



**USAID**  
FROM THE AMERICAN PEOPLE



**EngenderHealth**  
for a better life

**NO-SCALPEL  
VASECTOMY  
CURRICULUM**

**Participant  
Handbook**

**A Training Course for  
Vasectomy Providers  
and Assistants**

**2nd Edition**

[www.engenderhealth.org](http://www.engenderhealth.org)



# **NO-SCALPEL VASECTOMY**

**C U R R I C U L U M**

---

**A Training Course for  
Vasectomy Providers  
and Assistants,  
2nd Edition**

**Participant Handbook**



**USAID**  
FROM THE AMERICAN PEOPLE



**EngenderHealth**  
for a better life

© 2007 EngenderHealth. All rights reserved.

EngenderHealth  
440 Ninth Avenue  
New York, NY 10001 U.S.A.  
Telephone: 212-561-8000  
Fax: 212-561-8067  
e-mail: [info@acquireproject.org](mailto:info@acquireproject.org)  
[www.acquireproject.org](http://www.acquireproject.org)

This publication is made possible by the generous support of the American people through the Office of Population and Reproductive Health, U.S. Agency for International Development (USAID), under the terms of cooperative agreement GPO A 00 03 00006 00. The contents are the responsibility of EngenderHealth and do not necessarily reflect the views of USAID or the United States Government.

ISBN 978-1-885063-67-0

Printing: Automated Graphic Systems, Inc.

Printed in the United States of America. Printed on recycled paper.

Suggested citation: EngenderHealth. 2007. *No-scalpel vasectomy curriculum: A training course for vasectomy providers and assistants: Participant handbook*. New York.

# Contents

Acknowledgments .....vii

**MODULE 1 Introduction 1**

Introduction .....1  
Training Materials .....2  
Evaluation .....2  
NSV Knowledge Assessment Test .....3  
Self-Assessments .....3  
NSV Clinical Skills Checklist .....4

**MODULE 2 Overview of Vasectomy 9**

Introduction .....9  
Acceptability of Vasectomy .....10  
History of NSV .....11  
Major Differences between NSV and Incisional Vasectomy .....12  
Advantages of NSV .....12  
Country-Specific Information about Vasectomy .....13  
Developing, Managing, and Publicizing Vasectomy Services .....14

**MODULE 3 Anatomy and Physiology 15**

Introduction .....15  
External Organs of the Male Genitourinary System .....16  
Internal Organs of the Male Genitourinary System .....16  
Physiological Changes after Vasectomy .....18  
Explaining the Effects of Vasectomy to Clients .....19  
Self-Assessment .....21

**MODULE 4 Counseling and Informed Decision Making for NSV 23**

Introduction .....23  
Definition and Rationale .....24  
Family Planning Counseling and Vasectomy .....25  
Steps in Providing Counseling for Vasectomy Clients .....26  
Informed Decision Making.....30  
Model Informed Consent Form for Vasectomy.....31  
Verifying Informed Decision Making .....32  
Condom Instructions .....33  
Self-Assessment.....35

**MODULE 5 Prevasectomy Evaluation 37**

Introduction .....37  
Prevasectomy Assessment .....38  
Genital Examination .....38  
Medical History and Physical Examination .....39  
Vasectomy Precautions .....41  
Self-Assessment.....44

**MODULE 6 Infection Prevention 45**

Introduction .....45  
Importance of Infection Prevention .....46  
How Infections Are Transmitted .....46  
Who Is at Risk of Infection?.....48  
Stopping Transmission of Infections .....49  
Handwashing .....51  
The Three Kinds of Handwashing .....51  
Use of Gloves .....52  
Surgical Scrub .....53  
Antiseptics and Disinfectants .....54  
Surgical Site Preparation.....59  
Multidose Vials .....59  
Processing of Instruments and Other Items Used in Vasectomy .....60  
Storage of Processed Items.....66  
Maintaining a Safe Environment in the Vasectomy Procedure Room.....66  
Waste Disposal .....67  
Self-Assessment.....69

**MODULE 7 Scrotal Model Practice 71**

Introduction .....72  
Overview of the NSV Technique .....72  
Demonstration .....72  
Supervised Scrotal Model Practice .....74  
Independent Scrotal Model Practice .....77  
Evaluation .....78  
Self-Assessment.....79

**MODULE 8 Supervised Clinical and Surgical Practice 81**

Introduction .....81  
Guidelines for Surgical Observation and Practice.....82  
Client-Support Highlights .....82  
Infection Prevention Highlights .....82  
Supervised Surgical Practice.....83  
Evaluation of Clinical and Surgical Skills .....84

**MODULE 9 Postvasectomy Care 85**

Introduction .....85  
Immediate Postvasectomy Care .....86  
Sample Postvasectomy Instructions for Clients .....87  
Semen Analysis .....89  
Self-Assessment.....91

**MODULE 10 Management of Complications 93**

Introduction .....93  
Overview of Complications .....94  
Management of Intraoperative Complications .....95  
Emergency Management of Intraoperative Complications .....96  
Potential Postvasectomy Complications .....98  
Self-Assessment .....100

**Appendixes**

**Appendix A**

NSV Knowledge Assessment Test.....105

<b>Appendix B</b>	
NSV Clinical Skills Checklist .....	111
<b>Appendix C</b>	
Developing and Managing Vasectomy Services .....	117
<b>Appendix D</b>	
Informing the Community about Vasectomy .....	131
<b>Appendix E</b>	
Long-Term Effects .....	145
<b>Bibliography</b>	<b>149</b>



# Acknowledgments

The first edition of this curriculum was published in 1997 by EngenderHealth (then known as AVSC International). A number of staff members and consultants contributed to the development and production of the original curriculum, among them primary writer Zoe Kopp (consultant) and the following members of the curriculum development team: Dr. Charles Carignan (medical director), Ellen Eiseman (training programs advisor), Pamela Beyer Harper (director of communications), and Joanne Tzanis (managing editor). David Rosenzweig (consultant) produced the illustrations. Further, the initial impetus for developing the curriculum was provided by the authors of *No-Scalpel Vasectomy: An Illustrated Guide for Surgeons*—Betty Gonzales, Shelby Marston-Ainley, Dr. Gilberte Vansintejan, and Dr. Philip Shihua Li.

The first edition of the curriculum was edited by Joanne Tzanis; Stephanie Greig provided art direction and designed all graphics and texts for both the trainer’s manual and the participant handbook. Anna Kurica was responsible for final production of the curriculum, with the assistance of Marge Baynes.

Dr. Levent Cagatay, John M. Pile, and Dr. S.S. Bodh initiated the revisions that resulted in this second edition of the no-scalpel vasectomy curriculum; they were greatly assisted during the revision process by Dr. Carmela Cordero. Dr. Bodh also led the field test of the revised curriculum, which was conducted in Bangladesh in May 2005 at Mohammedpur Fertility Services and Training Center, Dhaka. Dr. A. J. Faisel and Dr. Mizan Rahman from EngenderHealth Bangladesh assisted in organizing the field test. The trainers were Dr. S. M. Nizamul Haque (senior technical support expert, EngenderHealth Bangladesh Country Office) and Dr. Fatema Shabnam (program officer, EngenderHealth Bangladesh Country Office). The participants/trainees were: Dr. Gazi Rezaul Karim (program officer, EngenderHealth, Bangladesh Country Office); Dr. Md. Shahabuddin (medical officer [clinical contraception], Dinajpur District Family Planning Office); Dr. Dilip Kumar Brahma (regional supervisor, Family Planning Clinical Services Team and Quality Assurance Team, Jessor Region); Dr. Md. Mazibul Haque (regional supervisor, Family Planning Clinical Services Team and Quality Assurance Team, Mymensingh Region); Dr. Anowarul Haque (regional supervisor, Family Planning Clinical Services Team and Quality Assurance Team, Barisal Region); and Dr. Md. Mahfuzur Rahman (regional supervisor, Family Planning Clinical Services Team and Quality Assurance Team, Dhaka Region).

We are grateful to the U.S. Agency for International Development and to the ACQUIRE Project for their funding to support the process of revising the curriculum, as well as its editing and printing.

This edition of the curriculum was edited by Michael Klitsch; Cassandra Cook was responsible for production.



# MODULE 1 Introduction



## Materials and Supplies

In addition to this handbook the trainer will provide you with:

- ✓ *No-Scalpel Vasectomy: An Illustrated Guide for Surgeons*, third edition, 2003.
- ✓ Scrotal model\*
- ✓ Dissecting forceps\*
- ✓ Ringed clamp\*
- ✓ Copy of the workshop agenda
- ✓ Copy of Knowledge Assessment Test

\* Vasectomy assistants do not need these materials.

## Introduction

### Purpose and Objectives

This curriculum is a clinical skills training course designed to train vasectomists and vasectomy assistants to provide safe, effective no-scalpel vasectomy (NSV) services. Besides containing instructions on providing the NSV procedure, this course also contains information on counseling, informed consent, infection prevention, and management of complications, as well as supplemental materials on developing, maintaining, and publicizing a vasectomy service.

### Directions for Independent Study

You can use this book and *No-Scalpel Vasectomy: An Illustrated Guide for Surgeons* to prepare for this training course independently. By studying the texts in advance, you can help decrease lecture time and increase the time available for scrotal model practice and supervised surgical practice. Health providers, including experienced vasectomists, must *not* attempt NSV on a client until they have received supervised practical training.

Specific directions for independent study appear in each module. Read the modules in order. Once you have read and reviewed a module and have completed the recommended readings or activities, complete the self-assessment at the end of the module.

Your training package includes the two specially designed instruments used in NSV (the ringed clamp and dissecting forceps) and a scrotal model. These items may or may not be provided to you in advance of the course (depending on availability).

If you have any questions about independent study, contact your NSV trainer.

## Training Materials

### The NSV Participant Handbook

This handbook, which contains information on all topics usually covered in NSV training, is used throughout the training course to assist you in learning the content of the course. After the course, you may use this handbook as a review guide. This handbook also contains diagrams, charts, and other graphic materials you may want to adapt for use with your clients.

If you have received this handbook in advance of an NSV workshop, you may begin independent study to prepare yourself for the training.

### No-Scalpel Vasectomy: An Illustrated Guide for Surgeons

This book, which is the basis for the surgical skills training in this course, will also serve as a helpful reference after you have completed NSV training. Besides being a step-by-step guide to the NSV procedure, the book also reviews basic medical and surgical practices that are essential to ensuring the safety and effectiveness of any vasectomy procedure.

This book will be used extensively throughout Module 7: Scrotal Model Practice and Module 8: Supervised Clinical and Surgical Practice. If you have received this book in advance of an NSV workshop, you may begin independent study of the text to prepare yourself for the training.

### Dissecting Forceps, Ringed Clamp, and Scrotal Model

The trainer will give this equipment to all participants who will perform NSV. Vasectomy assistants will not receive these materials, but they should be sure to become familiar with and handle the instruments.

These materials will be used during scrotal model and supervised surgical practice. If you have received these materials in advance of an NSV workshop, you may use *No-Scalpel Vasectomy: An Illustrated Guide for Surgeons* as a guide to help you practice independently on the scrotal model.

## Evaluation

### NSV Clinical Skills Checklist

One of the most important learning tools in this package is the NSV Clinical Skills Checklist, which appears on pages 4–7. (A copy of this checklist also appears in Appendix B.) The checklist with critical steps will serve as a learning guide for you throughout your preparation for the training course and throughout the course itself. The checklist will also be used by the trainer to evaluate your clinical skills and may be used during follow-up as well.

Use the checklist:

- As a learning guide as you work through the modules and as you practice on the scrotal model
- To evaluate your performance on the scrotal model
- As a reference during supervised surgical practice
- To evaluate your surgical performance (When the trainer judges your performance as satisfactory, you will be considered competent to perform NSV without a trainer's supervision.)

### **Evaluation of Surgical Performance**

This is a competency-based learning course, which means that your ability to provide safe, effective NSV services, as judged by an experienced NSV trainer, will be the measure of satisfactory evaluation of this course.

If there are not enough clients for you to receive adequate surgical practice, or if the trainer does not rate your performance of the procedure as satisfactory, you will need to make arrangements to be further evaluated by the trainer after the workshop has ended.

### **NSV Knowledge Assessment Test**

At the beginning of the workshop, the trainer will ask you to complete the NSV Knowledge Assessment Test. The test will not be graded, and it will have no effect on how the trainer rates your surgical performance. The assessment is designed to help the trainer determine the coursework that should be emphasized during the workshop.

### **Self-Assessments**

A self-assessment appears at the end of most of the modules in this handbook. If you are studying material independently, take the assessment after you review the content in each module.

## NSV Clinical Skills Checklist

Page 1 of 4

TASKS	EVALUATION		
<b>Trainers: When rating tasks for evaluation, use the following codes:</b>			
<b>S = Satisfactory:</b> Performs the task according to the standard guidelines	Circle one: (M=model, C=client)		
<b>U = Unsatisfactory:</b> Does not perform the task according to the standard guidelines	<b>M</b>	<b>M</b>	<b>M</b>
	<b>C</b>	<b>C</b>	<b>C</b>
<b>All critical steps must be performed satisfactorily for the participants to be assessed as competent.</b>			
<b>Prevasectomy Evaluation</b>			
1. Greets client.			
2. Ensures that client has been appropriately counseled about the procedure.			
3. Takes medical history and performs heart, lung, and abdominal examination.			
<b>4. *Performs genital examination.</b>			
<b>Preprocedure Tasks</b>			
5. Ensures that room is warm enough to relax clients's scrotum			
6. Reviews chart for relevant medical history.			
<b>7. *Verifies informed consent</b>			
8. Washes hands.			
9. Examines operative site to ensure that spermatic cords are mobile.			
10. Clips hair at operative site, if necessary.			
11. Ensures operative site is clean.			
12. Retracts the penis upward on the abdomen in the 12 o'clock position and anchors it comfortably.			
13. Performs surgical scrub. Puts on sterile gloves.			
14. Prepares a syringe to administer 10 cc 1% or 5 cc 2% lidocaine (without epinephrine). Attaches 1.5 inch (or metric equivalent) small-gauge needle (22–27 gauge)			
15. Adequately prepares operative site with body temperature antiseptic.			
16. Isolates operative site (scrotum) with sterile sheet(s) or towel(s).			
<b>Procedure Tasks</b>			
17. Observes and communicates with client.			

**\*A critical step that must be performed satisfactorily for the participant to be assessed as competent.**

*continued*

NSV Clinical Skills Checklist continued

Page 2 of 4

TASKS	EVALUATION					
18. <b>*Identifies, isolates, and fixes right vas deferens under the median raphe midway between the base of the penis and the top of the testicles. Traps the right vas firmly using the three-finger technique.</b>						
19. <b>*Raises skin wheal using 0.5 cc of 1% or 2% lidocaine (without epinephrine). Advances needle in the right external spermatic fascial sheath toward the inguinal ring about 1.5 in. above the wheal, aspirates, and without withdrawing the syringe slowly injects 2 to 5 cc of lidocaine into the sheath, then removes the needle.</b>						
20. <b>*Uses the three-finger techniques to firmly trap the left vas. Reintroduces the needle through the puncture. Advances the needle in the left external spermatic fascial sheath toward the inguinal ring about 1.5 inches above the wheal, aspirates, and injects 2 to 5 cc of lidocaine into the sheath.</b>						
21. Pinches the skin wheal between the thumb and forefinger to reduce local edema, and waits 2–3 minutes for the anesthesia to take effect.						
22. Fixes the right vas under the skin wheal, using the three-finger technique.						
23. Applies upward pressure with the middle finger underneath the scrotum; presses the open tips of the ringed clamp onto the skin at the skin wheal overlying the vas; grasps the right vas, applying the clamp at a 90° angle perpendicular to the vas, with the palm facing up.						
For steps 24–44, fill the columns for right and left with S or U as appropriate.	<b>R</b>	<b>L</b>	<b>R</b>	<b>L</b>	<b>R</b>	<b>L</b>
24. Checks with client to ensure that anesthesia is sufficient. If not, repeats local infiltration being sure not to exceed the maximum dose.						
25. Elevates the entrapped vas by lowering the handle of the ringed clamp.						
26. <b>*Uses a quick, sharp, single movement to pierce the skin down to the vas lumen using the medial blade of the dissecting forceps, introduced at a 45° angle.</b>						
27. <b>*Withdraws the medial blade of the dissecting forceps, closes both blades and inserts both tips of the dissecting forceps into the puncture site to the same depth down to the vas.</b>						
28. Gently opens the blades of the dissecting forceps and spreads the tissue to make a skin opening twice the diameter of the vas.						
29. <b>*Withdraws the dissecting forceps and uses the tip of the lateral blade of the dissecting forceps to pierce the vas wall (or holds the dissecting forceps in line with the long axis of the vas and grasps the bare vas directly) and rotates the dissecting forceps clockwise 180°.</b>						
30. <b>*Delivers the vas through the puncture hole while releasing the ringed clamp, but still keeping it in place.</b>						
31. Grasps a partial thickness of the elevated vas with the ringed clamp.						

**\*A critical step that must be performed satisfactorily for the participant to be assessed as competent.**

*continued*

NSV Clinical Skills Checklist continued

Page 3 of 4

TASKS	EVALUATION					
	R	L	R	L	R	L
32. If the sheath is not completely dissected, with one tip of the dissecting forceps, gently punctures the vas sheath, removes and closes the dissecting forceps, then reinserts to strip the vas sheath.						
<b>Occlusion</b> —Ligation with Excision and Fascial Interposition (For cautery occlusion, see 33A below.)						
33. After carefully separating of fascia and blood vessels from the vas, ligates the prostatic end of the vas.						
<b>34. *Cuts one end of the suture about 2–3 mm from the knot, leaving a single uncut end of about 5–7 cm in length.</b>						
35. Ligates the testicular end about 1.5 cm from the prostatic end ligature and leaves both end of the suture to about 5–7 cm in length.						
36. Excises up to 1cm of vas in between the two ligatures.						
<b>37. *Pulls both ligatures to ensure that both stumps are separated by at least 1 cm.</b>						
38. Ensures hemostasis.						
39. Cuts both ends of the testicular suture, leaving about 2–3 mm.						
<b>40. *Allows both ends of the vas to drop back into their original position in the scrotum by gently pulling on the scrotum with the thumb and index finger.</b>						
<b>41. *Very gently pulls the long suture of the prostatic end of the vas to reexpose the cut end of the vas, which will be covered with fascia.</b>						
42. Gently grasps the fascia of the spermatic cord with the tip of the dissecting forceps and ties the fascia around the vas 2–3 mm below the previous tie of the prostatic end.						
43. Cuts the suture and allows the stump to drop back into its original position in the scrotum.						
44. Pulls slightly the prostatic end again up to the puncture wound and cuts the single long end of the suture.						
<b>Occlusion</b> —Cautery (Alternative method)						
33A. After carefully separating fascia and blood vessels, pierces the vas wall with the sharp-needle electrode and directs the tip 1.0–1.5 cm into the lumen or hemitranssects the vas to permit the blunt cautery tip to enter the lumen 1.0–1.5 cm.						
34A. Applies current and withdraws the tip slowly.						
35A. After cauterizing in one direction, turns off the cautery unit to allow the tip to cool before cauterizing the vas in the other direction.						
36A. Excises up to 1cm of vas between the two cauterized segments.						
If using cautery, move on to Step 45.						

\*A critical step that must be performed satisfactorily for the participant to be assessed as competent.

*continued*



**NSV Clinical Skills Checklist** continued

Page 4 of 4

TASKS	EVALUATION		
45. Using the three-finger technique, isolates the left vas under the puncture site			
46. Grasps the left vas at the lower end of the puncture site with the ringed clamp.			
<b>Repeats steps 24–44 (or steps 33A–36A, for cautery occlusion) for the left vas.</b>			
47. Pinches the puncture site tightly for a minute.			
48. Inspects again for bleeding.			
49. Secures sterile gauze dressing to the wound with a tape or a bandage.			
<b>Postprocedure Tasks</b>			
50. Flushes the needle and syringe and places all instruments in a 0.5% chlorine solution for decontamination.			
51. <b>*Ensures the disposal of waste materials and sharps in accordance with infection prevention guidelines.</b>			
52. <b>*Immerses both gloved hands in 0.5% chlorine solution.</b>			
53. <b>*Removes gloves by turning them inside out.</b> <ul style="list-style-type: none"> <li>• If disposing of gloves, places in leak-proof container or plastic bag.</li> <li>• If reusing surgical gloves, submerge in 0.5% chlorine for 10 minutes for decontamination</li> </ul>			
54. Washes hands thoroughly with soap and water and dries with a clean cloth.			
55. Asks client how he feels.			
56. Provides client with written postoperative instructions and information when and where to return for follow-up.			
57. Reviews instructions orally and asks if client has any questions.			
58. Reviews the need for backup contraception for at least 12 weeks. Provides client with condoms, if needed.			
59. Advises client to return for semen analysis (if available) after 12 weeks .			

**\*A critical step that must be performed satisfactorily for the participant to be assessed as competent.**

Evaluation for \_\_\_\_\_  
(print participant's name)

The participant is  Competent  Not competent in scrotal model practice.

The participant is  Competent  Not competent to deliver NSV services.

Trainer's signature \_\_\_\_\_ Date \_\_\_\_\_



# MODULE 2 Overview of Vasectomy



## Materials and Supplies

- ✓ Module 2
- ✓ *No-Scalpel Vasectomy: An Illustrated Guide for Surgeons, third edition, pages 1–4.*

## Introduction

### Purpose and Objectives

This module provides background information on vasectomy. Upon completion of this module, you should be able to:

- State how widely vasectomy is used, both locally and worldwide
- Summarize the history of NSV
- Explain the differences between NSV and standard incisional vasectomy
- Describe the local laws and regulations governing vasectomy

### Directions for Independent Study

If you are preparing independently for this module, you should:

- Study this module.
- Read pages 1–4 in *No-Scalpel Vasectomy: An Illustrated Guide for Surgeons*.
- Find out about the availability and use of NSV in your community.
- Write down any questions you have about this module for later discussion with the trainer.

## Acceptability of Vasectomy

Sterilization is currently the world's most widely used contraceptive method, in developing and developed countries alike, and it is projected to remain so over the next two decades. Sterilization accounts for nearly half of all contraceptive use. Today, one out of four couples worldwide use sterilization as their family planning method.

Vasectomy is safer, simpler, less expensive, and just as effective as female sterilization, yet the number of female sterilization users exceeds the number of vasectomy users by five to one. Worldwide, approximately 253 million couples rely on sterilization. An estimated 43 million of these couples rely on vasectomy. Asia accounts for 77% of vasectomy users worldwide, with China and India alone representing more than 70% of the world's vasectomy users.

Vasectomy prevalence is highest in Oceania, in North America, and in parts of Asia and Western Europe. Specifically, Canada, New Zealand, the United Kingdom, and the United States have the highest rates, ranging from 15% to 18%. Though prevalence is low, successful vasectomy programs have been launched in Africa, Latin America, and the Middle East.

### Why the Underutilization of Vasectomy?

For many years, the blame for the underutilization of vasectomy has been placed on men—that they did not want to take responsibility for family planning. Evidence, however, suggests otherwise. Proceedings from the First International Conference on Vasectomy, held in 1982, noted that men in every part of the world and in every cultural, religious, or socioeconomic setting have demonstrated an interest in or acceptance of vasectomy, despite commonly held assumptions about men's attitudes or societal prohibitions (Atkins & Jezowski, 1983).

Research in the past decade has further confirmed that men do care about avoiding pregnancy and want to share the responsibility for family planning with their partners (Grady et al., 1996; Landry & Ward, 1997). Large-scale Demographic and Health Survey (DHS) studies conducted in the 1990s of men's family planning knowledge, attitudes, and practices confirmed that men were more interested in family planning than is often assumed (Ezeh, Seroussi, & Raggars, 1996). Many men favor family planning and are concerned about reproductive health (Green, Cohen, & Ghouayel, 1995).

Evidence suggests that a principal reason for the low (or declining) use of vasectomy is not men's resistance to the method or unwillingness to take responsibility, but rather the failure of health professionals to make information and services available and accessible to men. This failure has often been a result of health professionals' lack of knowledge, misinformation, personal dislike of vasectomy, or untested presumptions about what men thought and wanted (Jezowski et al., 1995). Because men lack full access to both information and services, they can neither make informed decisions nor take the active part in family planning that their attitudes indicate they may be willing to take.

### *Lack of knowledge*

Vasectomy is the least-known of all modern family planning methods. Among currently married women in DHS studies conducted in 45 countries over the past five years, vasectomy was the least-known modern method of family planning in all but five of the countries surveyed.

***Incomplete or incorrect information***

Even when men and women are aware of vasectomy, the information they have frequently is incomplete or incorrect.

**Men's and Women's Misconceptions about Vasectomy**

- Vasectomy is like castration.
- A man cannot have sex or ejaculate after vasectomy.
- A man becomes fat after the operation.
- Vasectomy makes men weak and less productive.
- Vasectomy demands rest for several days.
- Female sterilization is easier to perform and has fewer side effects.

***Lack of access***

Vasectomy is more difficult to obtain than other family planning methods; overall, in only one out of four countries in the developing world do at least half of men have access to vasectomy services. Such access varies notably by region of the world, with men having high access to such services in Asia, moderate access in Latin America, and very low access in Africa.

***Providers' indifference***

Even if vasectomy services are available, health care providers may devote little or no attention to vasectomy when discussing family planning options with clients. Providers of family planning and reproductive health services are accustomed to working with women and may not be comfortable with or know how to talk to men or provide them with care. Clinic staff may hold prejudices against men and may even discourage them from seeking family planning information and services. The failure of health professionals to make information and services available and accessible to men is often a result of health professionals' lack of knowledge, misinformation, personal dislike of vasectomy, or untested presumptions about what men thought and wanted. When program managers and providers take an active role in addressing men's needs, rather than simply making vasectomy services available, men will respond and more vasectomies will be requested.

**History of NSV**

1974—Dr. Li Shunqiang first performed no-scalpel vasectomy in China.

1985—EngenderHealth sponsors international team's visit to China.

1986—EngenderHealth recommends that the NSV approach be used in vasectomy training.

1986—EngenderHealth begins to introduce the technique in programs around the world.

## Major Differences between NSV and Incisional Vasectomy

With NSV, two specialized instruments—a ringed clamp and a dissecting forceps (a sharp, curved hemostat)—are used instead of a scalpel. The NSV technique uses a vasal nerve block, which is created by first anesthetizing the scrotal skin and then making a deep injection of anesthetic alongside each vas. This provides better anesthesia than simply anesthetizing the skin around the entry point. Because the scrotal skin puncture with the dissecting forceps is so small, sutures are not needed.

**Table 2-1.** Differences between Techniques Used in Incisional Vasectomy and NSV

	<b>Incisional Vasectomy</b>	<b>NSV</b>
<b>Instruments used for entry</b>	Scalpel Allis or towel clamp	Ringed clamp Dissecting forceps
<b>Anesthetic method</b>	Localized injection	Perivasal block
<b>Entry technique</b>	Scalpel incision	Skin puncture Blunt dissection
<b>Skin closure</b>	Sutures	No closure needed

## Advantages of NSV

NSV offers several advantages over incisional vasectomy (Table 2-2). NSV results in fewer hematomas and infections than does conventional incisional vasectomy (Table 2-3). Men undergoing NSV reported less pain during the procedure and early in the follow-up period than did men having an incisional vasectomy and also reported earlier resumption of sexual activity after surgery (Sokal et al., 1999; Holt & Higgins, 1996; Skriver et al., 1997).

Neither incisional nor no-scalpel vasectomy is time-consuming; however, there are reports of decreased operating time when skilled providers use the no-scalpel approach (Li et al., 1991; Nirapathpongorn, Huber, & Krieger, 1990). For example, in the United States, a 40% reduction in operating time has been reported with NSV (Li et al., 1991).

**Table 2-2.** Advantages of NSV over Incisional Vasectomy

	<b>Advantages of NSV</b>
<b>Instruments</b>	Vas is secured externally, avoiding need to seek blindly for it
<b>Anesthetic method</b>	Creates a vasal nerve block for more thorough anesthesia Does not cause swelling at the injection and puncture site
<b>Entry technique</b>	Reduces risk of bleeding and hematoma (Table 2-3)
<b>Skin closure</b>	No need for closure

**Table 2-3.** Incidence of Infection and Hematoma or Bleeding After Vasectomy

Reference	No. of Subjects	Infections (%)	Hematoma or Bleeding (%)
<b>Incisional Vasectomy</b>			
Philp et al., 1984	534	1.3	4.5
Kendrick et al. 1987	65,155	3.5	2.0
Nirapathpongporn et al., 1990	523	1.3	1.7
Alderman, 1991	1,224	4.0	0.3
Sokal et al., 1999	627	1.3	10.7
<b>No-Scalpel Vasectomy</b>			
Nirapathpongporn et al., 1990	680	0.2	0.3
Li et al., 1991	179,491	0.9	0.1
Li et al., 1991	238	0.0	0.0
Viladoms Fuster & Li, 1994	400	0.0	0.0
Sokal et al., 1999	606	0.2	1.7
Arellano Lara et al., 1997	1,000	0.0	2.1
Kaza et al., 1999	4,253	0.047	0.07

### Recent Developments in Occlusion Techniques

Until recently, there has been little evidence to support the superiority of any one occlusion method (Labrecque et al., 2004; Cook et al., 2004). Recent study results, however, have suggested that different occlusion techniques differ in effectiveness. Several studies published in the last few years have found higher-than-expected failure rates for vasectomy by ligation (with suture or clips) and by excision of a segment of the vas (Barone et al., 2003; Nazerali et al., 2003; Labrecque et al., 2002; Wang 2002; Hieu et al., 2003). Results of a randomized controlled trial demonstrated that use of fascial interposition with ligation and excision significantly improves the effectiveness of vasectomy—ligation and excision without fascial interposition is no longer recommended (Sokal et al., 2004a). Cautery has been shown to be highly effective (Labrecque et al., 2004; Barone et al., 2004) and was found to significantly reduce failures compared with ligation and excision with fascial interposition (Sokal et al., 2004b). Data on the use of fascial interposition with cautery, differences in the effectiveness of thermal and electrocautery, and the importance of removing a segment of the vas are lacking, however.

### Country-Specific Information about Vasectomy

A number of local and national factors may affect the way vasectomy is provided in your area. These factors are summarized in Table 2-4 (page 14).

**Table 2-4.** Supply and Demand Factors Affecting the Delivery of Quality Services

<b>Supply factors</b>	<b>Demand factors</b>
<ul style="list-style-type: none"> <li>• Laws, policies, standards and guidelines (including eligibility criteria)</li> <li>• Program management and leadership</li> <li>• Financial management (including cost-sharing or user fees)</li> <li>• Service-delivery modalities (static vs. mobile)</li> <li>• Medical quality-assurance procedures</li> <li>• Sector involvement (public, nongovernmental, or private)</li> <li>• Payments and incentives to providers</li> <li>• Information, communications (mass media and outreach), and counseling</li> </ul>	<ul style="list-style-type: none"> <li>• Client decision making (assuring informed choice, including informed consent, counseling)</li> <li>• Sociocultural and gender influences</li> <li>• Community influences</li> <li>• Policy and program factors (payments and incentives to clients)</li> </ul>

## Developing, Managing, and Publicizing Vasectomy Services

Particularly if vasectomy will be a new service at your facility, you may need to help ensure that vasectomy services are sustainable and well-integrated into existing services and that safe, voluntary vasectomy services are available to the largest possible number of potential users. Appendix C (Developing and Managing Vasectomy Services) and Appendix D (Informing the Community about Vasectomy) in this book provide information about managing and publicizing vasectomy services.



# MODULE 3    Anatomy and Physiology



## Materials and Supplies

- ✓ Module 3

## Introduction

### Purpose and Objectives

This module provides information on the anatomy and physiology of the male genitourinary system. By helping you understand the mechanism of action in vasectomy, this information is intended to help you in correctly performing a vasectomy. Upon completing this module, you should be able to:

- Describe male genitourinary anatomy and physiology
- Describe the anatomy of the spermatic cord and its internal structures
- Explain the effects of vasectomy on male reproductive anatomy and physiology

### Directions for Independent Study

This module covers male anatomy and physiology relevant to vasectomy. If you are preparing independently for this module, you should:

- Study this module.
- Take the self-assessment at the end of this module.
- Write down any questions you have about this module for later discussion with the trainer.

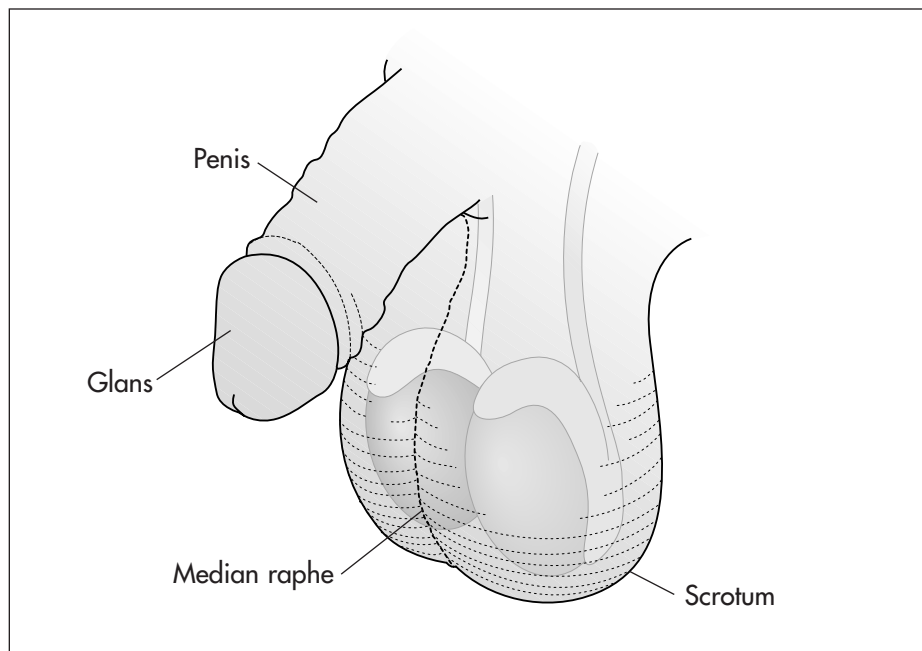
You may also want to consult an anatomy and physiology textbook to review information on male reproductive anatomy.

## External Organs of the Male Genitourinary System

Figure 3-1 shows the external male organs. The penis contains the urethra and specialized, highly vascular tissue necessary for achieving erection. The scrotum, the only other visible external male reproductive organ, is divided into two sacs (scrotal sacs). Each sac contains one testis.

