

POSTABORTION CARE

A Reference Manual for Improving Quality of Care

SECOND EDITION



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FIRST EDITION

This manual was developed, in part, to increase awareness of the high rates of maternal mortality and morbidity caused by incomplete abortion in many areas of the world. It is designed to provide health care providers with up-to-date information on emergency treatment of Postabortion complications together with provision of Postabortion family planning counseling and services. The manual is adapted primarily from previously reviewed publications.

Members of the Postabortion Care Consortium who contributed to the development of this manual are: AVSC International, International Planned Parenthood Federation (IPPF), IPAS (International Projects Assistance Services), Johns Hopkins Center for Communication Programs and Pathfinder International.

SECOND EDITION

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PREFACE

The purpose of this manual is to provide clinicians (physicians, nurses and midwives) with essential information on the provision of comprehensive postabortion care services. It is intended to assist clinicians in treating incomplete abortion and its life-threatening complications. The manual outlines the full range of activities needed to provide appropriate, high-quality postabortion care, including family planning and referral to health care services needed after emergency treatment.

The material in this manual is arranged sequentially according to the usual way in which patients are cared for—starting with the initial assessment of their condition and ending with the provision of follow-up care, including family planning and other reproductive health services. Moreover, it is provided in concise segments, for facilitating learning and recall. Finally, key points are repeated in several sections to emphasize their importance.

Specific objectives are to:

- Describe the importance of postabortion care.
- Describe the key elements of postabortion care including the rationale for using manual vacuum aspiration (MVA) for the treatment of incomplete abortion.
- Describe the basic process of talking with patients about their condition and the MVA procedure, its indications and precautions.
- Detail the key steps in the initial assessment of women presenting with possible complications of incomplete abortion, including medical history, physical examination and simple laboratory testing (if needed).
- Describe the management of serious postabortion complications: shock, severe vaginal bleeding, infection/sepsis and intra-abdominal injury.
- Detail easy-to-use, inexpensive infection prevention practices that minimize disease transmission to patients and health care staff.
- Describe the use of analgesics and local anesthetics during treatment of incomplete abortion using MVA.
- Detail a step-by-step procedure for the safe performance of MVA for incomplete abortion.
- Provide a guide to the management of possible complications of MVA.
- Describe the important elements in the followup of women treated for postabortion complications.
- Describe the basic process of postabortion family planning counseling.
- Describe the indications and precautions for postabortion contraception.
- Describe the management skills needed to organize and provide quality postabortion care.

Finally, adapted from the original PAC model, this manual describes the expanded and

updated five essential elements of a quality postabortion care program, in which:

Community and service provider partnerships are developed.

Treatment Services are provided safely and efficiently.

Women are counseled with respect in a nonjudgmental manner.

Postabortion contraceptive and family planning services are readily available.

There are links to reproductive and other health care services.

ONE

POSTABORTION CARE

BACKGROUND

The international health community contains a wealth of resources that, if coordinated, could have an **immediate** and **significant** impact in reducing global levels of maternal mortality and morbidity stemming from the complications of unsafe abortion. Deaths and injuries from incomplete abortion are almost wholly preventable through existing means.

In order to reduce the risk of long-term illness or disability, and death, to women presenting with the complications of incomplete abortion, health care systems must provide easily accessible, quality postabortion care at all service levels. Currently, emergency postabortion care is provided mainly in higher-level district hospitals. Not only does this lead to the high cost of providing these services, but it makes them inaccessible to many women. The prevention of abortion-related illness and mortality is dependent on the availability of emergency postabortion care throughout the health care system. “Whether it is health information and education, stabilization and referral, uterine evacuation, or specialized care for the most severe complications, at least some components of emergency care must be available at every service delivery site in the health care system.”¹

The concept of postabortion care presented in this manual provides the basis for reducing mortality and morbidity from incomplete abortion, whether spontaneous or induced.

SCOPE OF THE PROBLEM

Recent estimates are that at least 15% of all pregnancies end in spontaneous abortion, and though death is less likely than in cases of unsafe abortion, women who present with suspected spontaneous abortion also need immediate care.² In Nepal, unsafe abortions are the cause of as many as 50% of pregnancy-related deaths (management of abortion related complications in Hospitals of Nepal; A situation analysis Uprety et al, CREHPA).³ Studies undertaken by Crehpa in 1997-98 on post-abortion care at regional and zonal hospitals of Nepal showed that between 20% to 48% of the women admitted as obstetric & gynecological patients are abortion complication cases. And, according to recent World Health Organization (WHO) estimates, up to 15% of pregnancy-related mortality worldwide is due to abortion.¹

Although accurate data on the impact of unsafe abortion on maternal health is lacking, WHO estimates⁴ that:

- Worldwide, 20 million unsafe abortions occur each year.
- 80,000 women die each year as a result of complications following unsafe abortion.
- 1 in 8 pregnancy-related deaths are due to unsafe abortion.

- Almost 95% of unsafe abortions take place in the developing world.(97 WHO)

- Nepal has the highest maternal mortality ratio (1500 maternal deaths per 100,000 live births) among the SAARC countries (UNFPA, 1999)

Currently available regional data on the impact of unsafe abortion on maternal health is summarized in **Table 1-1**.

Table 1-1.

	Estimated number of unsafe abortions (1 000s)	Estimated number of deaths due to unsafe abortion	Case fatality rate (deaths per 100 unsafe abortion procedures)
World total	20 000	78 000	0.4
More developed regions*	900	500	<0.1
Less developed regions	19 000	77 500	0.4
Africa	5 000	34 000	0.7
Asia*	9 900	38 000	0.4
Europe	900	500	<0.1
Latin America & Caribbean	4 000	5 000	0.1
Oceania*	30	150	0.

* Japan, Australia and New Zealand have been excluded from the regional estimates, but are included in the totals for developed regions

Figures may not add to totals due to rounding Adapted from WHO, 2000.

ELEMENTS OF POSTABORTION CARE

Comprehensive postabortion care services should include both medical and preventive health care. Further, service providers have a responsibility to not only respond to the clinical condition but also to understand and respond to the root causes of the situation. The key elements of postabortion care are:

- Counseling and client provider interaction to identify and respond to women's emotional and physical health needs and other concerns;
- Treatment of incomplete and unsafe abortions and complications that can become life threatening at any time; the availability of emergency treatment is essential.
- Contraceptive and family planning services to help women prevent an unwanted pregnancy or practice birth spacing; and
- Reproductive and other health services that are preferably provided on-site or via referrals to other accessible facilities in providers' networks.
- Community and service provider partnerships for prevention of unwanted pregnancies and unsafe abortion, mobilization of resources (to help women receive appropriate and timely care for complications from abortion), and ensuring that health services reflect and meet community expectations and needs;

Emergency Treatment

Every health system provides some level of emergency postabortion care services⁴ because at least 15% of all recognized pregnancies end in spontaneous abortion (miscarriage).² Although emergency postabortion care services are needed virtually everywhere, their quality and accessibility vary widely. Emergency treatment of postabortion complications often is offered only at secondary and tertiary care centers in urban areas. Unfortunately, poor transportation systems in many developing countries place centralized services out of reach of most poor, rural women. This gap in services makes even spontaneous abortion life threatening in many instances.

Increasing the availability of emergency postabortion care services throughout the health system requires decentralizing treatment services and improving the quality and range of care at every level. These steps must be backed up by establishing clear protocols for service delivery and comprehensive, systematic training.

Emergency treatment for postabortion complications includes:

- An initial assessment to confirm the presence of abortion complications
- Talking to the woman regarding her medical condition and the treatment plan
- Medical evaluation (brief history, limited physical and pelvic examinations)
- Prompt referral and transfer if the woman requires treatment beyond the capability of the facility where she is seen
- Stabilization of emergency conditions and treatment of any complications (both complications present before treatment and complications occurring during or after the treatment procedure)
- Uterine evacuation to remove retained products of conception (POC)

WHO has identified the prompt treatment of incomplete abortion as an essential element of obstetric care that should be available at every district-level hospital.⁵ Fortunately, treatment of uncomplicated incomplete abortions also can be provided at the primary care level or in family planning clinics through the use of manual vacuum aspiration (MVA). **Table 1-2** provides information on the postabortion care services appropriate to each level of health care facility.

Table 1-2

Provision of Postabortion Care by Level of Health Care Facility and Staff			
Level	Staff May Include	Emergency Postabortion Care Provided	Postabortion Family Planning
Community	Community residents with basic health training Traditional birth attendants Traditional healers	Recognition of signs and symptoms of abortion and serious postabortion complications Referral to facilities where treatment is available	Provision of pills, condoms, Referral and followup for these and other methods
Primary (Primary health clinics, Family planning clinics)	Health workers Nurses Trained midwives General practitioners	All primary care facilities. Above activities, plus: Diagnosis based on medical history and physical and pelvic examination Resuscitation/preparation for treatment or transfer Hematocrit/hemoglobin testing Referral, if needed	Provision of above methods plus IUDs, injectables and Norplant® implants Referral for voluntary sterilization
		If trained staff and appropriate equipment are available. Above activities, plus: Initiation of emergency treatments <ul style="list-style-type: none"> · antibiotic therapy · intravenous fluid replacement · oxytocics Uterine evacuation during first trimester for uncomplicated cases of incomplete abortion Pain control <ul style="list-style-type: none"> · simple analgesia and sedation · local anesthesia (paracervical block) 	
First Referral Level (District hospital)	Nurses Trained midwives General practitioners Ob/Gyn specialists	Above activities, plus: Emergency uterine evacuation through second trimester Treatment of most postabortion complications Local and general anesthesia Diagnosis and referral for severe complications (septicemia, peritonitis, renal failure) Laparotomy and indicated surgery (including for ectopic pregnancy) Blood crossmatch and transfusion	Provision of above methods plus voluntary sterilization Followup
Secondary and Tertiary Level (Regional or Referral hospital)	Nurses Trained midwives General practitioners Ob/Gyn specialists	Above activities, plus: Uterine evacuation as indicated for all incomplete abortions Treatment of severe complications (including bowel injury, severe sepsis, renal failure) Treatment of bleeding/clotting disorders	All above activities

Adapted from: WHO, 1994a.¹

Norplant® is the registered trademark of The Population Council for subdermal levonorgestrel implants.

A significant global need/gap identified in the Global Evaluation of USAID'S Postabortion Care Program conducted in 2001 was that of PAC trained nurses. Nurses were found to have comparable competencies to their Doctor counterparts, spend more time with the clients, aid in the facilitation of 24hour service, and have potential to expand services to the periphery. They found that training nurses and nurse-midwives who practice at the community level means that woman who might have died at the community level for lack of treatment now have access to care. (Global eval.10/01)

Postabortion Family Planning

Lack of access to adequate family planning services is a major contributor to the global problem of unsafe abortion; conversely, unsafe abortion is a prime indicator of the unmet need for safe and effective contraceptive methods. In most health systems, women treated for abortion complications rarely receive any counseling or services to prevent subsequent unwanted pregnancies. Because a woman seeking treatment for incomplete abortion already may have experienced an unwanted pregnancy either as the result of not using contraception or method failure, she may be in need of effective contraception.

A number of factors limit provision of family planning services to women who have experienced an abortion. These factors, which increase a woman's risk of repeated unwanted pregnancies, include:

- Lack of understanding of and attention to women's reproductive health needs on the part of providers
- Lack of services for some groups of women (e.g., adolescents, single women)
- Separation of emergency postabortion care services and family planning services
- Misinformation among providers about appropriate postabortion contraceptive methods
- Lack of acknowledgment of the problem of unsafe abortion and the resulting need for contraceptive services

In recognition of the above, in 1993, a technical working group on postabortion family planning, sponsored by several international agencies, developed recommendations for establishing postabortion family planning services. The key recommendation stated that a range of contraceptive methods, accurate information, sensitive counseling and referral for ongoing care should be available and accessible to all women who have experienced abortion.⁶

Steps necessary to realize this goal include:

- Establishing strong functional links between emergency postabortion care services and family planning services
- Developing protocols for postabortion contraception
- Using research to support improvements in the quality of postabortion care

Because ovulation returns rapidly following an abortion, with the subsequent risk of repeat pregnancy, postabortion family planning services need to be initiated immediately. For example, following pregnancy loss during the first trimester, ovulation may occur as early as day 11 and usually occurs before the first menstrual bleeding.^{7,8} In contrast to the postpartum period, women who have experienced spontaneous or unsafe abortion face an almost immediate risk of pregnancy.

All modern methods of contraception are appropriate for use after abortion as long as the provider screens the woman for the standard precautions for a method and gives adequate counseling. Recommendations for contraceptive use after first-trimester abortion are similar to those for interval use (i.e., women who have not been pregnant within the last 28 days). Recommendations for contraceptive use after second-trimester abortion are more similar to those for postpartum women (with the notable exception of concerns about estrogen-related precautions which do not apply after abortion). In either case, thorough counseling is essential so that the client chooses a method that meets her needs and that she can use safely and effectively. **Chapter 9** provides information on the provision of postabortion contraception, including indications and precautions for specific methods.

Links to Other Reproductive Health Services

Linking emergency postabortion care services with other reproductive health services is essential and logical, yet these services remain distinctly separate in much of the world. This separation leaves women without access to reproductive health care and contributes significantly to women's poor overall health status.

It is important to identify the reproductive health services that each woman may need and offer her as wide a range of services as possible because she may not have any other point of contact with the health care system. For example, providers need to be alert to symptoms of genital tract infections (GTIs), other sexually transmitted diseases (e.g., trichomoniasis or mucopurulent cervicitis) and HIV. Screening for sexual and/or domestic violence with immediate treatment as needed, and referral for medical/social/economic support. Screening, prevention education and appropriate treatment should be provided for these potential concerns of anemia, nutrition education as appropriate, Screening for uterine fibroid and uterine malformation. For women over age 30-35, it may be possible to offer cervical cancer screening at the time of treatment or to provide referral to a facility where screening is available. Finally, women treated for spontaneous abortion may have special reproductive health care needs, such as special follow-up for management of recurrent spontaneous abortion (subfertility) or advice before attempting to become pregnant again or about prenatal care.

RATIONALE FOR THE USE OF MVA

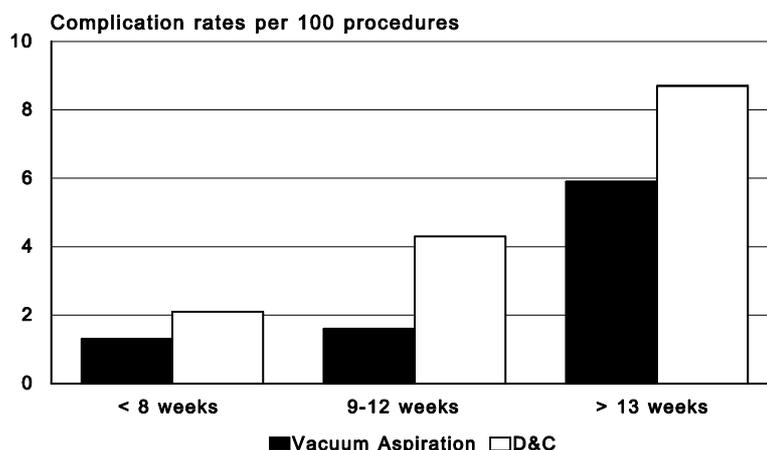
The treatment of incomplete abortion almost always requires removal of retained products of conception (POC) from the uterus. **Dilatation and curettage (D&C)**, the traditional method of removing tissue from the uterus, is accomplished by scraping the uterine walls with a metal curette. **Vacuum aspiration** uses suction to remove uterine tissue through a cannula with minimal scraping of the uterine walls.

Vacuum aspiration, which has been used for more than two decades in industrialized countries, may be performed using suction provided by an electric or foot pump or a specially designed

manual vacuum aspiration (MVA) syringe. Although uterine evacuation can be achieved either with suction or by D&C, suction has been found to be the safer method. As illustrated in **Figure 1-1**, vacuum aspiration has lower rates for the complications most commonly associated with uterine evacuation.

