NO-SCALPEL VASECTOMY: EXPANDING OPTIONS FOR MALE INVOLVEMENT IN FAMILY PLANNING

A GUIDE FOR LOCAL GOVERNMENT UNITS

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Background

The Philippine Government addresses the causes and consequences of population growth primarily through the work of two national government agencies, the Department of Health (DOH) and the Commission on Population (POPCOM). The DOH is mandated to implement the National Family Planning Program within the Reproductive Health Framework. It also provides technical and financial assistance to Local Government Units (LGUs) and ensures that sufficient contraceptives are available and distributed in all local public health facilities.

Decentralization, which formally took effect in 1992, propelled the devolution of numerous functions of the national government and placed Local Government Units (LGUs) at the forefront of providing their constituencies with social services, including health and family planning. It also tasked LGUs with the formulation of comprehensive development plans, the implementation of multi-sectoral development programs, and the promotion of community-based population programs and services. Hence, in 1999, the DOH launched the Matching Grant Program (MGP) to provide financial and technical assistance to municipalities and cities to improve their service delivery, particularly in the areas of family planning, maternal and child health, and nutrition.

Many of the LGUs participating in the MGP are interested in establishing specific services particularly no-scalpel vasectomy (NSV), IUD, and a new natural family planning method, the standard days method (SDM) but they do not know how to go about it. Concerns were also raised on the cost implications of establishing such services. However, the experience of Bago City in Negros Occidental in promoting and providing NSV showed that it could be done. Other MGP areas like Naga City and Donsol, Sorsogon in the Bicol Region and Kapalong in Davao Norte were also NSV success stories. Promoting IUD services in Pantukan, Compostela Valley and SDM in Lupon and Banaybanay can also be models for setting up these FP services.

This module documents the process in setting up NSV services based on the experiences of LGUs that have successfully set them up. It also compiles existing local materials that may be used by interested LGUs in orienting prospective clients.

What is No-Scalpel Vasectomy?

No-scalpel vasectomy is a 10-15 minute surgical procedure done under local anesthesia where the vas deferens are isolated and fixed using a specially-made extracutaneous ringed forceps, then dissected and lifted from the sheath using dissecting forceps. A portion of each vas deferens is cut and then tied.

A. Establishing the Need for NSV Services

NSV provides a good method to expand the options for male participation in family planning. Any decision to establish NSV services should be based on the need for this specific family planning service. The experiences in Bago City in Negros Occidental; Naga City and Donsol, Sorsogon in the Bicol Region; Sulop in Davao Sur, and other MGP areas showed that a community survey using the Community-Based Monitoring and Information System (CBMIS) is a good tool in identifying potential demand and caseload for NSV.

NSV is particularly useful for men who:

- ☞ Have completed families but their wives are not ready to accept or could not undergo bilateral tubal ligation.
- ☞ Have wives with contraindication on the use of temporary FP methods.
- ☞ Have shown poor compliance with temporary FP methods.

Program managers should also consider certain requirements for safe and quality services and their long-term sustainability:

- ☑ Appropriately-trained health workers (A physician-surgeon, a nurse/surgical assistant/counselor)
- ☑ Appropriate facilities
- ☑ An infection prevention system designed to minimize the risk of transmission of diseases, including viral hepatitis B, and HIV/AIDS to the clients, health workers, and support staff.
- ☑ A well-organized follow-up/referral system.

B. Setting Up the Service Facility

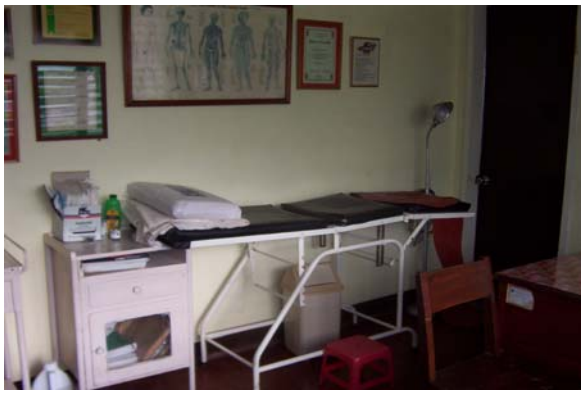
Physical Facilities

NSV services can be provided in either a permanent or temporary location. *Experience in the MGP areas showed that most clinics that provide primary health care were able to provide or integrate NSV services within the existing facilities*.

However, regardless of where the procedure is done, certain requirements must be met if high-quality, comprehensive service is to be established and maintained. These are:

- ☑ A comfortable waiting room or holding area for new and/or follow-up clients

- ☑ A space for counseling that ensures privacy
- ☑ An examination room with sink, adequate natural or artificial light and privacy for screening and follow-up examinations



- ☑ A clean room for the surgical procedure isolated from the outside and free from clinic traffic
- ☑ Arrangement for storage and retrieval of records
- ☑ Arrangement for laboratory examination (sperm count) in the clinic or referral to a nearby clinic or hospital with appropriate laboratory facility