During vasectomy, a puncture is made in the scrotum to allow access to the vasa (ductus) deferentia. The opening is made midway between the base of the penis and the top of the testes on the median raphe. This puncture site is chosen because (1) there is easy access to the vasa through the scrotal sac and (2) it avoids risk of injury to the epididymides and the testicles.

**Figure 3-1.** External Male Organs



## Internal Organs of the Male Genitourinary System

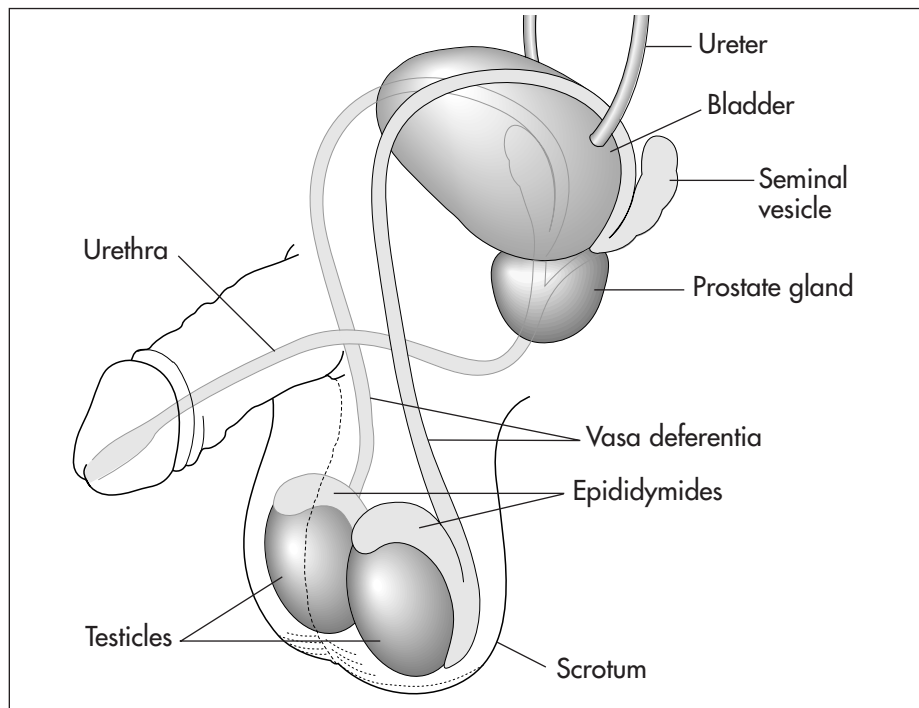
Figure 3-2 shows the male internal reproductive organs, which are made up of three groups: the testes, the ducts, and the accessory glands.

The testes (also called testicles or male gonads) produce sperm and the male sex hormone testosterone. After vasectomy, the testes continue to produce both sperm and hormones.

The second group of organs is a series of connected ducts: the epididymides, the vasa deferentia, the ejaculatory ducts, and the urethra. The two epididymides (which begin at the testes) are each connected to one of the vasa deferentia. Each vas ends at the base of the prostate, where it is joined by

the seminal vesicle. Together, each vas and duct from a seminal vesicle forms an ejaculatory duct (not pictured in Figure 3-2). The two ejaculatory ducts open into the urethra to allow the passage of sperm and seminal fluid during ejaculation. When using the three-finger technique (described in Module 7: Scrotal Model Practice), you can easily feel the vas by rolling the spermatic cord between your thumb and third finger.

**Figure 3-2.** Internal Male Organs



The third group of internal organs is called the accessory glands. These include the seminal vesicles, the prostate, and the bulbourethral glands (not pictured in Figure 3-2). These glands empty their secretions, which contribute to the seminal fluid, into the urethra. The seminal fluid carries sperm through the urethra during ejaculation. The urethra also carries urine.

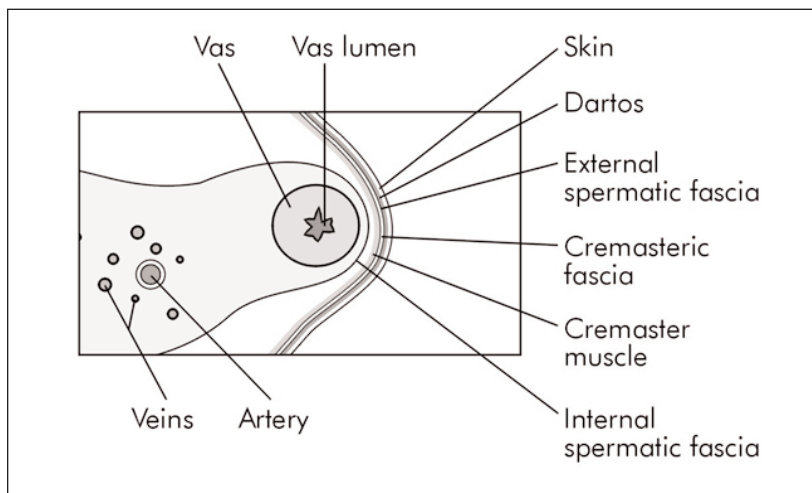
### The Spermatic Cord

One of the first steps in vasectomy is to identify the vas deferens so that it can be anesthetized and occluded. During the injection of local anesthetic and during NSV, care should be taken to avoid the testicular artery and veins located within the internal spermatic fascia (see Figure 3-3, page 18).

The vas deferens is located within the spermatic cord. It can be easily palpated and differentiated from other structures in the cord (spermatic fascia, arteries, and veins), as it is a firm, thick structure within the spermatic cord. The internal spermatic fascia is used for fascial interposition.

The vas is approximately 35 cm long and 2–3 mm in diameter. The small diameter of the lumen of the vas presents the main challenge to vasectomy reversal. Without microsurgical techniques, the success of vasectomy reversal is low (pregnancy rates range from 35% to 57%). Even when microsurgical techniques are used, success is often limited (the success rate of microsurgical techniques is between 38% and 82%).

**Figure 3-3.** Cross Section of the Spermatic Cord



## Physiological Changes after Vasectomy

After vasectomy, the male sexual and reproductive physiology remains unaffected, aside from the desired change in fertility. The nerves involved in erection have not been involved. Seminal fluid, which forms the largest part of ejaculatory fluid, continues to be produced. The client will not notice any reduction in the amount of ejaculatory fluid.

Sperm production continues, even though the sperm's passage through the reproductive system has been blocked. These sperm are absorbed into the tissue and tubes of the epididymis. Sometimes sperm blockage causes pressure to build up in the epididymis and its tubes, causing these structures to distend and, in time, rupture. Ruptures are usually asymptomatic and not problematic. The sperm granulomas that can form at the site of the rupture do not usually require treatment. (For more information about sperm granulomas, see Module 10: Management of Complications.) Although some vasectomists believe that this build-up can be avoided by leaving the testicular end of the vas open, the effect of this open-ended technique on failure rates has not been adequately studied.

Vasectomy causes a breakdown in the blood-testes barrier that leads to increased levels of serum antisperm antibodies in most men who have had a vasectomy. If a man has a vasectomy reversal, the presence of these antibodies can inhibit pregnancy, even if the vasa are successfully reconnected. However, sperm antibodies have no known impact on general health.

**Long-Term Health Effects**

Over the years, there have been concerns about possible negative health consequences resulting from vasectomy. However, results of large, well-designed studies have consistently shown no adverse effects of vasectomy on the risks of heart disease, testicular or prostate cancer, immune system disorders, and a host of other conditions. Men requesting the procedure can thus be reassured that there is no substantial long-term health risk associated with the procedure.

Some health personnel and clients may have received misinformation about the long-term health effects of vasectomy. As a family planning provider, you will need to correct myths and rumors held by colleagues and clients.

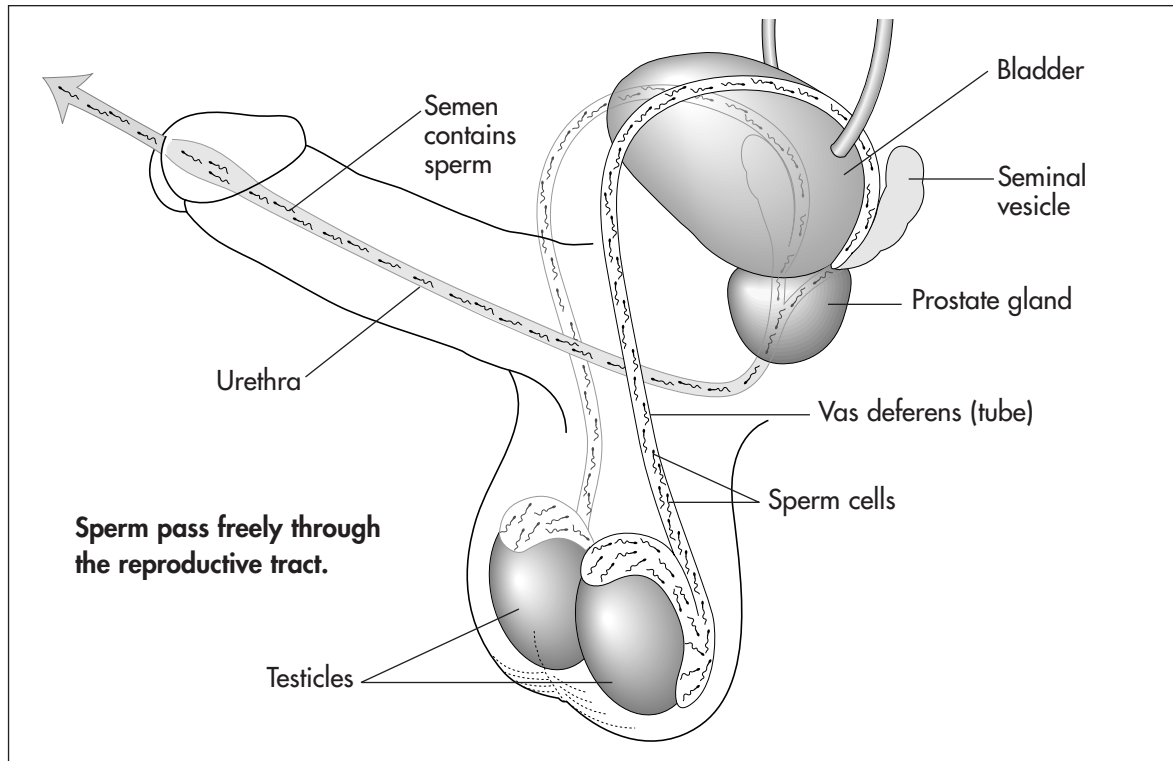
For further information, see Appendix E: Long-Term Effects.

**Explaining the Effects of Vasectomy to Clients**

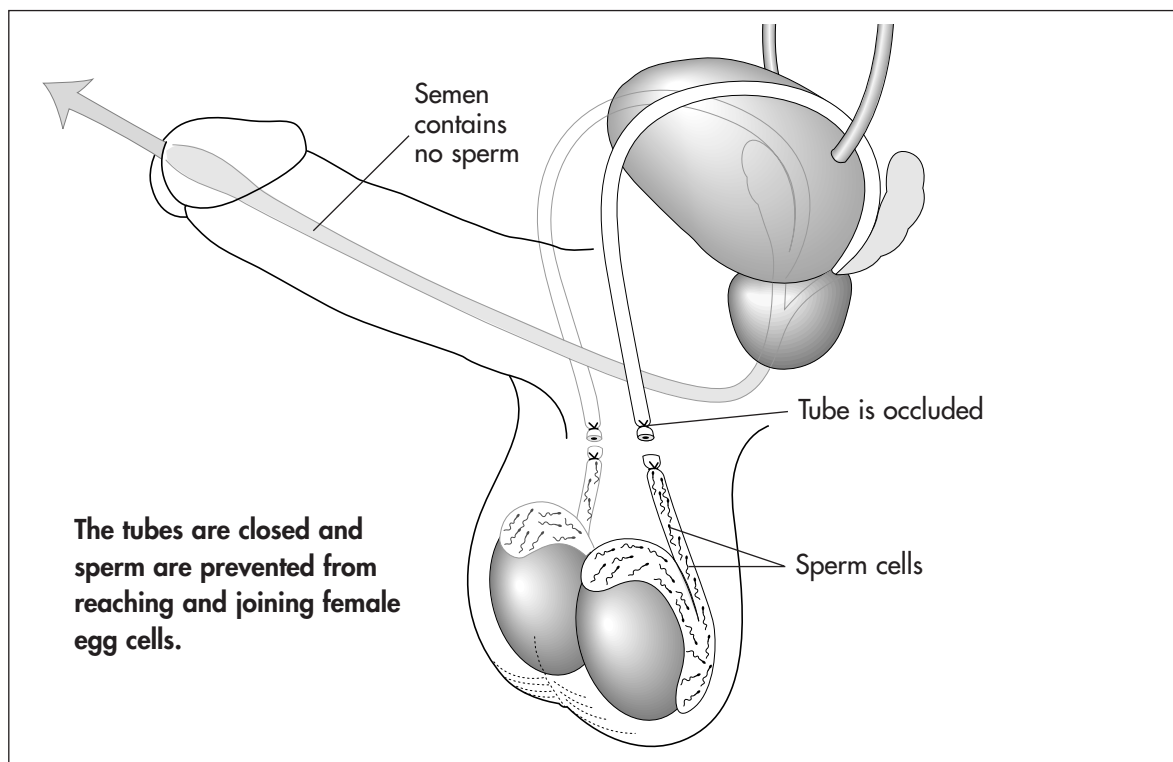
During prevasectomy counseling, explain to the client how vasectomy works, using language he can easily understand. Use diagrams like those in Figure 3-4 (page 20) to assist you in your explanation. Show clients where the small opening for NSV will be made, explaining that the puncture is not into their penis or testes. Point out where the sperm are produced in the testes and explain how the tube that carries the sperm (the vas deferens) will be cut so that sperm cannot pass through. Assure the client that his sexual desire will not be affected and that he will still be able to have an erection. Show him that the seminal fluid will still pass through to the urethra and that he will still be able to ejaculate normally.

**Figure 3-4.** Effects of Vasectomy on Male Anatomy

**A. Before vasectomy**



**B. After vasectomy**



## Self-Assessment

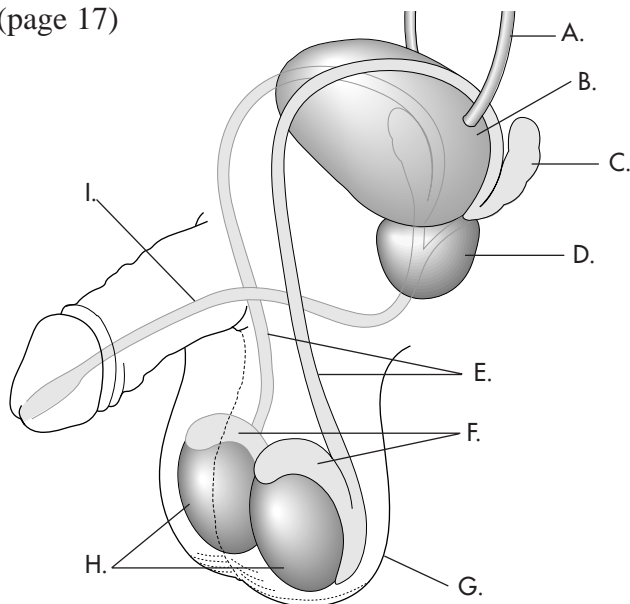
Answers are provided at the end of this assessment. Each question is followed by the page number in this handbook on which the information can be found.

Decide whether each of the following statements is T (true) or F (false). Write your response for each statement.

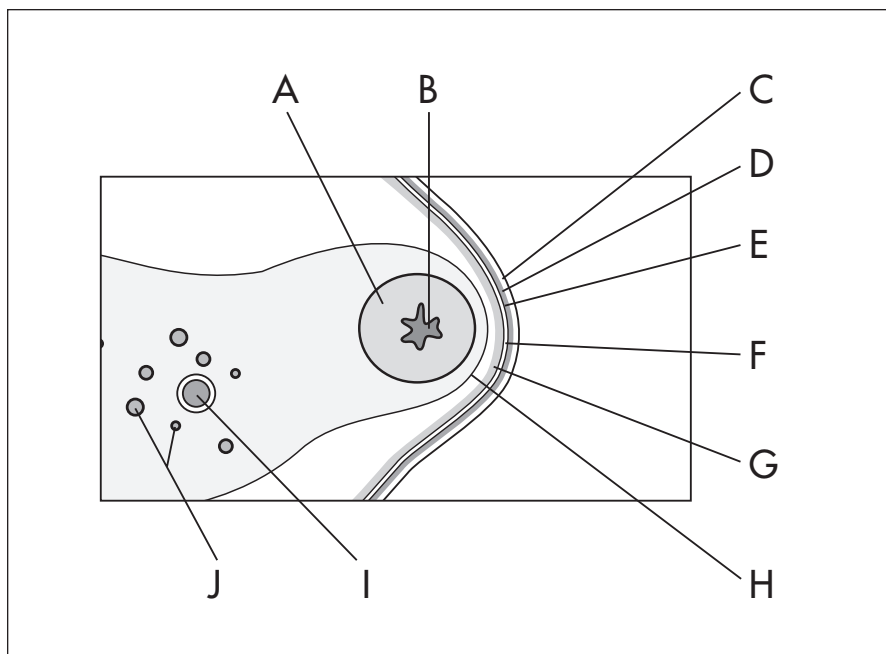
1. \_\_\_\_ Sperm are produced in the seminal vesicles. (page 17)
2. \_\_\_\_ Seminal fluid continues to be produced after vasectomy. (page 19)
3. \_\_\_\_ Sperm pass first through the vasa deferentia, then through the urethra. (page 17)
4. \_\_\_\_ If a vasectomy is performed correctly, there should be no subsequent development of anti-sperm antibodies. (page 19)
5. \_\_\_\_ After vasectomy, sperm can build up in the epididymides. (page 19)
6. \_\_\_\_ Each vas deferens is approximately 35 mm long, begins at the seminal vesicle, and ends at the prostate. (page 18)
7. \_\_\_\_ Testosterone is produced in the prostate gland. (page 17)
8. \_\_\_\_ Men who have had a vasectomy should be screened frequently for cardiovascular disease and prostate cancer. (page 19; Appendix E)

Correctly identify the name of each structure indicated:

9. (page 17)



10. (page 18)



Answers: 1. F; 2. T; 3. T; 4. F; 5. T; 6. F; 7. F; 8. F; 9. Clockwise from top—A. ureter, B. bladder, C. seminal vesicle, D. prostate gland, E. vasa deferentia, F. epididymides, G. scrotum, H. testicles, I. urethra; 10. Clockwise from top left—A. vas, B. vas lumen, C. skin, D. dartos, E. external spermatic fascia, F. cremasteric fascia, G. cremaster muscle, H. internal spermatic fascia, I. artery, J. veins.



# MODULE 4      Counseling and Informed Decision Making for NSV



## Materials and Supplies

- ✓ Module 4
- ✓ NSV Clinical Skills Checklist (see Appendix B)

## Introduction

### Purpose and Objectives

This module provides basic information on family planning counseling and informed decision making as they relate to vasectomy services. Upon completing this module, you should be able to:

- Define *family planning counseling* and *informed decision making*
- Explain the particular importance of family planning counseling for clients considering vasectomy
- Describe the steps to take in order to verify informed decision making

### Directions for Independent Study

This module covers information on counseling and informed decision making for vasectomy clients. If you are preparing for this module independently, you should:

- Study this module.
- Review the informed consent form used for vasectomy clients at your facility. Compare it to the model form on page 31 of this module.
- Take the self-assessment at the end of this module.
- Write down any questions you have about this module for later discussion with the trainer.

## Definition and Rationale

### Family Planning Counseling

- Helps clients make informed, voluntary decisions about fertility and contraception
- Involves two-way communication between counselors and clients
- Provides information that clients can apply to their individual needs and circumstances
- Helps clients use the contraceptive method of their choice

**Figure 4-1.** Rights of the Client

**All clients have the right to:**

- Clear information
- Access to services
- Their choice of family planning method
- Safe services
- Privacy and confidentiality
- Dignity, comfort, and free expression of opinion
- Continuous supplies

ADAPTED FROM: IPPF, 1993.

### Benefits of Counseling

- Helps ensure informed, voluntary, and well-considered decisions
- Increases client satisfaction
- Contributes to higher rates of contraceptive continuation
- Increases the likelihood that the client will use the method correctly
- Improves the quality of the family planning program
- Enhances the reputation of the family planning program and its staff

### Counseling Potential Vasectomy Clients

Good counseling of potential vasectomy clients is particularly critical to ensure informed decision making because:

- Vasectomy is a surgical method
- Vasectomy is intended to be a permanent method

## Family Planning Counseling and Vasectomy

The purpose of family planning counseling for vasectomy is to ensure that clients make free and informed decisions about reproduction and contraception. The client makes the decision after receiving unbiased, complete information about the available choices and after considering how those choices relate to his needs and circumstances. The responsibilities of the counselor are as follows:

- To assess the client's knowledge of family planning alternatives and to provide any missing information
- To help the client arrive at an understanding of his needs and circumstances as they relate to children and family planning
- To help the client come to an independent decision about which choice is right for him

While carrying out these responsibilities, the counselor treats the client respectfully and encourages him to talk about worries, fears, interests, and needs. The counselor spends as much time listening to clients as talking to them. The counselor remains neutral about the client's choice. Each client has the right to choose whether to use a contraceptive method: A decision to have another child, after having considered all the possible choices, is as valid an outcome of counseling as a decision to have a vasectomy.

Regardless of whether the vasectomist or another staff member is responsible for counseling vasectomy clients, there are a number of steps to follow to help ensure the most appropriate and effective counseling session possible. These steps are discussed in more detail on the following pages:

**STEP 1: Preparation for Counseling.** A respectful counselor, an appropriate setting, and adequate supplies are the basics needed for a successful counseling session.

**STEP 2: The Counseling Session Begins.** The counselor puts the client at ease, treats him with respect, and makes him feel welcome at the health facility.

**STEP 3: Discussing Family Planning Choices.** The client should know that he is free to choose a different contraceptive method and to decide against having a vasectomy at any time before the procedure.

**STEP 4: Assessing the Client's Decision to Have a Vasectomy.** Because vasectomy is intended to be a permanent method, it is critical to determine whether a client's decision to have a vasectomy is a sound one.

**STEP 5: Counseling the Client about the Vasectomy Procedure.** The counselor makes sure that the client has received and understands all of the basic information about the procedure.

## Steps in Providing Counseling for Vasectomy Clients

### STEP 1 Preparation for Counseling

Ask yourself the following questions:

#### ***Emotional climate***

- Can I give the client my full attention without being interrupted?
- Can I provide a comfortable atmosphere for the client?

#### ***Setting***

- Does the setting encourage discussion and provide privacy?
- Is the counseling area tidy and free of distraction?
- Are there comfortable chairs for the client or couple and for me?

#### ***Materials***

- Do I have the necessary forms (client record, informed consent)?
- Do I have visual aids (flipcharts, brochures, posters, samples of methods, etc.)?
- Do I have materials that remind me of the characteristics, benefits, and risks of the various methods?

### STEP 2 The Counseling Session Begins

#### ***Getting started***

- Begin by putting the client at ease. Introduce yourself.
- Ask the client why he has come to see you: For information about vasectomy? For vasectomy services? To discuss a problem with his vasectomy? To discuss other contraceptive methods?
- If you scheduled the appointment for counseling, explain why. Explain the purpose of the counseling session.

#### ***Gathering information from the client***

- Personal data (age, marital status, and the age, number, and sex of his children)
- Previous experience with contraceptive methods
- Health status

### **STEP 3    Discussing Family Planning Choices**

#### ***Assessing what the client knows about:***

- The human reproductive system
- The availability of temporary contraceptive methods
- Benefits, risks, and side effects of temporary and permanent contraceptive methods

#### ***Providing information to the client***

- Tailor information to suit the client's knowledge and family planning goals.
- Provide accurate, unbiased information.
- Correct misunderstandings.
- Fill in gaps in the client's knowledge of:
  - The human reproductive system
  - The benefits, risks, and side effects of temporary and permanent methods
  - The benefits and risks of not using contraception
- Encourage the client to ask questions and to provide feedback to be sure he and his partner understand all the information.
- If appropriate, explain what the client can do to prevent the transmission of sexually transmitted infections (STIs), including HIV, the virus that causes AIDS.
- Discuss fees the client may have to pay for the various methods.

#### ***If the client decides not to use contraception:***

- Be sure the client understands the risk of pregnancy to his partner. The client should also understand the health risks associated with pregnancy.
- Tell the client to return if he or his partner has a change of mind.
- Advise the client about other services, such as antenatal and maternity care.

#### ***If the client decides to use a temporary method:\****

- Screen for appropriateness (health precautions, ability to use the method effectively, etc.).
- Explain and demonstrate the method in detail: how to use it; the risks, benefits, danger signals; what to do if a problem arises; whom to contact to discontinue the method.
- Prepare the client and his partner for any inconveniences and any common side effects of the method.
- Explain how to get supplies of the method.
- Tell the client and his partner about any fees they are expected to pay for the method.
- Provide the method or refer the client or his partner to an appropriate provider.
- Schedule a follow-up visit, if appropriate.

---

\* If the client's partner has not accompanied him to the counseling session, briefly cover the information noted here and schedule an appointment for the client and his partner to receive counseling together.

## STEP 4 Assessing the Client's Decision to Have a Vasectomy

### *When a client expresses an interest in vasectomy:*

- Be sure the client understands that the method involves surgery and is intended to be permanent.
- Assess the client's decision and feelings. Psychologically prepare the client for ending his fertility. Use probing questions such as:
  - When did you decide to have no more children?
  - Why do you want to end your fertility? (completed family size, economic reasons, health reasons, etc.)
  - How did you first learn about vasectomy? (partner, nurse, doctor, friend, field worker, etc.)
  - How long have you been considering vasectomy?
  - What does your partner think?
  - Do you know anyone who has had a vasectomy?
  - How would you feel if your circumstances changed after the vasectomy? (divorce, remarriage, death of child or partner, etc.)
- Ask yourself: "Is the client making a well-considered decision?"

**Figure 4-2.** Assessing the Client's Decision to Have a Vasectomy

<b>Signs of a Sound Decision</b>	<b>Warning Signs</b>
<p>The client:</p> <ul style="list-style-type: none"> <li>• Is a mature individual</li> <li>• Has achieved or exceeded his desired family size</li> <li>• Has support for his decision from his partner and relatives</li> <li>• Has a stable marriage</li> <li>• Has realistic expectations</li> <li>• Is free from stress</li> <li>• Is confident in his decision</li> <li>• Has a well-established desire to end his fertility</li> <li>• Is well informed</li> </ul>	<p>The client:</p> <ul style="list-style-type: none"> <li>• Is young</li> <li>• Has few children</li> <li>• Is feeling pressured into the decision</li> <li>• Has an unstable marriage</li> <li>• Has unrealistic expectations</li> <li>• Has a partner who does not agree with his decision</li> <li>• Is undergoing temporary stress</li> <li>• Has unresolved conflict or doubts</li> <li>• Has an economic inducement to undergo vasectomy</li> <li>• Has an excessive interest in the possibility of reversal</li> </ul>

***If you believe the client is at risk of dissatisfaction or regret after vasectomy:***

- Explain that the client has characteristics that make dissatisfaction or regret likely.
- Discuss these characteristics with the client. For instance: “We’ve learned that men in your situation who have had a vasectomy sometimes change their minds about the choice after the operation is done. This is because . . .”
- Ask the client to spend more time considering the decision. Discuss the temporary methods he can use in the meantime.

***Possible outcomes:***

- The client agrees to reconsider and may or may not use temporary contraception in the meantime. Schedule another appointment.
- The client may change his mind and decide to use a temporary method or no method.
- The client may persist in the request. If so, consult your colleagues or supervisor. Consider referring the client to a more knowledgeable or experienced counselor.

**STEP 5 Counseling the Client about the Vasectomy Procedure**

If you believe that the client’s decision for vasectomy is informed, voluntary, and well-considered, follow these eight steps:

1. Using simple language, explain in detail the benefits, risks, and side effects of vasectomy. Make sure that the client also understands that vasectomy does not provide protection against STIs, including HIV infection.
2. Psychologically prepare the client for surgery by describing what to expect during the procedure and possible postoperative effects. Use diagrams to describe the surgical procedure (see Figure 3-4, page 20).
3. Make sure the client has been provided with oral and written preoperative instructions.
4. Tell the client about any fees he is expected to pay.
5. Advise the client to use temporary contraception before and after surgery. If needed, provide condom instructions (see Figure 4-4, pages 33 and 34).
6. Ask the client if he has any questions.
7. Complete informed consent procedures. Be sure the client understands the seven points of informed decision making listed below and knows what he is signing. Encourage the client to ask questions. The seven points of informed decision making are:
  - The knowledge of the availability of temporary methods
  - The understanding that this is a surgical procedure
  - An understanding of the benefits and risks of vasectomy, including the small risk of failure
  - The understanding that it is intended to be permanent
  - The understanding that, if the vasectomy is successful, the client will have no more children
  - The understanding that vasectomy does not protect the client or his partner from infection with sexually transmitted infections, including HIV/AIDS
  - Knowledge of the option to decide against the procedure at any time before the operation

Obtain the client's signature or mark. If the client is illiterate, obtain a witness's signature attesting that the client has signed the informed consent form.

8. Schedule an appointment for medical screening and surgery.

**Remember:** The goal of counseling is a client who makes an informed, voluntary, well-considered decision.

## Informed Decision Making

**Informed decision making:** The process through which a client makes a well-considered, voluntary decision based on options, information, and understanding, including relevant medical facts and the risks involved.

**Informed consent:** The client's consent (acceptance or permission) to a medical or surgical procedure after having made an informed decision. For vasectomy, the client gives informed consent *after* being counseled and signs a consent form *before* the procedure is performed.

Consent is voluntary when it is given of the client's own free will and is not obtained by means of special inducement, force, fraud, deceit, duress, or other forms of coercion or misrepresentation. The fact that a client has signed an informed consent form *does not* guarantee informed consent.

Informed consent can be obtained by whomever does the vasectomy counseling, although it is critical that the surgeon performing the procedure always verify that the client has made an informed and voluntary decision before beginning the procedure.

### Timing

Informed consent can be obtained at any time prior to the vasectomy. Counseling, informed consent, and the actual vasectomy procedure may occur on different days or on the same day, depending on a variety of factors. For example, following counseling, a client may wish to think about whether he wants a vasectomy, returning at a later point in time to give informed consent and have the procedure. In some settings, counseling and informed consent will occur one or more days before the actual vasectomy procedure (for example, because of scheduling needs). In other settings (for example, where clients travel a long distance to reach the facility, and may have already made the decision to have a vasectomy before they set out), counseling, informed consent, and the vasectomy procedure may all occur during the same visit. What is important is that the client be given the time that he (and his partner, as applicable) needs to make an informed and voluntary decision regarding vasectomy.



## Model Informed Consent Form for Vasectomy\*

I, \_\_\_\_\_, the undersigned, request that a vasectomy be performed  
*(client's name)*  
 on my person. I make this request of my own free will, without having been forced or given any special inducement. I understand the following:

1. There are temporary contraceptive methods available to me and my partner.
2. The procedure to be performed on me is a surgical procedure, the details of which have been explained to me.
3. This surgical procedure involves risks, in addition to benefits, both of which have been explained to me.
4. If the procedure is successful, I will be unable to have any more children.
5. The effect of the procedure should be considered permanent.
6. The procedure does not protect me or my partner from infection with sexually transmitted infections, including HIV/AIDS.
7. I can decide against the procedure at any time before the operation is performed (without losing the right to medical, health, or other services or benefits).

\_\_\_\_\_  
*(Signature or mark of client)*

\_\_\_\_\_  
*(Date)*

\_\_\_\_\_  
*(Signature of attending doctor  
 or delegated assistant)*

\_\_\_\_\_  
*(Date)*

If the client cannot read, a witness of the client's choosing who is of the same sex and who speaks the same language as the client must sign the following declaration:

I, the undersigned, attest that the client has affixed his thumbprint or mark in my presence.

\_\_\_\_\_  
*(Signature or mark of witness)*

\_\_\_\_\_  
*(Date)*

\* Adapt this form for use in your facility.

## Verifying Informed Decision Making

**Figure 4-3.** Assessing a Client’s Decision for Vasectomy

### Assessing a Client’s Decision for Vasectomy A Surgeon’s Guide for Final Assessment

**Note:** Make sure that the client has signed an informed consent form before conducting this assessment.

	<b>STOP</b>	<b>CAUTION</b>	<b>GO</b>
<b>Ask the client these questions:</b>	<b>Should not have surgery now</b>	<b>Needs more counseling</b>	<b>Signs of a sound decision</b>
<b>WHO</b> made the decision for sterilization?	Someone else	Client decided (but partner objects)	Client and partner (or client, if single)
<b>WHEN</b> did the client decide not to have more children?	Now	Recently	Some time ago
<b>WHY</b> did the client choose permanent contraception?	Pressure from someone else	Belief that permanent method can be reversed	Desire for no more children
<b>HOW</b> did the client decide?	While upset or under stress	Without enough consideration or information	After consideration and full information
<b>WHAT</b> does the client know about vasectomy?	Does not know that it: <ul style="list-style-type: none"> <li>• Is permanent</li> <li>• Is a surgical method</li> <li>• Means he can’t have more children</li> </ul>	Has some misunderstandings about contraceptive methods	Understands that it: <ul style="list-style-type: none"> <li>• Is permanent</li> <li>• Is a surgical method</li> <li>• Means he can’t have more children</li> </ul>
<b>WHAT</b> does the client know about other contraceptive methods?	Would prefer another method if available	Has little knowledge of other methods or their availability	Knows of other methods, but prefers permanent contraception

#### How to Use This Guide

Part of the surgeon’s responsibility for clients about to undergo surgery for permanent contraception is to verify that the client has made an informed and voluntary decision for the procedure. This simple aid can help the surgeon check the client’s readiness for permanent contraception before the operation. The assessment should be made before starting any part of the procedure.

Use of this guide does *not* substitute for client counseling, which should come much earlier.

Furthermore, good judgment is needed when using this guide (or any other) and when interpreting the results. For example, if a client’s answers all fall in the “go” category, but he is unduly nervous, and his agitation does not appear to be related to a fear of surgery, the surgeon or another staff member should take time to determine what is causing his anxiety before performing the procedure.

## Condom Instructions

All vasectomy clients should be provided with instructions and practice on the correct use of condoms for use immediately after the vasectomy. Although providers often mistakenly assume that all men know how to correctly use condoms, incorrect use is common and is a major cause of condom failure.