It was found by the PAC Global assessment team that differentiation at most sites between MVA and D&C patients' (sometimes referred to as D & E <evacuation> in Nepal) limits access to comprehensive PAC services. There is a need to address issues around the organization of services, but there is also a need to reinforce the message of PAC as a comprehensive program for all women treated for incomplete abortion, no matter what method is used for treatment. There is still a need to strengthen family planning linkages, particularly for D&C patients, who seldom receive family planning counseling at most facilities. It was noted by the Global evaluation team that some of Nepal's MVA units appeared to be underutilized and many clients eligible for MVA were being sent to the operating room for D & C.

Figure 1-1. Comparison of Complication Rates (Vacuum Aspiration versus D&C), 1982-1984



Moreover, as shown in **Table 1-3**, which summarizes findings from 13 comparative studies, vacuum aspiration has fewer complications in nearly all situations. Thus, while complications can occur with vacuum aspiration, as they can for any medical procedure, it is a safer means of uterine evacuation.

Table 1-3

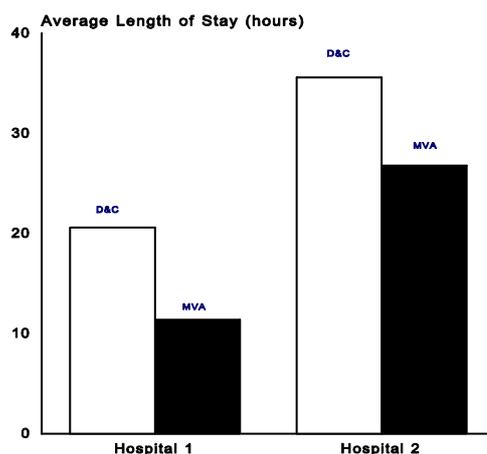
Summary of 13 Studies Comparing Vacuum Aspiration and D&C			
Major Complications Reviewed	Complications with vacuum aspiration per 100 procedures Range of averages (N=95,136)	Complications with D&C per 100 procedures Range of averages (N=17,166)	Studies with lower complication rates for vacuum aspiration than D&C (%)
Excessive blood loss	0 - 15.7	0.5 - 28	10 of 13 (78%)
Pelvic infection	0.2 - 5.4	0.7 - 6	7 of 9 (78%)
Cervical injury	0 - 3.1	0.3 - 6.4	6 of 7 (86%)
Uterine perforation	0 -0.5	0 - 3.3	10 of 12 (83%)

Source: Greenslade et al, 1993.¹¹

Using MVA as the method of uterine evacuation also reduces the cost of providing quality postabortion care. In one district hospital in Kenya, where the treatment protocol was changed from sharp curettage (D&C) under general anesthesia to MVA using local anesthesia, the average cost of treating a patient fell by 66%.¹² Similarly, in one Mexican hospital D&C was at least 50% more expensive than MVA.¹² One reason for the lower cost of MVA is that while D&C usually is performed in operating rooms using general anesthesia, MVA can be done in family planning clinics or polyclinics with local anesthesia. Additionally, the simplicity of MVA allows it to be performed by a trained, nonphysician health worker. By contrast, D&C generally is performed only by a physician who often is a specialist.

MVA not only increases cost-effectiveness, but it also increases the potential for earlier access to services by allowing postabortion services to be provided in primary health care facilities. This is an important factor in reducing risk to women. Additionally, in many cases, the use of MVA at the local level reduces the need for referrals to higher levels within the health care system. For example, if women can be treated at primary health care facilities, they do not need to be transported to district or tertiary care facilities, and therefore are less likely to suffer injury or death as a result of abortion complications. With fewer cases referred to these facilities, staffs are able to focus on providing care for serious complications and limited health care resources can be better utilized. Even when services are provided in tertiary care facilities, if postabortion care is provided outside the operating room, the waiting time before and recovery time after the procedure are shortened (see **Figure 1-2**). Reduction in the use of operating theater facilities and hospital beds also helps alleviate crowding and reduce delays in treatment.

Figure 1-2. Average Length of Stay for MVA versus D&C at Two Mexican Hospitals



In **summary**, using MVA as the method of uterine evacuation to treat incomplete abortion is preferred because:

- the risk of complications is reduced, access to services is increased,
- the cost of postabortion services is reduced, and
- the resources used are reduced.

In addition, use of MVA offers the potential for earlier access to care, when management is easier and serious complications less likely.

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TWO

TALKING WITH PATIENTS

BACKGROUND

Health care workers should recognize that women seeking treatment for incomplete abortion often are under severe emotional stress in addition to physical discomfort. Women may be fearful or reluctant to provide the information needed for appropriate emergency treatment. Quickly establishing a good, positive relationship can help ease the anxiety and concern that patients may feel. Moreover, it is important to respect women's rights and needs and to provide care without expressing judgment, either verbally or non-verbally.

PATIENT RIGHTS

Any woman who presents with complications of abortion needs immediate, high-quality care. All women have the right to immediate emergency treatment, regardless of whether they have had a spontaneous abortion or resorted to unsafe abortion. Moreover, they have a right to treatment regardless of their ethnic origin, socio-economic status, religion, age, marital status, family size, sexual behavior or political beliefs. "The provision of emergency postabortion care is a requirement of the ethical practice of medicine in every country, as this care is often imperative to preserve a woman's life and health."¹

All women being treated for abortion complications have a **right to information** about their condition. The timing and content should be based on both the woman's condition and her immediate physical needs. It should be given to her (and her family, where appropriate) in a supportive, confidential and non-judgmental manner, and it should deal with:

- her overall physical condition;
- the results of her physical and pelvic examinations and laboratory tests;
- the time frame for treatment;
- the need for referral and transport to another health care facility;
- procedure(s) to be used as well as the risks and benefits; and
- her consent for treatment or, if she is unable, that of a family member or other responsible adult.

Patients have the **right to discuss** their concerns and condition in an environment in which they feel confident. The patient should be aware that her conversation with the counselor or service provider will be private and confidential.

A patient should know in advance the type of physical examination or procedure which is going to be undertaken, as well as medications that will be given (including medications for pain).

When a patient is undergoing a physical examination or procedure it should be carried out in an environment (e.g., examination or procedure room) in which her **right to privacy** is respected. For example, when receiving counseling or undergoing a physical examination or procedure, the patient should be informed about the role of each person in the room (e.g., service providers, individuals undergoing training, supervisors, instructors, researchers, etc.). A patient should be made to feel as comfortable as possible when receiving postabortion care services. The adequacy of service delivery facilities (e.g., proper ventilation, lighting, seating and toilet facilities) are a factor, however, during postabortion care patient comfort is more directly related to the attitudes of health care providers and the provision of gentle, supportive care. Moreover, the time the patient spends waiting to receive care should be reasonable.

Finally, the patient has a **right to express** her views about the service she receives. Her opinions about the quality of services, either thanks or complaint, together with her suggestions for changes in service provision, should be viewed positively in a program's ongoing effort to monitor, evaluate and improve its services. Regularly interviewing women about the services they have received and incorporating their suggestions for change will improve the quality of care.

Consent for Treatment

All persons also have a **right to decide freely** whether or not to receive treatment. In some places, written consent may be required for all operative procedures, including those for emergency treatment of abortion complications. Under **no circumstances** should consent requirements delay or interfere with providing emergency treatment to save a woman's life.

The health worker obtaining the woman's consent for treatment should follow these steps:

- Determine if the woman is capable of listening to and understanding medical explanations. If not, consent for treatment should be discussed and obtained from the woman's representative, if available.
- Explain in detail, in a nonthreatening manner, and in language the woman can understand, the procedure(s) to be performed, including risks, benefits, likelihood of success and alternatives.
- Allow time for and encourage the woman to ask questions and discuss her condition.
- Ask the woman (or representative, where necessary) to give consent for treatment.

ESTABLISHING THE PATIENT-PROVIDER RELATIONSHIP

The way health care workers talk with women can affect the completeness and accuracy of information women give, their comfort during the procedure, the success or failure of treatment, and their ability to recognize and seek care for complications that may occur after discharge.

Keep in mind that how the bleeding was started (sticks, massage, medication, etc.) affects a woman's particular medical risks and the appropriate course of treatment. Women may be hesitant to give information about how the bleeding started unless they understand that it is important to their treatment. An atmosphere of confidentiality and respect will encourage women to give this information. Clear communication both from patient-to-provider and provider-to-patient is essential to collect accurate medical information and to provide women with information **before, during** and **after** treatment. Such communication is best achieved when there is a trusting relationship between women and their providers.

Before treatment, it is important to obtain sufficient medical information to make an accurate diagnosis and develop a treatment plan. Assure the patient that these questions are being asked to get the information needed to best treat her medical condition. Let her know that her honesty will help decide the best course of treatment. Ask open-ended questions so that the patient does not simply answer “yes” or “no.” For example, ask the patient:

- When did the bleeding start? Is it a lot or a little?
- How did the bleeding start? Was something done to start the bleeding? (Ask these questions with sensitivity and discretion.)
- Have you passed anything from the vagina besides blood? Did it look like skin or clotted blood with tissue (placental fragments)?
- Do you have pain? Where? When did it start? How bad is it?
- Have you had a fever? Chills?
- Have you felt weak? Fainted? Collapsed?

In addition, the patient needs information about her health condition and the MVA procedure. When talking with the patient, it is important to use words that the woman understands so that she will understand the questions and remember the information. The health care worker should be able to address particular needs for information or special concerns that a woman may have.

During the MVA procedure, supportive attention from staff can help reduce anxiety and lessen pain. Talking with patients in a calm, relaxed manner helps focus attention away from the procedure. The importance of staff (and providers) having these special communication skills cannot be overestimated (see **Chapter 5**, Pain Management).

Throughout the procedure, health care providers should:

- Explain each step to the patient before it happens.
- Monitor the patient's condition to be sure she is not experiencing undue discomfort or pain.
- Reassure her.

After the procedure, patients need reassurance that everything is satisfactory. As the anxiety and stress of the events leading up to the MVA procedure begin to fade away, most patients can begin to take in some new information (postoperative and follow-up instructions). In addition, counseling for family planning and provision of temporary contraceptive methods may be initiated prior to discharge in most cases. The time of treatment for an incomplete abortion **is seldom the best time** for women to make decisions about methods that are **permanent** or **long lasting** but delay may make these women especially vulnerable to another unwanted pregnancy. (See **Chapter 9** for a discussion of postabortion family planning counseling.) It is possible that some women may have made choices about long-lasting or permanent methods before this event and they may be candidates for these methods if their desire to proceed and their full understanding of the procedures are confirmed.

Tips for talking with patients include:

- Listen to what the woman has to say and encourage her to express her concerns; try not to interrupt her.
- Let the woman know that she is being listened to and understood.
- Answer her questions directly in a calm, reassuring manner.
- Keep the message simple by using short sentences.
- Repeat the most important matters she needs to remember.
- Avoid sophisticated medical terms; instead, use words that the patient will understand.
- Use supportive nonverbal communication, such as nodding and smiling.

CONFIDENTIALITY

All information that the woman provides should be treated confidentially. This includes information about her medical history and conditions bringing her to seek care, the services provided to her and any family planning decisions she makes. Confidentiality requires that the health care provider(s) not discuss this information with the patient's partner, family, person accompanying her to the health care facility or staff members not directly involved in her treatment without her consent (except where required in a **life-threatening** medical emergency). On the other hand, if the woman **wants** to involve a spouse or partner in decision-making, her wishes should be followed.

PRIVACY

Creating an atmosphere of privacy is critical to protecting the patient's confidentiality, sense of security and dignity, and willingness to communicate honestly. Often simple changes in the physical setting where patients are treated or counseled will offer the woman more privacy.

The following are some suggestions for maintaining privacy:

- Use a separate area, such as an office, closed treatment room or curtained space, to encourage open communication when giving preprocedure information, discharge information or counseling.
- Draw curtains around the treatment area whenever the woman is undressed, or, if curtains are not available, turn the treatment table so that the woman's feet are not facing a doorway or public space. Also provide a curtained area for changing clothes.
- Use drapes (or sheets, or even clothing if drapes are not available) to cover the woman's legs and body during examinations and procedures.
- Limit the number of people in the patient care area during treatment to those involved in providing care. Even if the patient gives permission for a clinical training demonstration, limit the number of persons who are in the room during the demonstration. In addition, staff and trainees in the patient care area should refrain from casual conversation among themselves.

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THREE

INITIAL ASSESSMENT[†]

Health workers should consider the possibility of incomplete abortion in any woman with symptoms of abortion, whether or not she **knows** or **suspects** she is pregnant and regardless of her obstetric, menstrual or contraceptive history.

BACKGROUND

The first step in providing care to a woman suspected of having an incomplete abortion is to assess her clinical situation. This is necessary in order to make a diagnosis and initiate any emergency treatment. The initial assessment may reveal or suggest the presence of immediate life-threatening complications such as **shock, severe vaginal bleeding, infection/sepsis** or **intra-abdominal injury**. These problems should be addressed without delay in order to save the patient's life or keep her condition from worsening. Even without complications, incomplete abortion can become life threatening if definitive treatment (removal of any retained products of conception) is delayed. Therefore, it is essential to make an accurate **initial assessment** followed by prompt treatment or, if indicated, stabilization and transfer of the patient to a higher level health care facility.

This chapter outlines the steps **initially required to assess** the patient's presenting condition. **Life-threatening complications**, which require immediate action, are briefly described in this chapter while their management is covered in **Appendix A**.

For reference the Anatomy and Physiology of the female reproductive system is given in **Appendix K**.

Remember: Because more than one of these complications may be present at any given time, you must assess the relative urgency of each and treat accordingly.

SIGNS AND SYMPTOMS

Incomplete abortion should be considered in any woman of reproductive age who has:

- a missed period (delayed menstrual bleeding—more than a month has passed since her last menstrual period),

[†] **Adapted from:** World Health Organization: *Clinical Management of Abortion Complications: A Practical Guide*. Geneva, WHO, 1994.

with either:

- vaginal bleeding,
- cramping or lower abdominal pain similar to labor (contractions), or
- passage of pregnancy tissue (placental fragments).

If **none** of the above symptoms is present, you should consider another diagnosis (e.g., pelvic infection). Attempts to end a pregnancy through unsafe means by putting unclean instruments, rubber tubes or even sticks into the womb are major causes of serious complications. Unfortunately, for various personal, sociocultural and legal reasons, many women may **not** provide this important information initially. Therefore, this possibility should always be kept in mind while assessing the physical signs and symptoms.

SCREENING FOR SERIOUS COMPLICATIONS

If incomplete abortion is a possible diagnosis, it is important to identify any life-threatening complications immediately. The most common and most serious complications of incomplete abortion include: **shock, severe vaginal bleeding, infection/sepsis** and **intra-abdominal injury** including uterine perforation. If any of these complications are identified, **stabilize the patient before** proceeding to treat the incomplete abortion or to transfer the patient to a secondary or referral hospital.

Shock

Quickly assess the patient for the following *signs* of **shock**:

- Fast, weak pulse (rate ≥ 110 per minute)
- Low blood pressure (diastolic < 60)
- Pallor (especially of inner eyelid, tongue, palms or around the mouth)
- Sweatiness
- Rapid breathing (respirations ≥ 30 per minute)
- Anxiousness, confusion or unconsciousness

If shock is suspected, **immediately** begin treatment (see **Appendix A**).

Even if none of these signs is present, keep shock in mind as you evaluate the patient further because her status may worsen rapidly. If shock develops, it is important to begin treatment immediately.

^{††} To check for rebound tenderness, press the abdomen with a hand. Then quickly remove your hand to rapidly release the pressure. If removal of the hand causes or worsens pain, there is rebound tenderness.

OTHER SERIOUS COMPLICATIONS

Because several life-threatening conditions requiring immediate treatment may be present at the same time, it is necessary to determine **all** complications that may be present and to decide the order in which to treat them.

Severe Vaginal Bleeding

Signs and symptoms of severe vaginal bleeding include:

- Heavy, bright red, vaginal bleeding with or without clots
- Blood-soaked pads, towels or clothing
- Pallor (especially of inner eyelid, tongue, palms or around the mouth)
- Dizziness, fainting

Begin treatment immediately to replace lost fluid and control bleeding (see **Appendix A**).