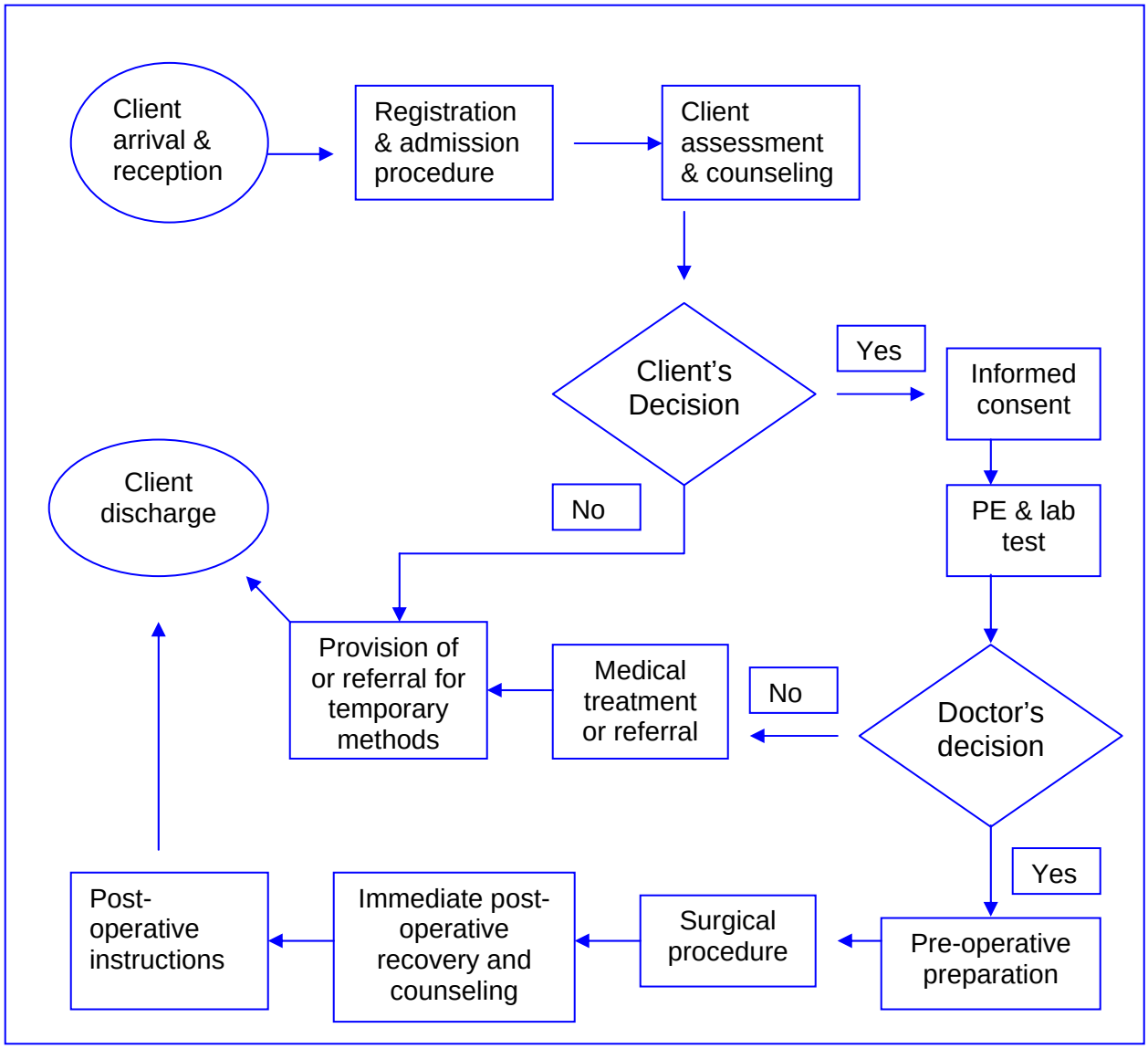
- ☑ An area for sterilizing/autoclaving of instruments, equipment, linens, gloves and dressing, and space for their storage
- ☑ Toilet and washing facilities for clients
- ☑ Recovery or rest area for clients after surgery

- ☑ A storage area for medical supplies, which should be cool, dry, secure and well-ventilated

- ☑ An area for office work, completion and storage of records, and storage for information materials.

Client Flow

An orderly flow of clients through the health facility is necessary in order to ensure a comprehensive, cost-effective service, and client satisfaction. Below is an illustration of a well-managed client flow:



Clinic Location and Working Hours

If a new facility is to be established, its location and working hours should be assessed in relation to potential clients accessibility. One may want to ask the following questions:

- ☑ Do enough clients have easy access to the clinic?
- ☑ Are clinic hours convenient for working clients?

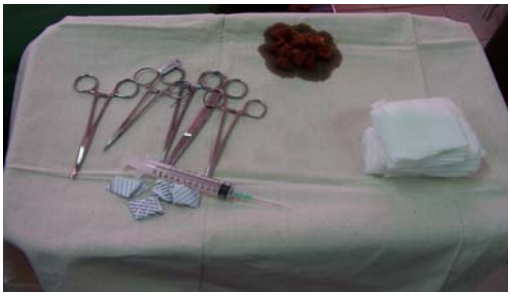
If the service point is too far from where the clients live, they may not return for follow-up visits because of the distance and the possible expenses (fares, loss of income for time off, cost of child care).