### Steps of Condom Use

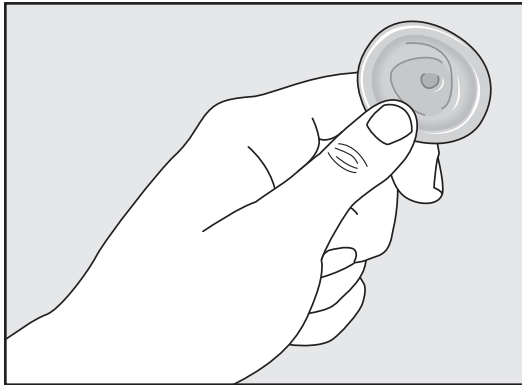
- Remove the condom from the package.
- Unroll the condom slightly to make sure it unrolls properly.
- Squeeze the air out of the tip of the condom.
- Place the condom on the tip of the erect penis.
- Unroll the condom down the penis.
- Smooth out any air bubbles.
- With the condom on, insert the penis for intercourse.
- After ejaculation, hold onto the condom at the base of the penis.
- Withdraw the penis from the vagina while the penis is still erect.
- Remove the condom from the penis.
- Tie the condom to prevent spills.
- Dispose of the condom safely.

### Remember:

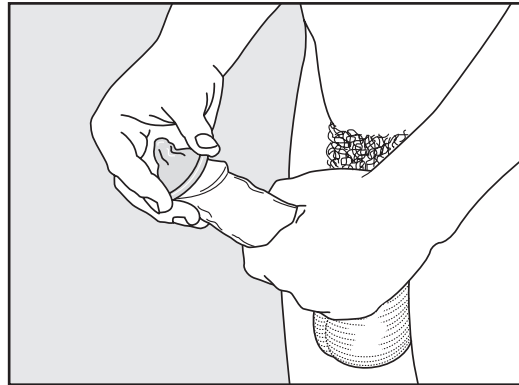
- Do not use grease, oils, lotions, or petroleum jelly (vaseline) to make the condom slippery. These substances can make the condom break. Use only jelly or cream that does not have oil in it.
- Use a new condom each time you have sex.
- Only use a condom once.
- Store condoms in a cool, dry place.
- Do not use a condom that may be old or damaged.
- Do not use condoms if an allergic reaction develops.

### Do not use a condom if:

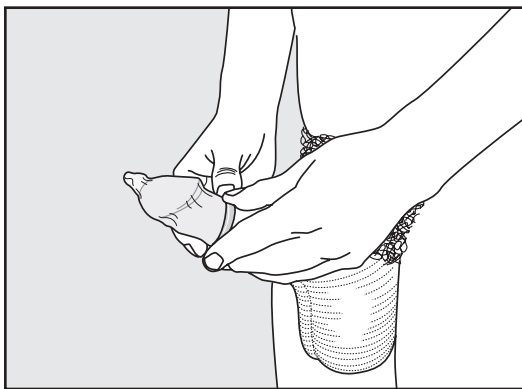
- The package is broken
- The condom is brittle or dried out
- The color is uneven or has changed
- The condom is unusually sticky

**Figure 4-4.** Instructions for Condom Use**A. Before intercourse**

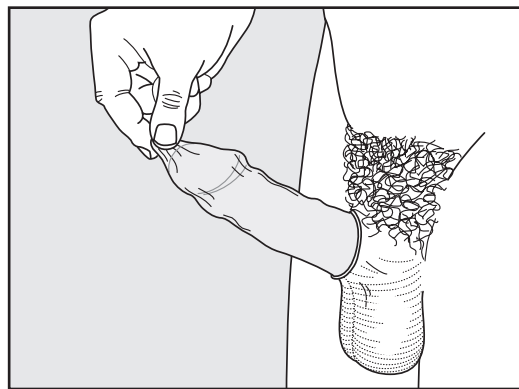
1. Carefully open the package so the condom does not tear. (Do not use teeth or a sharp object to open the package.) Do not unroll the condom before putting it on.



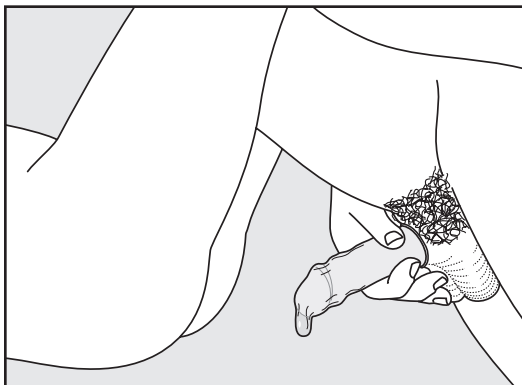
2. If you are not circumcised, pull back the foreskin. Put the condom on the end of the hard penis. Note: If the condom is initially placed on the penis backwards, do not turn it around. Throw it away and start with a new one.



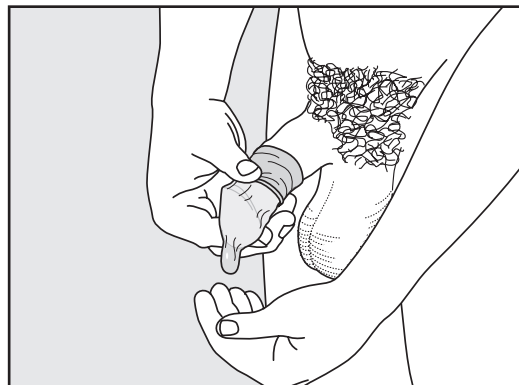
3. Pinching the tip of the condom to squeeze out air, roll on the condom until it reaches the base of the penis.



4. Check to make sure that there is space at the tip and that the condom is not broken. With the condom on, insert the penis for intercourse.

**B. After intercourse**

5. After ejaculation, hold onto the condom at the base of the penis. Keeping the condom on, pull the penis out before it gets soft.



6. Slide the condom off without spilling the liquid (semen) inside. Dispose of the used condom.

## Self-Assessment

Answers are provided at the end of this assessment. Each question is followed by the page number in this handbook on which the information can be found.

Decide whether each of the following statements is T (true) or F (false). Write your response for each statement.

1. \_\_\_\_ Vasectomy providers should determine whether clients understand that temporary methods of contraception are available. (pages 27, 31)
2. \_\_\_\_ Each client has the right to choose whether or not to use a contraceptive method. (page 25)
3. \_\_\_\_ Clients should be informed that vasectomy risks include the rare possibility of failure. (pages 29, 31)
4. \_\_\_\_ Because vasectomy is a safe procedure with only rare complications, there is no need to discuss possible side effects and complications of the procedure. (pages 27, 29, 31)
5. \_\_\_\_ Lubricating a condom with oil or petroleum jelly before usage decreases breakage. (page 34)
6. \_\_\_\_ Leave space at the tip of the condom when unrolling it on the erect penis. (page 33)

The following are multiple-choice questions. More than one option may be correct. Please circle the correct response(s).

7. If a client has decided to have a vasectomy despite the objections of his partner, you would: (pages 29, 32)
  - a. Delay the procedure, arrange further counseling for the couple (if possible), and discuss use of a temporary contraceptive method.
  - b. Perform the procedure according to the client's wishes.
  - c. Ask the client to return home and discuss this with his partner and return in a month.
8. Informed consent means: (pages 30, 31)
  - a. The vasectomist or assistant has informed the client about the most suitable contraceptive method.
  - b. The client has been fully informed about all contraceptive options available and has made a free choice from among them.
  - c. The vasectomist or assistant has chosen the best method for the client and has informed the client about its benefits and risks.

9. An effective counselor: (pages 24, 25, 29)
  - a. Gives the client advice about which family planning method to use.
  - b. Uses the client's profile to determine the family planning method that best suits the client.
  - c. Tries to ensure that each client uses contraception.
  - d. None of the above.
  
10. A vasectomist assessing a client's decision to choose permanent contraception before surgery should ask the following questions: (pages 28, 32)
  - a. How did you decide to have a vasectomy?
  - b. What do you know about other contraceptive methods?
  - c. Why did you choose permanent contraception?
  - d. All of the above.

---

Answers: 1. T; 2. T; 3. T; 4. F; 5. F; 6. T; 7. a; 8. b; 9. d; 10. d

# MODULE 5      Prevasectomy Evaluation

 **Materials and Supplies**

- ✓ Module 5
- ✓ NSV Clinical Skills Checklist (see Appendix B)

## Introduction

### Purpose and Objectives

This module provides the information necessary for participants to physically evaluate whether a client is a good candidate for a vasectomy. Upon completing this module, you should be able to:

- List the elements of the medical history that should be included in a prevasectomy assessment
- Perform a genital examination
- Identify conditions that indicate certain precautions should be taken before or during the procedure

### Directions for Independent Study

This module covers the prevasectomy medical history, genital examination, and identification and management of conditions that indicate vasectomy precautions. If you are preparing for this module independently, you should:

- Study this module.
- Review in medical texts any conditions discussed in this module with which you are unfamiliar.
- Determine referrals for clients whose condition requires treatment before a vasectomy can be performed.
- Identify the tasks from this module that appear on the NSV Clinical Skills Checklist (see Appendix B).
- Take the self-assessment at the end of the module.
- Write down any questions you have about this module for later discussion with the trainer.

## Prevasectomy Assessment

### Rationale

- Determine the client's fitness for vasectomy
- Determine whether there are any conditions that indicate certain precautions should be taken before or during the procedure
- Evaluate whether the client has made an informed choice

### Timing

The prevasectomy assessment can be done:

- The day the vasectomy is to be performed
- A few days before the vasectomy

### Components

The prevasectomy medical history and physical examination are discussed in detail in Table 5-1. The essential components of the examination are:

- Medical history
- Physical examination
- Genital examination

## Genital Examination

After examining the client's heart, lungs, and abdomen, you will perform a genital examination. Before beginning the examination, tell the client what you are going to do and why you will be doing it. Assure him that he won't feel any pain. During the genital examination, you will conduct a penile and scrotal examination.

Unless you observe lesions, gloves are unnecessary during a genital examination, but you should wash your hands thoroughly before and after the examination.

### Penile Examination

#### *Visual inspection*

Visually inspect the penis. Note any lesions or scarring. Gently lift the penis and examine the underside as well. Examine the urethral opening. Note and assess any abnormalities, such as discharge, reddening, or irritation.

#### *Potential abnormalities*

Potential abnormalities include: rash, cyst, discharge, skin cancer (rare).



## Medical History and Physical Examination

The following table lists the required and recommended components of a prevasectomy medical history and physical examination and explains the reason each component is included.

**Table 5-1.** Components of a Prevasectomy Medical History and Physical Examination

	Component	Reason
<b>MEDICAL HISTORY</b>	Existence of bleeding disorders	Bleeding disorders could indicate the potential for hemorrhage.
	Previous scrotal or inguinal surgery or trauma	Scarring or adhesions could complicate a vasectomy procedure.
	Current or past genitourinary infections, including STIs	Past infections could have caused scarring and adhesions. Current infection could lead to acute postvasectomy infection.
	History of sexual impairment	Sexual impairment in the past could indicate pre-existing psychological or physiological problems that could later be incorrectly attributed to the vasectomy.
	Current and recent use of medications	Use of medications could indicate medical problems that the vasectomist should be aware of before surgery.
	Allergy to medications	The provider can help prevent complications by determining whether the client has ever had an allergic reaction to any of the medications or antiseptics to be used before, during, or after surgery.
<b>PHYSICAL EXAMINATION</b>	Heart* (auscultation, pulse, and blood pressure)	Checking the heart will help identify or rule out hypertension, heart murmurs, and other cardiovascular disease that the vasectomist should be aware of before surgery.
	Lungs* (auscultation and respiratory rate)	Checking the lungs will help rule out infections and other lung disease that the vasectomist should be aware of before surgery.
	Abdomen* (palpation)	Palpation of the abdomen will help rule out the presence of infections, organ enlargements, or masses that the vasectomist should be aware of before surgery.
	Genitals (see page 40)	Can rule out the presence of infections or masses that the vasectomist should be aware of before surgery.

\* Recommended but not essential

## Scrotal Examination

### Visual inspection

Visually inspect the scrotal skin. Lift the scrotum to examine the posterior side. Observe the coloring, size, and contour. Note and assess any swelling or masses.

### Potential abnormalities

Potential abnormalities include: rash, cyst, poorly developed scrotum (possible cryptorchidism), and swelling (possible inguinal hernia, torsion of spermatic cord, strangulated inguinal hernia).

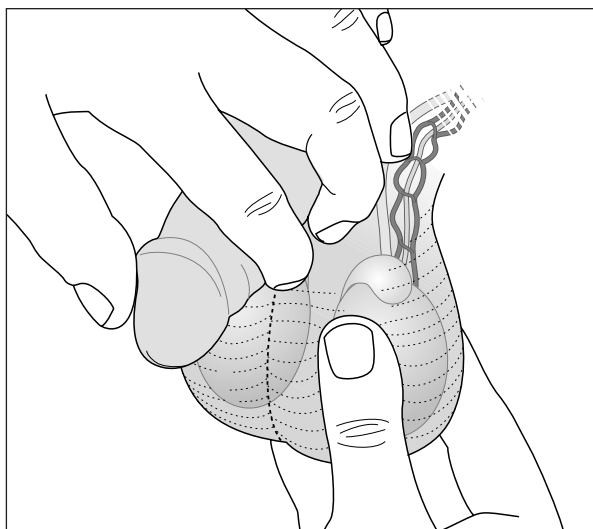
### Palpation—Testis and epididymis

First, between your thumb and first two fingers, palpate each testis and epididymis (see Figure 5-1). Avoid putting pressure on the testis, as this would be painful. Note the size, shape, and consistency of each testis and epididymis. Note any nodules or tenderness.

### Potential abnormalities

Painless nodules in the testes may indicate testicular cancer. Nodules in the epididymis may indicate an epididymal cyst.

**Figure 5-1.** Palpation of Testis and Epididymis



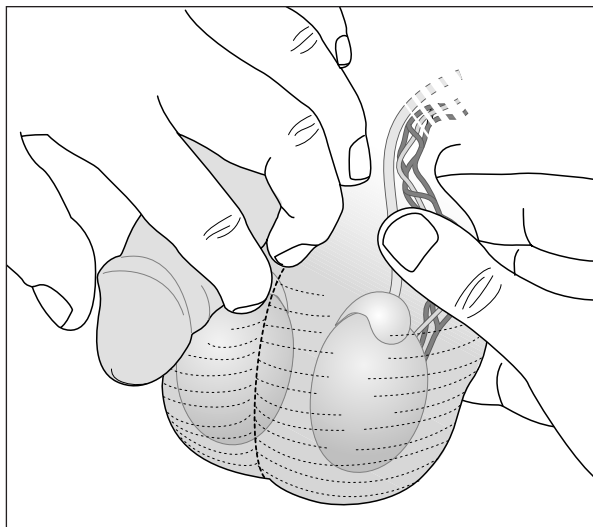
### Palpation—Spermatic cord and vas deferens

Using the three-finger technique (see *No-Scalpel Vasectomy: An Illustrated Guide for Surgeons*, page 17), palpate each spermatic cord and its vas deferens (see Figure 5-2). Move your thumb and fingers along its length. Note any nodules or swellings.

### Potential abnormalities

Potential abnormalities include: thickened vas (suggests chronic infection), tortuous veins (suggests varicocele), and cyst in cord (suggests hydrocele).

**Figure 5-2.** Palpation of Spermatic Cord and Vas Deferens



## Vasectomy Precautions

Table 5-2 lists the physical conditions that indicate precautions may need to be taken before or during the vasectomy procedure. If you do not have sufficient clinical experience in diagnosing these conditions, refer the client to a more experienced physician.

**Table 5-2.** Conditions That Indicate the Need to Take Precautions before or during the Vasectomy Procedure

Condition	Reason	Recommendation
Young age	His decision may not be sound.	Assess the client's decision to have a vasectomy. Ensure that he understands vasectomy should be considered permanent. Inform the client about the availability and effectiveness of long-term contraceptives.
Local infection: <ul style="list-style-type: none"> <li>● Scrotal skin infection</li> <li>● Active STI</li> <li>● Balanitis</li> <li>● Epididymitis or orchitis</li> </ul>	Preexisting local infection increases the risk of postoperative infection. Also, surgery at or near the site of an infected lesion can lead to wound infection, epididymitis, testicular infection, or sepsis if the organisms gain entry to other tissues or to the bloodstream during surgery.	Treat the infection. Delay the vasectomy until the infection is resolved. Counsel the client about interim methods of contraception. Counsel clients with STIs about the risk of transmission to others and about preventing future infections. Counsel clients about the need to use condoms.
Systemic infection (including bacteremia, malaria, or yellow fever) or gastroenteritis	Preexisting systemic infection also increases the risk of postoperative infection.	Treat the infection or refer the client and delay the procedure. Counsel the client about interim methods of contraception.
Previous scrotal surgery	Possible adhesions to cord structures may make it difficult to separate structures. NSV may be difficult to perform if the skin is thickened from previous surgery.	Assess the extent of adhesions; if the adhesions will not interfere with vasectomy, perform the procedure. Take extra care when infiltrating the local anesthetic, and pay careful attention to hemostasis.
Intrascrotal mass	Such a mass may indicate an underlying disease that could affect the health of the client or complicate the procedure.	Diagnose the mass, treat abnormal findings, or refer the client for treatment. If the findings do not interfere with vasectomy, perform the procedure. If you are unable to perform the vasectomy, counsel the man about interim contraceptive methods.

*continued*

**Table 5-2** continued

<b>Condition</b>	<b>Reason</b>	<b>Recommendation</b>
Inability to locate, isolate, or move the vas	Difficulties in locating, isolating, or moving the vas may make it difficult to access the vas through the puncture site.	If the vas cannot be accessed through the puncture site, the client will need to have an incision over the vas.
Filariasis; elephantiasis	These diseases may leave the vas difficult or impossible to locate.	Counsel the client about interim methods of contraception until treatment is possible. Even after treatment, extensive surgery (incision) may be required to locate the vas, and a vasectomy may not be possible to do under local anesthesia.
Large varicocele	As a result of a large varicocele, the vas may be difficult or impossible to locate. Repairing the varicocele and performing vasectomy in a single procedure may decrease the risk of complications.	If you are experienced in concurrent procedures, repair the varicocele and perform the vasectomy through the varicocele repair incision. If not, delay the vasectomy, refer the client to a facility with the appropriate staff, and counsel the client about interim methods of contraception. If small, a varicocele can usually be isolated from the vas and does not interfere with NSV.
Large hydrocele	A large hydrocele may also leave the vas difficult or impossible to locate. Repairing the hydrocele and performing vasectomy in a single procedure may decrease the risk of complications.	If you are experienced in concurrent procedures, repair the hydrocele and perform the vasectomy through the hydrocele repair incision. If not, delay the vasectomy, refer the client to a facility with the appropriate staff, and counsel the client about interim methods of contraception. If small, a hydrocele usually does not interfere with NSV.
Cryptorchidism	When cryptorchidism persists into adulthood, infertility is very likely if the disease is bilateral. Unless fertility has been demonstrated (by pregnancy in the partner or by spermogram), there is no need to perform a vasectomy. If the cryptorchidism is unilateral, the undescended testicle is likely to be nonfunctioning.	If the client has bilateral cryptorchidism and fertility has been demonstrated, extensive surgery will be required to locate the vas. If the cryptorchidism is unilateral and fertility has been demonstrated, you can perform vasectomy on the normal side. If the spermogram shows a persistent presence of sperm, more extensive surgery may be required to locate the other vas. Counsel the client on interim methods of contraception until further surgery can be performed.

*continued*

**Table 5-2** continued

<b>Condition</b>	<b>Reason</b>	<b>Recommendation</b>
Inguinal hernia	During herniorrhaphy, the vas is exposed in the inguinal canal and can be ligated.	An experienced surgeon can perform vasectomy concurrently with hernia repair. Counsel the client about interim methods of contraception until treatment is possible.
Coagulation disorders (hemophilia)	Bleeding disorders lead to an increased risk of postoperative hematoma formation, which in turn leads to increased risk of infection. A severe bleeding disorder could lead to hemorrhage.	Evaluate before performing vasectomy. If the client has a significant bleeding disorder that cannot be corrected before surgery, do not perform the procedure. If the procedure cannot be performed because of an unresolvable bleeding disorder, counsel the client about alternative contraceptive methods.
Diabetes	Diabetics have an increased likelihood of postoperative wound infection. If signs of infection appear, treat the client aggressively with antibiotics.	Correct hyperglycemia before vasectomy and perform vasectomy only with local anesthesia. Follow the client closely postoperatively for signs of infection.
Depressive disorder	Decision making may not be sound.	Assess client for mental status and for his decision to have vasectomy. If necessary, delay the vasectomy and counsel the client about interim methods of contraception.

## Self-Assessment

Answers are provided at the end of this assessment. Each question is followed by the page number in this handbook on which the information can be found.

Decide whether the following statements are T (true) or F (false). Write your response for each statement.

1. \_\_\_\_ It is not appropriate to ask a potential vasectomy client if he has ever had sexual difficulties. (page 39)
2. \_\_\_\_ Varicoceles and hydroceles can be corrected at the same time that a vasectomy is performed. (page 43)
3. \_\_\_\_ If a client has malaria, the malaria should be treated before the client has a vasectomy. (page 42)
4. \_\_\_\_ An inguinal hernia must be repaired before a vasectomy is performed. (page 44)
5. \_\_\_\_ A man whose diabetes is controlled can have a vasectomy. (page 44)
6. \_\_\_\_ Infertility is possible in a man who has unilateral cryptorchidism. (page 43)
7. \_\_\_\_ If a client's vasectomy cannot be performed as scheduled, you should counsel him about interim contraception and provide condoms (if available). (pages 42–44)
8. \_\_\_\_ A thickened vas could indicate chronic infection. (page 41)

The following are multiple-choice questions. More than one option may be correct. Please circle the correct response(s).

9. If a client who has gonorrhea requests an NSV, you would: (page 42)
  - a. Delay the procedure
  - b. Treat the infection
  - c. Provide condoms (if available)
  - d. Counsel the client about condom use for STI prevention
10. Elements of a prevasectomy evaluation include: (page 38)
  - a. Complete physical examination
  - b. Hematocrit or hemoglobin
  - c. Medical history
  - d. Scrotal examination

---

Answers: 1. F; 2. T; 3. T; 4. F; 5. T; 6. T; 7. T; 8. T; 9. a, b, c, d; 10. c, d

# MODULE 6 Infection Prevention

## Materials and Supplies

- ✓ Module 6
- ✓ NSV Clinical Skills Checklist (see Appendix B)
- ✓ *Infection Prevention. A Reference Booklet for Health Care Providers.* EngenderHealth,

## Introduction

### Purpose and Objectives

This module provides the information necessary for participants to perform or supervise the infection prevention procedures used in providing NSV services. Upon completing this module, you should be able to:

- Identify who is at risk of infection in the health care facility
- Explain how infections are transmitted among clients, health care workers, and the community via the health care setting
- Explain what standard precautions are
- Explain health worker's responsibility in infection prevention
- Demonstrate the appropriate infection prevention procedures to follow before, during, and after vasectomy
- Identify facility and supply requirements that reduce the risk of infection during vasectomy

### Directions for Independent Study

This module provides information on infection prevention practices required to perform vasectomy safely. If you are preparing independently for this module, you should:

- Study this module.
- Identify the infection prevention tasks that are included in the NSV Clinical Skills Checklist (see Appendix B).
- Take the self-assessment at the end of the module.
- Write down any questions you have about this module for later discussions with the trainer.

## Importance of Infection Prevention

Without proper precautions, your health facility can cause the spread of infections and diseases. When providing health services, it is essential to prevent the transmission of infections at all times. Over the past few decades, the world has seen increased outbreaks of disease that were once better controlled, and previously unidentified infectious agents that can cause incurable diseases, such as HIV and hepatitis C, have become a significant cause of illness and death in many parts of the world.

Although we do not often think about it, health care facilities are ideal settings for the transmission of disease, because:

- Invasive procedures, which have the potential to introduce microorganisms into parts of the body where they can cause infections, are performed routinely.
- Service providers and other staff are constantly exposed to potentially infectious materials as part of their work.
- Many people seeking health care services are already sick and may be more susceptible to infections.
- Some of the people seeking services have infections that can be transmitted to others.
- Services are sometimes provided to many clients in a limited physical space, often during a short period of time.

With appropriate infection prevention practices, you can:

- Prevent postprocedure infections, including surgical-site infections
- Provide high-quality, safe services
- Protect yourself and others working in your facility from becoming infected
- Protect the community from infections that originate in health care facilities
- Prevent the spread of antibiotic-resistant microorganisms
- Lower the costs of health care services (since prevention is cheaper than treatment)

Infection prevention practices protect not only clients, but also clinic staff and the community. It is important to remember that all clinic staff who have contact with blood and body fluids—from the physicians to the cleaners—are at risk of infection. Most infections can be prevented if infection prevention procedures are followed. The vasetomist is responsible for ensuring that infection prevention measures are followed.

## How Infections Are Transmitted

Infections are caused by microorganisms. Microorganisms are everywhere—on the skin, in the air, and in people, animals, plants, soil, and water.

Some microorganisms are normally present on the skin and in the respiratory, intestinal, and genital tracts. These are called normal flora. Other microorganisms are normally not found on or in the human body and are usually associated with disease. These are known as pathogens. All microorganisms, including normal flora, can cause infection or disease.



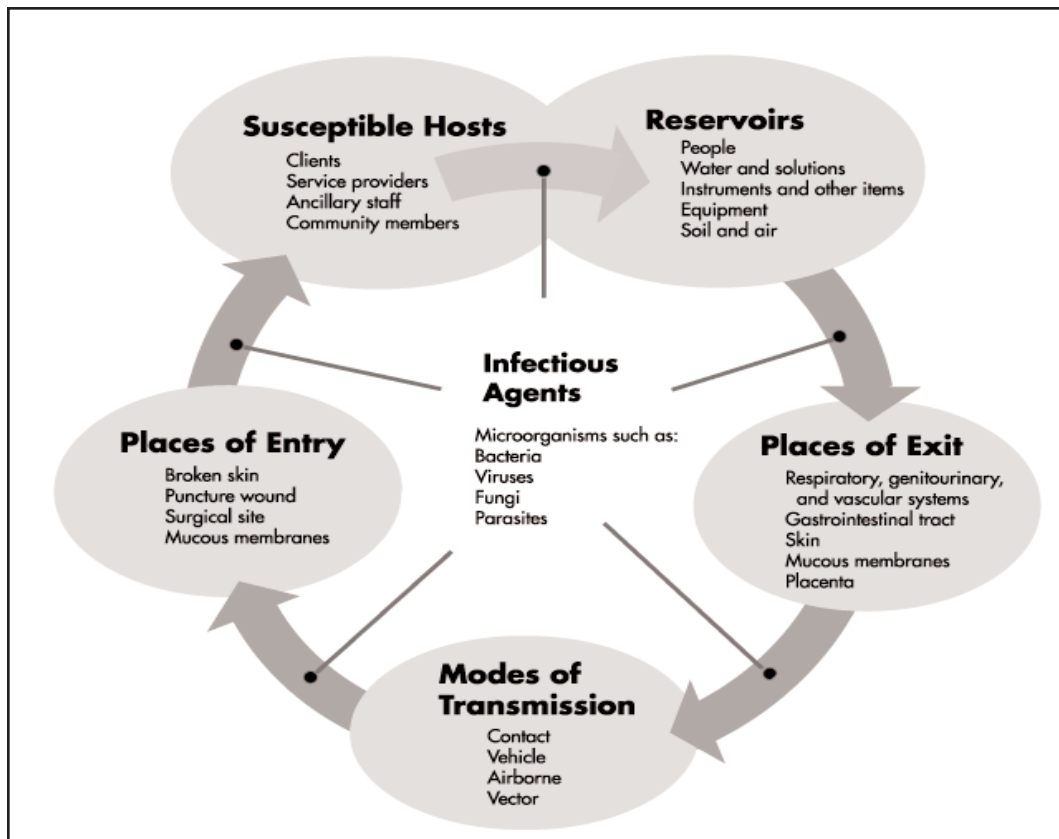
Infections are transmitted when normal flora are introduced into an area of the body where they are not normally found or when pathogens are introduced into the body.

The disease transmission cycle, shown in Figure 6.1 (page 48), describes how infections are transmitted from one person to another. To prevent the transmission of infections, the cycle needs to be broken at some point.

The infectious agent survives, grows, and/or multiplies in the reservoir and then leaves the reservoir through a place of exit by a mode of transmission. The infectious agent then enters the susceptible host through a place of entry. The components of the disease transmission cycle are discussed in detail below.

The six components of the disease transmission cycle:

1. **Infectious agent.** The infectious agent is the microorganism that can cause infection or disease. Such agents can be bacteria, viruses, fungi, or parasites.
2. **Reservoir.** The place where the agent survives, grows and/or multiplies is known as the reservoir. People, animal, plants, soil, air, water, solution, instruments and other items used in clinic procedures all can serve as reservoirs for potentially infectious microorganisms.
3. **Place of exit.** The place of exit describes the route by which the infectious agent leaves the reservoir. The infectious agent can leave the reservoir through many different routes (the bloodstream, broken skin, mucous membranes, the respiratory tract, the genitourinary or gastrointestinal tract, or the placenta) and by means of blood, excretion, secretion, or droplets that come from these places.
4. **Mode of transmission.** There are four ways in which infections can be transmitted:
  - **Contact**—Direct transfer of microorganisms through touch (e.g., staphylococcus), sexual intercourse (e.g., gonorrhea, HIV), fecal/oral transmission (e.g., hepatitis A, shigella), or droplets (e.g., influenza, tuberculosis)
  - **Vehicle**—Material that serves as a means of transfer of microorganisms, such as food (e.g., salmonella), blood (e.g., HIV, hepatitis B), water (e.g., cholera, shigella), or instruments or other items used during clinical procedures (e.g., hepatitis B, HIV, pseudomonas)
  - **Airborne**—Transport of microorganisms via air currents (e.g., measles, tuberculosis)
  - **Vector**—Transmission of microorganisms by invertebrate animals (e.g., malaria and yellow fever via the mosquito; plague via the flea)
5. **Place of entry.** The place of entry is the route through which the infectious agent moves into the susceptible host. The infectious agent can enter the susceptible host through the blood stream, broken skin, mucous membranes, the respiratory tract, the genitourinary tract, the gastrointestinal tract, or the placenta.
6. **Susceptible host.** A person who can become infected by the infectious agent is known as the susceptible host. For the purpose of this training, susceptible hosts include clients, service providers, and members of the community.

**Figure 6-1.** The Disease Transmission Cycle

**Remember:** The mode of transmission is the easiest point at which to break the disease transmission cycle in a health care facility. This can be accomplished by following appropriate infection prevention practices, such as washing hands, practicing correct aseptic technique, correctly processing instruments and other items for reuse, and correctly disposing of medical waste.

## Who Is at Risk of Infection?

Infection prevention is everybody's business. Just as everyone who works at a health care facility is at risk of infections, every health care worker has a role to play in practicing appropriate infection prevention. For infection prevention to be effective, each staff member must do his or her part.

Infections can be transmitted among clients, staff, and the community as follows:

### Risk to Staff

Service providers are at significant risk of infection because they are exposed to potentially infectious blood and other body fluids on a daily basis. Staff who process instruments and other items, who clean up after procedures, who clean operating theaters and procedure rooms, and who dispose

of waste are particularly at risk. Transmission from clients to health care workers can occur through exposure to infectious blood and other body fluids, such as:

- When a health care worker's skin is pierced or cut by contaminated needles or sharp instruments
- When fluids are splashed on the mucous membranes of the health care worker (e.g., eyes, nose, or mouth)
- When a health care worker has broken skin due to cuts, scratches, rashes, acne, chapped skin, or fungal infections

### **Risk to Clients**

Clients are at risk of postprocedure infection when, for example, service providers do not wash their hands between clients and procedures, when they do not adequately prepare clients before a clinical procedure, and when used instruments and other items are not cleaned and processed correctly.

### **Risks to the Community**

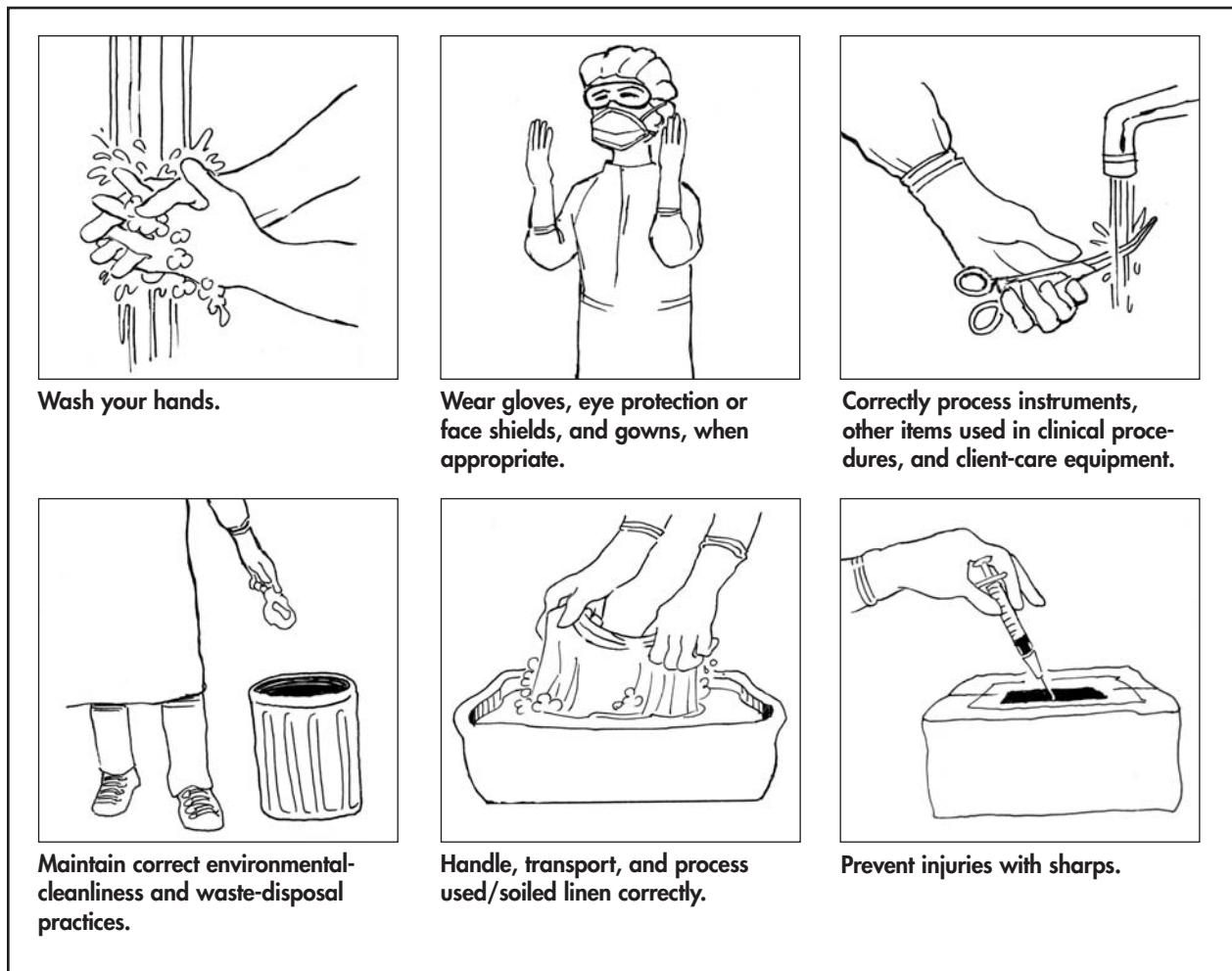
The community is also at risk of infection when:

- Medical waste—including contaminated dressings, tissue, needles, syringes, and sharps (needles and scalpel blades)—is improperly discarded.
- Health care workers do not wash their hands before leaving the facility and then touch family members or household items.
- Health care workers wear contaminated clothing home from the facility.
- Health care workers contract infections and spread them to their family members, who in turn spread them to others in the community.