Infection/Sepsis

If the patient has any of the following, either uterine or generalized infection is very likely.

Signs

- Fever (temperature > 38? C), chills or sweats
- Foul-smelling vaginal discharge
- Lower abdominal tenderness (with or without rebound tenderness^{††})
- Mucopus from the cervical os
- Cervical motion tenderness on bimanual examination

Symptoms

- History of previous unsafe abortion or miscarriage
- Lower abdominal pain
- Prolonged bleeding (> 8 days)
- General discomfort (flu-like symptoms)

Begin treatment as soon as possible, before attempting uterine evacuation. After initiating treatment, uterine evacuation should be done promptly because retained products of conception (POC) are most likely the source of the infection. (See **Appendix A** for management guidelines.)

Intra-Abdominal Injury

If the patient has **any** of the signs listed below with any of the symptoms, she may be suffering from an intra-abdominal injury, such as a perforated uterus.

Signs

- Distended abdomen
- Decreased bowel sounds
- Rigid (tense and hard) abdomen
- Rebound tenderness

Symptoms

- Nausea/vomiting
- Shoulder pain
- Fever (temperature > 38° C)
- Abdominal pain, cramping

When combined with signs of shock (decreased blood pressure and rapid pulse and respiration), the possibility of major intra-abdominal bleeding (e.g., uterine perforation) must be considered. (See **Appendix A** for management guidelines.)

MEDICAL EVALUATION

If the vital signs are normal and the woman does not appear to be infected (temperature < 38° C) or have intra-abdominal injury (non-rigid abdomen), the next step is to determine the cause of her vaginal bleeding. Taking a thorough reproductive history, performing careful physical and pelvic examinations and (where necessary) obtaining appropriate laboratory tests are important to making an **accurate diagnosis and treatment plan**.

Due to issues and circumstances that may surround incomplete abortion, the quality and completeness of the information the woman gives about her condition and medical history often depends upon the quality of the communication between service provider and patient. It is important to respect the woman's needs and to provide care without expressing judgment, either verbally or nonverbally. (See **Chapter 2**, Talking With Patients.)

Medical History

Specific **reproductive information** that should be obtained includes:

- Missed period (date when her last menstrual period began)
- Current contraceptive method (IUD, Norplant implants and progestin-only injectables and pills can be associated with a bleeding pattern that may be mistaken for incomplete abortion.)

- Vaginal bleeding (duration and amount)
- Cramping (duration and severity)
- Fainting (syncope)
- Fever, chills or general malaise
- Abdominal or shoulder pain (may indicate intra-abdominal injury)
- Tetanus vaccination status and possible exposure to tetanus (insertion of unclean instruments or other materials into the uterus)

Medical information which may be important includes:

- Drug allergies (e.g., to local anesthetics or antibiotics)
- Bleeding disorders (e.g., sickle cell or thalassemia, hemophilia or platelet disorder)
- Chronic medications (e.g., corticosteroids)
- Whether patient has taken an herb or medicine (poison) that may cause serious side effects
- Other health conditions (e.g., malaria during this pregnancy)

Physical Examination

During the physical examination it is important to:

- Check and record the patient's vital signs (i.e., temperature, pulse, respirations, blood pressure)
- Note the general health of the woman (i.e., whether she is malnourished, anemic or in general poor health)
- Examine her lungs, heart and extremities

Abdominal Examination

Check for:

- Masses or gross abnormalities
- Distended abdomen with decreased bowel sounds
- Rebound tenderness with guarding
- Suprapubic or pelvic tenderness

Pelvic Examination

The **purpose** of the pelvic examination is to **determine** the **size, consistency** and **position** of the uterus, to check for tenderness and to determine the degree of cervical dilatation. Careful assessment of the vagina and cervix to check for tears and bleeding is essential.

Prior to the pelvic examination explain the purpose of the examination to the patient and be sure she **has emptied her bladder**. For the exam, the patient should be on an examination table equipped with stirrups and she should be covered with a cloth or drape to protect her privacy. The clinician should wear new, undamaged examination gloves.

Speculum Examination

Before inserting the speculum:

- Look at the genital area to see if there is bleeding and if so, how much.
- Check the odor of the vaginal blood or discharge.

Next, insert the speculum to look at the cervix. Remove any visible POC from the vaginal canal or cervical os and keep the tissue for examination.

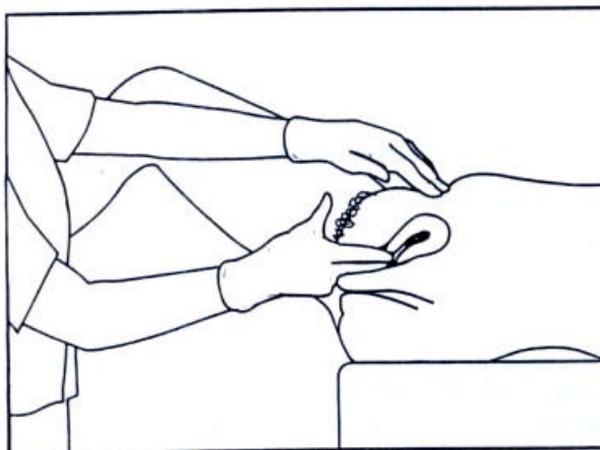
Note any abnormal-smelling discharge, the amount of bleeding and whether the cervix is open (dilated). Check for cervical or vaginal tears or perforations, or pus in the cervix. Cervical infection increases the chance of postoperative uterine infections, including acute pelvic inflammatory disease (PID). If infection is present or suspected, take samples for bacteriological culture, if possible and available, and begin antibiotic treatment with broad-spectrum antibiotics **before** performing MVA.

Bimanual Examination

Assess the size of the uterus. Compare the actual size of the uterus with date of the last menstrual period (LMP).^{†††} With an incomplete abortion, the uterus usually is smaller than the LMP might suggest.

Assess the shape and position of the uterus. Correctly determining the shape and position of the uterus is critical to the safety and success of the procedure.

Figure 3-1. Assessing the Shape and Position of the Uterus



Source: Yordy, Leonard and Winkler, 1993.

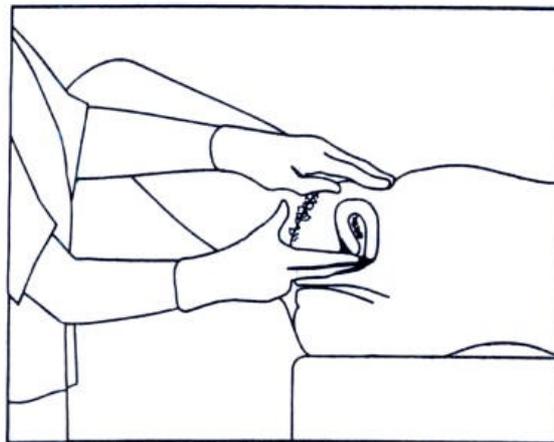
If the uterus is larger than^{†††} expected, it may indicate:

- Wrong date
- Presence of multiple pregnancies
- A uterus filled with blood clots (i.e., postabortal syndrome)
- A molar pregnancy (i.e., trophoblastic disease)
- Presence of uterine fibroids (i.e., smooth muscle tumors of the uterine wall)

If the uterine size is difficult to assess, it may be because the uterus is tilted backward (retroversion), the patient is overweight or is abdominal guarding (not relaxing the abdomen so the uterus cannot be felt). It is important **not** to begin a MVA procedure for incomplete abortion until the size of the uterus has been determined. Therefore, if problems in determining the size or position of the uterus are encountered, have a more experienced clinician (if available) assess the uterine size. If there is any doubt, treat the woman as if the pregnancy was advanced further than suspected initially.

Anteverted uterus (tilted forward): If the uterus is excessively anteverted (anteflexed), the clinician must be especially careful during the procedure because the risk of perforation may be increased when performing MVA.

Figure 3-2. Palpating Anteverted Uterus

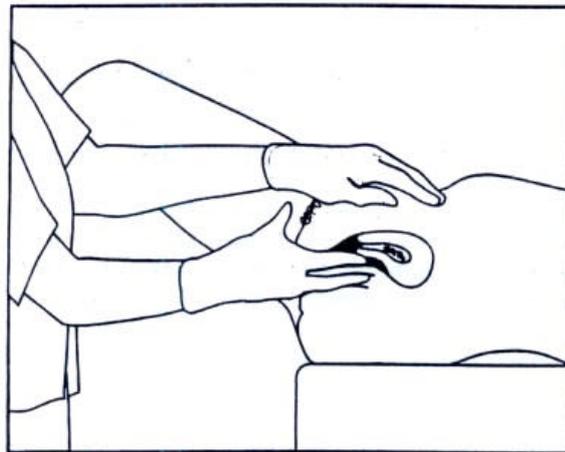


Source: Yordy, Leonard and Winkler, 1993.

Retroverted uterus (tilted backwards): A mildly retroverted uterus may be best palpated by rectovaginal examination. (Perforation may be more likely if the clinician is not aware that the uterus is markedly retroverted.)

^{†††} In this manual, uterine size is measured by weeks LMP (uterine size equivalent to a pregnant uterus of a given number of weeks since the last menstrual period) rather than gestational weeks (fetal age).

Figure 3-3. Palpating Retroverted Uterus by Rectovaginal Examination



Source: Yordy, Leonard and Winkler, 1993.

Note: After completing the rectovaginal examination, gloves should be immediately removed, decontaminated and discarded according to recommended infection prevention practices (see **Chapter 4**).

Laterally displaced uterus (tilted to one side): If the uterus is pushed laterally to one side or the other, the clinician must be especially careful during the procedure or the risk of perforation may be increased.

Laboratory Tests

If Rh status **typically** is determined in pregnancy, it should be done during the clinical assessment in cases of incomplete abortion as well. For women who are Rh negative, give Rh(D) immune globulin if available.

Summary

The steps in performing the **medical evaluation** are briefly summarized in **Table 3-1**.

Table 3-1

Medical Evaluation	
Medical History	<p>Ask about and record the following information:</p> <ul style="list-style-type: none"> • Missed period (how long ago did she have her last menstrual period) • Vaginal bleeding (duration and amount) • Current contraceptive method (IUD, Norplant implants or progestin-only injectable or pills) • Cramping (duration and severity) • Abdominal or shoulder pain (may indicate intra-abdominal injury) • Passed tissue (POC) • Drug allergies • Bleeding or clotting disorders • Whether patient has taken an herb or medicine (poison) that may have serious side effects • Other health conditions
General Physical Examination	<p>Check and record vital signs (temperature, pulse, respiration, blood pressure) Note general health of woman (malnourished, anemic, general poor health) Examine lungs, heart, abdomen, extremities. In examining the abdomen, first check bowel sounds, then check to see if the abdomen is distended or rigid (tense and hard); if there is rebound tenderness or abdominal mass(es); and the presence, location and severity of pain.</p>
Pelvic Examination	<p>Remove any visible POC from the vaginal canal. Note if there is a foul-smelling discharge, the amount of bleeding and whether the cervix is open or closed. Check for vaginal or cervical trauma (tears or perforations) or mucopus from the cervical os. Estimate uterine size based on LMP and examination, check for any pelvic masses and pelvic pain, note how bad the pain is, its location and what causes it (at rest, with touch and pressure, movement of the cervix).</p>

Adapted from: WHO, 1994.

STAGE OF ABORTION

Compare the findings from the **pelvic** examination with the information in **Table 3-2** to determine the **stage of abortion**.

In the case of **threatened abortion**, the woman should rest in bed for 24 to 48 hours. If the bleeding gets worse or she develops other symptoms, including any signs of infection, she should be checked again immediately; otherwise, she should be checked in 1 to 2 weeks.

In the case of **inevitable or incomplete abortion**, uterine evacuation is required for complete removal of any remaining POC. (Examination of the POC after uterine evacuation is necessary to ensure complete removal.)

Table 3-2

Stage of Abortion				
Diagnosis	Bleeding	Cervix	Uterine Size	Other Signs
Threatened Abortion	Slight to moderate	Not dilated	Equal to dates by LMP	Positive pregnancy test [†] Cramping Uterus soft
Inevitable Abortion	Moderate to heavy	Dilated	Less than or equal to dates by LMP	Cramping Uterus tender
Incomplete Abortion	Slight to heavy	Dilated (soft)	Less than or equal to dates by LMP	Cramping Partial expulsion of POC Uterus tender
Complete Abortion ^{††}	Little or none	Soft (dilated or closed)	Less than dates by LMP	Less or no cramping Expulsion of POC Uterus firm

[†] Because the half life of human chorionic gonadotropin (hCG) is 60 hours, in some cases the pregnancy test (which is based on measurement of hCG) may remain positive for several days after the pregnancy has ended.

^{††} It is not until about 28 weeks pregnancy (LMP) that a true cleavage plane develops between the maternal surface of the placenta and the uterine surface (decidua basalis). Therefore, **histologically** complete separation (and removal) of all POC does not occur in either spontaneous, induced or unsafe abortion. **Clinically**, however, in a “complete” abortion, only minimal placental and no fetal fragments remain, and treatment (MVA or D&C) is **not** required.

Adapted from: WHO, 1994.

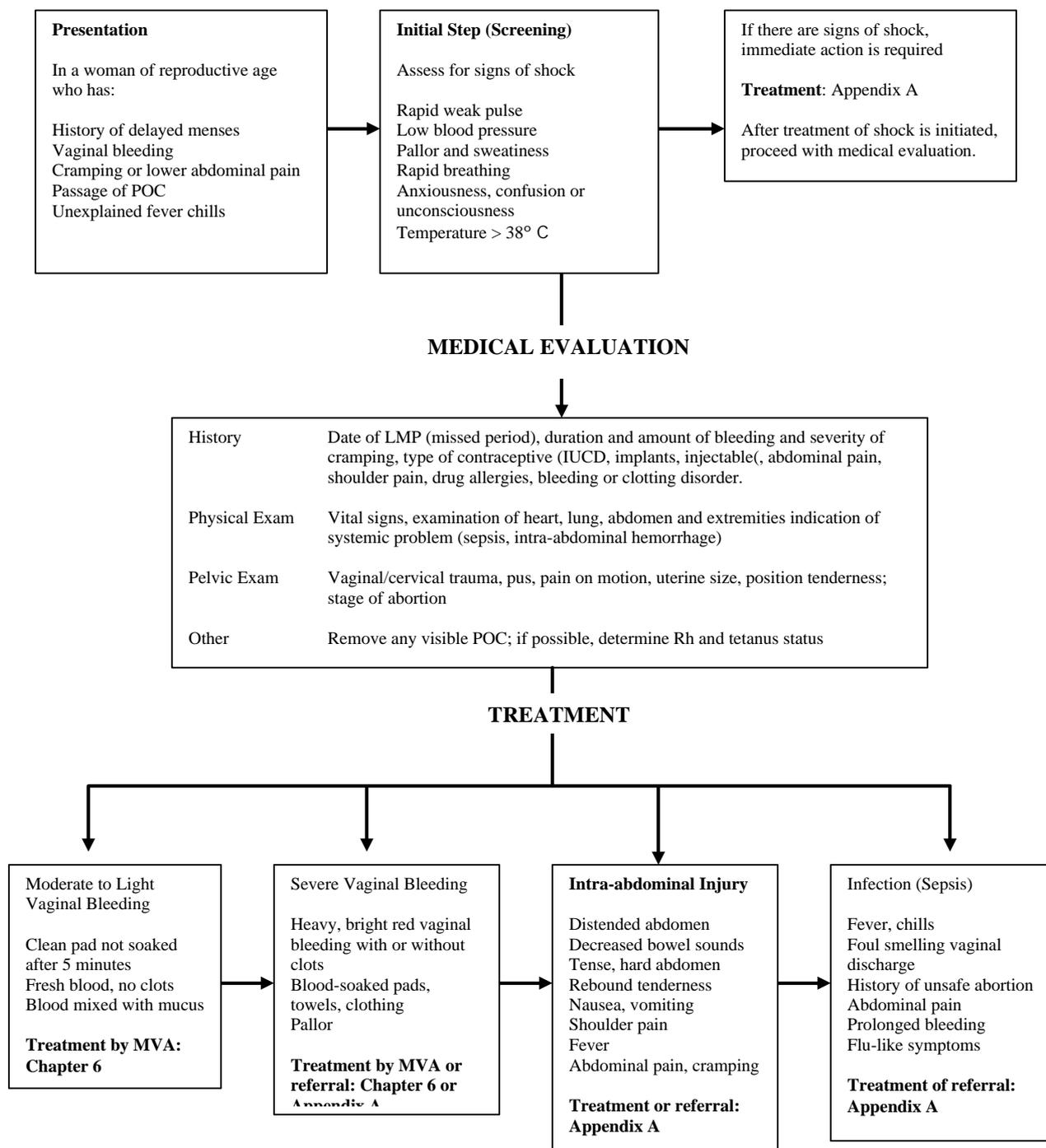
MANAGEMENT OF POSTABORTION COMPLICATIONS

The prevention of postabortion complications is dependent on emergency care being integrated throughout the health care system—from the health post to the most sophisticated tertiary level (referral) hospital. Whether it is health information, medical assessment, stabilization and referral, uterine evacuation or specialized care for the most serious complications, at least some components of emergency postabortion care should be available at every service delivery site in the health care system.