Providing services after regular working hours or on weekends may increase client accessibility.

Equipment/Instruments/Supplies Needed

The NSV procedure does not require an operating room, but sterilization of instruments and clean conditions are absolutely necessary. The equipment, instruments, and supplies needed are the following:

- ☑ An examining table
- ☑ Instrument tray
- ☑ Good artificial or natural lighting



- ☑ Vas fixing or ringed forceps
- ☑ Vas dissecting forceps
- ☑ Iris scissor
- ☑ Suture material (surgical silk 3-0)
- ☑ Local anesthesia (1 % lidocaine hcl) and 2.5ml or 5 ml disposable syringe with gauge 25-needle (1inch long).

Other items required are:

- ☑ Surgical gloves (sterile or high-level disinfected)
- ☑ Antiseptic solution for cleaning the scrotal area (preferably an iodophor such as povidone-iodine)
- ☑ Antiseptic solution for high-level disinfection of instruments like Cidex
- ☑ 0.10% chlorine solution for disinfection
- ☑ Gauze or cotton balls
- ☑ Plaster
- ☑ Analgesic like Paracetamol 500 mg.or Mefenamic Acid 500mg
- ☑ Antibiotic like Amoxicillin 500mg capsule

C. Selecting and Training the NSV Team

The number and type of staff needed in a clinic offering no-scalpel vasectomy services will vary with the size of the clinic, caseload, other services provided, and service hours. ***Consideration should be given to the employment of male service providers because they are culturally more acceptable in certain circumstances such as when intimate examinations or interviews or home visits are necessary.***

Staffing Pattern/Functions

Staffing pattern will depend on whether services are provided only at the base facility or offered in conjunction with an outreach program for which mobile facility or temporary clinics are established. If itinerant services are planned, another physician-surgeon may have to be trained so that services in the static center can continue while the other member of the team is conducting mobile operation.

Focusing on the task to be performed should make staffing plans more relevant. Task should be delegated to the staff with the appropriate training to provide medically-safe and quality services. Certain functions should be allocated to personnel on a regular basis and the clinic manager (the MHO, RHU Physician) should designate the person responsible for carrying out a given function, taking into account the training and activity of each staff member. In most clinics, the same person may perform several functions within the facility.

In NSV services, the following functions should be assigned to a specific person or persons:

☑ **VSC Surgeon – a *Physician (the MHO, RHU Physician or Resident Physician)*** with Competency-Based Training on FP Level 3 (No-scalpel vasectomy procedure). The training can be done at accredited training centers or on-site where the physician is working, and conducted by an itinerant training team. A second surgeon may have to be trained when the designated surgeon performs other tasks like being the MHO or the Chief of Hospital and or the client load is already high. The VSC surgeon performs the following tasks:

- Final screening of clients

- Perform general physical examinations and record findings and observations
- Perform the NSV procedure
- Manage minor side-effects and complications
- Refer clients to higher-level service centers for management of serious complications (if there are any).

☑ **Nurse-Assistant/Counselor**. The family planning nurse in the clinic or a hospital can be trained to assist the physician during the operation. The training can also be done during the training of the physician in a training center or in their own clinic by an itinerant training team. The nurse-assistant usually performs the following functions:

- Maintain cleanliness of the facility
- Order instruments, sutures, and other supplies
- Schedule appointments for clients
- Provide information materials to clients and ensure that these materials are available at all times for clients and staff
- Counsel clients at various times (pre- and post-operative)
- Take the medical histories of clients
- Prepare instruments and supplies needed for each NSV procedure
- Disinfect or sterilize instruments
- Prepare the clients for the procedure (skin preparation, disinfection of the operative site)
- Assist the surgeon during the operation.

☑ **A Nurse or Midwife Counselor**. The nurse-assistant can also do the pre- and post-operative counseling. In high-volume clinics, it may be necessary to designate another nurse or a midwife with CBT Level 1 or 2 Training to do the counseling and other preparatory procedures, to wit:

- Scheduling follow-up visits
- Undertaking outreach activities initiated at the clinic with the aim of recruiting new clients
- Following-up clients who do not return for appointments
- Assessing client satisfaction with the NSV services
- Maintaining medical records
- Collecting and reporting data.

Organizing the NSV Team, Training, and Accreditation

Experience in the MGP areas that established vasectomy services showed that the team can be organized from existing personnel in the Main Health Centers (RHUs/MHCs), District or City/Provincial Hospital, as well as NGO partners. Some of the criteria followed in the selection include:

- ☑ Existing staff of the RHU/MHC or hospital, NGO partners who are either currently performing conventional vasectomy procedure or are interested in learning/doing the NSV procedure
- ☑ Has the time for the training and, more importantly, for the delivery of NSV services after the training

- ☑ No religious hang-up on the FP method

- ☑ A member of the team should have at least a basic counseling training.

The itinerant trainers from an NGO, the EngenderHealth, initially do the training and accreditation of the NSV team on-site, coordinated by Management Sciences for Health and the concerned LGUs. A minimum of five (5) solo cases is usually needed for assessing competence of the surgeon in this kind of training. *The training includes:*

- ☑ ***A theoretical phase*** which involves reading the training manual, review of male reproductive anatomy and physiology, the step-by-step procedure in doing the NSV procedure and/or viewing of video clips on the NSV procedure,

- ☑ ***The practicum phase*** which includes a demonstration by the trainer of the step-by-step NSV procedure and return demonstration by the trainee. In some cases where "Scrotal Model" is available, the trainee practices identifying, fixing, dissecting, cutting, and tying the vas deferens.