## **Stopping Transmission of Infections**

As health professionals, we cannot provide health care services without conducting procedures that put clients and staff at some risk of exposure to potentially infectious materials, but we can prevent transmission in most cases. The only way to prevent infections is to stop the transmission of microorganisms.

The best way to prevent infections at a health facility is by following standard precautions. These are a set of recommendations designed to help minimize the risk of exposure to infectious materials by both clients and staff (Figure 6-2).

**Figure 6-2.** Standard Precautions for Infection Prevention

Standard precautions should be followed with every client, regardless of whether you believe that the client might have an infection. This is important because it is not always possible to tell who is infected with viruses such as HIV and the hepatitis virus, and often the infected person themselves do not know that they are infected. It is safer to act as if every client is infected rather than apply standard precautions to some clients and not to others.

### **Potential Infections Associated with Vasectomy**

Some of the more serious infections that could be associated with vasectomy are tetanus, gangrene, scrotal sepsis, intraabdominal sepsis, HIV, and hepatitis B.

## Handwashing

Handwashing is one of the most important infection prevention measures.

### When to Wash Hands:

- Immediately after arrival at work
- Before examining a client
- After examining a client
- Before putting on gloves for clinical procedures
- After touching any object that might be contaminated with blood or other body fluids
- After removing gloves (gloves may contain small holes or tears)
- After using the toilet or latrine
- Before leaving work at the end of the day

### When Washing, Use:

- Regular soap (antimicrobial soap can be used, but it is not necessary for routine handwashing)
- Running water
- A clean towel (or air-dry hands)

### Do Not Use:

- Shared towels (they are easily contaminated)
- A basin of standing water (microorganisms can multiply in standing water, even if an antiseptic is added)

## The Three Kinds of Handwashing

There are three kinds of handwashing used in clinical settings.

### 1. Routine handwashing with plain soap and running water

- Routine handwashing with soap and running water removes transient microorganisms and soil.
- Such routine handwashing is appropriate in most situations when hands should be washed, including immediately after arrival at service site, before and after contact with a client, after handling specimens or potentially contaminated items, after using the toilet or latrine, and before leaving the service site.
- For most activities, routine handwashing for 10–15 seconds is sufficient. Antiseptic is not necessary.

### 2. Handwashing with an antiseptic and running water

Handwashing with an antiseptic is appropriate before invasive procedures (e.g., inserting central venous catheter, spinal tap, etc.) and before contact with clients at high risk of infection (e.g., newborns, immunosuppressed clients, etc.).

### 3. Alcohol handrub

- An alcohol handrub kills or inhibits the growth of both transient and resident microorganisms, but it does not remove microorganisms or soil.
- Such a handrub can be used when handwashing with soap and running water is not possible or practical (such as when running water is not available).
- For an alcohol handrub, rinse hands twice with 3–5 ml of alcohol glycerine solution (100 ml of 60–90% ethyl or isopropyl alcohol mixed with 2–3 ml of glycerine) and rub hands until dry.

**Remember:** Use soap or detergent when washing hands; water alone does not effectively remove protein, oil, grease, and dirt. After handwashing, rinse hand under running water to wash away the microorganisms and soil.

Microorganisms grow and multiply in moisture and standing water. Therefore:

- Keep bar soap on a soap rack or in a dish that allows drainage. Leaving soap in a pool of water will lead to increased growth of microorganisms.
- Avoid dipping or washing hands in a basin containing standing water, even if an antiseptic solution is added. Microorganisms and soil will not be washed away, and the water can easily become contaminated from repeated use.
- Use small bars of soap, if available, or cut large ones into smaller pieces, to reduce the likelihood of contamination.

**Remember:** After handwashing, dry hands with a clean towel or air-dry them; use individual towels or handkerchiefs to dry hands, because shared towels can become contaminated quickly.

## Use of Gloves

Gloves provide a barrier against potentially infectious microorganisms in blood, other body fluids and medical waste, lowering the risk of transmitting infection to both health care workers and client. Just as hands must be washed before and after contact with each client, a separate pair of gloves must be used for each client

### Three Kinds of Gloves

#### 1. Surgical gloves

- Sterile or high-level disinfected surgical gloves should be worn during vasectomy procedure.
- Disposable, sterile surgical gloves are recommended for use whenever possible, because it is difficult to properly process reusable gloves.

#### 2. Single-use examination gloves

- These should be worn for all procedures in which there is contact with mucous membrane. The purpose of wearing gloves is to reduce the service provider's risk of being exposed to blood or other body fluid (e.g., while drawing blood, while working in laboratory).
- These latex or vinyl gloves are clean but not sterile.
- These gloves should be discarded after use.

### 3. Utility gloves

- These thick rubber gloves should be worn for handling contaminated instruments and other items, for handling medical or hazardous chemical waste and linen, for performing housekeeping activities, and for cleaning contaminated surfaces.
- Utility gloves can be reused after they are cleaned.

#### **Remember:**

- Always wash hands before putting on and after removing gloves.
- Reusable gloves should be tested for leaks each time they are processed, because studies have shown that nearly invisible holes are likely to develop when gloves are processed for reuse.

#### **Tips on Removing Gloves**

- As you remove gloves, avoid allowing the outside surface of gloves to come into contact with your skin, because the outer surface will have been contaminated with blood and other body fluid.
- Remove used gloves before touching anything. Countertops, pens, and pencils are frequently contaminated because health care workers touch them while wearing used gloves.

#### **Surgical Attire for Vasectomy**

- Sterile or high-level disinfected gloves must be used for vasectomy.
- Cap, eye wear, mask, and gown may be worn for vasectomy, if they are available, but vasectomy can be performed safely without wearing them.

## **Surgical Scrub**

The surgical hand scrub removes transient microorganisms and soil and kills or inhibits the growth of resident microorganisms. Some antiseptics continue to kill and inhibit the growth of resident microorganisms for several hours after hands are washed.

#### **When Performing Surgical Hand Scrub:**

- Use antiseptic agents (chlorhexidine gluconate, an iodophor, or hexachlorophene). If antiseptics are not available, use soap and water, then rinse with an ethyl or isopropyl alcohol and glycerine solution (2 ml glycerine in 100 ml of 60–90% alcohol) and rub hands until dry.
- Use a small stick or a brush to clean under the fingernails.
- Use a soft brush, cloth, or sponge on all surfaces of the hands and forearms.

#### **Duration of Hand Scrub:**

Three to five minutes

#### **When to Perform Hand Scrub:**

- Before NSV
- Between each NSV procedure

In high-volume settings, skin may become irritated from too-frequent scrubbing. To prevent skin irritation, yet reduce the number of microorganisms on the hands, use 3–5 ml of the alcohol-glycerine solution between clients, then scrub every hour or after every four clients (whichever comes first).

### **How to Perform Hand Scrub:**

- Put on a clean short-sleeved shirt or a scrub shirt.
- Make sure fingernails are short and clean.
- Begin scrubbing at the fingertips and work down to the elbow.
- While washing, keep hands up above elbows.
- Dry hands and forearms with a sterile towel or air-dry them.

## **Antiseptics and Disinfectants**

### **Definitions and Common Uses**

#### ***Antiseptic***

An antiseptic is a chemical agent used on skin and mucous membranes to reduce the number of microorganisms without causing damage or irritation. In addition to removing or killing microorganisms, antiseptics may also prevent the growth and development of microorganisms, depending on the type of antiseptic and microorganism. Antiseptics are not meant to be used on inanimate objects, such as instruments and surfaces. In addition, items such as pick-up forceps, scissors, scalpel blades, and suture needles should never be left soaking in an antiseptic solution.

#### ***Disinfectant***

A disinfectant is a chemical agent used to kill microorganisms on inanimate objects, such as instruments and surfaces. Disinfectants are not meant to be used on skin or mucous membranes.

### **Antiseptics**

Antiseptics (see Table 6-1) are used for:

- Surgical handscrub
- Skin, cervical, or vaginal preparation prior to a clinical procedure
- Handwashing in high-risk situations, such as prior to an invasive procedure or contact with a client at high risk of infection (e.g., newborns or immunosuppressed clients)

### **Common Antiseptics**

#### **1. Iodophors** (solutions that contain iodine in a complex form) (e.g., povidone iodine, Betadine®)

- *Antimicrobial spectrum*—good broad-spectrum activity
- *Advantages*—less irritating than iodine, can be use on mucous membranes
- *Disadvantages*—activity moderately affected by blood or other organic material
- *Comments*—Iodophors are the recommended antiseptic for surgical handscrubbing and client preparation in reproductive health care services; they are effective 1–2 minutes after application. Most such preparations should be used full-strength; do not dilute them prior to use.



## Antiseptics

**Table 6-1.** Antiseptics for Use in NSV

Antiseptic	Use			Comments
	Surgical scrub	Skin preparation	Mucous membranes	
Iodophors* (Betadine)	yes	yes	yes	Effective 1–2 minutes after application
Chlorhexidine gluconate* (4%) (Hibitane, Hibiscrub)	yes	yes	yes	Has good persistent effect
Chlorhexidine gluconate with cetrimide (4%) (Savlon®)	yes	yes	yes	Do not use to store instruments or other items
Alcohols (60%-90% ethyl or isopropyl)	yes	yes	no	Must dry completely to be effective
Hexachlorophene (3%) (pHisoHex)	no	no	no	Rebound growth of bacteria may occur
Aqueous iodine preparations (3%) or iodine and alcohol	no	yes	no	Allow to dry, then remove with alcohol

\* These agents are recommended for use in surgical scrubs and as client prep solutions before NSV. Iodophors should be the first choice if they are available.

### 2. Chlorhexidine gluconate (e.g., Hibitane, Hibiclens, Hibiscrub) or chlorhexidine gluconate with cetrimide (e.g., Savlon®)

- *Antimicrobial spectrum*—good broad-spectrum activity, but minimal effect on tuberculosis and fungi
- *Advantages*—has good, persistent effect (i.e., remains active for at least six hours; activity is not affected by blood or other organic material)
- *Disadvantages*—activity reduced by hard water, hand creams, and natural soaps

- *Comments*—This is a recommended antiseptic for surgical handscrubbing and client preparation. Products containing chlorhexidine may cause irritation if used in the genital area, vagina, or cervix; however, chlorhexidine is the best alternative if an iodophor is not available.
- *Caution*—The concentration of chlorhexidine in products with the name Savlon® may vary from one country to another. Savlon® products containing at least 4% chlorhexidine are appropriate for use as antiseptics.

### 3. Aqueous iodine preparations or iodine and alcohol (e.g., tincture of iodine)

- *Antimicrobial spectrum*—good broad-spectrum activity
- *Advantages*—fast-acting
- *Disadvantages*—can cause skin irritation; activity markedly affected by blood or other organic material
- *Comments*—Iodine is too irritating for routine use in surgical handscrub or for use on mucous membranes; because of its potential to cause skin irritation, iodine must be allowed to dry, and then must be removed from the skin with alcohol.

### 4. Alcohol (60–90% ethyl or isopropyl)

- *Antimicrobial spectrum*—good broad-spectrum activity
- *Advantages*—moderate inactivation by blood or other organic material
- *Disadvantages*—has a drying effect on skin; cannot be used on mucous membranes, not good for use as a cleaning agent; not to be used on broken skin

### 5. Para-chloro-meta-xenol (PCMX) (Dettol®)

- *Antimicrobial spectrum*—fair activity against most microorganisms
- *Advantages*—persistent effect over several hours; activity minimally affected by blood or other organic material
- *Disadvantages*—less effective than chlorhexidine and iodophors
- *Comments*—PCMX is not recommended for routine use; disinfectant preparations containing PCMX should not be used as antiseptics.

#### **Avoid use of antiseptics containing mercury:**

Mercury-containing compounds should not be used because they are highly toxic, cause blisters, and cause central nervous system disturbances—such as numbness, speech impairment, and deafness—or death when inhaled. They can also be absorbed through the skin and can cause birth defects if a pregnant woman is exposed to small doses.

#### **Disinfectants**

**High-level disinfectants** kill bacteria, viruses, and fungi and some, but not necessarily all, bacterial endospores (which cause such diseases as tetanus and gangrene). Some high-level disinfectants are also chemical sterilants and, given sufficient time, will destroy endospores (e.g. Cidex®).

High-level disinfectants are used for:

- Processing instruments and other items that come into contact with broken skin or intact mucous membranes
- *When sterilisation is not available*, processing instruments and other items that come into contact with the bloodstream or with tissues under the skin

**Low-level disinfectants** kill most bacteria and some viruses and fungi, but do not kill tuberculosis-causing organisms and bacterial endospores (e.g. Phenol<sup>®</sup>, Lysol<sup>®</sup>, etc.).

*Low-level disinfectants* are used for cleaning surfaces (such as floors and countertops). They should not be used for processing instruments and other items.

**Remember:** Disinfectants are harsh chemicals that can damage tissues; they should never be used on skin or mucous membranes.

### **Common disinfectants**

#### *High-level disinfectants*

Only two solutions available in most low-resource settings are suitable for high-level disinfection of instruments and other items:

#### **1. Chlorine solution**

- Cheapest effective disinfectant
- Fast-acting and effective against a broad range of microorganisms
- Usually used in concentrations of 0.5% solution
- Can be used for decontamination (10 minutes) and high-level disinfection (20 minutes) of instruments and other items, as well as disinfection of surfaces
- Available in liquid (sodium hypochlorite), powder (calcium hypochlorite), and tablet (sodium dichloroisocyanurate) form

#### **Precautions:**

- Can be corrosive to metals after prolonged contact (more than 20 minutes) and irritating to the skin, eyes, and respiratory tract
- Should be changed daily or more frequently, since potency can be lost rapidly over time or after exposure to sunlight; should be discarded after 24 hours

#### **2. Glutaraldehyde (e.g., Cidex<sup>®</sup>)**

- Used most commonly for processing medical equipment such as laparoscopes, which cannot be heat-sterilized
- Dilution varies, so follow manufacturer's instructions
- Can be used for high-level disinfection by soaking for 20 minutes or for sterilization by soaking for 10 hours (may vary depending on product; follow manufacturer's instructions)
- Not corrosive to instruments and other items

#### **Precautions:**

- Leaves a residue, so instruments and other items must be rinsed thoroughly with boiled water after high-level disinfection and with sterile water after sterilization
- Solution should be changed every 14 days, or sooner if cloudy (may vary depending on product; follow manufacturer's instructions)
- Irritating to the skin, eyes, and respiratory tract; when handling glutaraldehyde, wear gloves, prepare in a well-ventilated space, and limit exposure to the chemical

### *Low-level disinfectants*

Low-level disinfectants, such as phenols or carbolic acid (Phenol<sup>®</sup>, Lysol<sup>®</sup>), and quaternary ammonium compounds, such as benzalkonium chloride (Zephiran<sup>®</sup>), are suitable for use in disinfecting walls, floors, and furnishings. However, most such products have few (if any) advantages over the use of chlorine/detergent solutions, which are less expensive and often more readily available.

### **Protecting Antiseptics and Disinfectants from Contamination**

Even though antiseptics and disinfectants are effective in killing microorganisms, their abilities are limited. As a result, antiseptics and disinfectants can easily become contaminated. Using contaminated antiseptics and disinfectants can cause infections.

Antiseptics and disinfectants can become contaminated when:

- Solution is left during several days in the same container for repeated use.
- Dilution is necessary, and the water used to dilute the solution is contaminated.
- Containers in which antiseptics or disinfectants are placed are contaminated.
- Microorganisms from the provider's skin or a contaminated instrument or other item come into contact with the solutions during use, such as when cotton balls are removed from a solution for skin preparation.
- The area where solutions are prepared or used is not clean.

### **To prevent contamination:**

- Pour solutions into smaller containers for use during service delivery to avoid contaminating the stock container.
- Pour the amount of antiseptic needed for one client into a small bowl prior to the start of the procedure. Discard any remaining solution at the end of the procedure.
- Avoid storing gauze, cotton wool, or cotton balls in solutions.
- Always pour solutions out of the container without touching the rim or the solution itself with your hand, a cotton swab, or gauze, since these can contaminate the entire bottle of solution.

Store antiseptics and disinfectants in a cool, dark area. Avoid storing them in direct sunlight or in excessive heat, as this may reduce their strength.

## Surgical Site Preparation

- Clean the operative site with soap and water if the client has not already done so that day.
- Trim hair at the operative site, if necessary. (Avoid shaving the client, as this increases the risk of postoperative infection.)
- If shaving of the surgical site is a must: 1) Use antimicrobial soap and water or shave dry; 2) shave immediately before the procedure, in the operating theater or procedure room.
- Use dry, high-level disinfected or sterile forceps to hold antiseptic-soaked cotton. The antiseptic should be at room temperature. Do not leave cotton soaking in antiseptic for prolonged periods of time or for use on multiple clients.
- Apply solution in a circular motion, starting from the incision site and working outward.
- Do not permit excess antiseptic to pool underneath the client.
- After preparing the surgical site, cover the area with a sterile surgical drape.

## Multidose Vials

Local anesthetic is often available in multidose vials. If not used correctly, these vials can be a source of cross-infection between clients.

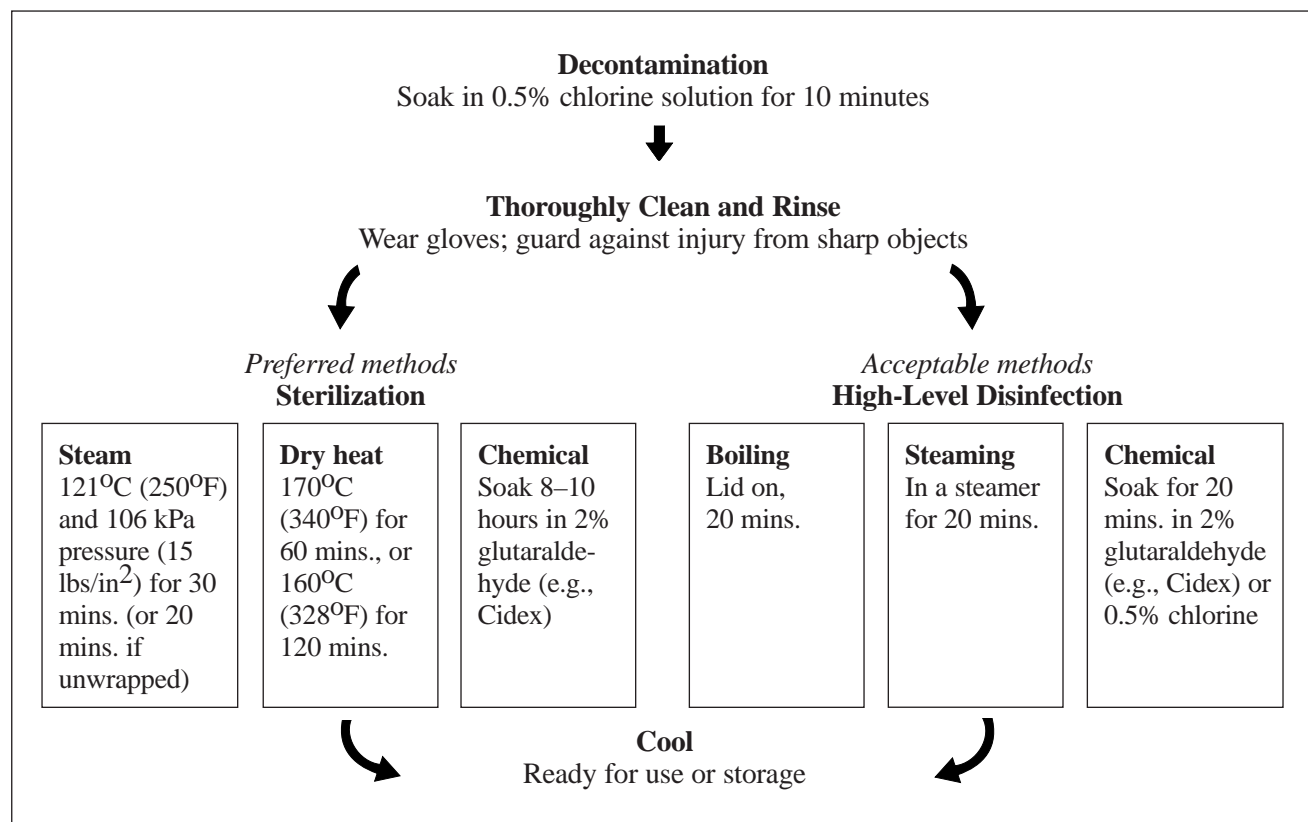
- Never use a needle that has been used on a client to draw up solution from a multidose vial (unless the entire contents of vial will be used on the same client).
- Changing the needle but using the same syringe is not a safe practice.
- Do not leave a needle in a multidose vial between uses.

## Processing of Instruments and Other Items Used in Vasectomy

The pages that follow give detailed information on the three steps of processing instruments and reusable supplies used in NSV (Figure 6.4). These steps are:

- STEP 1: Decontamination.** Reduces the risk of hepatitis B (HBV) and HIV transmission to staff and makes instruments and supplies safer for handling during cleaning.
- STEP 2: Cleaning.** Cleaning with detergent and water removes blood and tissue and improves the quality of subsequent high-level disinfection or sterilization.
- STEP 3: Sterilization.** Sterilization using dry heat, steam, or chemical solutions destroys all microorganisms, including endospores.
- or*
- High-level disinfection (HLD).** HLD through boiling or using chemicals destroys all microorganisms, with the exception of some endospores.

**Figure 6-4.** Steps of Instrument Processing



## Decontamination

The first step in handling dirty instruments, decontamination using a 0.5% chlorine solution, reduces the risk of hepatitis B and HIV infection (see Table 6-2, page 62). Chlorine rapidly inactivates both hepatitis B and HIV, making the instruments safer for staff to handle during cleaning.

**Note:** Wear utility gloves when handling chlorine, used surgical instruments, and other items for decontamination.

- Immediately after use, decontaminate surgical instruments, reusable gloves, and other items by placing them in a plastic bucket containing a solution of 0.5% chlorine for 10 minutes. A bucket containing this solution should be kept in the procedure room so that used items can be placed directly into the bucket.
- After 10 minutes, remove items from the chlorine solution and rinse with water or clean immediately. Excessive soaking in the solution can damage instruments.
- Prepare a new chlorine solution at the beginning of each day.

## Preparing a 0.5% chlorine solution

### Using liquid bleach

Chlorine in bleach comes in different concentrations. You can use any concentration to make a 0.5% chlorine solution by using the following formula:

$$\left[ \frac{\% \text{ chlorine in liquid bleach}}{0.5\%} \right] - 1 = \text{Total parts of water for each part bleach}^*$$

*Example:* To make a 0.5% chlorine solution from a 3.5% chlorine concentrate, you must use one part chlorine and six parts water:

$$\left[ \frac{3.5\%}{0.5\%} \right] - 1 = [7] - 1 = 6 \text{ parts water for each part chlorine}$$

### Using bleach powder

If using bleach powder instead of liquid bleach, calculate the ratio of bleach to water using the following formula:

$$\left[ \frac{\% \text{ chlorine desired}}{\% \text{ chlorine in bleach powder}} \right] \times 1,000 = \text{Number of grams of powder for each liter of water}$$

*Example:* To make a 0.5% chlorine solution from calcium hypochlorite powder containing 35% available chlorine:

$$\left[ \frac{0.5\%}{35\%} \right] \times 1,000 = 0.0143 \times 1,000 = 14.3$$

Therefore, you must dissolve 14.3 grams calcium hypochlorite powder in one liter of water in order to get a 0.5% chlorine solution.

---

\* Note that “parts” can be used for any unit of measure (for example, ounce, liter, or gallon) and need not even represent a defined unit of measure (for example, pitcher or container)

**Table 6-2.** Processing of Vasectomy Instruments

<b>Equipment</b>	<b>Process</b>
<b>Examination table top</b> (or other large surface area)	<p>1. <i>Decontamination:</i> Wipe with a 0.5% chlorine solution.</p> <p>2. <i>Cleaning:</i> Wash with detergent and water.</p> <p>3. <i>Sterilization:</i> Not necessary</p> <p><i>High-level disinfection:</i> Not necessary</p>
<b>Linens</b> (caps, gowns, masks, and surgical drapes)	<p>1. <i>Decontamination:*</i> Wear utility gloves to handle, transport, and process used linens soiled with blood or bodily excretions or secretions. Avoid skin and mucous membrane exposure and contamination of clothing. Decontamination of linens is impractical and is not recommended.</p> <p>2. <i>Cleaning:*</i> Wash with detergent and hot water. Rinse with clean water. Air- or machine-dry.</p> <p>3. <i>Sterilization:</i> Not necessary for caps, gowns and masks. For surgical drapes, steam sterilize at 121°C (250°F) and 106 kPa (15 lbs/in<sup>2</sup>) for 30 minutes.</p> <p><i>High-level disinfection:</i> Not practical</p>
<b>Gloves</b> (rubber or plastic)	<p>1. <i>Decontamination:</i> Soak in a 0.5% chlorine solution for 10 minutes before cleaning. Rinse or wash immediately.</p> <p>2. <i>Cleaning:</i> Wash well with detergent and water. Rinse with clean water, inflate with air, and check for holes. If to be sterilized, dry inside and out (air- or towel-dry).</p> <p>3. <i>Sterilization:</i> Preferable. Steam sterilize at 121°C (250°F) and 106 kPa (15 lbs/in<sup>2</sup>) for 20 minutes. Do not use for 24–48 hours.</p> <p><i>High-level disinfection:</i> Gloves can be boiled, but this procedure is difficult. Gloves can be steamed for 20 minutes.</p>
<b>Vasectomy instruments</b>	<p>1. <i>Decontamination:</i> Soak in a 0.5% chlorine solution for 10 minutes before cleaning. Rinse or wash immediately.</p> <p>2. <i>Cleaning:</i> Using a brush, wash well with detergent and water. Rinse with clean water. Air- or towel-dry.</p> <p>3. <i>Sterilization:</i> Preferable. Either (1) dry-heat for one hour after reaching 170°C (340°F), or (2) steam sterilize at 121°C (250°F) and 106 kPa (15 lbs/in<sup>2</sup>) for 20 minutes (30 minutes if wrapped).</p> <p><i>High-level disinfection:</i> Boiling is acceptable. Completely immerse items and boil for 20 minutes.</p>

\* To reduce the risk of exposure to infectious material, machine washing is recommended, if possible.

*continued*



**Table 6-2** continued

<b>Equipment</b>	<b>Process</b>
<b>Reusable needles and syringes</b>	<p>1. <i>Decontamination:</i> Fill assembled needle and syringe with a 0.5% chlorine solution and soak for 10 minutes before cleaning. Rinse by flushing three times with clean water.</p> <p>2. <i>Cleaning:</i> Disassemble, then wash with detergent and water, removing all particles. Rinse with clean water. Air- or towel-dry syringes (only air-dry needles).</p> <p>3. <i>Sterilization:</i> Preferable. Either (1) dry-heat for two hours after reaching 160°C (320°F) (for glass syringes only) or (2) steam sterilize at 121°C (250°F) and 106 kPa (15 lbs/in<sup>2</sup>) for 20 minutes (30 minutes if wrapped).</p> <p><i>High-level disinfection:</i> Boiling is acceptable. Completely immerse items and boil for 20 minutes. Chemical high-level disinfection of needles and syringes should be avoided.</p>
<b>Storage containers for instruments</b>	<p>1. <i>Decontamination:</i> Soak in a 0.5% chlorine solution for 10 minutes before cleaning. Rinse or wash immediately.</p> <p>2. <i>Cleaning:</i> Wash with detergent and water removing all particles. Rinse with clean water. Air- or towel-dry.</p> <p>3. <i>Sterilization:</i> Dry-heat for one hour after reaching 170°C (340°F) or steam sterilize at 121°C (250°F) and 106 kPa (15 lbs/in<sup>2</sup>) for 20 minutes (30 minutes if wrapped).</p> <p><i>High-level disinfection:</i> Boil container and lid. If container is too large, fill the container with the chlorine solution and soak for 20 minutes, then rinse with water that has been boiled for 20 minutes. Air-dry before use. Disinfect weekly, when empty, or when contaminated.</p>

## Cleaning

Cleaning by scrubbing with detergent and water is a crucial step in processing instruments and other items. Cleaning greatly reduces the number of microorganisms and endospores on instruments and equipment.

Before equipment is sterilized or high-level disinfected, a thorough mechanical cleaning is necessary to remove blood and organic material. High-level disinfection and sterilization are not effective unless instruments have first been cleaned.

### Remember to:

- Wear utility gloves when cleaning instruments.
- Scrub instruments vigorously with a soft brush in detergent and water to completely remove all blood, tissue, and other residue.
- Rinse instruments thoroughly with water after scrubbing. Detergent may interfere with further processing.
- Allow items to air-dry (items to be high-level disinfected by boiling can be directly placed in the water).

## Sterilization

Sterilization should be preceded by decontamination. To be effective, sterilization *must* be preceded by careful cleaning and thorough rinsing. Sterilization eliminates all microorganisms (bacteria, viruses, fungi, and parasites), including bacterial endospores, from instruments and other items.

- Sterilization is the method recommended for items that come into contact with the bloodstream or tissues beneath the skin (such as reusable needles, syringes, and surgical instruments).
- Jointed instruments, such as ringed clamps and dissecting forceps, should be opened or unlocked during sterilization.
- Sterilization uses steam (autoclaving), dry heat (oven), or chemical solutions.

### Steam sterilization

- If items are to be wrapped before steam sterilization, use two layers of paper wrap or two layers of cotton fabric (do not use canvas).
- Items or packs should be arranged to allow free circulation of steam.
- Sterilize items at 121°C (250°F) and 106 kPa pressure (15 lbs/in<sup>2</sup>). Use 30 minutes for wrapped items, 20 minutes for unwrapped items.

**Note:** Do not begin timing until the steam sterilizer reaches the desired temperature and pressure.

- Allow packs or items to dry before removing them from the steam sterilizer. Allow items to cool before storage or use.
- The steam sterilizer itself should be checked with each use to make sure it is functioning properly. If repairs are necessary (for example, if gauges and seals are broken), repairs should be made before the machine is used for sterilization.

**Dry-heat sterilization**

- Items can be wrapped in foil or double-layered cotton fabric before dry-heat sterilization.
- Sterilize items at 170°C (340°F) for 60 minutes or 160°C (320°F) for 120 minutes.

**Note:** Do not begin timing until the oven reaches the desired temperature.

- Dry heat can dull sharp instruments and needles. These items should not be sterilized at temperatures higher than 160°C.
- Items should be allowed to cool before they are removed from the oven.
- Items should then be used immediately or stored in a sterile covered container.

**Chemical sterilization**

- Soak items in a 2% glutaraldehyde solution (e.g., Cidex) for 8–10 hours.
- All items must be completely submerged.
- Do not add or remove any items once timing has begun.
- Rinse with sterile water (do not use boiled water; boiling does not reliably inactivate spores).
- Place instruments on a sterile surface and air-dry before use or storage.
- Use items immediately, wrap items in sterile paper or cloth, or place items in a covered sterile container.

**High-Level Disinfection**

If sterilization is not available, high-level disinfection is the only acceptable alternative for preparing instruments for use in vasectomy. High-level disinfection is effective in eliminating all microorganisms except some bacterial endospores. High-level disinfection should always be preceded by decontamination. To be effective, high-level disinfection must be preceded by careful cleaning and thorough rinsing.

- There are three methods of high-level disinfection: boiling, steaming, and use of chemicals.
- After high-level disinfection, items that are not used immediately should be air-dried and stored in a covered, washable high-level disinfected container (for up to one week).
- Jointed instruments, such as ringed clamps and dissecting forceps, should be opened or unlocked during high-level disinfection.

**Boiling**

- Completely immerse items in water. Cover and boil for 20 minutes (start timing when the water begins to boil).
- All items must be completely covered during boiling (place items that float in a weighted, porous bag). Do not add anything to the pot after the water begins to boil.
- Place instruments on a sterile surface and air-dry before use or storage.

**Steaming**

- Place water in the bottom tray of the steamer (the tray that has no holes).
- Place gloves and instruments in the tray(s) with the holes (up to three trays) and stack them on top of the bottom tray.
- Place the lid on the top tray and bring the water to a boil.

- When steam comes out between the trays, the water is boiling. Reduce the heat but maintain the water at a rolling boil. (Steam should continue to come out between the trays.)
- Steam the gloves or instruments for 20 minutes.
- Remove each tray of gloves or instruments, shake off excess water, and place the tray on a second tray that does not have holes.
- Use the gloves or instruments immediately or dry and store in a high-level disinfected container.

### ***Chemical high-level disinfection***

- Cover all items with correct dilution of disinfectant (2% glutaraldehyde [Cidex] solution or a 0.5% chlorine solution).
- Soak items for 20 minutes or as per manufacturer's instructions.
- Nothing should be added to or removed from the chemical solution once timing has begun. After soaking items, rinse them with boiled water.
- Place instruments in a high-level disinfected container and air-dry before they are used or stored.

## **Storage of Processed Items**

Proper storage of high-level disinfected or sterilized items is as important as the high-level disinfection or sterilization process itself.