In this chapter, the steps involved in **initial assessment** of the patient, including stabilization and referral, and subsequent **medical evaluation** have been covered. Taken together they provide a systematic approach for directing management of women with incomplete abortion and the life-threatening complications all too frequently encountered. Moreover, when combined with prompt, effective treatment, reduction in postabortion-related morbidity and mortality can be expected.

In **Figure 3-4** the steps involved in **evaluating** and **treating** patients with incomplete abortion are briefly summarized.

Figure 3-4. Summary of Key Steps in Evaluating and Treating Patients with Possible Incomplete Abortion



Adapted from: WHO, 1994.

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FOUR

INFECTION PREVENTION[†]

BACKGROUND

With MVA, as with any invasive procedure, there is risk to patients, providers and other staff from contact with blood and other body fluids that may carry blood-borne diseases such as hepatitis B and HIV/AIDS. To minimize this risk, universal precautions (blood and body fluid precautions) must be observed at all times in providing postabortion care, processing tissue samples, handling equipment and disposing of waste. The risk of transmitting infection is reduced through using protective barriers (including handwashing and appropriate processing of reusable instruments), using the no-touch technique for performing MVA and disposing of contaminated waste properly.

The infection prevention practices discussed in this chapter are simple, convenient and practical and can be used in any country or health care facility.

DEFINITIONS

Microorganisms are the causative agents of infection. They include bacteria, viruses, fungi and parasites. For infection prevention purposes, bacteria can be further divided into three categories: vegetative (staphylococcus), mycobacteria (tuberculosis) and endospores (tetanus). Endospores are the most difficult to kill.

The terms **asepsis**, **antisepsis**, **decontamination**, **cleaning**, **disinfection** and **sterilization** are often confusing. For the purposes of these guidelines, the following definitions will be used:

- **Asepsis** and **aseptic technique** are general terms used in health care settings to describe the combination of efforts made to prevent entry of microorganisms into any area of the body where they are likely to cause infection. The goal of asepsis is to **reduce to a safe level**, or **eliminate**, the number of microorganisms on both animate (living) surfaces (skin and tissue) and inanimate objects (surgical instruments and other items).
- **Antisepsis** is the prevention of infection by killing or inhibiting microorganisms on skin and other body tissues by using a chemical agent (antiseptic).
- **Decontamination** is the process that makes objects safer to be handled by staff, especially cleaning personnel, **before** cleaning. Objects to be decontaminated include large surfaces (e.g., pelvic examination or operating tables), surgical instruments, gloves and other items contaminated with blood or body fluids.

[†] Adapted from: Tietjen et al: Infection Prevention for Family Planning Services Programs, 2nd ed. Baltimore, Maryland, JHPIEGO, 1995 and Yordy L, Leonard AH and Winkler J: Manual Vacuum Aspiration: Guide for Clinicians

- **Cleaning** is the process that physically removes all visible blood, body fluids and any other foreign material such as dust or dirt from skin and inanimate objects.
- **Disinfection** is the process that kills most, but not all, disease-causing microorganisms on inanimate objects.
- **High-level disinfection (HLD)**, by boiling, steaming or soaking in special chemicals, eliminates all microorganisms (except some bacterial endospores) on inanimate objects.
- **Sterilization** is the process that eliminates **all** microorganisms, **including** bacterial endospores, from inanimate objects.

PROTECTIVE BARRIERS

Protective barriers are physical, mechanical or chemical processes which help prevent the spread of infectious microorganisms from client to client, clinic staff to client, or vice versa.

Protective barriers include:

- Handwashing
- Wearing gloves (both hands) and surgical attire
- Using antiseptic solutions
- Processing equipment, instrument and other items
- Managing clinical waste
- Using antiseptic solutions for prepping the skin prior to surgery or a procedure such as MVA
- Using drapes during surgical procedures

Handwashing

Handwashing may be the single most important procedure in preventing infection. To encourage hand washing, program managers should make every effort to provide a continuous supply of fresh water, either from the tap or a bucket, and soap.

Indications

- Before and after examining a client especially when touching mucous membrane
- Before putting on sterile or high-level disinfected (HLD) gloves
- After removing gloves, as they may have invisible holes or tears
- After handling contaminated objects, such as used (soiled) instruments
- When accidentally touching blood or other fluids (e.g., when collecting laboratory specimens).

Items required

- Soap
- Clean running water
- Basin to collect water
- Clean, dry towel

Please remember

- Microorganisms grow and multiply in moisture and in standing water. Therefore, avoid basins containing standing water, even with the addition of an antiseptic agent such as Dettol® or Savlon®, because microorganisms may survive and multiply in these solutions.
- When it is difficult to wash hands frequently, use an alcohol handrub. The solution can be prepared by adding 2 ml of either glycerine, propylene glycol or sorbitol to 100 ml or 60%-90% alcohol. Use 3-5 ml of this solution for each application and continue rubbing the solution over the hands for about 2 minutes, using a total of 6-10 ml per scrub.

Technique

For non-surgical procedure (e.g, examination of a client, pelvic examination insertion/removal of IUCD):

- Wash hands with plain soap for about 15-30 seconds; then rinse in a stream of water. Dry hands with a clean towel or hanky.

For surgical procedures (e.g., laparoscopy, minilaparotomy, vasectomy, insertion and removal of Norplant implants):

- Remove all items of jewellery, including wristwatch.
- Wash hands with an antiseptic soap for 3 to 5 minutes.
- Scrub hand with a soft brush or sponge. Begin at the fingertips; wash between all fingers and move toward the elbow.
- Repeat for the second hand.
- Rinse each arm separately, fingertips first, holding hands above the level of the elbows to prevent water from running down from the elbow to the hands.
- Dry hands with a sterile towel.
- After handwashing has been completed, hold hands above the level of the waist.

Glove Use

Examination gloves, if available, can be used for:

- Pelvic examination
- The MVA procedure^{4,5}

Use new examination gloves for each procedure; these gloves cannot be reused because they are too thin to be processed.

Typically, **surgical gloves** are used for MVA but they are not necessary if a no-touch technique is used. If surgical gloves are used, new gloves are best. If gloves are reused, they must be cleaned, high-level disinfected or sterilized and checked for peeling, cracking, holes or tears. Gloves with any signs of wear must be discarded.¹ (See **Appendix D** for details on how to process surgical gloves.)

Use **utility gloves** for housekeeping chores involving potential blood contact such as decontamination and instrument cleaning procedures. Utility gloves may be decontaminated and reused; however, cracked or torn gloves should be discarded.²

Antisepsis

Infection following minor surgical procedures such as MVA may be caused by microorganisms from the skin, cervix or vagina of the patient or from the hands of the health care worker. Washing hands before and after each case, and washing the patient's perineal area and thoroughly cleaning her cervix and vagina with antiseptic solution prior to performing a MVA are important infection prevention measures. (See **Chapter 6** for Patient Preparation.)

Many chemicals qualify as safe skin antiseptics. The following antiseptic solutions are commonly available in different parts of the world:

- Chlorhexidine gluconate (4%) (e.g., Hibiclens[®], Hibiscrub[®], Hibitane[®])
- Chlorhexidine gluconate and cetrimide, various concentrations (e.g., Savlon)
- Iodophors, various concentrations (e.g., Betadine[®])

For **vaginal and cervical preps**, select an aqueous (water-based) antiseptic, such as an iodophor or chlorhexidine gluconate. **Do not use alcohol or alcohol containing preparations.** Alcohols burn; they also dry and irritate mucous membranes, which in turn promotes the growth of microorganisms. In addition, hexachlorophene (pHisoHex[®]), which is neurotoxic and is readily absorbed by mucus membranes, should not be used.³

Antiseptics do not have the same killing power as the chemicals used for HLD. Thus, antiseptic solutions should **never** be used to high-level disinfect inanimate objects such as instruments. (See **Chapter 8, Tables 8-1 and 8-2** for instructions on using disinfectants.)

³. Wenzel RP (ed): *Prevention and Control of Nosocomial Infections*, 2nd ed. Williams & Wilkins, Baltimore, Maryland, 1993.

No-Touch Technique

In procedures such as MVA where the uterine cavity is entered, it is possible to introduce pathogens into the uterus, resulting in potentially serious infection. To avoid infection, clinicians should always use the no-touch technique during the entire procedure and only use instruments that are sterilized or high-level disinfected before use.

Using the no-touch technique means that the part of the cannula or any other instrument that enters the uterine cavity should not contact contaminated surfaces before insertion through the cervix. Specifically, the tenaculum, cannula or cervical dilator tip should not touch the examination table, unsterile areas of the instrument tray, gloves or vaginal walls before they are inserted. Clinicians should handle the cannulae and other instruments only by the area or end that does not come into contact with the patient. For example, if both ends of metal or plastic cervical dilators are inserted they should be held by the middle and turned carefully so that they do not touch the speculum or vaginal walls. Also remember to pass the cannulae and dilators through the cervical os as few times as possible. (This minimizes contamination of the uterine cavity through microorganisms introduced during dilation and MVA.)

PROCESSING MVA EQUIPMENT AND OTHER ITEMS

To minimize the risk of transmitting infection to both patients and patient care staff from instruments and gloves following MVA, these items need to be decontaminated, cleaned and then either sterilized or high-level disinfected. Environmental surfaces such as the examination table should also be decontaminated and cleaned after each patient.

When is sterilization absolutely essential? When can high-level disinfection (HLD) be an acceptable alternative?

Most authorities recommend that instruments and other items used for surgical procedures, such as MVA, should be sterile. Some guidelines are more flexible, however, and state that when sterilization equipment is not available, HLD can be used. In fact, the sole use of sterilization is not possible or practical in many service delivery sites in both developing and developed countries. For example, cannulae, which would be damaged by either autoclaving or dry heat sterilization, usually are processed between cases by HLD. Sterilization, when correctly performed, is clearly the safest and most effective method for processing instruments; however, if it is neither available nor suitable, then HLD is the **only acceptable** alternative.

<p>Remember: For either the sterilization or HLD process to be effective, decontamination and thorough cleaning of instruments and other items must be done first.</p>

(See **Chapter 8** for more information about processing and storing MVA equipment and other items and **Appendix D** regarding processing surgical gloves.)

HANDLING NEEDLES AND SYRINGES

Take precautions to prevent injuries from used needles and sharp instruments, which pose a great risk of hepatitis B (HBV) or HIV/AIDS transmission in health care settings. These injuries may occur during surgical procedures, when cleaning instruments, during disposal of needles and when handling sharp instruments after procedures.⁴ While disposable syringes and needles are recommended for use in all patient care and surgical procedures, they do not solve the problem of needle stick injuries nor are they always available

Safety Tips When Using Disposable Needles and Syringes

- Use each needle and syringe only once.
- Do not disassemble needles and syringes after use.
- Do not recap, bend or break needles prior to disposal.
- Dispose of needles and syringes in a puncture proof container.

Do not bend needles, remove them from disposable syringes or otherwise manipulate them. **Avoid** recapping needles.

When disposable needles are not available and recapping practiced, use the “one-handed” recap method:

- First place the cap on a hard, flat surface; then remove hand.
- Next, with one hand, hold the syringe and use the needle to “scoop-up” the cap.
- Finally, when the cap covers the needle completely, hold the needle at the base near the hub and use the other hand to secure the cap on the needle.

WASTE DISPOSAL

After completing the MVA, and while still wearing gloves, dispose of contaminated disposable objects (gauze, cotton and other waste items) in a properly marked, leak-proof container or plastic bag. Dispose of sharp instruments (needles and syringes) in a separate puncture-proof container. Waste should be disposed by burning or burying.

Disposal of POC

After the procedure is complete and the tissue has been inspected, the contents of the MVA syringe (any POC removed from the uterine cavity) must be disposed of carefully in order to minimize the risk of transmitting HBV and HIV/AIDS as well as other blood-borne diseases to the health care worker, provider, other patients and the community.

After inspecting the tissue, empty the POC into a utility sink, flushable toilet (that empties into a sewage system), latrine or container. Be careful to avoid splashing. If the POC are not

⁴. Centers for Disease Control: Recommendation for Prevention of HIV Transmission in Health Care Settings. *Morbidity and Mortality Weekly Report* 36:2S, 1989.

put into a sewage system, they must be disposed by burning or burying from 50 meters away of water source.

Disposal of Hypodermic Syringes (and Needles)

The disposal of both needles and syringes creates logistical and infection prevention problems. An even larger problem is **how to** safely dispose of used needles and syringes if they cannot be burned or buried. In many countries, boxes of used disposable needles can be found lying discarded outside health care facilities and hospitals. These used needles and syringes constitute an increasing health risk, especially to children and adults seeking items to play with, sell or use.

An alternative to disposing of both the needle and syringe would be to reprocess **only** the syringe but **not** the needle. The rationale for this is the following:

- Contaminated needles primarily are responsible for injuries and the potential risk of acquiring a life-threatening disease.
- Needles are difficult to decontaminate, clean and either sterilize or high-level disinfect.
- Plastic syringes, many of which are made of polyvinyl chloride (PVC), contribute heavily to environmental pollution when incinerated at high temperatures.

Although processing used needles represents an **inappropriate reuse of disposables**, in some circumstances it is the only available option.⁹

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9. Wenzel RP (ed): *Prevention and Control of Nosocomial Infections*, 2nd ed. Williams & Wilkins, Baltimore, Maryland, 1993.
10. Centers for Disease Control: Recommendation for Prevention of HIV Transmission in Health Care Settings. *Morbidity and Mortality Weekly Report* 36:2S, 1989.

FIVE

PAIN MANAGEMENT[†]

BACKGROUND

MVA can be performed outside the operating room (OR) or theater (OT), in the treatment room of a clinic, emergency unit, hospital ward or physician's office. Using MVA outside an OR/OT has many advantages, including encouraging the use of:

- Local anesthesia
- Lower doses of analgesics and sedatives which are safer for patients and require fewer health system resources

Because the patient is awake during the MVA procedure, health care providers must be very attentive to the management of pain through supportive treatment (so-called verbal anesthesia or verbacaine) and, when necessary, use of analgesics, sedatives or local anesthesia. Providers must assess the patient's needs **before** determining which treatment or medication might be required.

This chapter reviews the basis for the discomfort or pain that the woman will feel and suggests several ways to ease the pain associated with MVA for incomplete abortion.

GOAL OF PAIN MANAGEMENT

The purpose of pain management for MVA is to ensure that the patient experiences a minimum of anxiety and discomfort as well as the least risk to her health. Appropriate use of various agents combined with gentle technique and verbal support from the provider and nursing staff allows the patient to be awake, responsive and in minimal fear and discomfort. Achieving the balance of maximum comfort and minimum risk requires the accurate assessment of each patient's preoperative condition (general physical assessment including evidence of blood loss and vital signs—temperature, pulse and blood pressure) as well as her individual needs (body size, history of chronic disease, level of anxiety and drug allergies).