MSH also adopted a multiplier strategy by mobilizing highly skilled FP trainers and NSV providers as trainers of other NSV teams within the province or region whenever EngenderHealth trainers are not available. For instance, the trainers from Bago City were mobilized to train local doctors in Kabankalan City (Negros Occidental), Donsol (Sorsogon) and Naga City (Camarines Sur). The team from Sulop (Davao Sur) and other teams in Davao were mobilized to train the NSV team in Samal City. At some point in time, EngenderHealth will observe and evaluate the competence of these personnel for accreditation purposes. EngenderHealth also trains local trainers at the regional, provincial, and district levels.

D. Informing Potential Clients

Correct information and good communication create awareness in the general public and allow prospective clients to be more knowledgeable about the procedure. They are also important in ensuring that clients are well informed and satisfied and are thus, less likely to regret the operation and more likely to share their positive experience with others in the community.

Client satisfaction should be the primary aim of all vasectomy information and communication activities. Client satisfaction is influenced by the quality of information and satisfied clients have proven to be the best and most effective communicators about vasectomy. A network for referring clients to the clinic should be established.

Creating Awareness

☑ Clinic Signage

Clients should be made aware of the services available at the center, i.e. NSV services. If the service is available only on certain days or time of the day, this information should be prominently displayed in front of the facility (center). Information on service fees, if any, should also be included.

☑ Product Launching

The MGP provides a variety of activities for launching NSV services in the community, such as:

- **Seminar/Lecture/Open Forum** –on how the no-scalpel vasectomy procedure is done. Questions about vasectomy are answered or clarified by a resource person, which could either be the physician who performs the NSV procedures or a vasectomy client or both. A satisfied client, giving his testimony in fora like these, and sharing his positive experience is the best program advocate who can motivate others.

- **Community Theater/Comedy Skit** – on the values of planning the family and answers to questions frequently asked about the NSV. How does it work? How is it done? Are there any side effects?

- **Street Parade** – participated in by local government officials, barangay health workers, students, and interested parties from the community.

- **Poster-making Contest** – for elementary and high-school students.

☑ **Streamers –** posted at strategic areas announcing the availability of NSV services.

☑ **Posters** can also be displayed in prominent places in the clinic and other areas in the community.

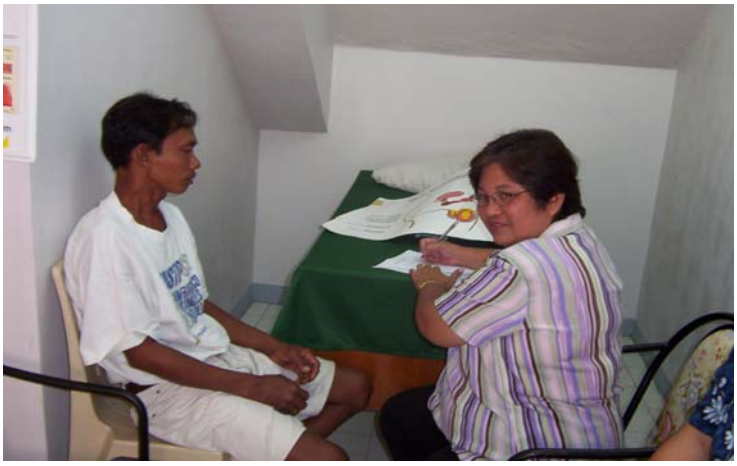
Motivating Potential Clients

- ☑ **CBT FP-trained community-based volunteer health workers (VHWs) mobilization** for face-to-face information, education, and motivation activities.

- ☑ **IEC materials – leaflets and flip charts on male reproductive anatomy and physiology and NSV**-How is it done? How does it work? Who can use it? Where to get the services? Possible side effects?

The clinic staff should be familiar with these materials and know their proper use.

Client Counseling



A very important aspect in the delivery of NSV services is being able to provide correct information about the method that could help the couple, especially the man, to make a decision to accept and submit to the NSV procedure. A trained nurse or midwife can do counseling at the clinic level while a CBT FP-trained VHW can do it at the community. The most frequently-asked questions and the correct information on NSV include the following:

- ☑ ***Is NSV the same as "Kapon" or Castration?***

  No, Vasectomy is not the same as "kapon" or castration. Vasectomy involves the isolation, cutting of a portion and tying of the vas deferens. "Kapon" or castration involves the removal of the testes. This is not done during vasectomy.

- ***Can a man still have erection after vasectomy? Does it cause loss of libido?***

  A man can still have erection after vasectomy. Libido is maintained or may even be enhanced after vasectomy.

- ***Does a man lose his strength after vasectomy? Can he still lift heavy objects? Can he still work?***

  A man does not lose his strength after vasectomy. On the average, he can resume work after three (3) days. He can continue to lift heavy objects as before.