- Store items dry.
- Do not store pick-up forceps in a bottle filled with antiseptic solution. (Microorganisms will multiply in standing water, even if an antiseptic has been added.) High-level disinfect or sterilize used pick-up forceps each day and store them dry in a high-level disinfected or sterile bottle.
- The length of time a wrapped, sterile item is considered sterile depends on whether a contaminating event occurs, not necessarily on how long the item has been stored. Wrapped items must be considered contaminated when:
  - The package is torn or damaged.
  - The wrapping is wet.
  - The expiration date is exceeded.
- Unwrapped items must be used immediately or stored in a covered sterile or high-level disinfected container (for up to one week).
- If possible, store processed items in an enclosed dry cabinet, in areas that are not heavily trafficked.

## **Maintaining a Safe Environment in the Vasectomy Procedure Room**

- Limit entry of unauthorized individuals to surgical room.
- Close doors and curtains during the procedure.
- Each day, clean the floor with a damp mop (water only) and wipe counters and table tops with a damp rag (water only) before any procedures begin.

- After each case, wipe down the procedure table, the floor around the table, the instrument stands, and other potentially contaminated areas (such as light switches and counter tops) with a 0.5% chlorine solution (see page 61, Preparing a 0.5% chlorine solution).
- At the end of the day, repeat the above procedure with a disinfectant cleaning solution that contains both a disinfectant (chlorine) and a detergent (soap).
- Thoroughly clean the procedure room at least once a week. Use a disinfectant cleaning solution to scrub the walls, floors, and equipment. Wash from the top to bottom, so that debris that falls on the floor will be cleaned up last.

## Waste Disposal

If not disposed of properly, contaminated waste is a potential source of infection for both staff and the local community.

- Always wear utility gloves when handling and transporting waste and wash both the gloves and your hands afterwards.
- Always dispose of contaminated waste properly—never simply throw it outside or leave it in an open pit.
- Always keep a container close to any area where needles or other sharps are used (so staff do not have to carry these items a long distance before disposal).
- Always keep waste containers in the operating and cleaning areas.

### Waste Containers

- Use washable, leak-proof containers.
- For needles and other sharps, use a puncture-resistant, lidded container made of metal, heavy cardboard or heavy, rigid plastic. Plastic bottles, emptied of antiseptic or other solutions, can be used for this purpose if they are clearly labeled.
- If a container is reusable, disinfect it with a 0.5% chlorine solution after each use.

### Liquid Waste (e.g., Blood or Other Body Fluids)

- If possible, pour waste down a utility drain or into a flushable toilet or a latrine.
- If you cannot pour waste down a drain, latrine, or toilet, bury it in a pit.
- Always be careful when disposing of liquid waste. Do not allow the liquid to splash while you are pouring it.

### Solid Waste (e.g., Soiled Surgical Sponges or Bandages, Human Tissue)

- Burn contaminated solid waste. Burning kills microorganisms and is therefore the best method for disposing of contaminated solids.
- Burn waste in an incinerator or steel drum as opposed to “open burning.”
- If you cannot burn it, bury solid waste in a pit.

**Needles and Other Sharps**

- Do not bend, break, or clip needles before disposal.
- If possible, do not recap used needles. Most needle-stick injuries occur while staff are replacing needle caps. If recapping is necessary, use the “one-handed” method, as follows:
  1. Place the cap on a hard, flat surface. Do not hold it.
  2. Hold the syringe and use the needle to “scoop up” the cap.
  3. When the cap covers the needle completely, carefully secure it on the needle.
- Unless you are using a large industrial incinerator, it is best to bury containers for needles and other sharps. In a drum or small incinerator, burning may not destroy these items, and they may later cause injuries that could lead to serious infections. However, if no other options are available, burning needles and plastic syringes in a drum or small incinerator by themselves (without paper or other waste) will destroy HIV and HBV and will result in a mass of melted plastic that hardens with the needles and other sharps inside.

## Self-Assessment

Answers are provided at the end of this assessment. Each question is followed by the page number in this handbook on which the information can be found.

Decide whether each of the following statements is T (true) or F (false). Write your response in front of each statement.

1. \_\_\_\_ You should wash your hands after removing gloves. (page 53)
2. \_\_\_\_ When performing a number of procedures in succession, a vassectomist should perform a surgical hand scrub before each procedure. (page 53)
3. \_\_\_\_ Store pick-up forceps (lifters) in a container filled with antiseptic and water before and during NSV. (page 67)
4. \_\_\_\_ Instruments should be cleaned and then decontaminated before being sterilized. (pages 63–65)
5. \_\_\_\_ Chlorine rapidly inactivates HIV and HBV. (page 63)

The following are multiple-choice questions. More than one response may be correct. Please circle the correct response(s).

6. Which of the following antiseptics can be used for surgical hand scrub and surgical site preparation? (pages 54, 61)
  - a. Savlon
  - b. Iodophors
  - c. Chlorhexidine gluconate
  - d. Hexachlorophene
  - e. Benzalkonium chloride
7. If you have 4% chlorine liquid bleach, how many parts water and bleach do you need to make a 0.5% chlorine solution? (page 63)
  - a. One part bleach to six parts water
  - b. Six parts bleach to one part water
  - c. One part bleach to seven parts water
  - d. Seven parts bleach to one part water
  - e. One part bleach to eight parts water

8. Which of the following procedures can be used to sterilize instruments used in NSV: (pages 64, 65)
- Steam sterilize wrapped items for 30 minutes at 121°C and 106 kPa
  - Steam sterilize unwrapped items for 20 minutes at 121°C and 106 kPa
  - Sterilize needles at 160°C for 120 minutes in a dry-heat sterilizer or an oven
  - Soak in a 2% glutaraldehyde solution for 8–10 hours
9. Which of the following procedures can be used to high-level disinfect instruments used in NSV? (page 65)
- Soak in alcohol, iodine, or iodophors for 20 minutes
  - Submerge instruments in boiling water for 20 minutes
  - Soak in a 2% glutaraldehyde solution for 20 minutes
  - Soak in a 0.5% chlorine solution for 20 minutes

---

Answers: 1. T; 2. F; 3. F; 4. F; 5. T; 6. a, b, c; 7. c; 8. a, b, c, d; 9. b, c, d



# MODULE 7      Scrotal Model Practice



## Materials and Supplies

- ✓ Module 7
- ✓ *No-Scalpel Vasectomy: An Illustrated Guide for Surgeons* (Chapters 4 and 5)
- ✓ Scrotal model
- ✓ Dissecting forceps
- ✓ Ringed clamp
- ✓ Suture material or cautery instruments
- ✓ Scissors for cutting suture
- ✓ Needle and syringe
- ✓ Clipboard (or another means of securing the model)

From field experience, EngenderHealth has learned that even experienced vasectomists have difficulty teaching themselves the NSV technique. *Do not perform NSV on a client until an experienced NSV trainer has evaluated your performance as satisfactory during supervised surgical practice.*

### Directions for Independent Study

This module emphasizes surgical skills development through practice with the scrotal model. If you are preparing independently for this module, you should:

- Study this module.
- Study Chapters 4 and 5 in *No-Scalpel Vasectomy: An Illustrated Guide for Surgeons*.
- Familiarize yourself with the NSV Clinical Skills Checklist (see Appendix B).
- Take the self-assessment at the end of this module.
- Write down any questions you have about this module for later discussion with the trainer.

If possible, watch the *No-Scalpel Vasectomy* video, which is very helpful for studying the NSV technique. If you have dissecting forceps, a ringed clamp, a scrotal model, a needle, and a syringe, you can begin to practice the techniques on the scrotal model. The more you handle the instruments, the more comfortable you will be with them.

When practicing on a scrotal model, you should not inject any liquid into the model—nor should you cut or cauterize the tubes in the model.

## Introduction

### Purpose and Objectives

This module contains information on NSV clinical skills and provides an opportunity to practice these skills on a scrotal model. Upon completing this module, you should be able to:

- Describe all of the tasks included in providing NSV clinical services
- Competently perform all steps of the NSV surgical procedure on a scrotal model

## Overview of the NSV Technique

Pay close attention to each step of the NSV technique described by the trainer during this interview. It may help to follow along with the illustrations and text in Chapters 4 and 5 of *No-Scalpel Vasectomy: An Illustrated Guide for Surgeons*.

Watching and understanding the steps now will make it easier to perform them during model and surgical practice.

## Demonstration

Scrotal model practice facilitates the process of acquiring NSV surgical skills. By the time you perform your first NSV on a client, you will already be:

- Able to use the three-finger technique
- Comfortable handling the dissecting forceps and ringed clamp
- Confident in your basic skills

During the demonstration, the trainer will go over the steps needed to prepare a client for NSV, the steps needed to perform the procedure, and the steps to be followed after the procedure. To follow along with the demonstration (or to study this material independently), refer to the NSV Clinical Skills Checklist (see Appendix B) and to the illustrations listed in Table 7-1.

**Table 7-1.** Steps to Be Practiced on a Scrotal Model

<b>Scrotal model practice steps</b>	<b>Matching figure in <i>No-Scalpel Vasectomy: An Illustrated Guide for Surgeons</i></b>
Step 1. Three-finger technique, right vas	Figure 4
Step 2. Needle insertion and anesthesia for right vas	Figures 5, 6, and 7
Step 3. Three-finger technique, needle insertion, and anesthesia for left vas	Figures 8 and 9
Step 4. Pinching the skin wheal	Figure 10
Step 5. Holding the ringed clamp	Figure 11
Step 6. Correct way of applying ringed clamp and fixation of right vas	Figures 12 and 13
Step 7. Elevating the underlying vas	Figures 14 and 15
Step 8. Piercing the skin and other layers of tissue	Figures 16 and 17
Step 9. Spreading the tissue	Figure 18
Step 10. Piercing the vas wall	Figure 19
Step 11. Rotating the dissecting forceps and releasing the ringed clamp	Figures 20, 21, and 22
Step 12. Elevating and grasping the vas	Figures 23 and 24
Step 13. Stripping the vas	Figures 25, 26, and 27
Step 14. Steps of ligation and excision	Figures 28
Step 15. Steps of fascial interposition	Figure 29 and 30
Step 16. Occluding the vas with cautery	Figures 31, 32, and 33
Step 17. Isolating the left vas	Figure 34

## Supervised Scrotal Model Practice

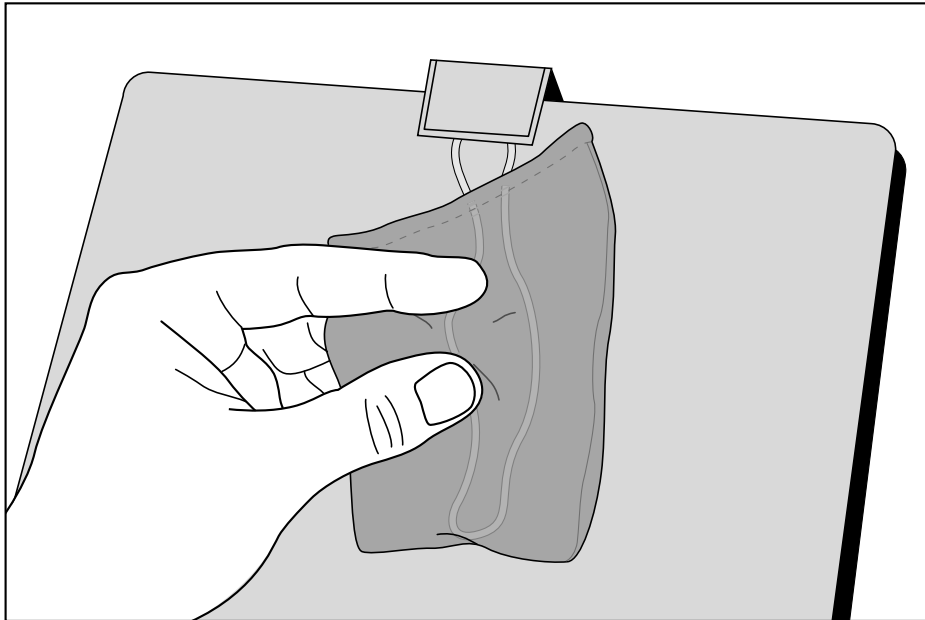
After the demonstration, you will practice the NSV techniques on the scrotal model. Refer to Figures 4 through 34 in *No-Scalpel Vasectomy: An Illustrated Guide for Surgeons* during the practice session. Throughout the practice, your trainer will be available to answer your questions.

Figure 7-1 on pages 75 and 76 illustrates some of the most important steps of practice on the scrotal model.

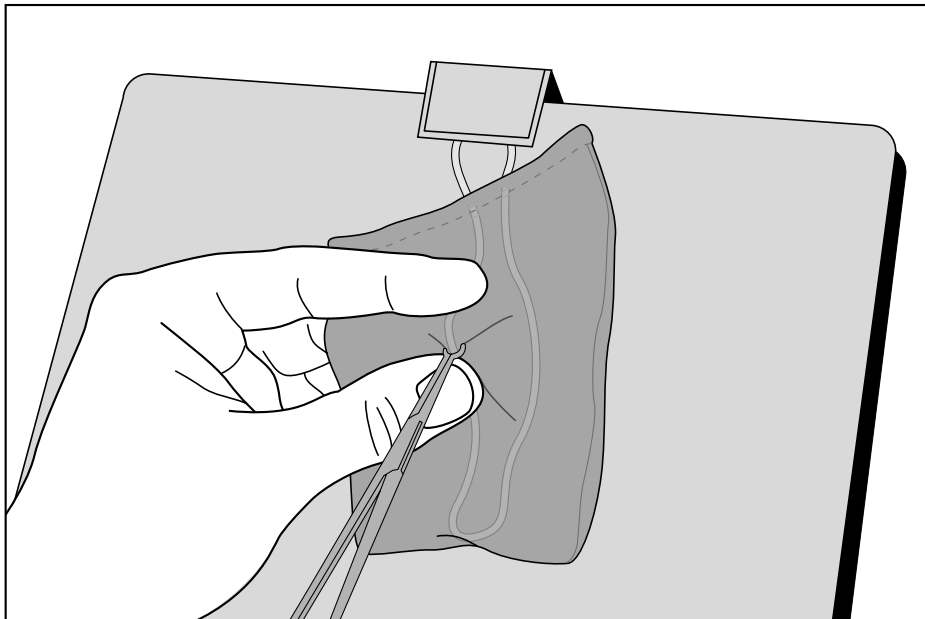
### Practice Hints

- Work on the center line of the scrotal model, as you will be working on the median raphe on clients.
- The loop of the scrotal model should be considered to be in the direction of the client's abdomen and should be used with this orientation during model practice.
- Practice the three-finger technique on the scrotal model.
- Scrotal model practice is especially useful for practicing the application of the ring forceps. Work on applying the ring forceps at different angles, according to specifications in *No-Scalpel Vasectomy: An Illustrated Guide for Surgeons*.
- Remember that the suede "skin" of the scrotal model is tougher and less flexible than actual scrotal skin. You are also less able to get an accurate soft-tissue feel.
- The scrotal model is also useful for practicing the part of the procedure in which the "vasa" are delivered.
- When practicing occlusion, please note that:
  - Clips can be applied to the model "vasa."
  - The model's "vasa" should not be cut, but you can practice knot tying on the model.
  - You may practice the steps of cautery on the model with needle cautery— however, first make sure that the cautery instrument is turned off.

**Figure 7-1.** Practicing on the Scrotal Model

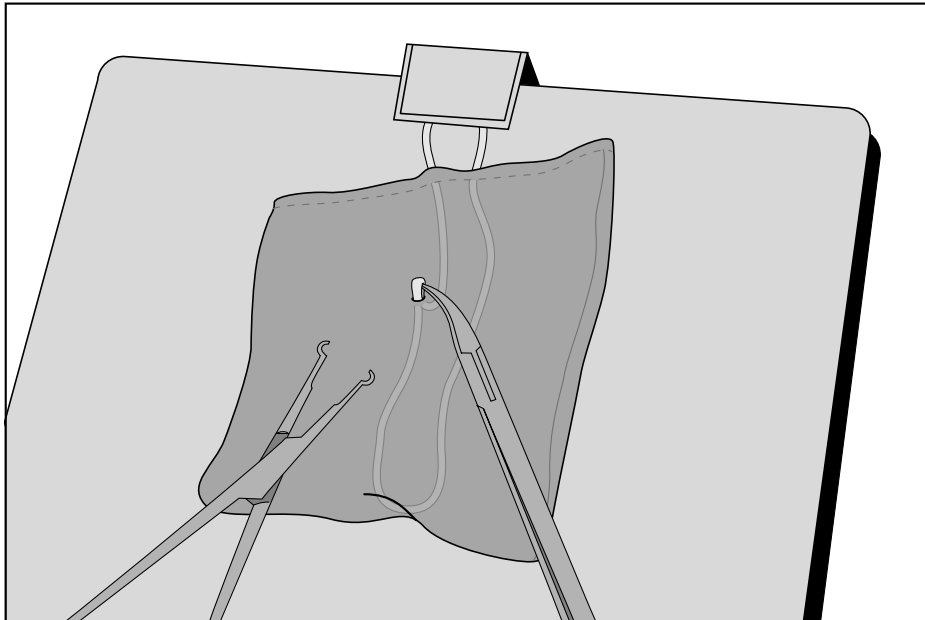


The right vas is isolated using the three-finger technique.

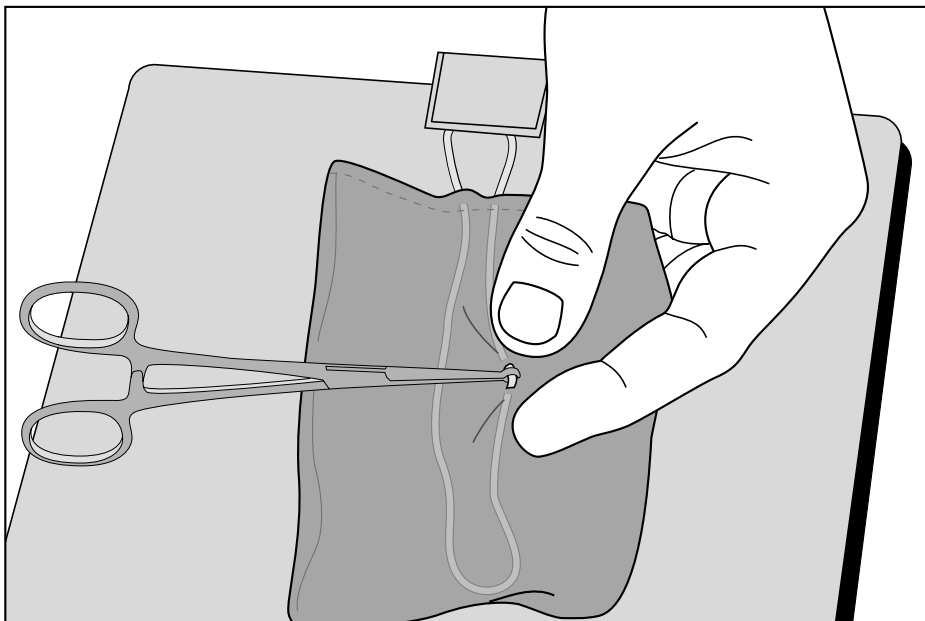


The clamp is applied.

*continued*

**Figure 7-1** continued

The clamp is removed and the vas is delivered.



The left vas has been isolated, and the clamp is applied.

## Independent Scrotal Model Practice

To develop the manual skills and hand-eye coordination needed to use the special NSV instruments requires practice. Even experienced vasectomists need to adjust themselves to the use of these special instruments. Independent, unsupervised scrotal model practice allows you time to develop the dexterity you need for NSV and to learn the correct order in which tasks are performed.

Throughout this training (particularly during surgical practice), you may want to practice a specific technique on the scrotal model after observing or performing an NSV.

### Hints for Independent Practice

- Refer to the NSV Clinical Skills Checklist (see Appendix B) throughout practice. This will help you memorize all of the clinical tasks, including those that you cannot perform on the scrotal model.
- Refer often to Chapters 4 and 5 of *No-Scalpel Vasectomy: An Illustrated Guide for Surgeons*. This will help you review information presented by the trainer during the demonstration and will provide additional helpful hints, alternatives, and warnings about particular pitfalls that doctors face when learning the NSV technique. The illustrations will help you verify that you are performing individual techniques correctly.
- Review the *No-Scalpel Vasectomy* video. The video will help clarify maneuvers that cannot be conveyed in the figures in *No-Scalpel Vasectomy: An Illustrated Guide for Surgeons*.
- When having difficulty with a maneuver, ask for the trainer's guidance or ask for assistance from a more experienced participant.
- You may want to work in pairs or in small groups. For example, one participant can read the directions for each maneuver as the other one performs the task. You can quiz one another about the steps of the NSV procedure using the self-assessment provided at the end of this module or by making up your own questions.

## **Evaluation**

When you believe that you know the steps of the NSV procedure as stated on the NSV Clinical Skills Checklist (see Appendix B) in the correct order and when you can correctly perform tasks that can be performed on the scrotal model, arrange with the trainer to be evaluated. During the evaluation, you will state each step of the NSV procedure and perform tasks that can be performed on the scrotal model.

If you do not state or perform each step satisfactorily, the trainer will explain or demonstrate the correct technique. Then you will practice until you are ready to be reevaluated.

Once your performance has been evaluated as satisfactory, you can proceed to supervised surgical performance.



## Self-Assessment

Answers are provided at the end of this assessment. Each question is followed by the page number in this Participant's Handbook (PH) or in *No-Scalpel Vasectomy: An Illustrated Guide for Surgeons* (NSV book) on which the information can be found.

Decide whether each of the following statements is T (true) or F (false). Write your response for each statement.

1. \_\_\_\_ Puncture the scrotal skin in the previously anesthetized spot, midway between the base of the penis and the top of the testes. (NSV book, page 29)
2. \_\_\_\_ Open the blades of the dissecting forceps transversely at a right angle to the vas. (NSV book, page 32)
3. \_\_\_\_ Keep the ringed clamp locked while you deliver the vas. Otherwise, you may sever the vas. (NSV book, pages 36–39)
4. \_\_\_\_ After occluding the right vas, pinch the puncture site before proceeding to the left vas. (NSV book, pages 43–51)
5. \_\_\_\_ After occluding both vasa and returning them to the scrotum, apply pressure directly to the puncture site for one minute. (NSV book, page 52)
6. Arrange the following steps of the NSV procedure in their correct order. Write the appropriate number in the blank provided. (PH, page 75)
  - \_\_\_\_ Deliver the vas through the puncture hole while releasing the ringed clamp, but still keeping it in its place.
  - \_\_\_\_ Use the dissecting forceps to isolate the vas from the perivasal structures.
  - \_\_\_\_ Gently open the blades of the dissecting forceps and spread the tissue to make a skin opening twice the diameter of the vas.
  - \_\_\_\_ Use the lateral blade of the dissecting forceps to spear the bare vas wall and rotate the dissecting forceps clockwise 180°.
  - \_\_\_\_ Grasp a partial thickness of the elevated vas with the ringed clamp.

---

Answers: 1. F; 2. T; 3. F; 4. F; 5. T; 6. Correct order: 3, 5, 1, 2, 4



# MODULE 8      Supervised Clinical and Surgical Practice



## Materials and Supplies

- ✓ Module 8
- ✓ *No-Scalpel Vasectomy: An Illustrated Guide for Surgeons* (Chapters 4 and 5)
- ✓ NSV Clinical Skills Checklist (see Appendix B)
- ✓ Instruments, equipment, and supplies needed to perform NSV

## Introduction

### Purpose and Objectives

This module provides the information and skills practice necessary for participants to perform NSV correctly, safely, and effectively. Upon completing this module, you should be able to:

- Competently perform all the steps of the NSV procedure as described in the NSV Clinical Skills Checklist
- Demonstrate empathetic support of the client during the surgical procedure
- Exhibit the use of proper infection prevention techniques throughout the surgical procedure

**Note:** Based on field experience, EngenderHealth has learned that even experienced vasectomists have difficulty teaching themselves the NSV technique. Do not attempt to perform NSV on a client until you have received supervised surgical training.

### Directions for Independent Study

This module emphasizes surgical skills development through surgical observation and supervised surgical practice. If you are preparing independently for this module, you should

- Study this module.
- Study Chapters 4 and 5 in *No-Scalpel Vasectomy: An Illustrated Guide for Surgeons*.
- Review the NSV Clinical Skills Checklist (see Appendix B).
- Write down any questions you have about this module for later discussion with the trainer.

## Guidelines for Surgical Observation and Practice

The priority concerns during surgical observation and practice are ensuring the client's comfort and safety and providing a safe, effective procedure. Therefore:

- Participants who are observing an NSV procedure should not interfere with the work of the surgical team.
- Participants should hold questions and comments until after the procedure is completed and the client is no longer in the room.
- If a participant notices a complication or a break in the sterile technique that was unobserved by the trainer, that person is responsible for reporting the situation immediately in a way that does not alarm the client.
- If a complication arises during surgery, the trainer will be in charge of managing the situation and will complete the surgery.

## Client-Support Highlights

During NSV, clients will be awake and will be concerned about the success of the procedure and about the amount of pain they might feel. The vasectomist (and vasectomy assistant) can do several things to minimize the client's tension and maximize his comfort, which will contribute to the safe and efficient performance of the NSV.

- Some clients like to be informed of each step of the procedure, while many others prefer to be distracted. Soothing music or discussion of a topic of interest to the client might help. Some providers have placed a mobile or picture on the ceiling for the client to focus on. Ask the client what will help him to relax.
- Inform the client that he might feel some discomfort and that it is essential that he does not move until the procedure is complete. Ask him to tell you if he feels any discomfort or pain. You could suggest that he squeeze the table instead of moving if he feels any pain. Before you inject the local anesthetic or apply the ringed clamp, advise the client that he might feel some pressure.
- The vasectomist (or another staff member) should monitor the client. Ask him how he is doing and determine that he is not experiencing any untoward reaction (such as vasovagal response).
- Before, during, and after the procedure, be aware of the client's need for privacy and his concerns about modesty.

## Infection Prevention Highlights

### For the Procedure

- Scrub properly
- Vasectomy can be performed in an examination room; an operating theater is not required. But emergency equipment and drugs for management of intraoperative complications should be readily available.
- Clients can wear their own clothing if it is clean.
- Staff do not have to wear a cap, mask, or gown.
- Use instruments, gloves, and surgical drapes that have been sterilized or high-level disinfected (see Module 6: Infection Prevention).

- Use a surgical technique that minimizes tissue trauma and controls bleeding.
- Maintain aseptic technique.

### After the Procedure

- While still wearing gloves, dispose of contaminated wastes (gauze, cotton, and other waste items) in a covered, leak-proof container or plastic bag.
- Do not recap, bend, break, or remove a needle from the syringe before disposing of it.
- Dispose of the uncapped needle and syringe in a puncture-resistant, lidded container.
- Decontaminate instruments and reusable items in a 0.5% chlorine solution for 10 minutes immediately after use, while they are still in the procedure room.
- Clean the operating table, instrument stands, lamps, floor, and other surfaces potentially contaminated during surgery using a cloth soaked in a 0.5% chlorine solution.
- Follow the guidelines in Module 6, pages 65–66, to clean and process used (soiled) instruments, gloves, linens, needles, and syringes.
- Wash hands after removing gloves.

## Supervised Surgical Practice

After your skills have been evaluated as satisfactory on the scrotal model and after you have observed at least one NSV procedure, you can perform an NSV procedure under the trainer's supervision. You should not perform NSV until the trainer has evaluated your skill on the scrotal model as satisfactory using the NSV Clinical Skills Checklist (see Appendix B).

### Practice Hints

- Depending on your prior surgical experience, after observing an NSV procedure, you may either assist the trainer in performing NSV or perform NSV with the trainer's guidance.
- Be patient with yourself. You are learning a new technique, and it will take repeated practice on the scrotal model and on clients before you feel comfortable with NSV.
- Frequent viewing of the video and extensive study of the figures and text in *No-Scalpel Vasectomy: An Illustrated Guide for Surgeons* before and during surgical practice will facilitate your learning this new technique.
- Continue scrotal model practice during this portion of your training to help you fine-tune your skills and help you correct problems you are having in surgical practice.
- During surgical training, the trainer is there to provide you with support and guidance. Ask questions and ask for help if needed, being careful not to cause the client any extra concern.
- After surgery, you will have time to review the case with the trainer and with other observers. The trainer will provide you with coaching, as needed.
- When you and the trainer determine that you are ready, the trainer will evaluate your performance using the NSV Clinical Skills Checklist.

## **Evaluation of Clinical and Surgical Skills**

The number of NSV procedures that you must perform before your performance is evaluated as satisfactory will vary according to your skill and experience. Once you and the trainer think you are ready for evaluation, the trainer will use the NSV Clinical Skills Checklist (see Appendix B) to review your performance. You must satisfactorily perform each task on the NSV Clinical Skills Checklist. Once your performance has been judged as competent, you will have completed this module.

If the client load is not large enough for you to get sufficient practice to be evaluated as competent, talk to the trainer about arrangements for further practice and evaluation after the workshop. You must not provide NSV services for clients until a skilled trainer has judged your performance of the technique to be competent during supervised surgical practice.

# MODULE 9 Postvasectomy Care



## Materials and Supplies

- ✓ Module 9
- ✓ NSV Clinical Skills Checklist (see Appendix B)
- ✓ Copy of Sample Written Postvasectomy Instructions for Clients

## Introduction

### Purpose and Objectives

This module provides the information and skills practice necessary for you to provide postvasectomy care and instructions. Upon completing this module, you should be able to:

- Provide appropriate, immediate postvasectomy care
- Discuss postvasectomy care with clients
- Interpret semen-analysis reports correctly (if available)

### Directions for Independent Study

This module covers immediate postvasectomy care and communication with clients about postvasectomy instructions. If you are preparing independently for this module, you should:

- Study this module.
- Adapt written postvasectomy care instructions for use with clients at your facility.
- Take the self-assessment at the end of this module.
- Write down any questions you have about this module for later discussion with the trainer.

## Immediate Postvasectomy Care

Most men feel physically comfortable immediately after a vasectomy and are in a medically stable condition. To prevent complications, give clear and complete information on home care to each client before he leaves the clinic. Information on postvasectomy care can be given to the client before the procedure by the NSV provider or an assistant. If information on postvasectomy care is given to the client before the procedure, verify that the client understands the instructions and has a written copy of them after the procedure.

A man who has undergone vasectomy may leave the health facility after he has rested, has been reexamined for signs of bleeding, and feels comfortable walking. Complete the following steps before a client leaves your facility after a vasectomy:

- If sedation has been used, monitor the client's vital signs every 15 minutes after surgery until he is stable.
- Using language that the client understands, go through the sample written instructions on pages 87–88:
  - How to care for the wound
  - What side effects to look for
  - What to do if complications occur
  - Where to go for emergency care
  - When and where to go for a follow-up visit
- Whenever possible, use pictures or diagrams, such as Figure 3-4 in Module 3: Anatomy and Physiology, to ensure that the client understands the information. This is particularly important for illiterate clients.
- Ask the client if he has any questions or concerns.
- Provide the client with clearly written instructions on postvasectomy care. Provide written instructions to both literate and illiterate clients. Suggest to illiterate clients that they have a friend or family member read the instructions to them if they have any questions while at home.
- Invite the client to return to the clinic if he has any questions or concerns after he leaves.
- If semen analysis is available, schedule a follow-up appointment for the client.
- If practical, follow-up by contacting the client the day or evening after surgery.



## Sample Written Postvasectomy Instructions for Clients\*

**Note:** Adapt these instructions for use in your facility.

- Rest at home until the day after surgery. You may resume your normal activities after one or two days. Avoid work and strenuous exercise for at least 48 hours after vasectomy. This will help the wound heal.
- You may bathe on the day after surgery, but do not let the wound get wet.
- Do not pull or scratch the wound while it is healing.
- Wear a snug undergarment or scrotal support for at least two days after surgery. This will help make you comfortable.
- Keep the bandage on for three days after the operation. After you remove the bandage, you may wash the wound with soap and water.
- You may have sex with your partner as soon as it is comfortable for you. This is usually two or three days after the operation. Remember, vasectomy does not work immediately, and you can still get your partner pregnant. Use condoms or ask your partner to use another family planning method for three months after the vasectomy.\*\*
- Vasectomy does not protect you or your partner from sexually transmitted infections (STIs), including HIV, which causes AIDS. You can reduce your risk of STIs by using condoms or by practicing abstinence, safe sex, or monogamy.\*\*\*
- The first few times that you have sex, you may notice some blood or blood clots in your ejaculate. You may also have some pain. This is to be expected and does not indicate a problem unless it happens more than a few times. If pain during ejaculation persists after the first few times, you should consult your doctor.
- You may have a little pain, bruising, or swelling around the wound. A small amount of pain, bruising, or swelling that does not get worse is normal. Take the medication provided (or recommended) by the doctor. Be sure to follow the instructions given to you. An ice pack may help relieve the pain, bruising, or swelling. If the swelling gets worse, contact your provider or facility.

\* The only difference between instructions provided to NSV clients and those provided to clients who have incisional vasectomy is that NSV clients do not need a one-week follow-up visit for removal of stitches.

\*\* It may be helpful to tell clients the actual date on which they can stop using alternate contraception

\*\*\* Make sure that clients understand the meaning of the terms STIs, abstinence, safe sex, and monogamy.

*continued*

**Sample Written Postvasectomy Instructions for Clients** continued

- Return to the clinic or call your doctor:
  - If you have a fever within one week of surgery
  - 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 misses a period or thinks she is pregnant (this is very important: it may mean the operation has failed and your partner is pregnant)
  - If you have any questions or concerns

Clinic address: \_\_\_\_\_ Phone: \_\_\_\_\_

- **If semen analysis is available:** After 12 weeks, you should return to the clinic for a semen analysis to make sure that the vasectomy was successful. You may collect a semen sample by masturbating into a clean container or from a condom used during intercourse. Collect the sample on the day of the follow-up visit and bring it with you to your appointment.

Your follow-up appointment is:\*\*\*\*

Day and Date: \_\_\_\_\_

Time: \_\_\_\_\_

Place:

\*\*\*\* If semen analysis is not available, no follow-up visit is required.

## Semen Analysis

Postvasectomy semen analysis is a simpler procedure than a complete semen analysis, since the only concern is to determine the presence or absence of semen.