The dangers of general anesthesia, particularly in settings that lack skilled staff (anesthesiologist or anesthetist) and facilities for close monitoring of the patient during the procedure and recovery, have been well documented.^{1,2,3,4} Therefore, it is important to use alternative approaches for the safe, effective management of pain.

[†]**Adapted from:** Margolis A et al: Pain Control for Treatment of Incomplete Abortion with MVA. *Advances in Abortion Care* 3(1), 1993.

TYPES OF PAIN

Patients treated for incomplete abortion by MVA may commonly experience two types of pain. The **first**, a deep, intense pain which accompanies cervical dilation and stimulation of the internal cervical os, is transmitted by the nerves surrounding the cervix and the cervical canal. (Because with incomplete abortion the cervix usually is open, selection of the proper size cannula can minimize this type of pain.) The **second** type of pain, commonly caused by uterine evacuation, is a diffuse lower abdominal pain with cramping which occurs with movement of the uterus, scraping of the uterine wall and uterine muscle contractions related to emptying of the uterine cavity. Uterine pain is transmitted from the top of the uterus (fundus) along major uterine nerves that follow the uterosacral and utero-ovarian ligaments. Rough handling can cause additional pain, and any anxiety the woman feels will increase her sensations of pain, so gentle handling and sensitive treatment are essential.^{5,6}

In addition, complications such as peritonitis and intra-abdominal hemorrhage may cause abdominal and/or shoulder pain. The provider must balance masking diagnostic symptoms with the use of pain management drugs, and the need to prevent undue discomfort and anxiety on the part of the patient. The most appropriate strategy will depend upon the individual case and the woman's needs.

It is important to continue to monitor the patient's pain level throughout the MVA procedure. The onset of significant additional pain during the procedure may signal an intra-operative complication such as uterine perforation. One of the advantages of local anesthesia is that the patient is responsive and will be able to report any changes, thus allowing prompt evaluation and early management of any complications that could occur during MVA (see **Chapter 7**).

PAIN MANAGEMENT TECHNIQUES

Most patients with incomplete abortion can remain comfortable during a MVA without much treatment for pain. The procedure is brief, lasting only a few minutes, and the cervix is usually open (dilated) and soft so insertion of the cannula can be done without causing the woman undue pain. Gentle, supportive treatment of the patient, and use of a non-narcotic analgesic (ibuprofen or acetaminophen) coupled with so-called verbal anesthesia (or verbacaine) often are sufficient. When **additional** dilation of the cervix is necessary, use of local anesthesia such as a paracervical block is the best overall option for effective MVA pain management (see **Appendix E**).

The **keys** to pain management and patient comfort with uncomplicated MVA are:

- Supportive attention from staff **before, during** and **after** the procedure (helps reduce anxiety and lessen pain)
- A provider who is comfortable working with patients who are awake and is trained to handle instruments gently
- The selection of an appropriate level of pain medication

Use of verbacaine by the provider can make the procedure much easier for the patient. Verbacaine involves being able to:

- Quickly establish a positive relationship with the patient
- Comfortably and openly talk with the patient throughout the procedure

Tips for working with patients who are awake and not, or only lightly, medicated include:

- Explain each step of the procedure prior to performing it.
- Wait a few seconds after performing each step or task (e.g., placing the tenaculum, passing the cannula) for the patient to prepare for the next one.
- Move slowly, without jerky or quick motions (place the tenaculum or sponge forceps on the cervix gently and close it slowly).
- Use instruments with confidence.
- Avoid saying things like “This won't hurt” when, in fact, it will hurt; or “I'm almost done” when you're not.
- Talk with the patient **throughout** the procedure.

The need for supplemental analgesic or sedative medications (oral, intramuscular or intravenous), including use of a paracervical block, will depend on:

- The emotional state of the patient
- How open (dilated) the cervix is
- Anticipated length of the procedure
- The skill of the provider and assistance of the staff

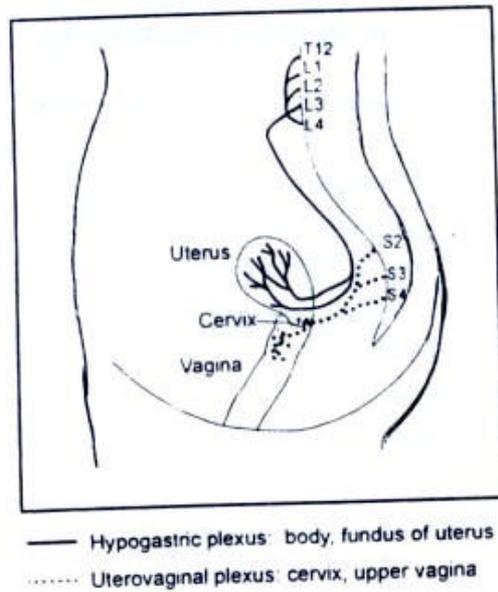
Remember: If analgesics or sedatives are planned to be given, they should be given an appropriate time before the procedure (15 to 30 minutes for IM and 30 to 60 minutes for oral medication) so that maximum relief will be provided during the procedure (see **Appendix E**).

LOCAL ANESTHESIA

Local anesthesia, most commonly provided by a **paracervical block** with lidocaine, is widely used to ease cervical pain if **additional** cervical dilation is necessary. Local anesthesia causes minimal physiologic disturbance, allowing the uterus to contract firmly and the patient to recover rapidly.

Local injection of an anesthetic such as lidocaine (paracervical block) affects nerve fibers located around the cervix and cervical canal. It minimizes cervical pain from stretching, dilation or movement of the cannula in the cervix. Paracervical block will **not** reach the nerves of the uterus itself (**Figure 5-1**). The nerves transmitting these sensations are higher in the pelvis than local infiltration will reach. Consequently, it does not affect pain of uterine cramping.

Figure 5-1. Pathways of Pain Transmission from Uterus and Cervix to the Spinal Cord



Source: Margolis et al, 1993.

Because patients with a paracervical block remain alert and awake during the procedure, it is especially important to ensure:

- Counseling to increase the patient's cooperation and to minimize her fears
- Good provider-patient communication throughout the procedure (see above)
- Time and patience as local anesthetics are not effective immediately

Local anesthesia with or without sedation (so-called “modified local”) is safer than either general or spinal/epidural anesthesia. Use of general anesthesia subjects patients to increased risk of serious complications (e.g., inhaling of vomit or respiratory depression) as a result of overdose, improper administration of general anesthesia (e.g., failure to intubate the patient) or inadequate monitoring.

The following are conditions for the safe use of local anesthesia:

- All members of the operating team must be knowledgeable and experienced in the use of local anesthetics (lidocaine).
- Emergency drugs and equipment (suction and resuscitation apparatus) should be readily available, in usable condition and **all** members of the operating team trained in their use.

Lidocaine is the anesthetic most commonly used for paracervical block. **Lidocaine** is the world standard for local anesthesia. It is inexpensive, safe, effective and has rapid onset. Furthermore, there is a low risk of allergic reaction associated with the use of lidocaine. Lidocaine is the preferred anesthetic for MVA.

Complications of Local Anesthesia

Major complications from local anesthesia, including paracervical block, are extremely rare. Convulsions and deaths have, however, been reported in cases where excessive doses were used or injections into a vein occurred.^{5,6} To minimize the risk of major complications, local anesthetics should be used in the smallest effective doses with careful attention to proper technique. **In most cases, 10 ml of 1% lidocaine is adequate. In no cases should the total dose exceed 4.5 mg per kg body weight of the patient (i.e., about 20 ml).**³ Aspiration (pulling back on the plunger of the syringe) prior to injection reduces the risk of intravenous injection. When recommended dosages are followed, and the plunger is withdrawn before each injection, toxic levels of local anesthetic agents rarely occur. Nonetheless, it is important to recognize the signs and symptoms of toxicity so that no further injections are made and medical treatment is begun.

Remember: The keys to safe use of a local anesthetic are to be sure that it is not injected directly into a vein and to use the lowest effective dose.

The following sequence indicates increasingly toxic levels of local anesthetic:

Mild effects

- Numbness of lips and tongue
- Metallic taste in mouth
- Dizziness and light-headedness
- Ringing in ears
- Difficulty in focusing eyes

Severe effects

- Sleepiness
- Disorientation
- Muscle twitching and shivering
- Slurred speech
- Tonic-clonic convulsions (generalized seizures)
- Respiratory depression or arrest

For mild effects, wait a few minutes to see if symptoms subside, talk to the patient and then

⁵. Grimes DA and Cates W: Deaths from Paracervical Anesthesia Used for First-Trimester Abortion. *New England Journal of Medicine* 295(25):1397-1399, 1976.

⁶. Stubblefield PG: Control of Pain for Women Undergoing Abortion. *International Journal of Gynecology and Obstetrics*, Supplement 3: 131-140, 1989.

continue the procedure. Immediate treatment is needed for severe effects: keep the airway clear and give oxygen by mask or ventilation (Ambu) bag. Should convulsions occur or persist despite respiratory support, small increments (1-5 mg) of diazepam may be given intravenously.⁷

Note: The clinician should be aware that the use of diazepam to treat convulsions may cause respiratory depression.

During pregnancy, increased blood flow to the uterus and surrounding tissues may cause local anesthetics to be rapidly absorbed into the bloodstream resulting in a systemic reaction such as itching, rashes or hives. These symptoms should be treated by administering 25-50 mg diphenhydramine (Benadryl[®]) intravenously. If the reaction is intense, or if any signs of respiratory distress occur, give 0.4 mg epinephrine subcutaneously and support breathing (respiration) with a ventilating (Ambu) bag through an open airway.

HOW TO ADMINISTER PARACERVICAL BLOCK

The technique outlined here, with minor variations, has been widely used throughout the world and is generally accepted. Doses given are for **1% lidocaine without epinephrine**.

At each injection site, insert the needle, then aspirate by drawing the plunger back slightly to make certain the needle is not penetrating a blood vessel. If any blood is visible in the syringe, do **not** inject; instead, withdraw the needle and move to a different injection site.

STEP 1: After determining the absence of known allergies to the anesthetic agent or related drugs, fill a 10-20 ml syringe with local anesthetic (1% lidocaine without epinephrine).

STEP 2: Use a 3.5 cm (1½ inch), 22- or 25-gauge needle to inject the local anesthetic. If a tenaculum is to be used to grasp the cervix, first inject 1 ml of local anesthetic into the anterior or posterior lip of the cervix which has been exposed by the speculum (the 10 or 12 o'clock position usually is used).^{††}

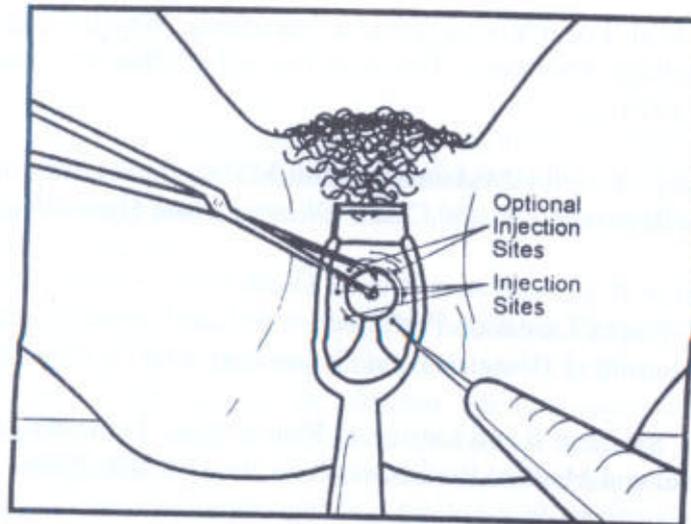
STEP 3: With the sponge forceps (or tenaculum) on the cervix, use slight traction and movement to help identify the area between the smooth cervical epithelium and the vaginal tissue (see **Figure 5-2**).^{†††} This is the site for insertion of the needle around the cervix.

STEP 4: Insert the needle just under the epithelium and aspirate by drawing the plunger back slightly to make certain the needle is **not** penetrating a blood vessel.

⁷. *Physicians Desk Reference*, 49th ed. Montvale, New Jersey, Medical Economic Data Production Company, 1994.

STEP 5: Inject about 2 ml of the local anesthetic just under the epithelium, not deeper than 2-3 mm at 3, 5, 7 and 9 o'clock (see **Figure 5-2**). When correctly placed, a swelling and blanching of the tissue can be noted.

Figure 5-2. Paracervical Block Injection Sites



Source: Margolis et al, 1993.

Tip: Some practitioners have suggested the following step to divert the patient's attention from the insertion of the needle: place the tip of the needle just over the site selected for insertion and ask the patient to cough. This will “pop” the needle just under the surface of the tissue.

STEP 6: At the conclusion of the set of injections, allow a minimum of 2 to 4 minutes for the anesthetic to diffuse and the block to have its maximum effect.

Note: To prevent local anesthetic toxicity the total dose should not exceed 10-20 ml of a 10 grams/liter (1%) local anesthetic and should be based on the patient's body weight. The maximum dose of lidocaine to be given by paracervical block is 4.5 mg/kg body weight (2 mg/lb).⁸ (Example: Maximum dose = 4.5 mg/kg x 50 kg patient = 225 mg.)

^{††} With incomplete abortion, a sponge or ring forceps is preferable as it is less likely to tear the cervix with traction and does not require the use of local anesthetic for placement.

^{†††} Put the tenaculum on the cervix vertically (one tooth in the external os, the other on the face of the cervix).

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TREATMENT OF INCOMPLETE ABORTION¹

BACKGROUND

Incomplete abortion is treated by removing the remaining POC from the uterus. The method used for emptying (evacuating) the uterus depends on the duration of pregnancy, which is based on the LMP and uterine size, as well as the availability of **equipment, supplies and skilled staff** (see **Appendix A**). If skilled staff and supplies are not available, the woman should be referred immediately to an appropriate facility.

Treatment of first- and early second-trimester incomplete abortions can be performed by vacuum aspiration or D&C. Vacuum aspiration has been found to result in fewer complications than D&C and causes less trauma to the patient. In addition, vacuum aspiration does not require general anesthesia and can be performed in a clinical procedure or exam room. Treatment of incomplete abortion in the middle to late second trimester, however, should be done by an experienced clinician with advanced training and in a facility with appropriate instruments and full emergency backup (equipment to administer IV fluids, provide blood transfusions and perform abdominal surgery).

MANUAL VACUUM ASPIRATION

Manual vacuum aspiration is an effective method for treatment of incomplete abortion (see **Table 1**). Manual vacuum aspiration acts by removing the contents of the uterus by suction. First, a cannula is inserted through the cervix into the uterus and then a prepared vacuum syringe is attached.^{2,2} After attaching the syringe to the cannula, the syringe's locking valve is released which transfers a vacuum of approximately 1 atmosphere (34.5 inches/ 760 mm Hg) into the uterine cavity. The cannula is rotated in 10 o'clock to 2 o'clock position while gently and slowly moving it back and forth within the uterus. Suction provided by the syringe gently pulls the contents of the uterus (remaining POC) through the cannula and into the barrel of the syringe.

Timing of Procedure: In cases of incomplete abortion, MVA should be accomplished without delay. Prompt treatment will reduce complications, especially in cases of profuse or prolonged bleeding.

¹ Source: Winkler J, E Oliveras and N McIntosh (eds). 1995. *Postabortion Care: A Reference Manual for Improving Quality of Care*. Postabortion Care Consortium.

² With incomplete abortion, the cervix usually is open (dilated) sufficiently to allow passage of the cannula without further dilation. In some cases, additional cervical dilation may be needed.