- ***Is it 100% effective? Why do some men who had undergone vasectomy still have children after the procedure?***

  There is no method currently available that is 100 % effective. It should be emphasized during counseling that residual sperms are still stored along the vas and in the seminal vesicle even after the procedure. It takes about 20-30 ejaculations to eliminate the residual sperms.

Informed Consent

After making the decision to accept vasectomy, the client must give his informed consent before the procedure is done. Any member of the NSV team trained on counseling must explain the six elements of the informed consent form to the client before he signs it (See Annex 2 for a sample consent form).

Specific Attention to the Needs of Men

- Programs that specifically take account of the psychological characteristics of men are more likely to succeed. In some cases, this may mean that vasectomy should be physically or temporarily separated from female FP services. For example, during a vasectomy schedule, services for women should be cancelled or transferred to another facility.

E. Maintaining Quality of Care

Quality of care is usually defined in the context of client satisfaction such as:

- ☑ Information given to the client
- ☑ Access to services in terms of geographical, physical, and financial conditions
- ☑ Waiting time and client flow
- ☑ Delivery of services in accordance with service delivery protocols
- ☑ Post-service or exit follow-up.

It can also be assessed on the basis of facilities available and adoption of infection prevention measures (See Annex 4).

Collaborating Agencies

The center needs to collaborate with other agencies to ensure the delivery of high-quality services. The motivation of clients for NSV services can be done by other agencies. The clinic may also need higher-level centers for referral of complications.

Financing

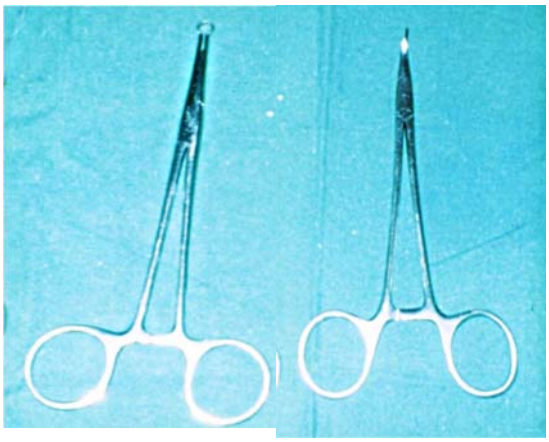
- ☑ Personnel who are responsible for organizing a new NSV program in their area must determine the initial cost as well as the recurring expenditures depending on local conditions and particular program design. For example, budget requirements may be influenced by whether the surgeon receives salaries or are paid on a session or per case basis. In most cases, the procedure is done by existing staff and does not entail additional cost for salaries or patient fees. NSV done by accredited physicians in PhilHealth-accredited centers can also be reimbursed. Likewise, the type of informational activity used (e.g. word of mouth, mass media, community field agents) should also be considered.
- ☑ Experience in MGP areas showed that NSV services may be initiated with existing personnel and facilities. Initial expenditures involved the cost of basic instruments for NSV – the vas fixing clamp (extra-cutaneous ringed forceps) and the dissecting forceps which cost about Php 2,000.00 per set (a service center requires at least 3 sets) and the costs of surgical supplies, antiseptic solutions, analgesics, and antibiotics that range from Php100.00 to Php 200.00 per client.

Annex 1

The No-Scalpel Vasectomy Procedure

What is the difference between no-scalpel vasectomy and conventional vasectomy?

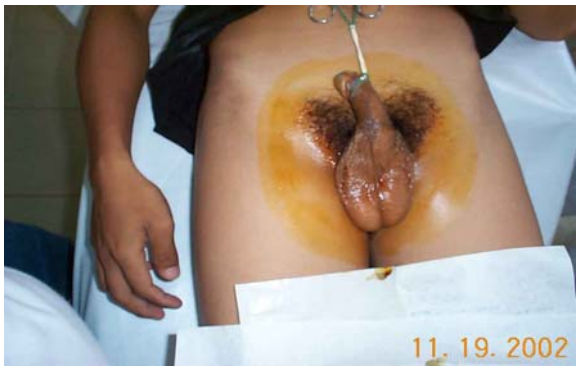
No-scalpel vasectomy is a surgical procedure done under local anesthesia, where the vas deferens is isolated, fixed using a special instrument, the extra-cutaneous ringed clamp, and then dissected, cut, and tied using the vas dissecting forceps. The procedure is less traumatic, almost bloodless, compared to conventional vasectomy where the vas deferens is isolated and fixed using either a towel clamp or a hypodermic needle and then dissected using a scalpel.



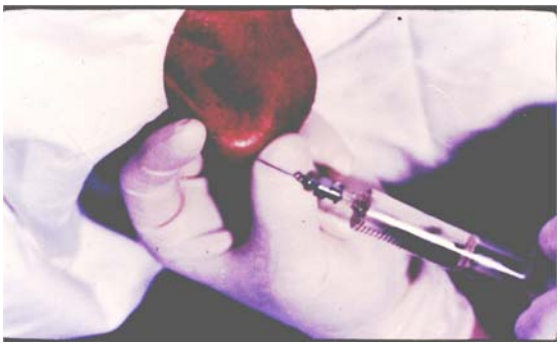
The steps in no-scalpel vasectomy:

1. Pre-operative Preparation

a. Conduct counseling and obtain informed consent.
b. Conduct pre-operative history and physical examination.
c. Prepare the client for surgery.



d. Secure the penis.
e. Clean the operative area.
f. Drape the operative field.