### Procedure for Semen Analysis

1. Ask the client to return 12 weeks after the vasectomy. Ask him to collect a semen sample on the day of the follow-up visit and to bring it with him.\*
2. At room temperature (20°–30°C; 68°–86°F), wait for the specimen to liquify. If the sample remains coagulated, break it up by drawing it up and down in a hypodermic needle and syringe slowly three or four times. Be careful not to introduce air bubbles into the semen. Once the specimen forms droplets, you can treat it as a normal sample.
3. Gently swirl the container to mix the semen. (This ensures that the small sample you take to look at is representative of the entire semen sample.) Using a clean pipette, place a small drop onto a glass slide and place a cover slip on top. Wait one minute for the specimen to spread evenly.
4. Using a microscope, initially view and focus the specimen under the 10x objective, then switch to the high power (40x) objective. Check the entire slide for the presence of sperm. At 12 weeks, there should be no sperm or a greatly reduced number of sperm. If you view any sperm, estimate the sperm count as follows: Count the number of sperm in three separate fields under 40x magnification and take the average count. Use the table below to calculate the estimated sperm count.

**Table 9-1.** Calculating the Sperm Count

Number of Sperm in High-Powered Field	Estimated Sperm Count
More than 40	20 million/ml or more
Between 20 and 40	10 to 20 million/ml
Between 5 and 19	1 to 10 million/ml
Fewer than 5	Fewer than 1 million/ml

\* The client can collect the specimen in an unlubricated condom or in a clean glass or plastic cup. There is no need for a fresh semen sample, as the motility of the sperm is not assessed.

**Follow-Up**

*If no sperm are found*, note this in the client's record. Inform him that backup contraception is no longer necessary and that no further follow-up is needed. Tell him that he can return at any time if he has questions.

*If sperm are seen*, note the estimated sperm count, as well as the average number of sperm seen in a high-powered field, in the client's records.

*If the estimated sperm count is under 1 million*, it is likely that the vasectomy has been successful, but sperm still remain in the genitourinary tract. Instruct the client to continue to use back-up contraception and to return after another four weeks. If the estimated sperm count increases at the subsequent follow-up, vasectomy failure may have occurred. An additional semen analysis in four more weeks is recommended. If the sperm count continues to increase, inform the client of the need for a second procedure.

*If the estimated sperm count is more than 1 million*, an additional sperm count should be obtained. Instruct the client to continue using back-up contraception and to return after another four weeks. If the estimated sperm count remains the same or increases, vasectomy failure should be suspected and the client should be informed of the need for a second procedure. If sperm are present but the count has decreased, the client should be scheduled for a third semen analysis after an additional four weeks. He should be instructed to use back-up contraception until no sperm are found in his sample. If sperm are still present at the third semen analysis, the client should be informed of the need for a second procedure.

## Self-Assessment

Answers are provided at the end of this assessment. Each question is followed by the page number in this handbook on which the information can be found.

Decide whether each of the following statements is T (true) or F (false). Write your response for each statement.

1. \_\_\_\_ Tell the client that minor pain and bruising are to be expected and do not require medical attention. (page 92)
2. \_\_\_\_ After NSV, a man should avoid strenuous activity for at least one week. (page 91)
3. \_\_\_\_ Bathing should be avoided for three days after NSV. (page 91)
4. \_\_\_\_ Written postvasectomy instructions should be provided to illiterate clients. (page 90)
5. \_\_\_\_ After NSV, clients should use another form of contraception for 12 weeks. (page 91)

The following are multiple-choice questions. More than one option may be correct. Please circle the correct response(s).

6. After NSV, explain to the client: (page 90)
  - a. How to care for the wound
  - b. What side effects to expect
  - c. What to do if complications occur
  - d. Where to go for emergency care
  - e. When and where to return for a follow-up visit
7. After NSV, a client should seek medical attention if he has: (page 92)
  - a. A fever within one week of surgery
  - b. Blood or pus at the vasectomy site
  - c. Unrelieved pain and swelling
  - d. Persistent pain with ejaculation
  - e. Blood clots with ejaculation
8. After NSV, sexual intercourse should be avoided: (page 91)
  - a. For one week
  - b. For 12 weeks
  - c. Until the client feels comfortable

---

Answers: 1. T; 2. F; 3. F; 4. T; 5. T; 6. a, b, c, d, e; 7. a, b, c, d; 8. c



# MODULE 10 Management of Complications



## Materials and Supplies

- ✓ Module 10
- ✓ *No-Scalpel Vasectomy: An Illustrated Guide for Surgeons*, pages 3 and 4
- ✓ NSV Clinical Skills Checklist (see Appendix B)

## Introduction

### Purpose and Objectives

This module provides the information you need to prevent, recognize, and manage potential complications of vasectomy. Upon completion of this module, you should be able to:

- State how potential vasectomy complications can be prevented
- Identify and manage the most common complications

### Directions for Independent Study

This module covers the management of potential intraoperative and postoperative complications of vasectomy. If you are preparing for this module independently:

- Study this module.
- If you are unfamiliar with any of the conditions discussed in this module, review your medical texts for further information.
- Assess which potential complications you, your staff, and your facility are capable of managing. Determine which complications you would need to refer to others and where you would refer them.
- Take the self-assessment at the end of the module.
- Write down any questions you have about this module for later discussion with the trainer.

## Overview of Complications

Serious complications related to vasectomy are rare, and those resulting from NSV are even rarer. The possible complications from standard vasectomy and NSV are the same, and most complications from vasectomy can be prevented. The most commonly reported complications are small hematomas and skin infections, which occur in fewer than 3% of cases. The management of most potential complications is similar to that for other types of minor surgery.

### Side Effects and Complications

*Side effect:* A consequence of a procedure, contraceptive method, or medication other than that intended. A side effect does not require exceptional intervention, but it may require attention and management. Side effects of vasectomy are anticipated consequences of the surgery, such as soreness, swelling, and bruising. These do not require exceptional intervention, but you may need to reassure the client about them.

*Complication:* An unexpected condition that requires intervention or management beyond what was planned or what is normally provided during routine postoperative care.

### Potential Complications of Vasectomy

- Potential intraoperative complications include vasovagal reaction (neurocardiogenic syncope), lidocaine toxicity, and injury to the testicular artery.
- Potential postoperative complications include bleeding, hematoma, infection, sperm granuloma, chronic testicular pain, infectious and congestive epididymitis, pregnancy in the client's partner, and vasectomy failure.

### Prevention of Vasectomy-Related Complications

Most vasectomy-related complications can be prevented by:

- Carefully screening clients
- Following proper infection prevention procedures
- Using a gentle surgical technique
- Achieving hemostasis during surgery
- Ensuring that clients understand instructions for postvasectomy care
- Verifying that clients understand the need for postvasectomy contraception



## Management of Intraoperative Complications

**Table 10-1.** Potential Intraoperative Complications of Vasectomy

	<b>Vasovagal Reaction (neurocardiogenic syncope)</b>	<b>Lidocaine Toxicity</b>	<b>Injury to Testicular Artery</b>
<b>Symptoms</b>	<ul style="list-style-type: none"> <li>• Fainting</li> <li>• Nausea</li> <li>• Weakness</li> <li>• Lightheadedness</li> <li>• Blurred vision</li> <li>• Sweating</li> <li>• Decreased blood pressure</li> <li>• Initially increased heart rate in, then decreased</li> <li>• Pallor</li> <li>• Cold, clammy hands</li> <li>• Restlessness</li> </ul>	<ul style="list-style-type: none"> <li>• Numbness of tongue and mouth</li> <li>• Lightheadedness</li> <li>• Tinnitus (ringing in the ears)</li> <li>• Visual disturbances</li> <li>• Slurred speech</li> <li>• Respiratory depression</li> <li>• Respiratory arrest</li> <li>• Myocardial depression</li> <li>• Arrhythmia</li> <li>• Hypotension</li> <li>• Cardiac arrest</li> <li>• Convulsions</li> <li>• Coma (very high overdose)</li> </ul>	<ul style="list-style-type: none"> <li>• Bleeding observed in fascia around the vas</li> </ul>
<b>Treatment</b>	<ul style="list-style-type: none"> <li>• Reassure the client</li> <li>• Raise the client's feet</li> <li>• Lower the client's head</li> <li>• Administer atropine if the client's pulse is lower than 40</li> <li>• Administer oxygen</li> </ul>	<ul style="list-style-type: none"> <li>• Discontinue use of the drug</li> <li>• Take general supportive measures</li> <li>• Maintain airway and respiration</li> <li>• Provide oxygen</li> <li>• Administer diazepam or thiopental (for convulsions)</li> <li>• Administer vasopressors (e.g., norepinephrine or dopamine) for hypotension</li> </ul>	<ul style="list-style-type: none"> <li>• Perform cautery or ligation to control bleeding</li> </ul>
<b>Etiology</b>	<ul style="list-style-type: none"> <li>• Painful procedure</li> <li>• Anxious client</li> </ul>	<ul style="list-style-type: none"> <li>• Overdose of lidocaine</li> <li>• Intravascular injection</li> </ul>	<ul style="list-style-type: none"> <li>• Injury to blood vessel during stripping of fascia from vas</li> </ul>
<b>Prevention</b>	<ul style="list-style-type: none"> <li>• Use gentle surgical technique</li> <li>• Perform effective anesthetic block</li> <li>• Explain procedure to the client in advance</li> <li>• Reassure the client during the procedure</li> </ul>	<ul style="list-style-type: none"> <li>• Do not administer a dose &gt;30 cc of 1% solution or &gt;15 cc of 2% solution</li> </ul>	<ul style="list-style-type: none"> <li>• Strip fascia and blood vessels carefully</li> </ul>

## Emergency Management of Intraoperative Complications

### How Complications Become Serious

- Staff fail to recognize signs of an overdose.
- Monitoring staff are distracted by other duties.
- Staff lack knowledge of emergency measures.
- Emergency equipment is unavailable or does not function.
- Emergency medications are unavailable.
- Staff lack training in the use of emergency drugs.
- Staff are unclear about their roles and responsibilities in emergency care.

### Staff Preparation for Emergencies

All staff must be trained to effectively manage emergencies, and sites must have a predetermined plan in place for who will be in charge should an emergency arise. Although in most circumstances the operating physician will likely be in charge, it should be clear to all staff if this is the case, as well as who is in charge when the physician is not present. Staff must be skilled in administering intravenous fluids and drugs. They must understand which drugs may be used, how to administer them, and what their expected actions are. They must be familiar with the use of all emergency equipment and must check all such equipment before each operating session. The person monitoring the client in the operating room and the recovery room must be capable of detecting early signs of complications and must be able to take initial emergency action. Emergency care supplies and drugs must be kept in an accessible place known to all staff members.

### Emergency Equipment and Supplies

The equipment listed below must be available for emergency use in the operating room and recovery area. All emergency equipment must be immediately available, ready for use, and in good condition. A battery-operated light source should be available for back-up or for focused illumination of the operative site.

- Ambubag
- Oral airways (two sizes)
- Oxygen tank
- Face mask or tube
- Stethoscope
- Sphygmomanometer
- Blanket
- Syringes and needles
- Butterfly set
- Intravenous infusion set
- Adhesive
- Flashlight
- Gauze pieces
- Kidney tray

**Emergency Drugs**

The drugs listed below must be available in the operating room and the recovery area. Staff should be well-informed about the drugs, their use, dose, strength and route of administration, signs of toxicity, and treatment of overdose. The following emergency drugs are recommended.

- Atropine
- Epinephrine
- Norepinephrine
- Beta-blocker
- Diazepam
- Corticosteroids (dexamethasone or hydrocortisone)
- Aminophylline
- Furosemide (also known as frusemide)
- Dopamine
- Dextrose 5%
- Dextrose 5% in normal saline

## Potential Postvasectomy Complications

**Table 10-2.** Potential Postoperative Complications of Vasectomy

	<b>Bleeding</b>	<b>Hematoma</b>	<b>Infection</b>	<b>Sperm Granuloma</b>
<b>Symptoms</b>	<ul style="list-style-type: none"> <li>Bleeding observed at incision site</li> <li>Swelling of scrotum</li> </ul>	<ul style="list-style-type: none"> <li>Swelling of scrotum</li> </ul>	<ul style="list-style-type: none"> <li>Pus, swelling, or pain at the incision site or in the scrotum</li> <li>Fever</li> </ul>	<ul style="list-style-type: none"> <li>Pain at the testicular end of the vas or the tail of the epididymis</li> <li>Nodule felt during palpation</li> </ul>
<b>Treatment</b>	<ul style="list-style-type: none"> <li>Most small-vessel bleeding can be controlled by compression</li> <li>Cautery and ligature may be used for large-vessel bleeding</li> </ul>	<ul style="list-style-type: none"> <li>Control bleeding by pressure</li> <li>Cautery and ligature may be used for large-vessel bleeding</li> <li>Rarely, hematoma may require incision and drainage</li> <li>If hematoma is stable, allow to resolve on its own</li> <li>Provide prophylactic antibiotics</li> </ul>	<ul style="list-style-type: none"> <li><i>Superficial infections:</i> Clean and apply local antiseptic and clean dressing.</li> <li><i>Underlying tissue infection:</i> Administer antibiotics and provide wound care.</li> <li><i>Abscess:</i> Administer antibiotics, perform drainage, and practice wound care</li> <li><i>Cellulitis or fasciitis:</i> Perform debridement, administer antibiotics, and practice wound care</li> </ul>	<ul style="list-style-type: none"> <li>Asymptomatic: No intervention is needed.</li> <li>Pain: Use nonsteroidal analgesics.</li> <li>Persistent pain: Evacuate the cyst; cut and seal the vas 1/4 inch toward the testis.</li> <li>Do <b>not</b> excise the granuloma.</li> <li>Rarely, chronic pain warrants an epididymectomy</li> </ul>
<b>Prevention</b>	<ul style="list-style-type: none"> <li>Careful surgical technique</li> </ul>	<ul style="list-style-type: none"> <li>Careful surgical technique</li> <li>Understanding and carrying out of postvasectomy instructions</li> </ul>	<ul style="list-style-type: none"> <li>Observance of proper infection prevention procedures</li> <li>Recognition and control of bleeding</li> <li>Client's keeping the wound dry after vasectomy</li> </ul>	<ul style="list-style-type: none"> <li>Unknown</li> </ul>
<b>Etiology</b>	<ul style="list-style-type: none"> <li>Vasectomist's failure to strip spermatic cord vessels from the vas before transection</li> <li>Vasectomist's failure to control bleeding before wound closure</li> </ul>	<ul style="list-style-type: none"> <li>Rough handling of tissue</li> <li>Vasectomist's failure to control bleeding before wound closure</li> <li>Excessive strain or heavy lifting by client after vasectomy</li> <li>Client's failure to wear snug undergarments after vasectomy</li> <li>Client's failure to rest for 24 hours after vasectomy</li> </ul>	<ul style="list-style-type: none"> <li>Failure by vasectomist to follow infection prevention procedures</li> <li>Unrecognized or untreated hematomas</li> <li>Improper postoperative care of the wound by vasectomist or client</li> </ul>	<ul style="list-style-type: none"> <li>Occlusion of vas leads to accumulation of sperm</li> </ul>

*continued*

## Potential Postvasectomy Complications *continued*

**Table 10-2.** Potential Postoperative Complications of Vasectomy *continued*

	<b>Chronic Testicular Pain</b>	<b>Infectious and Congestive Epididymitis</b>	<b>Pregnancy in the Client's Partner</b>	<b>Vasectomy Failure</b>
<b>Symptoms</b>	<ul style="list-style-type: none"> <li>Chronic unilateral or bilateral pain in the scrotum without palpable abnormality</li> <li>Swelling (sometimes)</li> <li>Pain during intercourse or strenuous activity</li> </ul>	<ul style="list-style-type: none"> <li>Fever (if caused by infection)</li> <li>Scrotal pain</li> <li>Swelling</li> <li>Induration</li> </ul>	<ul style="list-style-type: none"> <li>Client's partner's pregnancy</li> </ul>	<ul style="list-style-type: none"> <li>Semen analysis shows sperm</li> </ul>
<b>Treatment</b>	<ul style="list-style-type: none"> <li>Administer nonsteroidal analgesics.</li> <li>Pain may gradually subside spontaneously.</li> <li>Provide antibiotics.</li> <li>Perform spermatic cord blocks.</li> <li>If the above fails, vasectomy reversal or denervation of the spermatic cord may be helpful</li> </ul>	<ul style="list-style-type: none"> <li>Encourage bed rest.</li> <li>Elevate the scrotum.</li> <li>Administer ice packs.</li> <li>Provide nonsteroidal analgesic.</li> <li>Offer antibiotics</li> </ul>	<p>Determine the reason for the pregnancy by:</p> <ul style="list-style-type: none"> <li>Estimating the date of conception.</li> <li>Asking if the couple had unprotected intercourse for the 12 weeks after the vasectomy.</li> <li>In confidence, asking the partner if she has had intercourse with another man.</li> <li>Offering semen analysis.</li> <li>Referring the couple to further counseling or antenatal care.</li> </ul>	<ul style="list-style-type: none"> <li>Explain to the couple how the failure could have occurred.</li> <li>Offer to repeat the vasectomy procedure.</li> </ul>
<b>Prevention</b>	<ul style="list-style-type: none"> <li>Unknown</li> </ul>	<p><i>Infectious epididymitis:</i></p> <ul style="list-style-type: none"> <li>Following infection prevention procedures</li> <li>Screening clients for STIs</li> </ul> <p><i>Congestive epididymitis:</i></p> <ul style="list-style-type: none"> <li>Unknown</li> </ul>	<ul style="list-style-type: none"> <li>Instructing the client to use contraception before vasectomy and during the postoperative period</li> </ul> <p>For vasectomy failure:</p> <ul style="list-style-type: none"> <li>Careful surgical technique</li> </ul>	<ul style="list-style-type: none"> <li>Careful surgical technique</li> </ul>
<b>Etiology</b>	<p>Poorly understood. Possibly caused by:</p> <ul style="list-style-type: none"> <li>Neuroma or perineural irritation</li> <li>Nerve entrapment</li> <li>Epididymal congestion with sperm</li> <li>Infection</li> <li>Sperm granuloma formation</li> <li>Back-pressure–induced rupture of epididymal tubules</li> </ul>	<p><i>Infectious epididymitis:</i></p> <ul style="list-style-type: none"> <li>Failure to follow infection prevention procedures</li> <li>Sexually transmitted pathogens</li> </ul> <p><i>Congestive epididymitis:</i></p> <ul style="list-style-type: none"> <li>Pressure on epididymis resulting from sperm blockage</li> </ul>	<ul style="list-style-type: none"> <li>Pregnancy before the vasectomy</li> <li>Unprotected intercourse at any time up to 12 weeks after vasectomy</li> <li>Vasectomy failure</li> <li>Partner's sexual activity with a man other than the client</li> </ul>	<ul style="list-style-type: none"> <li>The vasectomist's failure to properly occlude the vas</li> <li>Spontaneous recanalization</li> </ul>

## Self-Assessment

Answers are provided at the end of this assessment. Each question is followed by the page number in this handbook on which the information can be found.

Decide whether each of the following statements is T (true) or F (false). Write your response for each statement.

1. \_\_\_\_ An asymptomatic sperm granuloma should be drained or excised. (page 103)
2. \_\_\_\_ Pressure that develops in the epididymis after a vasectomy can lead to congestive epididymitis. (page 104)
3. \_\_\_\_ Toxic doses of lidocaine can require use of dopamine and cardiopulmonary resuscitation (CPR). (page 99)
4. \_\_\_\_ Treatment of hematomas should always include drainage. (page 102)
5. \_\_\_\_ Using gentle surgical technique can prevent most vasectomy-related complications. (page 98)

The following are multiple-choice questions. More than one option may be correct. Please circle the correct response(s).

6. Hematomas can be caused by: (page 102)
  - a. Failure to achieve hemostasis before closing the wound
  - b. Excessive strain or heavy lifting by the client after vasectomy
  - c. The client's failure to rest for 24 hours or to wear a scrotal support after vasectomy
  - d. Inexperience of the surgeon
  - e. Rough handling of the tissues during surgery
7. A man returns eight weeks after vasectomy complaining of a mild chronic pain that began a few days ago. Upon examination, you suspect a granuloma and recommend the following treatment: (page 103)
  - a. A nonsteroidal analgesic
  - b. Immediate surgery for granuloma removal
  - c. Cyst drainage and resealing of the vas
  - d. Antibiotics

8. Most vasectomy complications can be prevented by: (page 98)
  - a. Gentle tissue handling
  - b. Adhering to infection prevention procedures
  - c. Careful client screening
  - d. Controlling bleeding during the procedure
  - e. Secure occlusion of the vas
  
9. Four days after his vasectomy, a client returns to the clinic with a fever of 38.3°C (101°F), scrotal pain, swelling, and pyuria. You would suspect: (page 104)
  - a. Sperm granuloma
  - b. Hematoma
  - c. Infectious epididymitis
  - d. Chronic testicular pain
  - e. Congestive epididymitis
  
10. Vasovagal reactions may need to be managed with: (page 99)
  - a. Diazepam
  - b. Ammonia capsules for syncope
  - c. Oxygen
  - d. Beta-blocker
  - e. Reassurance

---

Answers: 1. F; 2. T; 3. T; 4. F; 5. F; 6. a, b, c, d, e; 7. a; 8. a, b, c, d, e; 9. c; 10. c, e





# **Appendix A**

## **NSV Knowledge Assessment Test**



# NSV Knowledge Assessment Test

**Note:** This test will not be graded. It will be used by the trainer in order to adapt this course to best suit your needs.

Decide whether each of the following statements is T (true) or F (false). Write your answer in the space provided for each statement.

## Anatomy and Physiology

1. \_\_\_\_ During vasectomy an opening is made along the median raphe midway between the base of the penis and the top of the testes.
2. \_\_\_\_ Following a vasectomy, the flow of semen is blocked.
3. \_\_\_\_ The vas deferens is located just outside of and parallel to the spermatic cord.

## Counseling and Informed Consent

4. \_\_\_\_ A trained counselor or a doctor is the best person to choose an appropriate contraceptive method for a couple.
5. \_\_\_\_ Vasectomists should verify a client's informed consent by talking with him before the procedure.
6. \_\_\_\_ During vasectomy counseling the client should be assured that he can change his mind at any time before the procedure without losing the right to other medical services.

## Prevasectomy Evaluation

7. \_\_\_\_ A man with diabetes cannot have a vasectomy.
8. \_\_\_\_ A prevasectomy evaluation includes a medical history, a complete physical, and a hemoglobin count or hematocrit.
9. \_\_\_\_ A client with syphilis should be treated before having a vasectomy.
10. \_\_\_\_ A client whose vasectomy needs to be postponed should be counseled about alternative methods of contraception.
11. \_\_\_\_ Prophylactic antibiotics should always be given before vasectomy.

## Infection Prevention

12. \_\_\_\_ An iodophor is an appropriate antiseptic to use on the scrotal area before NSV.
13. \_\_\_\_ Instruments that have been boiled for 20 minutes can be used in NSV.
14. \_\_\_\_ Instruments can be high-level disinfected by soaking them in alcohol or an iodophor for 20 minutes.
15. \_\_\_\_ Instruments and gloves can be decontaminated by soaking them in a 0.5% chlorine solution for 10 minutes.
16. \_\_\_\_ Handwashing is indicated before putting on and after removing sterile or high-level disinfected gloves to perform a vasectomy.
17. \_\_\_\_ Used hypodermic needles should be recapped, bent, or broken, then disposed of in a puncture-resistant container.

## Surgical Knowledge

18. \_\_\_\_ The three-finger technique is used to identify the vas.
19. \_\_\_\_ Before performing a vasectomy, you should inject 20 cc of lidocaine without epinephrine.
20. \_\_\_\_ The ringed clamp is used to puncture the vas.
21. \_\_\_\_ The occlusion techniques used in NSV differ from those used in standard vasectomy.
22. \_\_\_\_ After the right vas has been occluded, the left vas is isolated, anesthetized, and occluded.

## Postvasectomy Care

23. \_\_\_\_ After vasectomy, a man should use an alternative contraceptive for three weeks.
24. \_\_\_\_ A man who has bruising and/or passes a blood clot during ejaculation should immediately return to his NSV provider.
25. \_\_\_\_ Following a vasectomy, a man should avoid strenuous activity and wear a snug undergarment for 48 hours.
26. \_\_\_\_ Vasectomy provides protection against pregnancy and STIs.

## Management of Complications

27. \_\_\_\_ If a client becomes nauseated and weak and has a low blood pressure during a vasectomy, you would suspect a vasovagal reaction.
28. \_\_\_\_ Providing clients with clear postvasectomy instructions is an important way to prevent complications.
29. \_\_\_\_ Fascial interposition does not reduce the vasectomy failure rate.
30. \_\_\_\_ Nonsteroidal pain relievers can be used for pain related to sperm granulomas.



# **Appendix B**

## **NSV Clinical Skills Checklist**





## NSV Clinical Skills Checklist

Page 1 of 4

TASKS	EVALUATION		
<b>Trainers: When rating tasks for evaluation, use the following codes:</b>			
<b>S = Satisfactory:</b> Performs the task according to the standard guidelines <b>U = Unsatisfactory:</b> Does not perform the task according to the standard guidelines	Circle one: (M=model, C=client) <b>M M M</b> <b>C C C</b>		
<b>All critical steps must be performed satisfactorily for the participants to be assessed as competent.</b>			
<b>Prevasectomy Evaluation</b>			
1. Greets client.			
2. Ensures that client has been appropriately counseled about the procedure.			
3. Takes medical history and performs heart, lung, and abdominal examination.			
<b>4. *Performs genital examination.</b>			
<b>Preprocedure Tasks</b>			
5. Ensures that room is warm enough to relax clients's scrotum			
6. Reviews chart for relevant medical history.			
<b>7. *Verifies informed consent</b>			
8. Washes hands.			
9. Examines operative site to ensure that spermatic cords are mobile.			
10. Clips hair at operative site, if necessary.			
11. Ensures operative site is clean.			
12. Retracts the penis upward on the abdomen in the 12 o'clock position and anchors it comfortably.			
13. Performs surgical scrub. Puts on sterile gloves.			
14. Prepares a syringe to administer 10 cc 1% or 5 cc 2% lidocaine (without epinephrine). Attaches 1.5 inch (or metric equivalent) small-gauge needle (22–27 gauge)			
15. Adequately prepares operative site with body temperature antiseptic.			
16. Isolates operative site (scrotum) with sterile sheet(s) or towel(s).			
<b>Procedure Tasks</b>			
17. Observes and communicates with client.			

**\*A critical step that must be performed satisfactorily for the participant to be assessed as competent.**

*continued*

## NSV Clinical Skills Checklist continued

Page 2 of 4

TASKS	EVALUATION					
18. <b>*Identifies, isolates, and fixes right vas deferens under the median raphe midway between the base of the penis and the top of the testicles. Traps the right vas firmly using the three-finger technique.</b>						
19. <b>*Raises skin wheal using 0.5 cc of 1% or 2% lidocaine (without epinephrine). Advances needle in the right external spermatic fascial sheath toward the inguinal ring about 1.5 in. above the wheal, aspirates, and without withdrawing the syringe slowly injects 2 to 5 cc of lidocaine into the sheath, then removes the needle.</b>						
20. <b>*Uses the three-finger techniques to firmly trap the left vas. Reintroduces the needle through the puncture. Advances the needle in the left external spermatic fascial sheath toward the inguinal ring about 1.5 inches above the wheal, aspirates, and injects 2 to 5 cc of lidocaine into the sheath.</b>						
21. Pinches the skin wheal between the thumb and forefinger to reduce local edema, and waits 2–3 minutes for the anesthesia to take effect.						
22. Fixes the right vas under the skin wheal, using the three-finger technique.						
23. Applies upward pressure with the middle finger underneath the scrotum; presses the open tips of the ringed clamp onto the skin at the skin wheal overlying the vas; grasps the right vas, applying the clamp at a 90° angle perpendicular to the vas, with the palm facing up.						
For steps 24–44, fill the columns for right and left with S or U as appropriate.	<b>R</b>	<b>L</b>	<b>R</b>	<b>L</b>	<b>R</b>	<b>L</b>
24. Checks with client to ensure that anesthesia is sufficient. If not, repeats local infiltration being sure not to exceed the maximum dose.						
25. Elevates the entrapped vas by lowering the handle of the ringed clamp.						
26. <b>*Uses a quick, sharp, single movement to pierce the skin down to the vas lumen using the medial blade of the dissecting forceps, introduced at a 45° angle.</b>						
27. <b>*Withdraws the medial blade of the dissecting forceps, closes both blades and inserts both tips of the dissecting forceps into the puncture site to the same depth down to the vas.</b>						
28. Gently opens the blades of the dissecting forceps and spreads the tissue to make a skin opening twice the diameter of the vas.						
29. <b>*Withdraws the dissecting forceps and uses the tip of the lateral blade of the dissecting forceps to pierce the vas wall (or holds the dissecting forceps in line with the long axis of the vas and grasps the bare vas directly) and rotates the dissecting forceps clockwise 180°.</b>						
30. <b>*Delivers the vas through the puncture hole while releasing the ringed clamp, but still keeping it in place.</b>						
31. Grasps a partial thickness of the elevated vas with the ringed clamp.						

**\*A critical step that must be performed satisfactorily for the participant to be assessed as competent.**

*continued*

## NSV Clinical Skills Checklist continued

Page 3 of 4

TASKS	EVALUATION					
	R	L	R	L	R	L
32. If the sheath is not completely dissected, with one tip of the dissecting forceps, gently punctures the vas sheath, removes and closes the dissecting forceps, then reinserts to strip the vas sheath.						
<b>Occlusion</b> —Ligation with Excision and Fascial Interposition (For cautery occlusion, see 33A below.)						
33. After carefully separating of fascia and blood vessels from the vas, ligates the prostatic end of the vas.						
<b>34. *Cuts one end of the suture about 2–3 mm from the knot, leaving a single uncut end of about 5–7 cm in length.</b>						
35. Ligates the testicular end about 1.5 cm from the prostatic end ligature and leaves both end of the suture to about 5–7 cm in length.						
36. Excises up to 1cm of vas in between the two ligatures.						
<b>37. *Pulls both ligatures to ensure that both stumps are separated by at least 1 cm.</b>						
38. Ensures hemostasis.						
39. Cuts both ends of the testicular suture, leaving about 2–3 mm.						
<b>40. *Allows both ends of the vas to drop back into their original position in the scrotum by gently pulling on the scrotum with the thumb and index finger.</b>						
<b>41. *Very gently pulls the long suture of the prostatic end of the vas to reexpose the cut end of the vas, which will be covered with fascia.</b>						
42. Gently grasps the fascia of the spermatic cord with the tip of the dissecting forceps and ties the fascia around the vas 2–3 mm below the previous tie of the prostatic end.						
43. Cuts the suture and allows the stump to drop back into its original position in the scrotum.						
44. Pulls slightly the prostatic end again up to the puncture wound and cuts the single long end of the suture.						
<b>Occlusion</b> —Cautery (Alternative method)						
33A. After carefully separating fascia and blood vessels, pierces the vas wall with the sharp-needle electrode and directs the tip 1.0–1.5 cm into the lumen or hemitranssects the vas to permit the blunt cautery tip to enter the lumen 1.0-1.5 cm.						
34A. Applies current and withdraws the tip slowly.						
35A. After cauterizing in one direction, turns off the cautery unit to allow the tip to cool before cauterizing the vas in the other direction.						
36A. Excises up to 1cm of vas between the two cauterized segments.						
If using cautery, move on to Step 45.						

\*A critical step that must be performed satisfactorily for the participant to be assessed as competent.

*continued*

**NSV Clinical Skills Checklist** continued

Page 4 of 4

<b>TASKS</b>	<b>EVALUATION</b>		
45. Using the three-finger technique, isolates the left vas under the puncture site			
46. Grasps the left vas at the lower end of the puncture site with the ringed clamp.			
<b>Repeats steps 24–44 (or steps 33A–36A, for cautery occlusion) for the left vas.</b>			
47. Pinches the puncture site tightly for a minute.			
48. Inspects again for bleeding.			
49. Secures sterile gauze dressing to the wound with a tape or a bandage.			
<b>Postprocedure Tasks</b>			
50. Flushes the needle and syringe and places all instruments in a 0.5% chlorine solution for decontamination.			
<b>51. *Ensures the disposal of waste materials and sharps in accordance with infection prevention guidelines.</b>			
<b>52. *Immerses both gloved hands in 0.5% chlorine solution.</b>			
<b>53. *Removes gloves by turning them inside out.</b> • If disposing of gloves, places in leak-proof container or plastic bag. • If reusing surgical gloves, submerge in 0.5% chlorine for 10 minutes for decontamination			
54. Washes hands thoroughly with soap and water and dries with a clean cloth.			
55. Asks client how he feels.			
56. Provides client with written postoperative instructions and information when and where to return for follow-up.			
57. Reviews instructions orally and asks if client has any questions.			
58. Reviews the need for backup contraception for at least 12 weeks. Provides client with condoms, if needed.			
59. Advises client to return for semen analysis (if available) after 12 weeks .			

**\*A critical step that must be performed satisfactorily for the participant to be assessed as competent.**

Evaluation for \_\_\_\_\_  
(print participant's name)

The participant is  Competent  Not competent in scrotal model practice.

The participant is  Competent  Not competent to deliver NSV services.

Trainer's signature \_\_\_\_\_ Date \_\_\_\_\_

# **Appendix C**

## **Developing and Managing Vasectomy Services**



# Developing and Managing Vasectomy Services

## Vasectomy and the Health Care System

Vasectomy programs should be well-integrated into existing services of the facility and health care system and should make appropriate use of existing staff and facilities. In addition, systems for client referral and follow-up and linkages to other health services need to be established.

Because vasectomy is a surgical procedure, there are limitations to where and how it can be offered and delivered. But because it is less complex than female sterilization, vasectomy may be offered in a greater variety of settings by more types of staff and can extend sterilization services to areas where female sterilization is difficult or inappropriate.

### The Service Manager's Mandate

Managers of vasectomy services are responsible for making safe, voluntary sterilization services available to the largest possible number of potential users using methods that are affordable and sustainable over the long term. At the same time, managers must ensure that sterilization is provided under conditions that minimize the risks associated with elective surgery.

Since sterilization directly and permanently ends reproduction, clients requesting this service must be given full information about its intended effects and consequences. Managers must ensure that services are offered without inducement or coercion and that meticulous attention is given to medical safety.

Two principles address the fundamental requirements that managers must meet if high-quality services are to be provided:

- Ensure that all clients make voluntary, fully informed, and well-considered decisions.
- Ensure the medical safety and effectiveness of all clinical and surgical procedures.

To ensure that these high-quality services are well utilized and successful, managers should also:

- Establish services that are responsive to the needs, preferences, and behavior of clients and the community.
- Make services widely available and easily accessible to all potential clients.
- Plan and manage services to ensure their efficiency and cost-effectiveness.
- Strive for long-term viability and sustainability of services.

