strong focus on hands-on clinical training and practice supervised by the trainer, which corresponded with the fact that most participants said they found the clinical practice and coaching the most useful elements of the course. The most frequently cited disadvantages concerned the amount of trainer time that participants received, which was slightly less on average than they felt they needed, and the difficulties experienced by some with learning alone and taking responsibility for their own learning. It can be concluded that those participants with no previous vasectomy experience or surgical experience (MD or MS) may need some preparation or support to enable them to understand and cope with a self-paced approach to learning.

Length of Training

The majority opinion (13 participants and 4 trainers) was that 17 days was about the right length for the course. Very few people thought it should be longer, but there were more who would have liked it to be shorter. The preferred options for the length were all for a whole number of weeks. For those who preferred a shorter course, around two weeks was the majority preference (14 days or 12 days). Those who desired a longer training also seemed to favor the

idea of a whole number of weeks—suggesting 21 days—perhaps feeling that the extra days of a week already half used would not be a problem in terms of being away from home.

Course Participant Selection

In the future, it is advisable to group course participants with similar backgrounds and experience together in pairs. Some participants evidently found it difficult to work in a pair of disparate people. Whether this difficulty was because those who needed to work at a slower pace felt stressed by the sense that the other participant was making faster progress, or because the faster ones felt frustrated at the slower pace of the others, or both, is not clear. What is clear is that participants with previous vasectomy experience and those with a MD or MS qualification could be separated into “fast track” pairs that are likely to complete the course more quickly. Past participants with these qualifications were more likely to express a preference for a shorter training than participants with other backgrounds. Findings also showed that those with previous vasectomy experience and those with the MD or MS qualification needed noticeably less time for the knowledge section of the course, as much as three or four days less, although their requirements for the clinical practice portion were similar to other participants. It is possible that the length required for the clinical portion was affected by the daily caseload available for practice, although no relationship was found in this evaluation.

Time with Trainer and Caseload

Overall, the majority opinion among NSV self-paced training participants was that they preferred a minimum of 3 hours per day of trainer time on both the knowledge and clinical practice sections of the training.

Trainers were rather divided in their opinions about how many NSV cases needed to be performed on average for training participants to reach competency, with a range from about 5 to 20 cases. Participant findings suggest that a caseload of at least 2 per day per participant was preferable during training. These findings highlight the point made earlier about ensuring that NSV trainings are planned during the busy part of the winter “FP season” to ensure the availability of an adequate NSV caseload.

Experience of Participants After Returning to Post

Eighteen of the 27 NSV self-paced training participants interviewed had provided NSV services at some point at their posts. Findings show that more of the MD- or MS-qualified participants had provided services than participants of other cadres, and that participants from outside the Kathmandu valley were more likely to have provided services than those in the Kathmandu valley. Three of the 9 who never provided services cited the lack of any NSV sets as the reason.

While 3 trained NSV providers did not have any NSV sets at their posts, others needed more NSV sets. At least 2 or 3 sets are needed per site, depending on how busy the site is, so that while sets are being sterilized another is available for service provision. For mobile outreach VSC camps, 10 to 15 sets are needed to meet the high client flow. JHPIEGO, NHTC and USAID are already working together to develop a plan to procure more NSV sets locally and distribute them to providers. Attention needs to be given to ensuring that a sufficient number of NSV sets are issued to participants at the end of their training.

Many participants (20 of 27) felt they needed a followup visit or refresher training. Participants who had a low caseload since completing their training were more likely to feel the need for

refresher training, and this finding was linked with the timing of the NSV self-paced training they attended. Participants who trained at the end of the winter season (March) were not able to apply their skills until the following season—months after completing training. They were thus less confident of retaining their skills. In general, most participants felt that a caseload of less than 20 since they completed training was not sufficient to retain their skills. These findings underscore the constraints that the seasonal nature of FP service provision in Nepal places upon training programs and providers. It can be concluded, therefore, that if trainings are timed for the early part of the season (i.e., from October to January), participants should not be as likely to desire support, especially refresher training, later on after returning to their posts. Those trained late in the season, however, may require some refresher training or followup at the beginning of the next winter season.