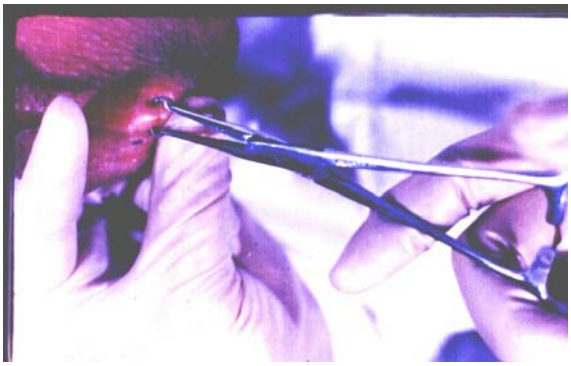


2. Anesthesia

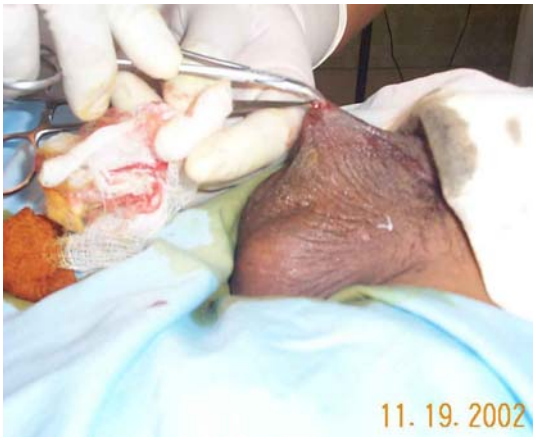
a. Prepare for anesthesia.
b. Isolate the right vas using the three-finger technique.
c. Raise the skin wheal.
d. Create the vasal block –deep infiltration of the right vas.

e. Isolate the left vas using the three-finger technique.
f. Deeply infiltrate the left vas.

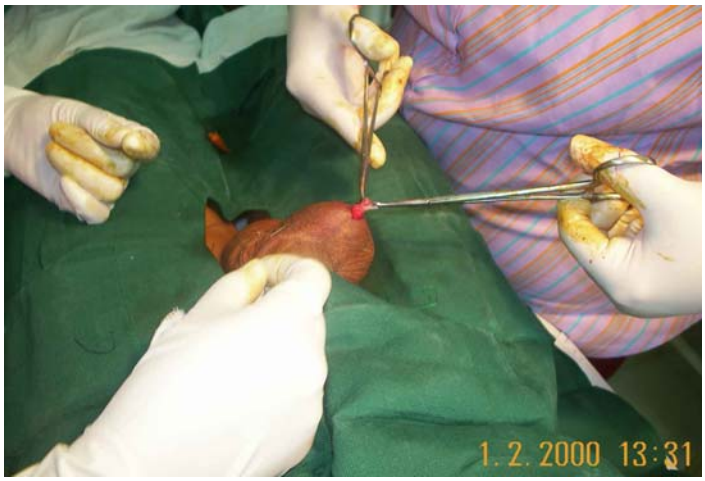
3. *Surgical Approach and Occlusion of the Vas*



a. Hold the ringed clamp with palm up.
b. Apply the ringed clamp to the scrotal skin and underlying right vas.
c. Elevate the underlying right vas.
d. Puncture the scrotal skin using the dissecting forceps.
e. Insert both tips of the dissecting forceps into the puncture site.



f. Spread the tissues to make the skin opening twice the diameter of the vas.
g. Deliver and elevate the right vas – pierce the wall of the vas with the tip of the lateral blade of the dissecting forceps. Rotate the dissecting forceps clockwise 180^0 so that the tips faces upwards.
h. Release the ringed clamp and lift the vas with the dissecting clamp.



i. Grasp the vas with the ringed clamp.
j. Puncture and strip the sheath with one tip of the dissecting forceps.
k. Insert both tips of the dissecting forceps into the punctured sheath.
l. Open the dissecting forceps to strip the sheath.
m. Remove a segment of the vas (about 1 mm.) and ligate the cut ends.
n. Repeat steps a-m on the left vas.

4. Post-Operative Care and Instructions

a. Ask the client to rest in the clinic for 15 minutes.
b. Explain in simple language how to take care of the wound, what to do if complication occurs, where to go for emergency care, and when and where to return for follow-up care. Give the client a written summary of the post-operative instructions.
c. Tell the patient that minor pain and bruising are to be expected and do not require medical attention.
d. The client has to seek medical attention if he has fever, if blood or pus oozes from the puncture site, or if he experiences excessive pain or swelling of the operative site.
e. The patient may resume normal activities and sexual intercourse with temporary contraception within 2-3 days, if he feels comfortable.
f. The client and his partner will need to use temporary methods for 12 weeks or wait until after 20 ejaculations.
g. Ideally, the client should have one to two sperm analysis after vasectomy.