---

This appendix is adapted from: World Health Organization, 1988, *Technical and Managerial Guidelines for Vasectomy Services*, Geneva, and is reprinted with permission.

## General Programming Considerations

The information provided here is meant to describe some of the basic programming considerations for developing and managing vasectomy services; it is not meant to be an exhaustive explanation.

### Location of Services

With very little additional investment, vasectomy can be performed on a continuous, year-round basis in nearly all permanent health care facilities (including hospitals, multipurpose health care centers and clinics, specialized family planning clinics, and the treatment rooms of private physicians).

### Mobile Teams

Several countries, including India, Indonesia, Nepal, the Philippines, and Thailand, have successfully used mobile teams to offer vasectomy services to rural, remote, or underserved communities. It is important to note that mobile teams cost more and require more resources than services provided continuously in permanent facilities. Extra attention must be given to quality assurance because it may be more difficult for mobile teams to maintain cleanliness and asepsis, to screen and counsel clients, and to provide semen analysis and postoperative follow-up treatment of complications. Also, working in mobile teams places extra burdens on personnel: Because of fatigue and pressure of work, they must take greater care to avoid mistakes.

Each country must study its own conditions and priorities to determine whether mobile teams are compatible with national health needs and objectives. The use of mobile teams should probably be viewed as a short-term activity for use while developing the local capability for delivering vasectomy services on a permanent basis.

While vasectomy programs can be integrated into existing health services, they may have to compete with more urgent curative and emergency services, and overworked personnel may not have sufficient time to devote to them. Programs organized in specialized family planning clinics can often sustain a high level of performance over an extended period of time. If resources are expressly allocated for vasectomy, there is less likelihood that they will be diverted to other purposes. In such settings, the surgical team becomes expert, and services can be offered efficiently and safely. However, unless there is an adequate caseload to justify the use of resources, having a specialized service may prove expensive.



## Checklist for Planning and Organizing Vasectomy Services

1. Survey community, identify potential obstacles.
2. Investigate local laws, legal issues, regulations.
  - Obtain licenses and other approvals.
3. Estimate potential caseload.
4. Develop budget; arrange financing
5. Develop information and education program.
6. Establish clinic facilities; select, prepare, and renovate site.
7. Arrange for supplies, equipment, and services:
  - Procure equipment, instruments, medicines, and supplies.
  - Establish storage and inventory systems.
  - Establish infection prevention procedures.
8. Establish essential policies:
  - Set client selection criteria.
  - Develop procedures regarding free and informed decision making, counseling, and informed consent.
  - Establish medical/surgical protocols and service standards.
9. Develop and print record forms, information materials, and other documents, such as:
  - Medical history/client record form
  - Informed consent form
  - Preoperative and postoperative instructions
  - Client brochures and other information material
10. Staff the program.
  - Determine staff requirements; develop job descriptions.
  - Recruit and select staff.
  - Train staff.
11. Establish client-flow system and procedures:
  - Reception, intake, and registration
  - Record of patient history
  - Clinic-based information activities
  - Client counseling
  - Informed consent
  - Physical examination and medical screening
  - Referral for medical or psychological indications or for temporary contraception
  - Preoperative preparation
  - Surgical procedure
  - Complications management and emergency treatment procedures
  - Postoperative monitoring
  - Postoperative instructions and discharge
  - Follow-up procedures
12. Other:
  - Develop financial accounting procedures.
  - Establish data collection and service statistics.
  - Set up monitoring and evaluation.

**Facilities**

As discussed above, vasectomy can be offered in a number of different permanent and temporary locations. However, regardless of where vasectomies are done, there are certain space requirements that must be met to provide a high-quality, comprehensive service:

- A comfortable waiting-room for new arrivals and follow-up clients
- Private space for counseling
- An examination room for preoperative and follow-up examinations
- Place for storage and retrieval of records
- Place for laboratory investigations (blood, urine, and semen analysis)
- A clean room for surgery, isolated from the outside and from clinic traffic
- Areas where vasectomy personnel can scrub
- Toilet and washing facilities for clients
- Rest area for clients after surgery
- Facilities for sterilizing or high-level disinfecting surgical instruments and supplies
- Waste-disposal facilities
- Laundry

Several of these functions may share a common space, especially in facilities that are not very busy. As the caseload increases, a separate area may need to be assigned to each function. The accommodation should be planned to permit an orderly flow of clients through the clinic, particularly as their number increases. Some of the components listed above, such as laboratory tests, laundry, and autoclaving, may be contracted out or, in multisite programs, handled by a central supply unit

**Who Can Provide Vasectomy?**

Vasectomy can be performed by general practitioners, specialist surgeons, and other physicians. In all cases, operators must be carefully selected to ensure high-quality service delivery. Knowledge, technical skill, and surgical proficiency are, of course, prerequisites. Moreover, it is important that physicians be committed to providing vasectomy services.

Specialists, including some urologists, may be too preoccupied with more complex surgery and medical problems to take an active interest in vasectomy, an elective procedure that can become tedious and boring for the surgical expert. Interestingly, some of the most successful vasectomy programs have been organized and conducted by specialist obstetrician-gynecologists who are closely involved with and committed to family planning.

Vasectomy may appeal to private practitioners because it requires little capital investment and can be done on an outpatient basis in the physician's treatment room. As private practitioners are a primary source of health care in many countries, program managers should consider instituting training programs for this important sector.

**Staffing**

There is no simple formula for determining the personnel required to staff a vasectomy service. Program managers must arrange for sufficient staff to handle the following duties:

- Receiving clients and maintaining records
- Providing information and education
- Counseling clients
- Examining clients, performing surgery, and conducting follow-up
- Performing laboratory tests (optional)
- Sterilizing or high-level disinfecting equipment and supplies
- Doing laundry
- Cleaning and maintaining the facilities

In clinics with a small caseload, only a nurse and a physician may be needed, since one person can handle several of these functions. A well-trained vasectomy assistant might easily receive the client, take the preliminary medical history, counsel the client, handle the laboratory tests, assist the surgeon in the operating room, and sterilize instruments. As the caseload increases, more personnel, each responsible for one area, may be needed.

**Paramedical Personnel**

A number of countries have successfully trained and used paramedical personnel to perform vasectomy. Medical assistants, medical students, nurses, and community health workers have performed the procedure competently and safely (Gojaseni and Leoprapai, 1982). Where this practice is legal and permitted by local regulations, it can free physicians to do other work. Paramedical staff may find the surgical task challenging, interesting, and rewarding and, thus, may be motivated to remain involved with the program. It has been reported from some programs that paramedical staff empathize closely with clients and that this has led to better community and client acceptance. However, consideration should be given to the concerns of the community and other health care providers about provision of vasectomy by paramedical staff.

Paramedical personnel should work under the supervision of responsible physicians who themselves are competent in performing vasectomy (Bunyaratavej et al., 1981). Wherever paramedical personnel provide vasectomy services, a physician must be available and ready to intervene in case problems are encountered.

Clearly, paramedical workers must be selected with great care of aptitude, surgical skill, dexterity, interpersonal skills, and judgement. Their training must be more comprehensive than that provided to a physician. They should be required to perform a larger number of training cases to establish proficiency, and they should receive instruction in relevant anatomy, physiology, and pharmacology.

### **Client Follow-Up and Medical Referrals**

Follow-up is a crucial part of vasectomy services. If mobile teams are used, local physicians or specially trained community health personnel may conduct follow-up examinations. Paramedical staff must be trained to identify problems and to refer clients to the nearest health center when serious complications are encountered. Clients themselves must be instructed to seek assistance if they encounter postoperative problems (see “Sample Postvasectomy Instructions for Clients” in Module 9: Postvasectomy Care).

Programs must always be prepared to refer clients to another department or another sector of the health system when appropriate. In the event of rare, life-threatening complications, the client may need to be referred to another facility better equipped to handle the situation. If medical problems, such as the presence of a sexually transmitted infection, are discovered during the prevasectomy examination, the vasectomy provider must be prepared to treat or refer the client (see Table 5-2, “Vasectomy Precautions” in Module 5: Prevasectomy Evaluation). Occasionally, screening and counseling may identify psychological problems that require referral for further counseling or psychiatric treatment.

### **Semen Analysis**

In many settings, semen analysis is difficult or impossible to provide on-site, since it requires special training and equipment. For some programs, it may prove less expensive and more convenient to arrange for semen analysis to be done under contract by an independent laboratory or other health facility. Some programs will not be able to provide semen analysis at all.

### **Vasectomy Reversal**

Vasectomy should not be offered or promoted as a reversible method. It is intended to be a permanent procedure. While performing reconstructive surgery to reverse a vasectomy is feasible, the surgery is expensive, time-consuming, difficult, and not guaranteed to result in subsequent pregnancy. Every program should therefore include a client-assessment or counseling component to help identify and screen out clients who are likely to regret their decision (see Module 4: Counseling and Informed Consent for NSV for more on this topic).

Despite all precautions, a few clients will regret their choice (for example, because of remarriage, the death of a child, or some other unanticipated event). Because of this, a comprehensive vasectomy program may make vasectomy reversal services available. Because the number of requests for reversal should be few, the number of centers where reversals are performed, and the number of specialists trained to perform them, should also be few. In many countries, one center will be sufficient to handle the requests. Additional centers may be needed in large countries where many vasectomies are performed. Experience has shown that one reversal request can be expected for every 400–700 vasectomies.

Finally, an adequate caseload is necessary to maintain surgical proficiency and success in vasectomy reversal. By restricting the number of reversal centers and of surgeons trained in reversal techniques, programs will help to protect surgical skills and effectiveness.

Reported pregnancy rates following vasectomy reversal range from 35% to 82% and are affected by a number of factors—the technical demands of the surgery itself, the type of vasectomy procedure performed, the length of time between the vasectomy and the reversal procedure, the level of anti-sperm antibodies that may have developed after the vasectomy or the reversal, and changes in the epididymis or partial obstruction of the vas after reversal (EngenderHealth, 2002a). Published success rates must be interpreted cautiously since many individuals seeking reversal are screened out as poor risks for reversal success. Also, many surgeons who have low success rates do not publish their results.

In addition to men being screened out for medical indications, men may decide not to have the operation for other reasons such as the cost of the procedure, the risks and surgery involved, or the fact that success cannot be guaranteed (Figure C-1). For most men, the probability that reversal surgery will restore fertility is considerably lower than the published success rates indicate.

### **Assessing the Receptiveness of the Local Community**

Before introducing vasectomy services, managers must consider the environment or community in which the services are to be located. Political, cultural, and religious attitudes must be identified and taken into account. Local laws and regulations, guidelines for medical practices, and codes of ethics should be studied to determine how they will affect services. All necessary permits and licences must also be obtained.

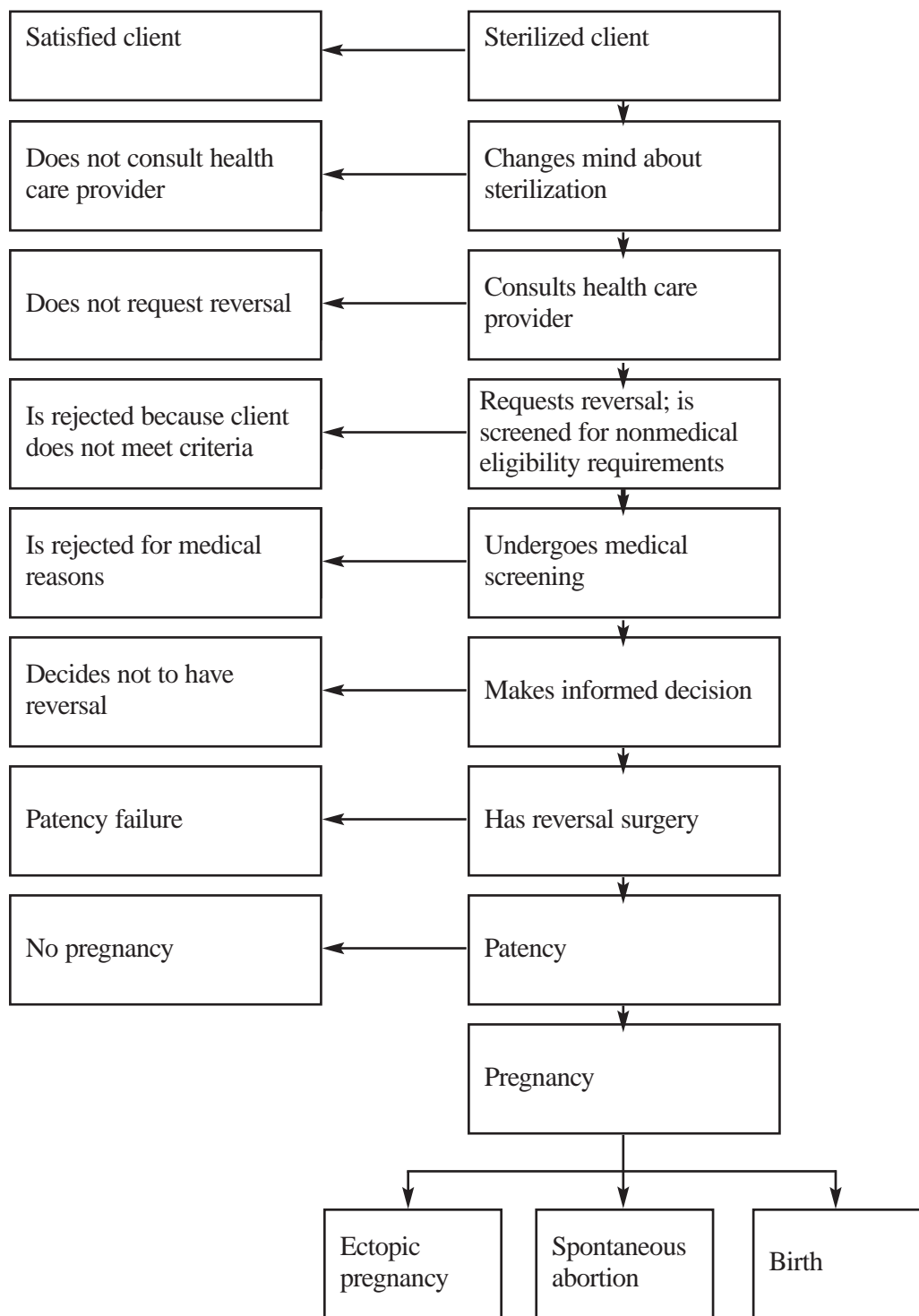
Managers should also investigate the level of community knowledge and practice of family planning and the availability of other family planning services. Existing data, group discussions, and community surveys can help identify common myths and misinformation about vasectomy that can be addressed with information and counseling. In addition, in this preliminary community survey, local medical and health professionals should be interviewed to determine their attitudes about vasectomy, their willingness to collaborate in the provision of vasectomy services, and their willingness to refer potential clients.

### ***Estimating the Potential Caseload***

To develop services that meet local needs, service managers will need to estimate the potential demand for vasectomy. This estimate will be important in determining the facilities, staff, and other resources needed. The actual number of clients who request services will be influenced by such variables as the cultural acceptability of sterilization, the design and accessibility of services, the existence of similar services in the community, and the impact of information and education.

When services are first introduced into a community, requests for vasectomy may be limited. However, the caseload can be expected to increase as the number of satisfied clients grows, as accurate information becomes increasingly widespread, and as fears are allayed and misconceptions corrected. Having some idea of the potential number of clients can assist service managers in forecasting and planning for growth rather than being overcome by it.

**Figure C-1. Client Decision-Making Process and Outcomes of Requests for Sterilization Reversal**



## Sustainability

To provide services efficiently and to ensure their continuation, managers need to understand and use the principles of budgeting and other aspects of financial planning and management.\*

Financing services can be a complex problem involving multiple sources of funding. The most common sources of funds for sterilization services are:

- *Government subsidies.* While subsidies may help make services available initially, subsidized services may be difficult to manage and sustain over the long term.
- *Grants from donor agencies.* Several international donor agencies provide grants for sterilization services during the first few years of operation. Most have policies to phase out support and encourage self-sufficiency.
- *Client fees for services.* Fees must be set at a level that covers costs but does not discourage use of the service. Accommodations must be made for clients who cannot afford even modest fees; no client should be denied services because of an inability to pay.
- *Insurance schemes.* Private or government health insurance may cover the cost of sterilization.
- *Income-generating schemes.* Organizations sometimes help support the costs of sterilization through special fund-raising events or use of profit from temporary family planning or other reproductive health services.
- *Combined financing mechanisms.* Most common is financial support through a combination of different sources, such as sliding-fee scales combined with profit from other services and grants from donor agencies.

Services should also pay attention to financial management and accounting procedures. Effective accounting and auditing systems help managers keep costs under control, stay within budgets, and avoid or anticipate financial difficulties. Governmental and other donors often require particular accounting systems, but all services should maintain internal accounting systems that are designed to permit periodic internal and external audits.

## Planning for Self-Sufficiency

One important advantage of sterilization is its cost-effectiveness in relation to other methods of contraception (Janowitz, Measham, & West, 1999; EngenderHealth, 2002a). Nevertheless, the costs of sterilization are relatively high and immediate, whereas those associated with most temporary methods are spread over a long period of time. Clients who cannot afford the cost of sterilization will require subsidy.

Because new services often rely on outside funding or on sources of income that may be unreliable for the long term, managers must prepare for the future and continuously monitor and improve the efficiency, and thereby the sustainability, of services.

---

\* One valuable resource that managers can use when developing budgets is a cost-analysis tool developed by EngenderHealth (see: EngenderHealth, 2001. *Simplifying cost analysis for managers and staff of health care services.* New York; available at [http://www.engenderhealth.org/res/offc/qi/cope/toolbook/pdf/cost\\_analysis\\_tool.pdf](http://www.engenderhealth.org/res/offc/qi/cope/toolbook/pdf/cost_analysis_tool.pdf)).

Services that rely on subsidies may find that they are continuously compensating for reductions in funding. To reduce this problem, nongovernmental organizations should diversify and balance their sources of funding so that the elimination of any one source will not drastically affect their ability to provide services. In most for-profit enterprises, the sustainability mandate is clear: Costs must be transferred to clients or recovered from third parties (such as insurance companies or governments) as soon as possible, or the institution will be forced to close. Governments and donors may be willing to support for-profit organizations during their early stages, but will not usually provide funds indefinitely for recurring costs.

Managers should consider the following strategies in working towards self-sufficiency:

- Keep costs to their absolute minimum without sacrificing quality.
- Review service options to deliver services as economically as possible.
- Achieve economies of scale so that costs are shared among more cases.
- Work towards cost recovery by gradually increasing reliance on fees and insurance.
- Adopt supplementary income-generating schemes.

## **Characteristics of Successful Programs**

The activities listed so far are all essential for the organization of a vasectomy program. Yet, they may not be sufficient by themselves to launch and manage a successful program that truly meets the needs of the community. Public health professionals have considered the question of what makes the difference between a lackluster or unsuccessful vasectomy program and one that is obviously dynamic and successful. A few characteristics that seem to be shared by successful programs are summarized here.

### **Client Satisfaction Is of Paramount Importance**

#### ***Effective promotion***

Successful vasectomy programs use several channels to deliver their messages (See Appendix D). Vasectomy promotion through community talks and home visits and mass media (billboards, newspaper and magazine advertisements, and radio and television spots) have been instrumental in informing men about vasectomy. Satisfied vasectomy clients have been especially influential in helping other men decide to have a vasectomy.

#### ***Emphasis on quality and client satisfaction***

A program cannot afford mistakes, especially in the early stages. Maintaining a service of high quality is of great importance: Lowering standards to achieve higher volume is self-defeating in the long run. Negligence and inconsiderate treatment of clients must not be tolerated. A vasectomy program that has established a reputation for excellent service is likely to produce a self-generating demand through word of mouth from clients and local health professionals



***Attention to the needs of customers (men)***

Programs that specifically take account of the psychological characteristics of men are more likely to succeed. In some societies, this may mean that the vasectomy program should be physically separate from female family planning services. In some cultures, it may be advisable for key clinic staff to be men. Clinic hours should be convenient for clients; evening, weekend, or holiday sessions may be suitable for men who find it inconvenient to leave their jobs on weekdays. Finally, educational materials and information programs should carefully address common misunderstandings about vasectomy.

***Thorough and sensitive counseling.*** Men are more likely to return to facilities where they are made to feel welcome and valued as a client. Counseling is especially important to men's perceptions of being well-treated.

***Privacy and confidentiality.*** Men are especially concerned about confidentiality when discussing reproductive health matters. Some men prefer to travel to a distant site, to avoid being seen entering a reproductive health facility in their community.

***Convenience and comfort.*** Men are more likely to use services that have convenient hours (i.e., that are open evenings and weekends). Male-only clinics, separate waiting areas or hours, and male providers make men feel more comfortable.

***Array of services.*** Men prefer to visit facilities that offer an array of services, including general medical care and treatment for urological problems, sexual dysfunction, sexually transmitted infections (STIs), and infertility. Offering a broad spectrum of reproductive health services for men not only brings in new clients, but also may generate additional revenue.

**Skilled Providers**

Well-trained clinicians inspire confidence, but it is just as important that clinicians and other staff are skilled in interpersonal communication—in particular, in talking with men. Successful programs have focused on the training of teams or sites rather than of individuals. Special attention must be given to the treatment of clients in nonsurgical situations. Thorough counseling and good preoperative examination should eliminate clients who are at risk of vasectomy-related complications or regretting the operation at a later date. Whenever possible, postoperative semen analysis should be made available to identify failed vasectomies before unwanted pregnancies occur and to evaluate the adequacy of surgical techniques.

The way clients are treated by clinic staff will undoubtedly influence their satisfaction with, and perceptions of, the services. If staff members are attentive and compassionate, even clients who experience complications will be more likely to leave with a favorable impression and to share that impression with potential clients.

***Working within the community***

A vasectomy service may be more acceptable and successful when it is located within the community it is intended to serve. Some programs have had good results by employing staff who reside in the

clinic's neighborhood. As far as possible, staff members should have the same socioeconomic, cultural, and ethnic characteristics as their clients. Finally, the clinic should have good connections with other local institutions, such as social welfare organizations, local health facilities, community-based family planning programs, and local government councils or groups. In sum, the program should strive to be part of the local social fabric.

### ***Strong leadership***

A successful vasectomy program is usually headed by a professional who has taken a personal interest in involving men in family planning and who is committed to the success of the project. When vasectomy is being introduced in a locality for the first time, it is especially important for the leader to be patient, persistent, committed, and willing to be a pioneer.

### ***Features of successful family planning programs***

Vasectomy services should operate within the context of a client-centered family planning program and should be well-integrated into existing services. The main features of successful family planning services have been identified (Edmunds et al., 1987) as follows:

- Providing a wide choice of methods of contraception
- Placing the concept of family planning within the broader context of each client's experience
- Ensuring accessibility of family planning methods through a variety of staff and delivery systems
- Supporting clients by providing full information and counseling and by providing reassurance when problems arise
- Enhancing the quality of services by promoting the highest possible standards of care appropriate to the setting
- Responding to clients' needs and preferences for methods and services
- Providing effective outreach and follow-up
- Encouraging active client participation at all stages of service development and implementation
- Undertaking research and evaluation to elicit clients' perceptions and preferences

# **Appendix D**

## **Informing the Community about Vasectomy**



## Informing the Community about Vasectomy

Information and promotion help the general public become aware of vasectomy services and allow prospective vasectomy clients to be more knowledgeable about the procedure. Information, promotion, and counseling are also important in ensuring that clients are well-informed and satisfied, and thus are less likely to regret the operation and are more likely to share their positive experiences with others in their community.

Each program should determine the most appropriate ways of informing potential clients about vasectomy and the availability of services. While a program may rely exclusively on one or two methods or approaches, more typically a variety of channels will be developed. The specific ways chosen to develop a network for referring clients to the clinic will depend on:

- The nature of the service-delivery system
- The location and setting of the service sites
- The sensitivity about vasectomy in the community and the openness with which it can be discussed
- Local regulations

This appendix outlines some of the key considerations for program developers who wish to institute informational and promotional activities for their vasectomy services.

### Information, Promotion, and Counseling

Informing clients about vasectomy and other methods of contraception is different from promoting services or counseling clients. While each of these activities has its own primary purpose, individual staff members are often responsible for more than one of them. For instance, a nurse-midwife in a maternity service may inform and counsel clients. Likewise, a community worker may promote the practice of family planning and inform people about the various contraceptive methods. Whatever their individual responsibilities, staff members should understand the differences between these three activities.

- *Information:* To provide facts about available methods of family planning
- *Promotion:* To encourage people to practice family planning
- *Counseling:* The process by which a health care worker uses two-way communication to help the client make a voluntary, informed, and well-considered decision

---

This appendix is adapted from: World Health Organization. 1988. *Technical and managerial guidelines for vasectomy services*, Geneva, chapter 4, pp. 37–55; World Health Organization. 1992. *Female sterilization: A guide to provision of services*, Geneva, chapter 6, pp. 47–59; and Pile, JM. Forthcoming. *Vasectomy: A safe but neglected method*. New York: EngenderHealth.

**Information**

The major purpose of information activities is to provide facts that the client can use in making a decision about family planning. Accordingly, clients must be given complete, accurate, and unbiased information about the available methods of contraception. Messages that favor one method of contraception over another or that address only the advantages of particular methods are misleading and compromise informed choice. In the case of vasectomy, the procedure's intended permanence must be stressed.

For information activities to be effective, a range of family planning services must be available and accessible to the public, and these services must be provided in a noncoercive atmosphere. If a family planning service provides information about vasectomy but the procedure is either unavailable or inaccessible, potential clients will be disappointed and frustrated, and the credibility of the family planning service will be damaged. Clients are unlikely to believe information and may resist vasectomy if information was presented in a coercive atmosphere, while they might have considered vasectomy if information were provided in a more open and supportive environment. If clients undergoing sterilization feel pressured in any way, they are likely to regret the procedure afterward and to criticize both the method and the provider.

Family planning providers must ensure that all personnel who provide information about contraception are themselves well-informed. Facts about methods, their advantages and disadvantages, and their side effects should be incorporated in training programs for doctors, nurses, field workers, counselors, and other appropriate personnel. Staff members should also be routinely supervised to ensure that they are providing clients with accurate and complete information.

**Promotion**

The major purpose of promotion is to encourage people to practice family planning. It is acceptable to promote the benefits of small families and to encourage clients to use some method of family planning. However, urging healthy clients to use specific methods compromises voluntary choice.

Family planning services have undertaken a variety of promotional activities. One of the most common is to use trained community workers to promote contraception; these individuals usually have other public health or family planning responsibilities, such as providing information about health services and methods of contraception, distributing contraceptive or medical supplies, or accompanying clients to clinics.

Some promotional activities, notably provision of incentives and disincentives, can pose serious threats to free and informed choice.

**Counseling**

The purpose of counseling is to assist the client in making an informed, voluntary, well-considered decision regarding family planning. In addition to providing information about methods of contraception (filling in gaps in the client's knowledge and correcting misconceptions), the counselor

focuses on the client's decision and how it is made. When discussing sterilization, the counselor must stress that the method is intended to be permanent. (For additional information about counseling, see Module 4: Counseling and Informed Consent for NSV.)

## Considerations

### The Client Decision-Making Process

An understanding of the decision-making process that leads someone to request or reject vasectomy can help in designing effective information and counseling programs. The following events are common to many men who choose vasectomy:

- Becomes aware of vasectomy
- Talks to a vasectomized man
- Starts seriously considering vasectomy
- Decides that temporary contraceptives are no longer acceptable
- Decides that vasectomy is the best contraceptive method

The sequence in which these events occur may differ, depending on the country and the individual.

Many vasectomized men are aware of and know about vasectomy for a relatively long period before having the procedure. Knowledge, however, does not necessarily lead to action. Clearly, the factor that weighs most heavily on a couple's decision is the realization that they want no more children. Only when the family is considered complete do couples seriously start listening to messages about vasectomy and seeking more information. Even with the realization that they desire no more children, most couples do not request vasectomy immediately. Often the decision for the procedure comes after another pregnancy, or as the couple becomes increasingly dissatisfied with the inconvenience, side effects, or failure of temporary contraceptives.

Research conducted in the United States suggests that the overall decision-making process for vasectomy can take two or more years (Mumford, 1977; Mumford, 1983). In Mexico, one study reported that the duration of time during which vasectomy was seriously considered was from two to 20 months (Alarcon et al., 1995). A shorter duration for this consideration process—of about four months—has also been noted in Brazil and Colombia (Vernon, 1996).

Although the decision to choose a permanent method is often presented as a joint decision, some of the literature suggests that the decision to choose vasectomy can be an autonomous one (EngenderHealth, 2002a). In one six-country study, Bangladeshi, Rwandan, and Sri Lankan vasectomy users often made the decision to choose sterilization on their own, excluding their partners (Landry & Ward, 1997).

Research has clearly shown that information and communication programs are important for creating awareness among eligible couples. They are even more important for couples who have already decided not to have any more children. These couples are at a critical decision-making juncture and need detailed facts about the benefits and effects of vasectomy; they also need to have their fears assuaged. In this regard, studies have demonstrated that talking to other vasectomized men is critical

to a man's decision. In one U.S. study, nine out of 10 vasectomized men stated that talking with a man who had had a vasectomy was essential in arriving at a positive decision (Mumford, 1983).

The implication for vasectomy programs is obvious: Producing satisfied clients who not only are pleased with the procedure, but who also have accurate and complete information about vasectomy and its effects, can be one of the most important factors in attracting more clients to the clinic. Client assessment and counseling activities can therefore have a double impact: They help to ensure that vasectomies are performed only on those men who are likely to be satisfied, and they provide vasectomy clients with correct information that can be passed on to other people in their communities.

Three categories of media (public information and communication, referral systems, and clinic-based activities) are all necessary parts of an information program.

### **Public Information and Communication**

Public information and communication approaches help to stimulate interest in the procedure and provide basic information to couples who have decided to have no more children. However, these approaches are impersonal and cannot cater to individual situations, needs, and questions.

These approaches include:

- *Mass media.* Techniques can include posters, billboards, newspaper articles, advertisements on buses and trains and in periodicals, and radio and television announcements. Radio and print ads that give the addresses and telephone numbers of vasectomy service providers can actually bring clients to the clinic's doors. Mass media messages can reach a large audience but are impersonal, can be expensive, and, under most conditions, can deliver only simple messages. On the other hand, telephone hotlines have been effective, as they offer a means of private and confidential counseling.
- *Printed materials.* Every program should consider developing some printed materials. A brochure or question-and-answer sheet written in simple language and in local dialects can efficiently address common concerns about vasectomy. Information should be presented in a straightforward, nontechnical, noncondescending manner. In a number of programs, pictorial printed materials have been developed for semiliterate and nonliterate audiences. Comic books, for example, have been used in Mexico, the Philippines, and Thailand. These can be colorful, can contain interesting, attention-grabbing stories, and can convey essential facts about vasectomy using drawings and a minimum of words. In some countries, picture books using specially designed and pretested photographs or drawings have been developed to communicate with potential clients who are nonliterate.
- *Social marketing.* Based upon marketing principles developed by profit-making enterprises, social marketing promotes products and services such as family planning that are considered beneficial to society by:
  - Defining and researching target audiences
  - Planning, developing, and pretesting messages and materials
  - Advertising extensively
  - Selling products or services, often at subsidized or reduced cost

Social marketing has considerable potential for use in vasectomy programs.



***Multiple communication channels create a synergistic effect.*** Successful programs develop an appropriate public information strategy (which helps to generate demand). Effective vasectomy programs use several channels to deliver their messages. Program experience shows that individuals who are exposed to a message from multiple sources—such as mass and community-based media and interpersonal communication—are more likely to take action than are those exposed to a message from a single source. Evaluations of communication campaigns around the world frequently find a dose-response relationship between the level of exposure to the campaign messages and behavior. The higher the dose (the number of messages and the number of communication channels through which the person is exposed to the message) is, the more likely a person is to use contraceptives, to talk to his/her partner, and to visit a family planning provider (JHU/CCP, 1997). Men are frequently easier to reach with multiple, reinforcing messages because they generally have better access and more exposure to mass-media and community-level communication than women. In Ghana, a communications initiative was designed both to serve as a catalyst for men considering vasectomy to take that final step and access services and to raise awareness of vasectomy as a contraception option and dispel rumors. Community outreach events were carried out and a vasectomy campaign, based on qualitative research and featuring satisfied vasectomy users, included television advertisements, a television documentary, radio advertisements, posters, brochures and flyers, and public relations efforts. A telephone hotline was also set up. Initial results indicated that the project was a success; the number of vasectomies performed quadrupled over the volume provided in the year prior to the project, and awareness of vasectomy among men nearly doubled (The ACQUIRE Project, 2005).

The failure of promotional strategies often is more a consequence of poor media selection than of a lack of interest from men (Vernon, 1996). Work-site talks given by promoters to publicize vasectomy services have at times proved to be ineffective, since the audience that they reached did not meet the profile of vasectomy acceptors—i.e., they were too young or too old, had fewer than two children, and often were unmarried. On the other hand, talks targeted at partners of women having abortions in Turkey were successful, as the majority of men who were reached met the profile of a potential vasectomy acceptor (Pile et al., 1999).

## **Referral Systems**

Client-referral systems provide links for potential clients between the community and the clinic. The purposes of referral systems are primarily to guide interested clients to sources of more information and to assist them in getting a vasectomy. Thus, client-referral programs are most usefully directed toward those who have decided that they want no more children. A number of different referral systems are described in this section.

### ***Word-of-mouth communication by satisfied users***

Men have less contact with health workers than do women, and personal contacts—friends, relatives, and co-workers—are key to introducing new ideas and provide support for behavior change (Green et al., 1995). Word-of-mouth information from satisfied clients is perhaps the most potent advertisement for a vasectomy program. In some settings, the vasectomy program may have such a good rep-

utation in the community that word-of-mouth communication alone ensures an adequate caseload. In some settings, informal oral communication may be one of the few ways available to spread information about vasectomy. The key ingredient to a successful word-of-mouth program is a high-quality and affordable service: Clients satisfied with their treatment are more likely to discuss vasectomy and recommend it to friends and relatives.

Some programs have formed clubs of men who have had vasectomies. In a typical arrangement, vasectomized men who accept the invitation to become club members receive additional information and materials to distribute to other people in their communities. They may be given an identifying pin, badge, or certificate that would invite questions from friends and community members. Program managers may convene occasional meetings of club members to give further training in communication skills, to provide a social environment where club members can exchange experiences, and to recognize those who have referred other clients for a vasectomy.