Table 6-1

Results of Four Studies Evaluating MVA for Treatment of Incomplete Abortion					
Author, date/ country	Number of cases	Gestational age (estimated weeks LMP)	MVA aspiration time (approximate mean time in minutes)	Effectiveness of MVA[†]	Complication rates[‡] for MVA
El Kabarity et al, 1985/ Egypt	100	≤ 16	6	> 98%	9%
Kizza and Rogo, 1990/ Kenya	300	≤ 16	NA	98%	8.7%
Mahomed et al, 1992/ Zimbabwe	834	≤ 12	7 ^{†††}	100%	0.3%
Verkuyl and Crowther, 1993/ Zimbabwe	179	≤ 18	2	> 98%	4.3%

[†] Effectiveness defined as complete evacuation.

[‡] Complications per 100 procedures include excess blood loss, pelvic infection, cervical injury and uterine perforation (mean for MVA=5.6; mean for sharp curettage=14.8); studies varied in their definition of complications.

^{†††} Total procedure time (including cannula insertion, etc.).

NA = not available.

Source: Greenslade 1993.¹

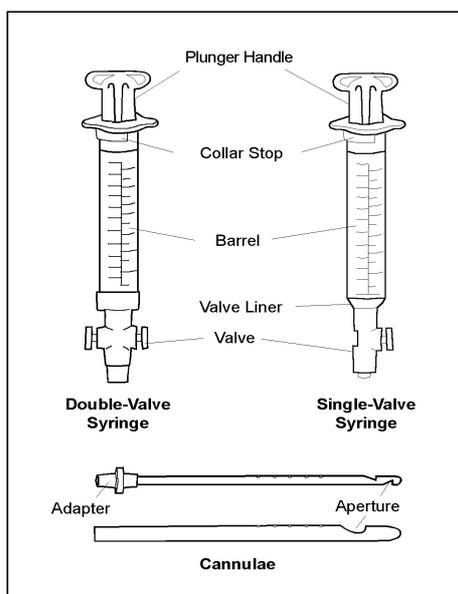
MVA Instrument Kits

Basic MVA instrument kits for emergency treatment of incomplete abortion (**Figure 1**) contain either a single-valve or double-valve 60 cc syringe with a locking valve, plunger handle, collar stop and silicone for lubricating the syringe O-ring. Kits also include sterile, flexible cannulae with two opposing, offset openings for maximum effectiveness. Cannulae in single-valve kits come in two sizes (outside diameter): 5 mm and 6 mm. In Nepal this kit supplies contains canulae from no. 6, 7, 8, 9, 10 and 12 only. Those in double-valve kits come in six sizes, 6–10 mm and 12 mm, with a set of color-coded adapters to fit each cannula to the syringe.

Choice of Equipment

The single and double-valve syringes may be used with 5 or 6 mm cannulae for treatment of incomplete abortion up to 8 weeks from the LMP (confirmed by bimanual examination). The double-valve syringe may be used with cannulae up to the 12 mm size for treatment of incomplete abortion through the first trimester (14 weeks from LMP).

Figure 1. MVA Instruments



Syringes and Cannulae

PRECAUTIONS PRIOR TO PERFORMING MVA

In the course of the initial assessment conditions may be discovered that indicate the need to **initiate** other treatment before beginning the MVA or the need to **use** a different technique to empty the uterine cavity. In particular, special precautions are needed when:

- uterine size determined by pelvic examination differs greatly from that determined by LMP (size greater than dates), or
- uterine size is beyond the first trimester.

PREPARATION FOR THE MVA PROCEDURE

Minimizing The Risk of Infection

Basic infection prevention guidelines for minimizing the risk of disease transmission to patients and clinic staff, including housekeeping and cleaning personnel, should be followed for each MVA procedure. With proper training of clinic staff and use of recommended infection prevention practices with each procedure, postoperative infection and transmission of diseases such as hepatitis B and AIDS can be minimized.

These practices include:

- Thorough handwashing with soap and water **before** and **after** each MVA procedure
- Use of **sterile or high-level disinfected** instruments and gloves (on **both hands**)
- Cleaning the cervix and vagina with a effective antiseptic **before** inserting any instrument through the cervix and into the uterine cavity
- Use of no-touch technique for the MVA procedure

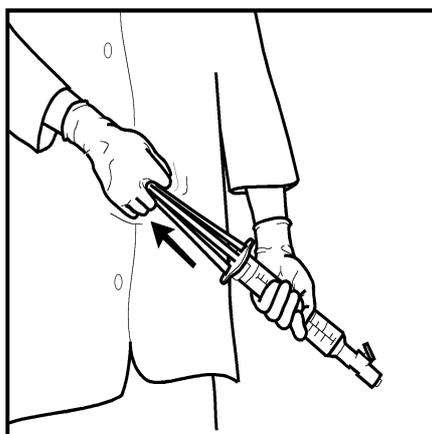
Breaking this routine at **any** point can have disastrous results for the safety of patients and clinic staff.

Preparing MVA Instruments

Have the instruments, needles, syringes and supplies required for MVA readily available and prepared.

- Check that the MVA syringe holds a vacuum.
- Ensure that emergency backup is available.(See Appendix G for Emergency drugs)
- Charge the MVA syringe by:
 - locking the valve in the closed position, and
 - pulling back on the plunger until the arms of the plunger lock in place.

Figure 2. Preparing the Syringe (Creating the Vacuum)



Pain Management

The need for pain medication (oral, IM or IV), includes the use of a paracervical block, and will depend on:

- The emotional state of the patient
- How open the cervix is
- Anticipated length of the procedure
- The skill of the provider and assistance of the staff

Remember: If analgesics or sedatives are planned to be given, they should be given an appropriate time before the procedure (15 to 30 minutes for IM and 30 to 60 minutes for oral medication) so that maximum relief will be provided during the procedure.

Patient Preparation

Before performing the pelvic examination, be sure the patient has:

- Emptied her bladder (voided)
- Washed (or had staff wash) her lower abdomen and external genitalia (perineal area) with soap and water

Pelvic Examination

It is important that the service provider who performs the MVA procedure be certain about:

- Uterine size and position (bimanual examination)
- Condition of the vagina

Next, wash hands thoroughly and put high-level disinfected (or sterile) gloves on both hands.

Note: Shaving the patient's pubic hair is not necessary and may increase the risk of local infection (cellulites). If pubic hair is long or interferes with the use of instruments, trim with scissors.

Instructions for Performing Cervical and Vaginal Prep.

Ask the client about allergic reactions (e.g., to iodine) before selecting an antiseptic.

After inserting the speculum, thoroughly apply antiseptic solution two or more times to cervix (especially the os) and then the vagina using a sponge forceps and gauze or cotton.

If iodophors are used, allow up to 2 minutes before proceeding. (Iodophors require time to release free iodine, the active substance.)

STEPS FOR PERFORMING MVA²

Step 1: Gently insert the speculum and check the cervix for tears or protruding tissue fragments. If tissue fragments (placenta or membranes) are present in the vagina or cervix, remove using a sponge (ring) forceps. Also, if IUCD strings are visible in the cervix, remove the IUCD after prepping the cervix (see **Step 2**).

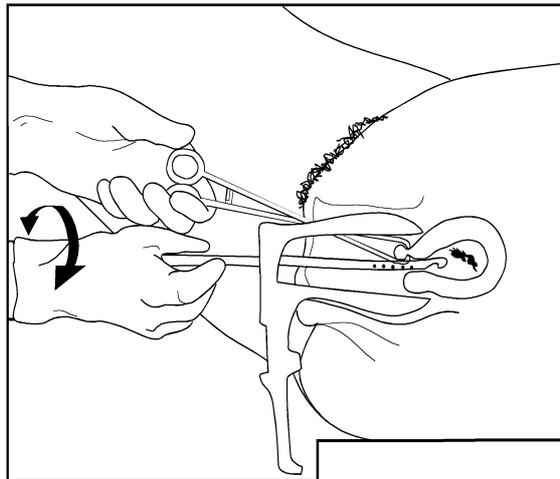
Step 2: Clean the cervix (especially the os) and vagina with antiseptic solution.

Step 3: If needed, administer paracervical block and grasp the cervix with a forceps (vulsellum or ring) or single-toothed tenaculum.

Step 4: Cervical dilation is necessary only when the cervical canal will not allow passage of the cannula selected for use. When required, dilation should be done **gently** with mechanical dilators or with cannulae of progressively increasing size, taking care not to tear the cervix or to create a false opening.

Step 5: While holding the cervix steady and gently applying traction, insert the cannula through the cervix into the uterine cavity just past the internal os (**Figure 3**). (Rotating the cannula while gently applying pressure often helps the tip of the cannula pass through the cervical canal.)

Figure 6-3. Inserting the Cannula

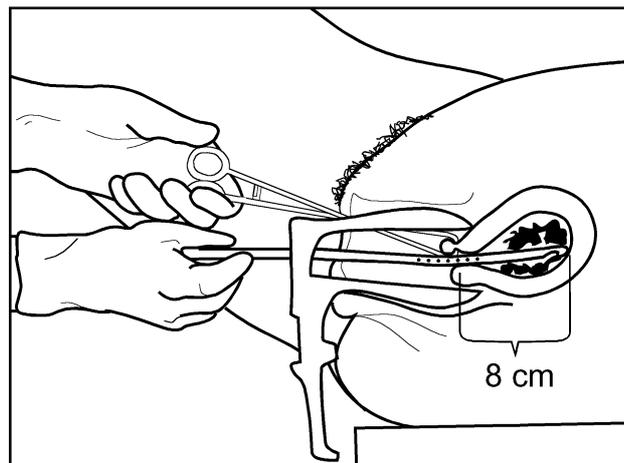


Source: IPAS, 1993

Step 6: Push the cannula slowly into the uterine cavity until it touches the fundus, **but not more than 10 cm**. Note the uterine depth by the dots visible on the cannula (**Figure 4**). The dot nearest the tip of the cannula is 6 cm from the tip, and the other dots are at 1 cm intervals. After measuring the uterine size, withdraw the cannula slightly.

²¹¹¹ Because the patient is awake during the MVA procedure, providers must be attentive to the woman's emotional needs. Talking with patients and using verbal anesthesia both play key roles in helping the patient through this procedure.

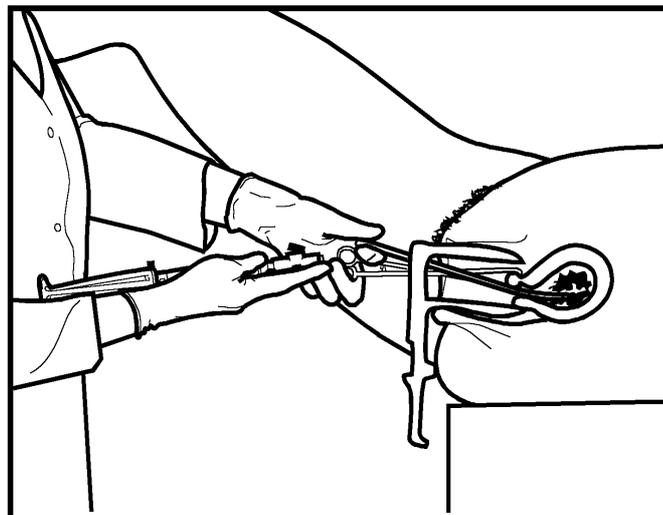
Figure 6-4. Measuring the Uterine Depth with Cannula



Source: IPAS, 1993

Step 7: Attach the prepared MVA syringe to the cannula by holding the forceps (or tenaculum) and the end of the cannula in one hand and the syringe in the other (**Figure 5**).

Figure 6-5. Attaching the Syringe

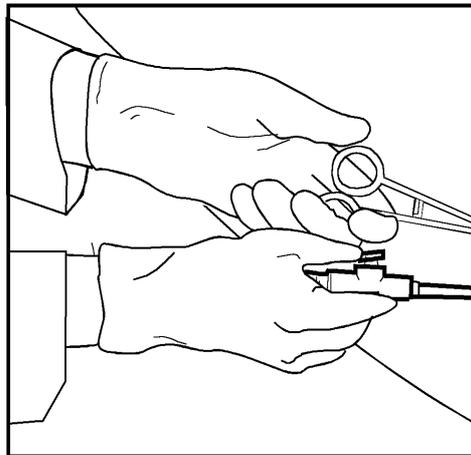


Source: IPAS, 1993

Note: Make sure that the cannula does not move forward into the uterus as you attach the syringe.

Step 8: Release the pinch valve(s) on the syringe to transfer the vacuum through the cannula to the uterine cavity. Bloody tissue and bubbles should begin to flow through the cannula into the syringe.

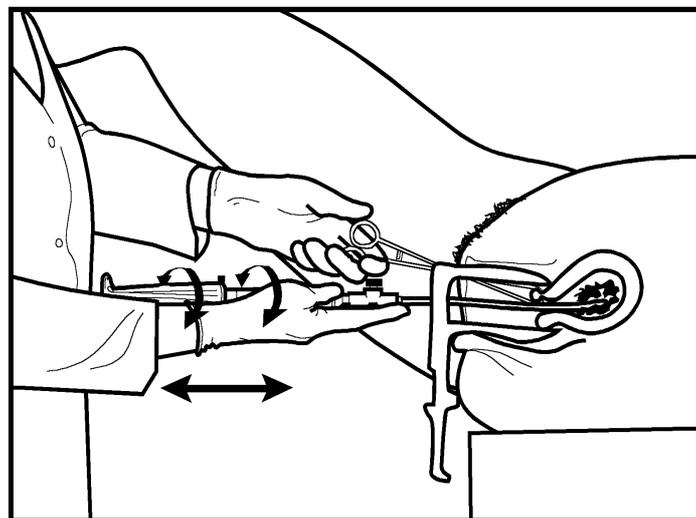
Figure 6- 6. Releasing the Pinch Valves



Source: IPAS, 1993

Step 9: Evacuate any remaining contents of the uterine cavity by gently rotating the syringe 10 to 2 o'clock and then moving the cannula gently and slowly back and forth within the uterine cavity (**Figure 8-7**). Do not rotate the cannula more than 180°- a half turn.)

Figure 6-7. Evacuating Uterine Contents



Source: IPAS, 1993

It is important **not** to withdraw the opening(s) of the cannula beyond the cervical os, as this will cause the vacuum to be lost. If this happens, or if the syringe is more than half full, re-establish the vacuum.

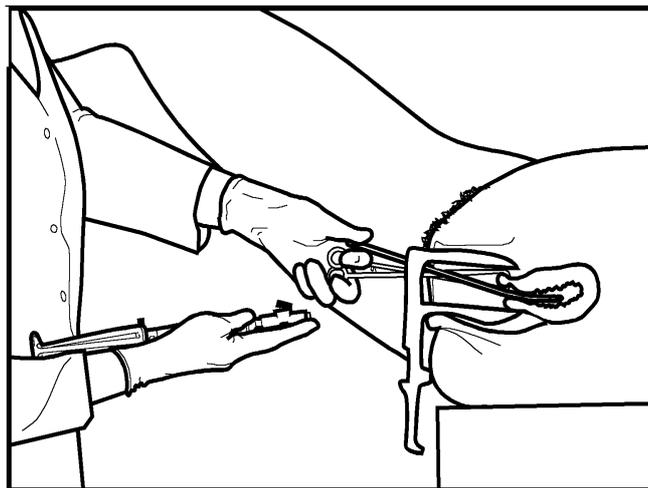
Note: While the vacuum is established and the cannula is in the uterus, **never grasp the syringe by the plunger arms**. Doing this may cause the plunger arms to become unlocked, accidentally allowing the plunger to slip back into the syringe, pushing material back into the uterus.

Step 10: Check for signs of completion. The MVA procedure is complete when:

- Red or pink foam and no more tissue is seen in the cannula.
- A gritty sensation is felt as the cannula passes over the surface of the evacuated uterus.
- The uterus contracts around (grips) the cannula.

Step 11: Withdraw the cannula. Detach the syringe (**Figure 8**), and then place the cannula in decontaminating solution. With the valve open, empty the contents of the MVA syringe into a strainer by pushing on the plunger. Remove the forceps or tenaculum. Perform bimanual examination to check size and firmness of uterus.

Figure 6-8. Detaching the Syringe



Source: IPAS, 1993

Note: Do **not** put the empty syringe in the decontamination solution until you are certain the procedure is complete. (Set it aside on a sterile or high-level disinfected tray or container for reuse, if necessary.)