PROGRAM RECOMMENDATIONS

1. **Optimal use of self-paced approach for learning:** Because the mainstream approach to learning and training in Nepal is didactic and rigidly structured, for most participants the NSV self-paced training may be the first time they experience such an approach. A short, explanatory session on methods of self-learning for both trainers and participants may be beneficial to the learning process. Such guidance would enable participants to gain the maximum benefit from the course. It might also lead to further savings of trainer time if participants are able to settle down to work alone more quickly and demand less support from trainers during the initial stages. This guidance may be especially important for those participants with no prior vasectomy or surgical experience (advanced qualifications).
2. **Timing of the NSV self-paced trainings:** Ideally, providers should be trained in NSV during the winter FP season, between November and early March. If they are trained outside this period, they may require followup visits and refresher training the following FP season. One solution would be to arrange for participants to spend a few days at the training center doing supervised cases.
3. **Requirement for NSV sets:** A minimum of two NSV sets per site is necessary to allow time for disinfecting one set while the other is in use. For FP camps, at least five to 10 sets should be provided. The availability of NSV sets at course participants' posts should be assessed before or during training, so any need can be resolved before the provider returns to his/her post. JHPIEGO, NHTC and USAID should continue to work together to ensure that NSV sets are disseminated to providers at the time the course is completed.
4. **Training participant selection and matching:** When selecting participants for training, it would be helpful to match the participant pairs based on their background characteristics, placing those with either previous vasectomy experience or a MS or MD qualification together because they are likely to proceed more quickly through the knowledge section of the course.
5. **Time trainer spends with participants:** Whenever possible, the NSV self-paced trainers should spend an average of three hours per day with the participants throughout both sections of the course—knowledge and clinical practice. The rest of the day participants can spend learning on their own.
6. **NSV provider skills:** During training and any followup visits, greater emphasis may need to be placed on ensuring that providers obtain informed consent for the NSV procedure; deliver

the loop of the right and left vas through puncture holes; explain to clients followup instructions and postprocedure care; and enter information on the client's record and in the logbook.

From September 1999 to March 2000, self-paced learning was the only means used for training NSV providers in Nepal, during which time 30 NSV providers were trained to competency in the procedure. One year after training, 27 participants were followed up for this assessment, with two-thirds of them reporting having provided the procedure. Although only 13 of those 18 participants consider their current caseload to be sufficient to maintain the skills they acquired, all have expressed confidence in the self-paced training method. This assessment documents the success of the self-paced learning approach to NSV, and the recommendations made above will strengthen the approach in the future.

REFERENCES

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APPENDIX

Equipment in the Combined Vasectomy/No-Scalpel Vasectomy Kit

- 1 Instrumental Pan, 10 ½" x 5" x 2"
- 1 Instrument Pan Cover
- 1 Iodine Cup, 6 ounces, 2" high
- 1 Forceps, Tissue, Delicate Pattern, 5"
- 1 Forceps, Artery, Kelly, Straight, 5 ½"
- 2 Forceps, Mosquito, Delicate, Curved, 5"
- 1 Forceps, Intestinal, Allis, Delicate, 6"
- 1 Forceps, Sponge, Foerster, Straight, 9 ½"
- 1 Ringed Forceps for NSV
- 1 Dissecting Forceps for NSV
- 2 Forceps (Clamp), Towel, Backhaus, 5"
- 1 Holder, Needle, Mayo-Hefar, 7"
- 1 Scissors, Straight, 6 ¾"
- 1 Syringe, Hypodermic, 10 cc*, glass luer lock
- 1 Needle, Hypodermic, 22 gauge x 1 ½", 10/package
- 2 Needle, Eye, ½ Circle, Taper Point, Size 6, 6/package
- 1 Handle, Surgical Knife, Size #3
- 2 Blade, Surgical, Size #15 (dozen)

* cc=cysteine-cysteine