### ***Field agents***

In many countries, community development, health, and family planning programs employ field workers who are closely and frequently in touch with the community. After brief training, these workers can give people accurate information about vasectomy and refer interested clients to service sites. Examples of community workers who can serve as referral agents are primarily health workers, traditional birth attendants, and agricultural extension workers.

Many family planning programs have their own special field workers. In addition, programs for community-based distribution (CBD) of temporary contraceptives employ community-level agents. These workers can also be trained to communicate about vasectomy. CBD workers, in particular, often know who among their customers are dissatisfied with temporary contraceptives or want no more children, and can refer these clients to a site where vasectomy services are offered. (Nirapathpongpon and Viravaidya, 1983)

### ***Professional referral systems***

The local medical community should be informed about the availability of vasectomy services. Physicians who do not themselves perform vasectomy services are often willing to refer their clients to a high-quality service. Similarly, local hospitals, family planning clinics, and medical societies should be informed about the program's services. In some programs, nonmedical community-service professionals have been used successfully as referral sources. Such groups might include social workers, religious leaders and clergy, and teachers. Ways of informing local professionals include seminars, letters, word-of-mouth communication, and announcements in professional journals and newsletters.

### ***Groups and organizations***

Organizations in which men predominate are good sources of potential clients and targets for organized educational activities. Some programs have cooperated effectively with factories, unions, agricultural workers' organizations, taxi drivers' associations, policemen's and firemen's organizations, communes, and community service societies. Women's groups are also a good target, as women are often interested to learn about vasectomy when considering methods of family planning.

### **Clinic-Based Information and Communication**

Family planning and primary health clinics are primary sources of information and communication about vasectomy. Couples often come to these clinics when they are thinking about having no more children or when they have already decided to have no more children. They make this visit because they are seeking accurate and detailed information and want to have their questions answered and their fears allayed.

For clients who come to request vasectomy, the clinic should offer client-assessment or counseling services and obtain written informed consent. These procedures ensure that the decision is informed and voluntary and minimize the possibility of later regret.

Aside from serving those who have already decided to request vasectomy, family planning and primary health clinics offer opportunities to create awareness about vasectomy. Clients who come for temporary contraceptives can easily be given information about vasectomy individually or in group sessions, through lectures and discussions, audiovisual presentations, and flipcharts. Posters about vasectomy can be displayed and question-and-answer brochures about vasectomy can be made available.

### **Developing Information Activities and Materials for Clients**

Developing an effective information and education program about vasectomy is not a hit-or-miss matter. Whether a program is advertised by means of television or radio, posters or brochures, a certain sequence of steps must be followed to transmit clear messages to a well-defined audience. Information and communication activities require careful planning and execution. Program managers should draw upon the expertise developed over many years in advertising, graphics, marketing, social marketing, and communications research.

Informed and voluntary choice is jeopardized when undue emphasis is placed on particular methods of contraception. Information about sterilization should be part of a broad communication program about family planning, and clients should therefore receive information about all the available options before they make a choice.

As providers plan and develop information activities and materials, they should seek assistance from two valuable sources: members of the target audience and professionals with experience in communication activities. Client participation is essential if the program is to succeed. Through focus groups and interviews, clients can help develop the messages to be conveyed and identify the appropriate information channels for these messages. Furthermore, that can review sketches and drafts of materials being developed during the critical pretesting stage.

A variety of professionals have considerable experience with information activities and should be asked to participate in planning and carrying out the program. Managers should draw upon the experience of personnel from areas such as health education, communications, graphic design, advertising, production of audiovisual materials, and communications research. Their efforts can encourage better use of resources and can enhance the effectiveness of information materials and activities.

## **Major Steps in Developing an Information Program about Vasectomy**

### **1. Analysis**

Research the proposed target audiences and their characteristics. Determine what messages are circulating and what materials already exist. Examine the institution's ability to carry out the information program, and consider whether additional resources are required.

### **2. Developing a plan**

Determine the objectives, topics, and target audiences. Identify the resources required, both inside and outside the institution. Identify staff members who will be involved, and spell out their responsibilities. Develop a schedule and a budget.

### **3. Developing messages, materials, and activities**

Investigate the target audience's knowledge about family planning. Develop messages based on these results. Review these messages with staff. Select the most appropriate information channels to convey the messages. Design materials and activities, and review these with staff.

### **4. Pretesting and revising**

Pretest the messages, materials, and activities on the target audiences. Revise as necessary and review the revised materials and activities with staff. Repeat this stage as required.

### **5. Implementation**

Train staff members to use the materials and to carry out the activities. Produce and distribute the materials. Implement the program.

### **6. Assessment**

Assess the impact of the information activities on the target audiences. Revise the material and activities as required.

Family planning managers who are not experienced in carrying out information programs and those in countries where resources are scarce may have difficulty in obtaining appropriate professional assistance. Ministries of health, major hospitals, and family planning organizations often have communications departments that can help to plan and develop information programs.

## **Steps for Developing Activities and Materials**

To reach men directly, successful projects use spokespeople and media that men trust and address issues that they feel are important. The key to increasing men's participation is to develop messages that are relevant to their perceived concerns. (These may not always coincide with the messages that family planning programmers believe men should hear.) Men must be approached on their own terms and in their own words. The major steps in developing information activities and materials are discussed below:

### ***Analysis***

Careful analysis is the first step in any successful information program. During this stage, staff should talk to clients and should examine the messages about vasectomy that are being circulated. Clients receive information about contraception (including vasectomy) in many ways. Some of that

information may be inaccurate or incomplete. Service managers should also examine the context in which they are communicating. They should seek to answer the following questions:

- What rumors and myths exist?
- What forces are at work that might make clients resist or disbelieve information about family planning, including vasectomy?
- Which sources of information does the community trust and rely upon?
- What information is being presented in newspapers, on television, and on radio?
- Is family planning widely practiced in the community, or is it just beginning to be used?
- How prevalent is vasectomy?
- Are there any laws or local customs that might restrict public discussion about family planning and vasectomy?
- What role do men play in making decisions about family planning?
- Are other agencies already providing information about contraception, including vasectomy?

To obtain answers to these questions, service providers can interview community leaders and clients, talk to experienced health personnel who have worked in the community, consult reference materials, and conduct surveys and focus groups. A major goal of all of these activities is to collect information about the proposed target audiences so that messages can be tailored to meet their needs.

During the analysis stage, the institution's ability to carry out the proposed information program should also be examined. Staff should evaluate whether outside assistance is needed.

### ***Developing a plan***

After careful analysis of the community and service context, the second step is to develop a plan. The following questions should be considered:

- Are the potential clients literate, partially literate, or illiterate?
- What languages do they speak and read?
- What do they already know about family planning and vasectomy?
- What concerns, questions, and misconceptions do they have about family planning and vasectomy?
- Who influences their decisions about family planning?
- What is the desired family size?
- What is important to the audience?
- What problems are they facing?

Again, interviews, surveys, focus groups, and reference materials can help answer these questions. Staff members responsible for information activities should describe the target audience in writing, revise that description as the activities progress, and continually refer to it as a guide. For example: "The primary target audience for this activity is rural, illiterate, married men aged over 30 and under 45 with at least two children. Secondary target audiences are their wives and parents."

### ***Developing key messages, materials, and activities***

Once the target audience has been selected and its characteristics, needs, attitudes, and level of understanding assessed, key messages should be developed. These should address the main topics identified during audience research. When the messages have been determined, staff should select

the most appropriate information channels to convey these messages and begin designing materials and activities.

### ***Pretesting and revising***

The next step is to pretest the materials and activities with the target audience. Pretesting is essential, since it helps to ensure that information materials and activities are culturally appropriate, relevant to clients' concerns, and presented in familiar language and at an educational level that clients can understand.

Pretesting can be conducted in a variety of ways: for example, through focus groups, through structured, in-depth interviews, or through interviews with members of the target audience at a common gathering place, such as a clinic waiting room. Managers should plan sufficient time for several rounds of pretesting. Elements that require pretesting include illustrations, text, layout, size, color, and sequence (for printed materials) and script, recorded voices, music, and images (for slide programs, videos, and films).

Once pretest results have been collected, the messages, materials, and activities are revised as needed. If revisions are extensive, another round of pretesting may be required.

### ***Implementation***

Implementation may begin as soon as the information activities and materials have been revised and finalized. This phase involves such tasks as training staff, producing an adequate supply of materials for service sites, establishing an efficient reordering system, scheduling broadcasts and events in a cost-effective way and at times that are most convenient for the target audience, and providing audio-visual equipment and training to service sites. All activities should be monitored and supervised throughout this stage to ensure that the objectives are being achieved and the target audiences are being reached.

### ***Assessment***

The final step is to review the program and to use that assessment to decide on future activities. Information programs are cyclical in nature, and the steps presented above should be repeated in response to the changing needs of the audiences and the environment.

## Information Channels

Clients acquire information by hearing or seeing it expressed in different ways at different times. They listen to friends, neighbors, health care workers, and community leaders. If they are literate, they may read pamphlets, magazines, and newspapers. If they are partially literate or illiterate, they may ask other people to read material to them. They may also watch television or listen to the radio, see poster and billboard displays, or attend information sessions at health care centers and in their communities. Because people obtain information from so many different sources and because they learn by hearing and reading messages over and over again, it is generally more effective to use a combination of information channels than to rely on only one.

Before choosing the channels to be used, it is essential to define the target audience and identify the objectives and messages of the information program. A particular channel should be selected because it is an effective and efficient way to reach the audience and accomplish the program's goals. Planners should also consider how to evaluate the effectiveness and costs of particular information channels.

The most important channel is the communication that occurs between the client and the provider. Accordingly, the provider should always speak directly to the client, even if other channels are used.

All information channels have costs associated with them—for instance, salaries or time away from other tasks for staff involved; fees for outside experts; and costs for paper, ink, photography, videotape, or air time. The costs of using a particular channel must be weighed against its effectiveness in disseminating information to potential clients.

## Counteracting Misinformation

Misinformation about family planning methods is a major obstacle to contraceptive use in some countries. The effects of different methods of contraception are often the subject of rumors and myths (e.g., “vasectomy makes a man impotent”). Sometimes misinformation may be circulated by dissatisfied clients, opponents of family planning services, or even poorly informed health providers.

Successful communication campaigns focus on factual information and perceptions to overcome myths or rumors that sometimes lead men to oppose vasectomy and other family planning methods. Broad-based information activities that communicate in a simple, clear, and objective manner can be used to counteract rumors and myths about vasectomy and other methods of contraception. Service providers should aim to identify any such rumors and misinformation as soon as possible and address them at the source; follow up with clients who are using methods of contraception to ensure that they possess correct information; provide services of high quality that are trusted by the community; provide accurate information about contraceptives, including their advantages and disadvantages; and use words and symbols in information activities that promote understanding rather than confusion.





# **Appendix E**

## **Long-Term Effects**



## Long-Term Effects

Potential physiological effects and long-term sequelae of vasectomy have been the subject of extensive research over the past two decades. This research provides reassurance that vasectomy does not have any significant long-term negative physical or mental health effects. Results of large-scale, well-designed epidemiological studies in men have consistently shown no adverse effects of vasectomy in terms of heart disease, testicular or prostate cancer, immune complex disorders, and a host of other conditions. Vasectomy appears to be a largely safe and highly effective method of contraception, certainly with risks no greater than those for any of the contraceptive methods used by women.

### Comprehensive Studies of Disease Incidence

Five large-scale retrospective cohort studies have examined the incidence of a number of diseases in thousands of vasectomized and nonvasectomized men (Goldacre et al., 1978; Goldacre & Vessey, 1979; Massey et al., 1984; Nienhuis et al., 1992; Petitti et al., 1983; Schuman et al., 1993; and Walker et al., 1981). For the disease categories or organ systems studied, vasectomized men were no more likely to be hospitalized or to develop a disease than were controls. In these studies, there were large numbers of cases of disease among vasectomized and nonvasectomized men in all categories. Thus, taken together, the studies are reassuring that vasectomy does not increase the risk of adverse physical or mental health outcomes.

### Effects on Cardiovascular Function

Reports that vasectomized monkeys developed atherosclerosis more rapidly than unvasectomized controls (Alexander & Clarkson, 1978; and Clarkson & Alexander, 1980) led to extensive research into the potential effects of vasectomy on cardiovascular disease in men. Since the early 1980s, most of the cohort, case-control, and cross-sectional studies that were conducted have found no association of vasectomy with acute myocardial infarction, other ischemic heart disease, stroke, peripheral vascular disease, hypertension, coronary artery disease, or hypertensive and atherosclerotic retinal vascular changes (Coady et al., 2002; Giovannucci et al., 1992; Goldacre et al., 1978; Goldacre and Vessey, 1979; Massey et al., 1984; Nienhuis et al., 1992; Petitti et al., 1983; Rimm et al., 1983; Rosenberg et al., 1986; Schuman et al., 1993; and Walker et al., 1981).

### Antisperm Antibodies

The number of circulating antisperm antibodies increases after vasectomy: Antisperm antibodies are found in 50–80% of vasectomized men (Bernstein et al., 1979; Hellema & Rumke, 1978; Lenzi et al., 1997), but in only 8–21% of men in the general population (Gubin, Dmochowski, & Kuttch, 1998). The theoretical concern that these antibodies may have adverse health consequences has led to numerous studies, the results of which have shown no evidence of any immunological or other diseases related to the formation of antisperm antibodies after vasectomy (Coulson et al., 1993; Giovannucci et al., 1992; Goldacre, Holford, & Vessey, 1983; Lepow & Crozier, 1979; Massey et al.,

1984; Petitti et al., 1982; Rimm et al., 1983; and Walker et al., 1981). However, antisperm antibodies may play a role in decreased fertility after vasectomy reversal, although conflicting results have been reported. Some studies have shown decreased pregnancy rates due to antisperm antibodies and others have not (Huang et al., 1997; Meinertz et al., 1990; Newton, 1998; Thomas, 1981).

### **Prostate Cancer**

Since the mid-1980s, more than a dozen epidemiological studies of the risk of prostate cancer after vasectomy have been reported in the literature. Results have been difficult to interpret because of conflicting study findings, the lack of a convincing biological mechanism for an association between vasectomy and prostate cancer, and generally weak associations when they have been found. Also, the potential for bias in some studies was high and likely led to an overestimation of any effect (Bernal-Delgado et al., 1998).

Based on the results of the research published to date, there is little evidence for a causal association between vasectomy and prostate cancer (Peterson & Howards, 1998). A panel of experts gathered by the U.S. National Institutes of Health in 1993 concluded that no change in the current practice of vasectomy was necessary nor should vasectomy reversal be done as a measure to prevent prostate cancer (Healy, 1993). Studies published after the expert panel report support these conclusions (Bernal-Delgado et al., 1998; Peterson & Howards, 1998; Stanford et al., 1999; Lynge, 2002; and Lesko et al., 1999). Results from a population-based survey in New Zealand confirmed that vasectomy does not increase the risk of prostate cancer, even after 25 years or more (Cox et al., 2002).

### **Testicular Cancer**

Some studies have linked vasectomy with an increase in risk of testicular cancer. However, with one exception (Cale et al., 1990), in the studies conducted between the 1970s and early 1990s, the increased risk of testicular cancer was not statistically significant (Goldacre et al., 1978; Swerdlow et al., 1987; Strader et al., 1988; and Thornhill et al., 1988). These studies included only small numbers of vasectomized men with testicular cancer and were subject to confounding and/or misclassification bias. Giovannucci and coworkers (1992) found no cases of testicular cancer among nearly 15,000 vasectomized men. Two additional studies, which included the largest numbers of cases of testicular cancer among vasectomized men, found no increased risk (Moller et al., 1994; and Rosenberg et al., 1994). Taken together, results of these epidemiologic studies provide convincing evidence that vasectomy is not associated with an increased risk of testicular cancer.

### **Postvasectomy Pain Syndrome**

A small percentage of vasectomized men have reported chronic pain in the testis following vasectomy. While up to one-third to one-half of men have reported occasional testicular discomfort following vasectomy, only a small percentage of all vasectomized men (no more than 2–3%) said the pain had negatively impacted their life or that they regretted having had the vasectomy because of chronic pain (Choe & Kirkemo, 1996; Ehn & Liljestrand, 1995; Manikandan et al., 2004; McMahon et al., 1992). Conservative therapies (such as nonsteroidal antiinflammatory drugs, sitz baths, antibiotics, or

spermatic cord blocks) are sufficient treatment in most cases. There is also some evidence that when these fail, vasectomy reversal or denervation of the spermatic cord may prove helpful (Ahmed et al., 1997; and Myers, Mershon, & Fuchs, 1997). The cause of postvasectomy pain is poorly understood and may be related to infection, epididymal engorgement with sperm, sperm granuloma formation resulting from back pressure–induced rupture of epididymal tubules, or nerve entrapment (Myers, Mershon, & Fuchs, 1987; Temmerman et al., 1986; and Schmidt, 1979).



## Bibliography

The ACQUIRE Project. 2005. *'Get a permanent smile'—Increasing awareness of, access to, and utilization of vasectomy services in Ghana*. New York: EngenderHealth/The ACQUIRE Project.

Ahmed, I. et al. 1997. The incidence of post-vasectomy chronic testicular pain and the role of nerve stripping (denervation) of the spermatic cord in its management. *British Journal of Urology* 79(2):269–270.

Alarcon, F., et al. 1995. Vasectomy decision-making in Mexico (GLO-11-EV-1): A global vasectomy decision-making study: A six-part series. New York: AVSC International. 1995.

Alderman, P. M. 1991. Complications in a series of 1224 vasectomies. *Journal of Family Practice* 33(6):579–584.

Alexander, N. J., and Clarkson, T. B. 1978. Vasectomy increases the severity of diet-induced atherosclerosis in *Macaca fascicularis*. *Science* 201(4355):538–541.

Arellano Lara, S., et al. 1997. No-scalpel vasectomy: Review of the first 1,000 cases in a family medicine unit. *Archives of Medical Research* 28(4):517–522.

Atkins, B., and Jezowski, T. 1983. Report on the first International Conference on Vasectomy. *Studies in Family Planning* 14(3):89–95.

Bates, B. 1995. *A guide to physical examination and history taking*. Philadelphia: Lippincott.

Barone, M., et al. 2003. A prospective study of time and number of ejaculation to azoospermia after vasectomy by ligation and excision. *Journal of Urology* 170(3):892–896.

Barone, M. A., et al. 2004. Effectiveness of vasectomy using cautery. *Biomed Central Urology* 4:10. Available at <http://www.biomedcentral.com/1471-2490/4/10>.

Bernal-Delgado, E., et al. 1998. The association between vasectomy and prostate cancer: A systematic review of the literature. *Fertility and Sterility* 70(2):191–200.

Bernstein, G. S., et al. 1979. A controlled prospective study of the effects of vasectomy. In *Vasectomy: Immunologic and pathophysiologic effects in animals and man*, ed. by I. H. Lepow and R. Crozier, New York: Academic Press, p. 473.

Bunyaratavej, P., et al. 1981. Comparison of vasectomy performed by medical students and surgeons in Thailand. *Studies in Family Planning* 12(8–9):316–318.

Cale, A. R., et al. 1990. Does vasectomy accelerate testicular tumour? Importance of testicular examinations before and after vasectomy. *British Medical Journal* 300(6721):370

Campbell, M. F. (ed.). 2002. *Campbell's urology*. Philadelphia: W.B. Saunders.

Choe, J. M., and Kirkemo, A. K. 1996. Questionnaire-based outcomes study of nononcological post-vasectomy complications. *Journal of Urology* 155(4):1284–1286.

Clarkson, T. B., and Alexander, N. J. 1980. Long-term vasectomy: Effects on the occurrence and extent of atherosclerosis in rhesus monkeys. *Journal of Clinical Investigation* 65(1):15–25.

- Coady, S., et al. 2002. Vasectomy, inflammation, atherosclerosis and long-term follow-up for cardiovascular diseases: No associations in the atherosclerosis risk in communities study. *Journal of Urology* 167(1):204–207.
- Cook, L. A., et al. 2004. Vasectomy occlusion techniques for male sterilization. *Cochrane Database of Systematic Reviews* 2004;(3):CD003991
- Coulson, A. H., et al. 1983. Health Status of American Men—a study of post-vasectomy sequelae: Results. *Journal of Clinical Epidemiology* 46(8):857–958.
- Cox, B., et al. 2002. Vasectomy and risk of prostate cancer. *JAMA* 287(23):3110–3115.
- Enn, B. E., and Liljestrand, J. 1995. A long-term follow-up of 108 vasectomized men. Good counseling routines are important. *Scandinavian Journal of Urology and Nephrology* 29(4):477–481.
- EngenderHealth. 2003. *No-scalpel vasectomy: An illustrated guide for surgeons*. Third edition. New York.
- EngenderHealth. 2003. *Choices in family planning: Informed and voluntary decision making*. New York.
- EngenderHealth. 2003. *Comprehensive counseling for reproductive health: An integrated curriculum*. New York
- EngenderHealth. 2000. Men's Reproductive Health Curriculum.three-part curriculum. Section 1: Introduction to Men's Reproductive Health Services, Revised Edition (currently under development); Section 2: Counseling and Communicating with Men (2003). Section 3: Management of Men's Reproductive Health Problems (2003). New York
- EngenderHealth. 2002a. *Contraceptive sterilization: Global issues and trends*. New York.
- EngenderHealth. 2002b. *Online courses on sexuality and sexual health; sexually transmitted infections; HIV and AIDS; and infection prevention*. Available at <http://www.engenderhealth.org/res/onc/index.html>
- EngenderHealth. 2001. *Infection prevention: A reference booklet for health care providers*. New York
- EngenderHealth. 1999. *Infection prevention curriculum: A training course for health care providers and other staff of hospitals and clinics*. New York.
- EngenderHealth. 1997. *Programming for male involvement in reproductive health: A practical guide for managers*. New York.
- EngenderHealth. 1991. *How to assess a client's decision for permanent contraception: A surgeon's guide for final assessment*. New York.
- Giovanucci, E., et al. 1992. A long-term study of mortality in men who have undergone vasectomy. *New England Journal of Medicine* 326(21):1392–1398.
- Gojaseni, P., and Leoprapi, B. 1982. A pilot project to train paramedical personnel to perform vasectomy. In: *Voluntary sterilization in Thailand*. Ed. by Sangsingkeo et al., Bangkok: Thai Association for Voluntary Sterilization.
- Goldacre, M. J., et al. 1978. Follow-up of vasectomy using medical record linkage. *American Journal of Epidemiology* 108(3):176–180.



- Goldacre, M., and Vessey, M. 1979. Record linkage study of morbidity following vasectomy. In *Vasectomy: Immunologic and pathophysiologic effects in animals and man*, ed. by I. H. Lepow and R. Crozier, New York: Academic Press, Chap. 27.
- Goldacre, M. J.; Holford, T. R., and Vessey, M. P. 1983. Cardiovascular disease and vasectomy: Findings from two epidemiological studies. *New England Journal of Medicine* 308(14):805–808.
- Green, C. P., Cohen, S. I., and Ghouayel, H. B. 1995. Male involvement in reproductive health, including family planning and sexual health. *UNFPA Technical Report* Number 28. New York: United Nations Population Fund (UNFPA).
- Gubin, D. A., Dmochowski, R., and Kutteh, W. H. 1998. Multivariate analysis of men from infertile couples with and without antisperm antibodies. *American Journal of Reproductive Immunology* 39(2):157–160.
- Healy, B. 1993. From the National Institutes of Health: Does vasectomy cause prostate cancer? *Journal of the American Medical Association* 269(20):2620.
- Hellema, H. W. J., and Rumke, P. 1978. Sperm autoantibodies as a consequence of vasectomy: I. Within 1 year post-operation. *Clinical and Experimental Immunology* 31(1):18–29.
- Hieu, D. T., et al. 2003. The acceptability, efficacy and safety of quinacrine non-surgical sterilization (QS), tubectomy and vasectomy in 5 provinces in the Red River Delta, Vietnam: a follow-up of 15,190 cases. *International Journal of Gynaecology and Obstetrics* 83(Suppl 2):S77–85.
- Holt, B. A., and Higgins, A. F. 1996. Minimally invasive vasectomy. *British Journal of Urology* 77(4):585–586.
- Huang, M. K., et al. 1997. Multiple factors affecting human repregnancy after microsurgical vasovasostomy. *Reproduction and Contraception* 8:92–100.
- Huber, D. 1989. No-scalpel vasectomy: The transfer of a refined surgical technique from China to other countries. *Advances in Contraception* 5(4):217–218.
- International Planned Parenthood Federation (IPPF). 1993. *The rights of the client*. Poster. London.
- Jamieson, D. J., et al. 2004. US collaborative review of sterilization working group: The risk of pregnancy after vasectomy. *Obstetrics and Gynecology* 103(5 Pt 1):848–850.
- Janowitz, B., Measham, D., and West, C. 1999. *Issues in the financing of family planning services in Sub-Saharan Africa*. Research Triangle Park, NC: Family Health International.
- Jezowski, T. W., et al. 1995. A successful national program for expanding vasectomy services: The experience of the Instituto Mexicano del Seguro Social. *AVSC Working Paper* No. 8. New York: AVSC International.
- JHPIEGO Corporation. 2003. *Infection prevention guidelines for healthcare facilities with limited resources: Overview and practical training demonstration segments and safe practices in the operating room* (video). Baltimore: JHPIEGO Corporation.
- Johns Hopkins School of Public Health, Center for Communication Programs. 1997. *Reaching men worldwide: Lessons learned from family planning and communication projects (1986–1996)*. Working Paper No. 3. Baltimore.
- Kendrick, J. S., et al. 1987. Complications of vasectomies in the United States. *Journal of Family Practice* 25(4):245–248.

- Labrecque, M., et al. 2002. Effectiveness and complications associated with 2 vasectomy occlusion techniques. *Journal of Urology* 168(6):2495–2498.
- Labrecque, M., et al. 2004. Vasectomy surgical techniques: A systematic review. *BioMed Central Medicine* 2:21. Available at <http://www.biomedcentral.com/1741-7015/2/21>.
- Lande, R. 1993. Controlling sexually transmitted diseases. *Population Reports* series L, no.9. Baltimore: Johns Hopkins School of Public Health, Population Information Program.
- Landry, E., and Ward, V. 1997. Perspectives from couples on the vasectomy decision: A six-country study. In *Beyond acceptability: Users' perspectives on contraception*, ed. by T. K. Sundari Ravindar, M. Berer, and J. Cottingham. London: Reproductive Health Matters, pp. 58–67.
- Lenzi, A., et al. 1997. Antisperm antibody detection: 2. Clinical, biological, and statistical correlation between methods. *American Journal of Reproductive Immunology* 38(3):224–230.
- Lepow, I. H., and Crozier, R. H. (eds.) 1979. *Vasectomy: Immunologic and pathophysiologic effects in animals and man*. New York: Academic Press.
- Lesko, S. M., et al. 1999. Vasectomy and prostate cancer. *Journal of Urology* 161(6):1848–1852.
- Li, S., et al. 1991. The no-scalpel vasectomy. *Journal of Urology* 145(2):341–344.
- Li, P. S., et al. 1992. External spermatic sheath injection for vasal nerve block. *Urology* 39(2):173–176.
- Liskin, L., Benoit, E., and Blackburn, R. 1992. Vasectomy: New opportunities. *Population Reports*, series D, no. 5. Baltimore, Johns Hopkins University, Population Information Program.
- Lynge, E. 2002. Prostate cancer is not increased in men with vasectomy in Denmark. *Journal of Urology* 168(2):488–490.
- Manikandan, R., et al. 2004. Early and late morbidity after vasectomy: a comparison of chronic scrotal pain at 1 and 10 years. *BJU International* 93(4):571–574.
- Massey Jr., F. J., et al. 1984. Vasectomy and health: Results from a large cohort study. *Journal of the American Medical Association* 252(8):1023–1029.
- McMahon, A. J., et al. 1992. Chronic testicular pain following vasectomy. *British Journal of Urology* 69(2):188–191.
- Meinertz, H., et al. 1990. Antisperm antibodies and fertility after vasovasostomy: A follow-up study of 216 men. *Fertility & Sterility* 54(2):315–321.
- Moller, H., et al. 1994. Risk of testicular cancer after vasectomy: cohort study of over 73,000 men. *British Medical Journal* 309: 295–299 (July 1994).
- Mumford, S. D. 1977. *Vasectomy: The decision-making process*. San Francisco: San Francisco Press.
- Mumford, S. D. 1983. The vasectomy decision-making process. *Studies in Family Planning*, 14(3):83–88.
- Myers, S. A., Mershon, C. E., and Fuchs, E. F. 1997. Vasectomy reversal for treatment of the post-vasectomy pain syndrome. *Journal of Urology* 157(2):518–520.

- Nazerali, H., et al. 2003. Vasectomy effectiveness in Nepal: A retrospective study. *Contraception* 67(5):397–401.
- Neamatalla, G., and Harper, P. B. 1994. *Family planning counseling and voluntary sterilization: A guide for managers*. New York: AVSC International.
- Newton, R. A. 1998. IgG antisperm antibodies attached to sperm do not correlate with infertility following vasovastomy. *Microsurgery* 9(4):278–280.
- Nienhuis, H., et al. 1992. Incidence of disease after vasectomy: A record linkage retrospective cohort study. *British Medical Journal* 304(6829):743–746.
- Nirapathpongorn, A., Huber, D., and Drieger, J. N. 1990. No-scalpel vasectomy at the King's birthday vasectomy festival. *Lancet* 335(8694):894–895.
- Nirapathpongorn, A., and Viravaidya, M. 1983. Client referral system of the community-based voluntary sterilization project. Paper read at 5th International Conference on Voluntary Surgical Contraception. 5-8 December. Santo Domingo, Dominican Republic.
- Peterson, H. B., and Howards, S. S. 1998. Vasectomy and prostate cancer: The evidence to date. *Fertility & Sterility* 70(2):201–203.
- Petitti, D. B., et al. 1982. A survey of personal habits, symptoms of illness, and histories of disease in men with and without vasectomies. *American Journal of Public Health* 72(5):476–480.
- Petitti, D. B., et al. 1983. Vasectomy and the incidence of hospitalized illness. *Journal of Urology* 129(4):760–762.
- Philp, T., Guillebaud, J., and Budd, D. 1984. Complications of vasectomy: Review of 16,000 patients. *British Journal of Urology* 56(6):745–748.
- Physicians' Desk Reference*. 2006. Montvale, NJ: Thomson Healthcare.
- Pile, J. M., et al. 1999. Involving men as partners in reproductive health: Lessons learned from Turkey. *AVSC Working Paper* No. 12. New York: AVSC International.
- Rimm, A. A., et al. 1983. The relationship between vasectomy and angiographically determined atherosclerosis in men. *Preventive Medicine* 12(2):262–273.
- Rosenberg, L. et al. 1994. The relation of vasectomy to the risk of cancer. *American Journal of Epidemiology* 140(5):431–438.
- Rosenberg, L., et al. 1986. The risk of myocardial infarction 10 years or more after vasectomy in men under 55 years of age. *American Journal of Epidemiology* 123(6):1049–1056.
- Salem, R. 2004. Men's surveys: New findings. *Population Reports*, series M, no. 18. Baltimore, The Johns Hopkins Bloomberg School of Public Health, The INFO Project.
- Schmidt, S. S. 1979. Spermatic granuloma: an often painful lesion. *Fertility & Sterility* 31(2):178–181.
- Schuman, L. M., et al. (eds.) 1993. Health Status of American Men—a study of post-vasectomy sequelae. *Journal of Clinical Epidemiology* 46(8):697–958.

- Skriver, M., Skovsgaard, F., and Miskowiak, J. 1997. Conventional or Li vasectomy: A questionnaire study. *British Journal of Urology* 79(4):596–598.
- Sokal, D., et al. 1999. A comparative study of the no scalpel and standard incision approaches to vasectomy in 5 countries. *Journal of Urology* 162(5):1621–1625.
- Sokal, D., et al. 2004a. Vasectomy by ligation and excision, with versus without fascial interposition: A randomized controlled trial. *BioMed Central Medicine* 2:6. Available at <http://www.biomedcentral.com/1741-7015/2/6>.
- Sokal, D., et al. 2004b. A comparison of vas occlusion techniques: Cautery more effective than ligation and excision with fascial interposition. *BioMed Central Urology* 4:12. Available at <http://www.biomedcentral.com/1471-2490/4/12>.
- Stanford, J. L., et al. 1999. Vasectomy and risk of prostate cancer. *Cancer Epidemiology, Biomarkers & Prevention* 8(10):881–886.
- Strader, C. H., et al. 1988. Vasectomy and the incidence of testicular cancer. *American Journal of Epidemiology* 128:56–63.
- Swerdlow, A. J., et al. 1987. Testicular cancer and antecedent diseases. *British Journal of Cancer* 55:97–103.
- Temmerman, M., et al. 1986. Evaluation of one-hundred open-ended vasectomies. *Contraception* 33(6):529–532.
- Thomas, Jr., A. J., et al. 1981. Microsurgical vasovasostomy: Immunologic consequences and subsequent fertility. *Fertility & Sterility* 35(4):447–450.
- Thornhill, J. A., et al. 1988. Physician-dependent prognostic variables in the management of testicular cancer. *British Journal of Urology* 61(3):244–249.
- Tietjen, L., Bossemeyer, D., and McIntosh, N. 2003. *Infection prevention guidelines for healthcare facilities with limited resources*. Baltimore, MD: JHPIEGO Corporation.
- Viladoms Fuster, J.M., and Shihua Li, P. 1994. Vasectomia sin bisturio. *Archivos Espanoles de Urologia* 47(7):695–701.
- Vernon, R. 1996. Operations research on promoting vasectomy in three Latin American countries. *International Family Planning Perspectives* 22(1):26–31.
- Walker, A. M., et al. 1981. Hospitalization rates in vasectomized men. *Journal of American Medical Association* 245(22):2315–2317.
- Wang D. 2002. Contraceptive failure in China. *Contraception* 66(3):173–178.
- World Health Organization (WHO). 2004a. *Improving access to quality care in family planning: Medical eligibility criteria for contraceptive use*, Third edition. Geneva.
- WHO. 2004b. *Selected practice recommendations for contraceptive use*. Second edition. Geneva.
- WHO. 1988. *Technical and managerial guidelines for vasectomy services*. Geneva.
- WHO. 1992. *Female sterilization: A guide to provision of services*. Geneva.
- WHO. 1994. *No-scalpel vasectomy* (video). Geneva.



**EngenderHealth**  
440 Ninth Avenue  
New York, NY 10001  
Telephone: 212-561-8000  
Fax: 212-561-8067  
e-mail: [info@engenderhealth.org](mailto:info@engenderhealth.org)  
[www.engenderhealth.org](http://www.engenderhealth.org)

ISBN 978-1-885063-67-0