Annex 2

INFORMED CONSENT FORM

I _____of legal age, residing at _____
(Name of client undergoing NSV)
_____consent to the operation – no-scalpel vasectomy – voluntarily and without any pressure or inducement from any one to do so. I understand that:

1. The operation is permanent and if successful, I will no longer be able to produce children.
2. The operation involves some risks.
3. There is a slight chance that the operation may fail.
4. There are temporary FP methods available to my partner and me.
5. The procedure has been explained to me and I was given the opportunity to ask questions and all questions have been answered with satisfaction.
6. That I can change my mind at any time before the operation.

Signature of the Client: _____Date _____

Signature of the Spouse: _____Date _____
(Optional)

I certify that I have fully explained the NSV procedure and anesthesia regimen including the post operative instruction to the client, have assessed the client's decision, provided thorough counseling, and obtained affirmation of the client's voluntary request for no-scalpel vasectomy.

Signature of counselor
or Surgeon: _____ Date_____

Annex 3

Post-Operative Instructions

1. Rest at home after the operation. Avoid work and strenuous exercises for at least 48 hours. You may resume normal activities after 2 or 3 days.

2. You may take a bath on the day after the operation, but do not let the wound to get wet. After 3 days, you may wash the wound with soap and water.

3. Do not pull or scratch the wound while it is healing.

4. Wear a tight undergarment or scrotal support for at least two days after surgery. This will help you to be comfortable.

5. Keep the bandage on for three days after the operation.

6. You may have sex with your partner as soon as it is comfortable for you. This is usually 2 or 3 days after the operation.

7. Remember, vasectomy does not work immediately and you can still get your partner pregnant. Use condom or ask your partner to continue using another family planning method until after 20 ejaculations.

8. You may experience a little pain, bruising, or swelling in the operative site. Take the medication provided or prescribed by the doctor. Observe the wound to be sure that it does not get worse. Be sure to follow the instructions given to you. An ice pack may help reduce the pain, bruising, or swelling.

9. Return to the clinic or call if you have fever within one week of the operation; if there is any bleeding or pus in the wound; if there is pain or swelling around the wound that gets worse or does not go away; if your partner ever misses a period or thinks she is pregnant. This is very important. It may mean the operation has failed, and your partner may be pregnant.

10. Stitches are not usually required in no-scalpel vasectomy. But, if you do have stitches, you must go to a health center for a follow-up visit/removal of stitches one week after the operation.

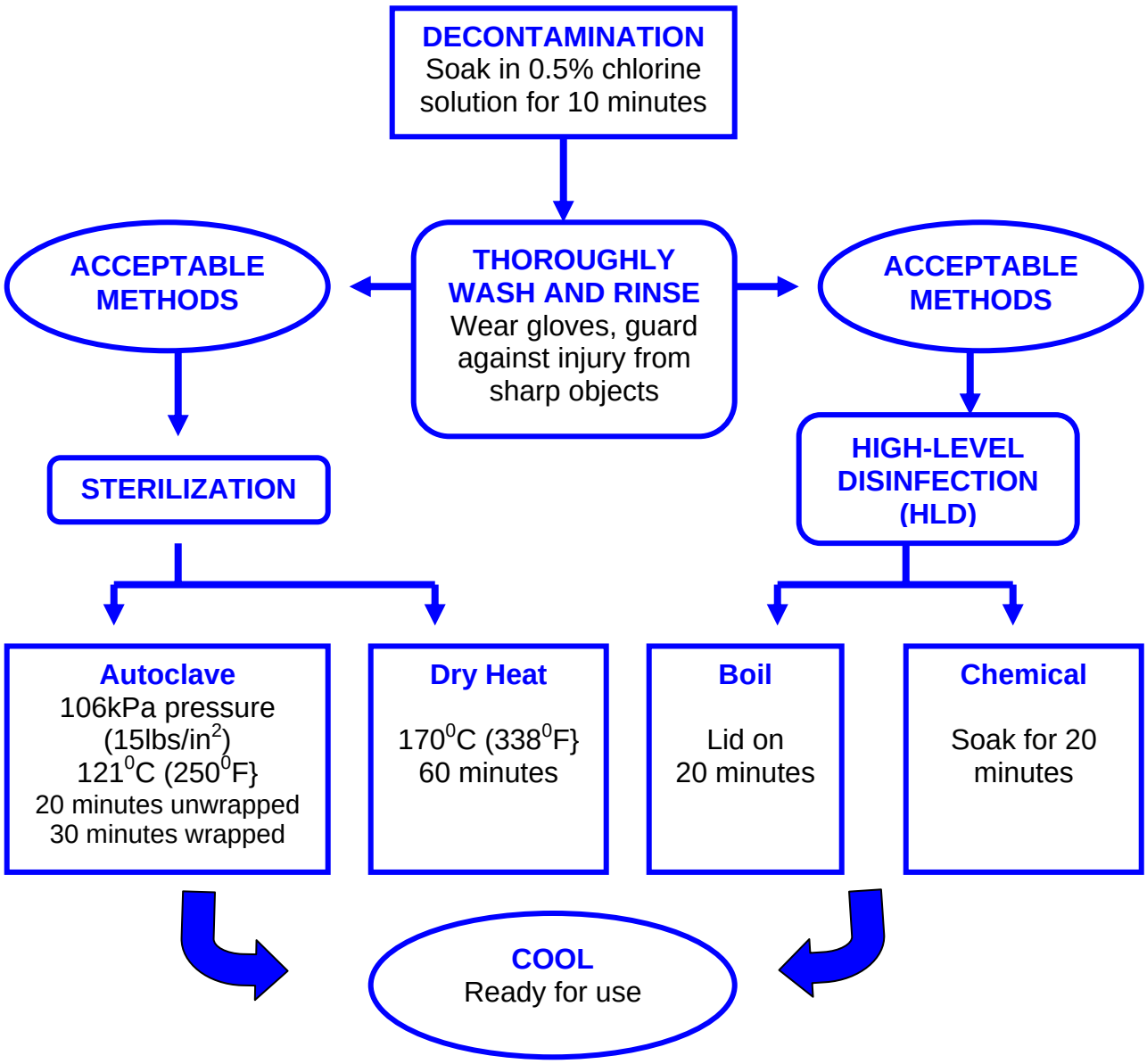
11. Your follow-up appointment is: Day and Date_____Time _____