Step 12: Quickly inspect the tissue removed from the uterus:

- for quantity and presence of POC,
- to assure complete evacuation, and
- to check for a molar pregnancy (rare).

If necessary, strain and rinse the tissue to remove excess blood clots, then place in a container of clean water, saline solution or weak acetic acid (vinegar) to examine visually (**Figure 9**). Tissue specimens also may be sent to the pathology lab as indicated.

Follow the recommended infection prevention practices for handling specimens. Tissue fragments which may be seen in treatment of incomplete abortion include villi, fetal membranes, endometrial tissue (decidua) and, after nine weeks from the LMP, fetal parts. (To aid in identifying villi, a simple magnifying glass may be used.)

Figure 6-9. Inspecting Tissue



Source: IPAS, 1993

If no POC are seen, then:

- all of the POC may have been passed before the MVA was performed (complete abortion);
- the uterine cavity may appear to be empty but may not have been emptied completely due to the inexperience of the operator (see **Step 9**);
- the vaginal bleeding may have been due to a cause other than incomplete abortion (e.g., estrogen- or progesterone-breakthrough bleeding, as may be seen with hormonal contraceptives, or uterine fibroids); or
- the uterus may be abnormal (i.e., cannula may have been in the nonpregnant side of a double uterus).

Absence of POC in a patient with symptoms of pregnancy, however, raises the strong possibility of ectopic pregnancy which **should** be evaluated completely.^{††††} Ectopic pregnancy, if diagnosed, requires immediate evaluation and referral if surgery (minilaparotomy or laparoscopy) is not available.

^{††††} If ectopic pregnancy is unlikely, the patient should be checked in 2 to 4 weeks to be sure pregnancy symptoms (breast tenderness, vaginal bleeding) and signs (enlarged uterus, soft cervix) are no longer present.

Step 13: Insert speculum and check for bleeding. (Repeat Steps 5–11 if uterus is still soft and not smaller or there is persistent, brisk bleeding.)

Note: Instruments to be reused must be cleaned and either sterilized or high-level disinfected. **Step 16: Immerse both gloved hands in decontamination solution**, then remove gloves by turning them inside out. Discard as above. If surgical gloves are to be reused, submerge in solution (soak for 10 minutes).

Step 14: While still wearing gloves, place contaminated disposable objects (gauze, cotton and other waste items) in a properly marked, leak-proof container or plastic bag. Place sharp instruments (needles and syringes) in a separate puncture-proof container. Waste should be disposed of by burning or burying. POC evacuated from the uterus also may be emptied into the sewage system.

Step 15: After being certain the procedure is complete, **decontaminate all instruments** (MVA syringe, tenaculum and speculum) by placing in 0.5% chlorine solution. If paracervical block was administered, decontaminate assembled hypodermic needle and syringe by filling with chlorine solution before soaking. Allow the items to soak for at least 10 minutes. (If any confusion or problems see **Appendix J**)

Step 16: Wash hands thoroughly with soap and water.

TREATMENT OF SECOND-TRIMESTER INCOMPLETE ABORTIONS

For treatment of middle to late second-trimester incomplete abortion, **intravenous oxytocin**, **sharp curettage (D&C)**^{?????} or **dilation and evacuation (D&E)** by vacuum aspiration of the uterine cavity are the available methods. In the second trimester the risks are higher for increased blood loss and uterine perforation resulting from treatment. Therefore, treatment of incomplete abortion in the middle to late second trimester **must** be done by an experienced clinician. In addition, IV fluids, special equipment and the facilities to perform abdominal surgery should be available to manage possible complications. Dilation and evacuation, when combined with the use of a sponge or placental forceps for manual removal of retained POC, is the preferred method when a specially trained physician is available.

Intravenous oxytocin is the most commonly available medication which causes contraction of the uterus (uterotonic agent). Oxytocin, 10 units/500 ml IV over 4 hours (or equivalent solution) can be used to safely complete expulsion of retained POC in second-trimester incomplete abortions. Usually, the placenta or placental fragments will be expelled during this time or shortly thereafter. It is important to examine the POC for completeness. If expulsion occurs and appears to be complete, observe the woman for bleeding or evidence of retained placental fragments. If, after observation, the woman is stable, she may be discharged. If after observation, however, she is **not** stable (e.g., continues to have vaginal bleeding), vacuum aspiration with the largest available cannula may be necessary.

¹¹¹¹¹ If curettage is performed, it should be done with the largest curette available to maximize the surface covered with each stroke and minimize the risk of perforation.

Often, when oxytocin is used, it is unclear whether the placenta has been completely expelled. Uterine aspiration (or curettage) is necessary to ensure an empty uterus. This is particularly true if there is infection or if the incomplete abortion has been in process for several days. In such cases, the placenta may not be easily expelled with oxytocic medications alone.

POSTOPERATIVE CARE

Monitoring Patient's Recovery

Take and record vital signs while the patient is still on the treatment table.

Allow the patient to rest comfortably where her recovery can be observed and monitored.

If the patient is Rh negative, administer Rh(D) immune globulin before discharge, if available.

If treatment for complications (e.g., infection) has been started, continue therapy and monitoring as required by her condition.

For uncomplicated cases, check bleeding at least once before discharge. Recheck vital signs. Check to see that cramping has decreased. (Prolonged cramping is not considered normal.) The patient may be discharged as soon as she is stable, can walk without assistance and has received necessary followup information.^{??????}

Postoperative Information

Signs of a normal recovery are:

- Some uterine cramping over the next few days, which may be eased by mild analgesics
- Some spotting or bleeding which should not exceed a normal menstrual period
- A normal menstrual period, which should occur within 4 to 8 weeks

In addition, the patient should be given instructions for taking any prescribed medications and know that:

- she should **not** have sexual intercourse or put anything into the vagina (no douching, no tampons) until after the bleeding stops (5 to 7 days), and
- her fertility can return in less than 2 weeks after the procedure, so she needs to have contraceptive counseling and begin using a method immediately if another pregnancy is **not** wanted (see below).

¹¹¹¹¹¹ If pain medications (narcotic analgesics or sedatives) were given before, during or after the MVA, the patient should not be discharged until she is fully recovered (at least 2 to 4 hours after administration).

She should also know what to do and where to go for emergency care if complications occur. The warning signs and **symptoms** requiring immediate emergency attention include:

- Prolonged cramping (more than a few days)
- Prolonged bleeding (more than 2 weeks)
- Bleeding more than normal menstrual bleeding
- Severe or increased pain
- Fever, chills or malaise
- Fainting (syncope)

Finally, the date of her follow-up visit, if needed, should be set.

Postabortion Family Planning

A woman's fertility returns almost immediately after an incomplete abortion, as early as 11 days if the pregnancy was less than 12 weeks. Therefore, she must consider whether or not she wants to become pregnant again soon. In the case of spontaneous abortion, she may wish to become pregnant again quickly, and unless there are any medical problems, there is no reason to discourage her from doing so.

For many women, however, this abortion represents a clear desire not to be pregnant at this time. Thus, the woman (and her partner if she desires) needs to receive counseling and information about her return to fertility and available contraceptive methods. The time of treatment for an incomplete abortion, however, may not be the best time for her to make decisions that are **permanent** or **long-term**. Counseling needs to be geared to the client's emotional and physical state. Full and informed choice is critical in the selection of any method and especially for provider-dependent methods (IUDs, injectables, implants and voluntary sterilization).

Nearly all-contraceptive methods may be used and can be started immediately unless there are major postabortion complications. Natural family planning is not recommended, however, until a regular menstrual pattern returns. (For more information see **chapter 9**)

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SEVEN

MANAGEMENT OF PROBLEMS AND COMPLICATIONS DURING MVA

BACKGROUND

Several types of problems (technical and procedural) as well as medical complications can occur **during** and **after** completing an MVA procedure. Most are **not** serious and if recognized immediately and corrected (or treated), the patient's recovery will not be affected.

Remember: The key to recognizing and managing problems during MVA is being aware that they can occur **even** under the best circumstances.

TECHNICAL PROBLEMS

In most MVA procedures, the syringe vacuum remains constant until the syringe is approximately 90% full. However, a decrease in vacuum may occur before the procedure is complete if the cannula is blocked or withdrawn prematurely.

Syringe Full

If the syringe is full:

1. Close the pinch valve of the syringe.
2. Disconnect the syringe from the cannula, leaving the tip of the cannula in place inside the uterus. (**Do not push the plunger when disconnecting the syringe.**)
3. Empty the syringe into a container for inspection by opening the pinch valve and pushing the plunger into the barrel. (Be careful not to splash the contents of the syringe into the eyes.)
4. Re-establish a vacuum in the syringe, reconnect it to the cannula and resume the aspiration. (Many practitioners keep a second prepared syringe on hand during the aspiration and switch syringes if one becomes full.)

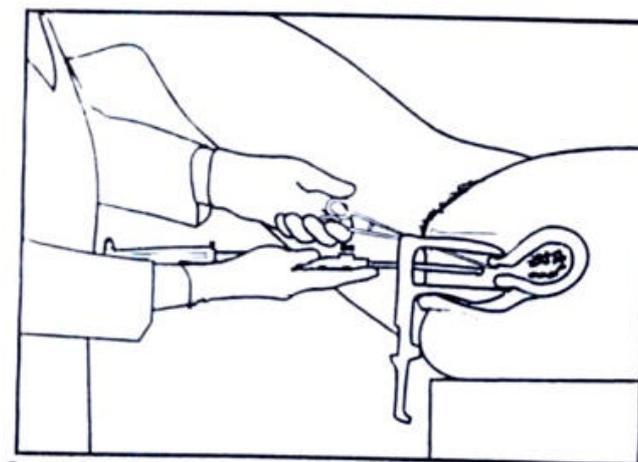
Cannula Withdrawn Prematurely

If the opening of the **cannula is pulled into** the vaginal canal with the valve still open, the vacuum will be lost. To correct this:

1. Remove the syringe and cannula, taking care not to contaminate the cannula through contact with the vaginal walls or other nonsterile surfaces.

2. Close the pinch valve of the syringe.
3. Detach the syringe from the cannula, empty the syringe, then re-establish the vacuum in the syringe (see above, **Syringe Full**).
4. Reinsert the cannula if it has **not** been contaminated. (If contamination has occurred, insert another sterile or high-level disinfected cannula.)
5. Reconnect the syringe, release the valve and continue aspiration.

Figure 7-1. Cannula Withdrawn Into Vaginal Canal



Source: Yordy, Leonard and Winkler, 1993

Cannula Clogged

If no tissue or bubbles are flowing into the syringe, the **cannula may be clogged**:

1. Close the pinch valve of the syringe.
2. Remove the syringe and cannula, taking care not to contaminate the cannula through contact with the vaginal walls or other nonsterile surfaces.
3. Remove the material from the opening in the cannula using a sterile or high-level disinfected forceps or sponge, without contaminating the cannula. If contamination occurs, use another sterile or high-level disinfected cannula.

Note: Never try to unclog the cannula by pushing the plunger back into the barrel with the cannula tip still in the uterus.

4. Re-insert the cannula, attach a prepared syringe and release the pinch valve.

Syringe Does Not Hold Vacuum

If the syringe does not seem to hold a vacuum, try lubricating the plunger and barrel with a drop of silicone. If this does not work, replace the o-ring. If the syringe still does not hold a vacuum, discard it and use another syringe (see **Appendix I** and **Chapter 8**).

PROCEDURAL PROBLEMS

Procedural problems occurring **during** a MVA procedure are infrequent. Most are not serious, are related to the inexperience of the provider and are easily corrected.

Less than Expected Tissue

The most common procedural problem is **obtaining less than expected tissue**. Tissue that is inadequate in quantity or contains no definite POC may indicate:

- all POC passed before the MVA,
- the vaginal bleeding was **not** due to pregnancy, or
- a possible ectopic pregnancy (see below).

Incomplete Evacuation

Using a cannula that is too small or stopping the aspiration too soon can result in retained tissue, subsequent hemorrhage, infection and continued pain and cramping. Careful observation for the signs of completion (see **Step 9** in **Chapter 6**) and tissue examination to identify the POC are the best ways to ensure complete evacuation. Incomplete evacuation is treated by repeating the evacuation.

All POC Passed Before the MVA

Further evacuation is **not** necessary unless the clinical findings suggest that the abortion is still incomplete (persistent vaginal bleeding, fever, etc.).

OTHER PROBLEMS

Vaginal Bleeding Not Due to Pregnancy

Women of reproductive age may have irregular periods (i.e., missed or skipped periods) followed by vaginal bleeding due to:

- Progesterone-breakthrough bleeding with use of progestin-only contraceptive methods (i.e., injectables, Norplant implants or oral contraceptive pills)
- Uterine fibroids (benign smooth muscle tumors that grow in the wall of the uterus)
- Estrogen-breakthrough bleeding (anovulation)

Ectopic Pregnancy

Delay in treatment of an ectopic pregnancy is particularly dangerous. The risk of an ectopic pregnancy is greater if the patient has a history of any of the following:

- Previous ectopic pregnancy
- Pelvic infection
- IUD or progestin-only contraceptive use

If ectopic pregnancy is suspected, check again for signs of an ectopic pregnancy, as detailed in **Appendix A**, and quickly prepare the woman for referral if surgery (minilaparotomy or laparoscopy) is not available. Rupture of an ectopic pregnancy is a real and life-threatening possibility. If this happens, death can be prevented only by stopping the hemorrhage through immediate surgical removal of the ectopic pregnancy, stopping bleeding and replacing blood lost, if required.

Postabortal Syndrome (Acute Hematometra)

This condition occurs when the blood flow from the uterus is blocked, thus creating continued intrauterine bleeding, uterine distention, severe cramping and fainting (i.e., vagal symptoms), usually within a few hours after completion of the procedure. (Late postabortal syndrome also can occur during the 3 days following the procedure.) The uterus will be **larger** than before the procedure and **extremely tender** on examination. This condition is treated by re-evacuating the uterus and administering oxytocics or massaging the uterus to keep it contracted.

Fainting (Vagal Reaction or Neurogenic Shock)

Fainting is most likely to occur during forceful cervical dilation or vigorous scraping of the uterine cavity, both of which cause severe pain and should be avoided. Due to stimulation of the vagus nerve, the heart rate and respiration slow, leading to fainting (syncope). This condition usually lasts only a few seconds to minutes, provided the cause of pain is stopped. Treat by:

- Stopping the procedure immediately
- Maintaining an open airway
- Turning the patient's head and shoulder to the side to prevent aspiration if she vomits
- Raising the patient's legs

If recovery is not immediate:

- Ventilate the patient with an Ambu bag using oxygen, if available
- Start an IV with a large bore (16-18 gauge) needle using either isotonic saline or Ringer's lactate solution[†]
- Request assistance to check the vital signs and monitor her recovery

COMPLICATIONS

Manual vacuum aspiration for treatment of incomplete abortion is a procedure that involves minimal trauma to the uterus and cervix. In a small percentage of cases, however, one or more of the following complications may occur **during** the procedure:

- Uterine or cervical perforation
- Severe bleeding (hemorrhage)
- Air embolism

Because these complications can result in serious injury or in some cases death, their prompt recognition and treatment is crucial to minimizing their impact.

Uterine Perforation

If the cannula penetrates further than expected, or if fat, bowel or omentum is observed in the tissue removed from the uterus, the uterus has been perforated. (Careful examination to determine the position of the uterus and cervix is essential to avoid this complication.) Uterine perforation also can damage internal organs and blood vessels. If uterine perforation is suspected, appropriate steps must be taken which include observation and possible surgery (laparoscopy and/or laparotomy) (see **Appendix A**).

Cervical Perforation

This complication is most likely to occur during forceful cervical dilation. Treatment of cervical perforation requires immediate repair and observation to assure the underlying blood vessels have not been damaged, leading to intrauterine or intra-abdominal bleeding (see **Appendix A**).