Annex 4

INFECTION PREVENTION & CONTROL

Decontamination, cleaning, and sterilization (or HLD) of surgical instruments, reusable gloves, and other items (processing of gloves, instruments, and other items)

The diagram below presents the steps to be followed in processing gloves, instruments, and other items to be used or used in surgical procedures, in general and in NSV, in particular**:**



* Wrapped sterile packs can be stored for up to one week. Unwrapped items should be stored in a sterile or HLD container with tight-fitting lid or used immediately.

Protective Barriers

Protective “barriers” (physical, mechanical, or chemical) placed between microorganisms and an individual, whether a client or a health worker, is an effective means of preventing the spread of diseases. These include:

1. *Hand-washing*

   Hand washing may be the singlemost important procedure in preventing infection. For most activities, brief hand washing with plain or antimicrobial soap for about 15-30 seconds, followed by rinsing in a stream of water is sufficient. It is indicated:

   - ☞ Before examining a client
   - ☞ Before putting on HLD or sterile gloves for NSV procedure
   - ☞ After an activity in which the hands may be contaminated. e.g.
     - Handling objects, including used (soiled) instruments
     - Touching mucus membranes, blood or other body fluids (secretions or excretions)

2. *Surgical hand scrub*

   - ☞ A 3-5 minute hand scrub with a solution containing chlorhexidine (Hibitane. Savlon) or an iodophors (povidone iodine or Betadine) is recommended.
   - ☞ An alternative to this is a non-irritating alcohol solution prepared by adding 2 ml of either glycerine, propylene glycol or Sorbitol to 100 ml of 60-90 % alcohol solution. Use 3-5 ml for each application and continue rubbing the solution over the hands for about 2 minutes, using a total of 6-10 ml per scrub.

3. *Wearing gloves,* either for surgery or when handling contaminated waste materials or used (soiled) instruments.

   - ☞ Gloves should be worn by all staff before contact with blood and body fluids from any client.
   - ☞ Single-use (disposable) gloves are preferable, but reusable gloves can be washed and then sterilized by autoclaving or subjected to HLD.

4. *Using antiseptic solutions for cleaning wounds or preparing the skin for surgery.* The recommended procedure and antiseptics are as follows:

☞ For skin preparation

- Do not shave hair at the operative site. Shaving increases the risk of infection as the tiny nicks in the skin provide an ideal setting for microorganisms to multiply and grow.
- Ask clients for any allergy to antiseptics (i.e. povidone iodine).
- If visibly soiled, thoroughly clean the clients' skin with soap and water before applying the antiseptic.

5. *High-level disinfection can be done by boiling, steaming, or soaking in a chemical disinfectant*

☞ Disinfection by boiling

- Items should be completely submerged or covered with water while boiling.
- Always boil the water for 20 minutes.
- Start timing when the water begins to boil.
- Do not add anything to the pot after boiling begins.
- Air dry in a high-level disinfected container before use or storage.

☞ Disinfection by steaming

- Always steam for 20 minutes in a steamer with a lid.
- Reduce heat so that water continues to boil in a rolling boil.
- Start timing when the steam begins to come out from between the pans and the lids.
- Do not use more than 3 steamer pans.
- Air dry in covered steamer pans or a high-level disinfected container before use or storage.

☞ Chemical disinfection using 2% glutaraldehyde (cidex)

- Following decontamination, thoroughly clean and dry all equipment and instruments.
- Cover all instruments completely with correct dilution of properly-stored disinfectant.
- Soak for 20 minutes.
- Rinse well with boiled water and air dry.
- Store for up to one week in a high-level disinfected, covered container or use promptly.
- To prepare a high-level disinfected container, boil (if small) or fill it with 0.5% chlorine solution and soak for 20 minutes. Rinse the inside thoroughly with boiled water. Air dry before use.

6. Sterilization

- ☞ Dry heat – sterilize instruments in autoclave at 170^{o}C or 338^{0}F for one (1) hour.

- ☞ Steam Pressure Auto Clave at 106kPa pressure (15lbs/in^2) 121^{0}C (250^{0}F} for 20 minutes if unwrapped or 30 minutes for wrapped instruments.