Shock, Severe Vaginal Bleeding and Post-MVA Infection

Diagnosis and treatment of **shock** and **pelvic infection** are fully described in **Chapter 3** and **Appendix A**. Treatment of severe vaginal bleeding depends on the cause and severity of hemorrhage and may include repeat evacuation, oxytocin (IM or IV), uterine massage, suturing tears, intravenous fluids, transfusion or surgery (see **Appendix A**).

Air Embolism

This is rare but could happen if the plunger of the syringe were pushed forward while the cannula was still in the uterine cavity. Treatment is directed to supporting respiration and circulation (see **Appendix A**).

† If available, give atropine sulfate 0.2 mg (0.4-0.6 ml) IV.

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EIGHT

PROCESSING MVA EQUIPMENT AND OTHER ITEMS

BACKGROUND

At present, in many developing countries, disposable items are used infrequently because they are expensive, difficult to dispose of safely and rarely are available in adequate supply. Thus, the reuse of items such as surgical gloves, plastic syringes and MVA cannulae is widespread.

Using disposables for infection prevention purposes often is unnecessary. For example, it is highly unlikely that an infection will be transmitted from a dish used by a patient with an acute respiratory or gastrointestinal infection. Furthermore, most disposables create additional environmental pollution problems.¹ Thus, in many clinical settings reusable items can safely replace disposables (e.g., metal rather than plastic kidney-basins).

In this chapter, detailed information is provided on how to process MVA equipment as well as other items (e.g., surgical instruments and gloves).

PROCESSING MVAEQUIPMENT

The **four basic steps** for processing MVA equipment and other instruments are:

- Decontamination
- Cleaning
- Sterilization or high-level disinfection
- Storage and reassembly

DECONTAMINATION

All items, including surgical gloves, should be decontaminated immediately after use to make them safer for staff to handle and clean. Personnel should wear gloves while decontaminating and cleaning used instruments. Inexpensive rubber or vinyl household (utility) gloves work well for this.

Soak all instruments, including cannulae, the MVA syringe and metal or plastic cervical dilators (if used) in a 0.5% chlorine solution for 10 minutes before cleaning. This step should be done immediately after the MVA procedure and is best accomplished by having a plastic container filled with chlorine solution next to the treatment table.

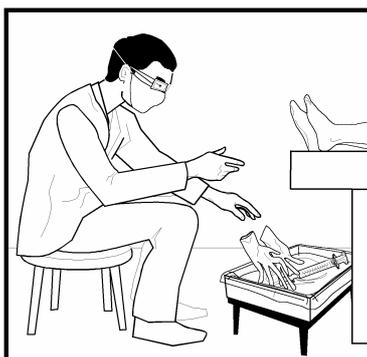
Draw the solution through the cannula into the MVA syringe, then place the syringe and cannulae, other soiled instruments and gloves in the chlorine solution (see **Figure 8-1** and **8-2**). For hypodermic needles and syringes, fill assembled needle and syringe with 0.5% chlorine solution prior to soaking. Allow all items to soak for 10 minutes before removing them for cleaning.

Figure 8-1. Drawing Decontaminant Solution into Syringe



Source: Leonard and Yordy, 1994

Figure 8-2. Decontaminating Instruments



Source: Leonard and Yordy, 1994

The chlorine solution should be changed daily, or more frequently if visibly contaminated, in order to be effective.

After decontamination, rinse items with clean, cool water to help prevent corrosion of metal instruments, or immediately take the instruments to be cleaned. Rinse hypodermic syringes and needles by flushing (3 times) with clean water.

Surfaces such as examination or procedure tables, which may have come in contact with body fluids, should be decontaminated. Wiping with a suitable disinfectant such as 0.5% chlorine solution after each patient, when visibly contaminated or at least daily, is an easy-to-do and inexpensive way to decontaminate large surfaces.

Making Dilute Chlorine Solutions

Instructions for how to prepare 0.1% and 0.5% chlorine solutions from various commercially available liquid bleach products are shown in **Table 8-1**. The formula for making a dilute solution from a commercial preparation of any concentration is shown in **Figure 8-3**.

Table 8-1

Preparing Dilute Chlorine Solutions from Liquid Bleach (Sodium Hypochlorite) for Decontamination and HLD			
Type or Brand of Bleach (Country)	Chlorine % Available	Ratio of Bleach to Water [†]	
		0.5%	0.1% ^{††}
JIK (Kenya), Robin Bleach (Nepal)	3.5%	1 : 6	1 : 34
Household bleach (USA, Indonesia), ACE (Turkey), Eau de Javal (France) (15 ? chlorum ^{†††})	5%	1 : 9	1 : 49
Blanquedor, Cloro (Mexico)	6%	1 : 11	1 : 59
Lavandina (Bolivia)	8%	1 : 15	1 : 79
Chloros (UK), Lejía (Peru)	10%	1 : 19	1 : 99
Chloros (UK), Extrait de Javel (France) (48 ? chlorum ^{†††})	15%	1 : 29	1 : 149

[†] For the ratio of bleach to water, read as 1 part concentrated bleach to x parts water (e.g., JIK—1 part bleach to 6 parts water for a total of 7 parts).

^{††} Use **boiled** water when preparing a 0.1% chlorine solution for HLD because tap water contains microscopic organic matter which inactivates chlorine.

^{†††} In some countries the concentration of sodium hypochlorite is expressed in chlorometric degrees (? chlorum); 1? chlorum is approximately equivalent to 0.3% available chlorine.

Source: Tietjen et al, 1995.

Figure 8-3. Formula for Making a Dilute Chlorine Solution from Concentrated Solution

$$Total\ Parts\ (TP)\ water = \left[\frac{\% \text{ Concentrate}}{\% \text{ Dilute}} \right] - 1$$

Example: Make a dilute chlorine solution (0.5%) from 5% concentrated solution.

1. Calculate TP water: $\left[\frac{5.0\%}{0.5\%} \right] - 1 = 10 - 1 = 9$
2. Add 1 part concentrated solution to 9 parts water.

Source: Tietjen et al, 1995.

The approximate amount (grams) needed to make 0.1% and 0.5% chlorine-releasing solution from several commercially available compounds (dry powders) are listed in **Table 8-2**. The formula for making a dilute solution from a powder of any percent available chlorine is shown in **Figure 8-4**.

Table 8-2

Preparing Dilute Chlorine Solutions from Dry Powder		
Available chlorine required	0.5%	0.1%[†]
Calcium hypochlorite (70% available chlorine)	7.0	1.5
NaDCC (60% available chlorine)	8.5	1.5
Chloramine (25% available chlorine)	20	4
NaDCC-based tablets (1.5 g of available chlorine per tablet)	4 tablets/liter	1

[†] Use **boiled** water when preparing a 0.1% chlorine solution for HLD because tap water contains microscopic organic matter which inactivates chlorine.

Adapted from: WHO, 1988.²

Figure 8-4. Formula for Making a Dilute Chlorine Solution from Dry Powder

$$\text{Grams/Liter} = \left[\frac{\% \text{ Dilute}}{\% \text{ Concentrate}} \right] \times 1000$$

Example: Make a dilute chlorine-releasing solution (0.5%) from a concentrated powder (35%).

1. Calculate grams/liter: $\left[\frac{0.5\%}{35\%} \right] \times 1000 = 14.2 \text{ g / L}$
2. Add 14.2 grams (≈14 g) to 1 liter of water.

Source: Tietjen et al, 1995.

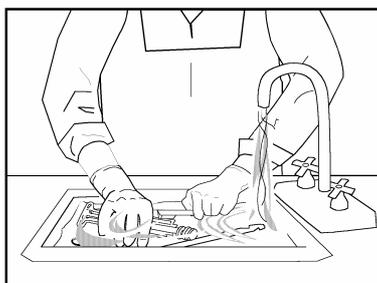
CLEANING

After decontamination, thoroughly wash all instruments including the syringe and cannulae in lukewarm water with detergent or liquid soap to remove all organic material. Thorough cleaning is the most effective way to reduce the number of microorganisms on soiled instruments. Hot water should **not** be used for cleaning because it can coagulate protein, such as blood, making it hard to remove. Use of a detergent or liquid soap is important for effective cleaning since water alone will not remove protein or oils. (Hand soap is not recommended as it can leave a residue, which is difficult to remove.) Liquid detergent (soap) is preferable because it mixes more easily with cold water than do powdered detergents.

Wear utility gloves when cleaning instruments. Do not use torn or damaged gloves. At the end of the day, clean the gloves and leave them to dry for use the following day.

Eyewear is suggested to protect against accidental splashes. As an added precaution, clean instruments under the surface of the water to prevent material from becoming airborne through splashing (see **Figure 8-5**).

Figure 8-5. Washing Instruments



Source: Leonard and Yordy, 1994

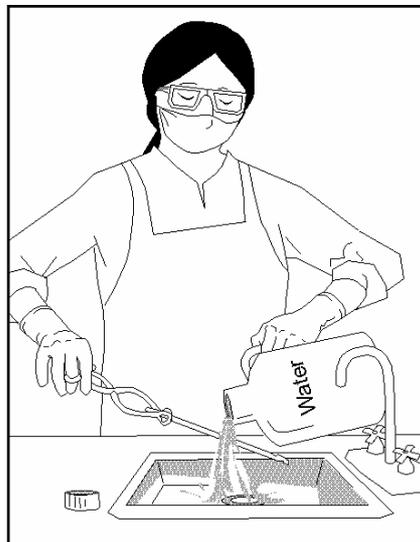
Tissue and blood are sometimes difficult to remove from the tip of the **cannulae**. To flush it out, draw soapy water into the cannula with the syringe and expel it several times. If material remains, vigorously swish the cannula back-and-forth in water, taking care not to splash yourself or others. **Do not** use brushes or other small objects to remove matter, as they can scratch the inside of the cannula, creating crevices where microorganisms can become trapped.

Take apart all instruments, including MVA and hypodermic syringes. Disassemble the **MVA syringe** by removing the collar stop and carefully pulling the plunger out of the barrel. Remove the black o-ring from the plunger. Remove the valve set and open the valve. (For the double-valve syringe, remove the o-ring from inside the valve.) Wash all parts of the syringe in lukewarm soapy water, taking care to remove all traces of blood or tissue. Scrub the syringe with a soft brush or cloth.

Clean metal **instruments** with a soft brush (old toothbrushes work well) or cloth **in soapy water** until visibly clean. Give special attention to the teeth, joints or screws where organic matter can collect.

After cleaning, rinse the instruments, MVA and hypodermic syringes and cannulae thoroughly with clean water to remove any detergent residue, which can interfere with chemical disinfection (**Figure 8-6**). Air dry or dry with a clean towel. (Wet items should **not** be placed in chemical disinfectants because the water may dilute the chemicals.) Drying is not necessary, however, for instruments, including plastic dilators (Denniston) and cannulae, that are to be boiled.

Figure 8-6. Rinsing Instruments



Source: Leonard and Yordy, 1994.

MVA Syringes

Because the syringe serves **only** as the source of vacuum and container for blood and tissue, and does not come in contact with the patient, decontamination and cleaning are sufficient (acceptable) for processing. If HLD or sterilization of syringes is required by an institution's protocol, use chemical agents. **Do not autoclave, dry heat sterilize or high-level disinfect the syringe by boiling because the valve assembly will crack.**

STERILIZATION OR HIGH -LEVEL DISINFECTION

Sterilization is the safest and most effective method for processing instruments that come in contact with the blood stream, tissue beneath the skin or tissues, which normally are sterile. When sterilization is either unavailable or not suitable, **HLD** is the only acceptable alternative. For both methods, the preparatory steps and postprocedure handling of instruments and other items must be done properly in order to achieve the desired outcome.

The process of sterilization kills all microorganisms, including bacterial endospores, such as the bacteria that cause tetanus and gas gangrene (clostridia). The process of HLD destroys all microorganisms including HBV and HIV, but does **not** reliably kill bacterial endospores.

After cleaning, all instruments should be sterilized or high-level disinfected. The exact method chosen will depend on the facility's capabilities for sterilization or HLD and the type of instruments involved.

Steam (autoclaving) or dry heat sterilization should **not** be used on either the cannulae or MVA syringe: the cannulae will melt and the syringe valve assembly will crack. By contrast, the Denniston plastic dilators can be **autoclaved (steam sterilized)** repeatedly, but not dry-heat sterilized.²

Recommended operating conditions for sterilization or HLD of instruments and other items are listed below.

Sterilization

To **steam sterilize** (autoclave) metal and glass instruments and gloves only:

Temperature: 121°C (250°F)
Pressure: 106 kPa (15 lb/in²)
Time: 20 minutes (30 minutes for wrapped instruments)

To **dry heat sterilize** (dry heat oven) metal and glass instruments only:

Temperature: 160°C (320°F)
Time: 2 hours

or

Temperature: 170°C (340°F)
Time: 1 hour

To be effective, sterilization must be carried out for the stated length of time.

Remember: Do not dry heat sterilize the cannulae or MVA syringe.

Figure 8-7. Sterilizing Cannulae



Source: Leonard and Yordy, 1994.

Table 8-3

Chemicals for Sterilizing MVA Instruments						
Sterilizing Agent	Advantages	Disadvantages	Solution	Minimum Time Required for Sterilization	Steps	Precautions
Glutaraldehyde 2-4% (Cidex)	not easily inactivated by organic materials	sterilization slower below 25°C (77°F); skin, eye, respiratory irritant	full strength — never dilute; follow manufacturer's instructions for mixing	10 hours	Submerge instruments completely, make sure solution fills cannulae interior; soak; remove with sterile forceps; rinse with sterile water; air dry	Cover sterile container upto 7 days; Use only in well-ventilated areas; discard according to manufacturer's instructions or sooner if solution is cloudy

Source: Leonard and Yordy, 1994.

Handling Sterile Items

Handle sterile items only with a sterile forceps or lifter or while wearing sterile gloves.

Unwrapped items that have been steam (autoclave) or dry-heat sterilized should be used immediately after cooling or placed in a sterile, covered container.

Instruments that are sterilized in chemical solutions should be rinsed well with **sterile** water, dried with a sterile towel and stored in a sterile, covered container.

High-Level Disinfection

When sterilization equipment is either not available or not suitable, HLD is the **only** acceptable alternative. HLD destroys **all** microorganisms, including viruses causing hepatitis B and AIDS, but **does not reliably kill** all bacterial endospores.[†] High-level disinfection of instruments and other items can be achieved by steaming, boiling (**except MVA syringes**) or soaking in a chemical disinfectant.

Remember: Moist heat at 80° C kills essentially all bacteria, viruses, parasites and fungi in 20 minutes. Therefore, unless the altitude of the health facility is over 5,500 meters (18,000 feet) it is **not** necessary to increase the steaming or boiling time.³

Boiling

Recommended operating conditions for HLD by boiling and instructions for the use of high-level disinfectants are described in **Table 8-4**.

Instruments that are high-level disinfected should be handled with high-level disinfected instruments (e.g., sponge forceps) or sterile or high-level disinfected gloves.

After boiling, allow items to cool (air dry) by placing on a dry, sterile or high-level disinfected tray or in a high-level disinfected container. Use items immediately or keep in a sterile or high-level disinfected, **covered** container.

Boiling Tips

- Always boil for 20 minutes using a pot with a lid.
- Start timing when the water begins to boil.
- Items should be covered with water during boiling.[†]
- Do not add anything to the pot after the water begins to boil.

[†] When sterilization is not possible, thorough cleaning is the only way to reduce the number of endospores which cause tetanus and gangrene.

^{††} A recent report has documented that the interior temperature of a plastic cannula floating on the surface of boiling water reaches a temperature of 96-98° C in less than 1 minute.⁴ Therefore, for items which float (e.g., syringes, plastic MVA cannulae or rubber items), it is not absolutely necessary that they be fully covered by the water to achieve HLD.

Table 8-4

High-Level Disinfection of Instruments							
Equipment	Disinfecting Agent	Advantages	Disadvantages	Solution Strength	Minimum Time Required for Disinfection	Steps	Precautions
Metal Instruments and Cannulae	Boiling water	Easily available; will provide HLD up to 5,500 meters (18,000ft)		N/A	20 minutes at rolling boil	Fill large (at least 25 cm/10" diameter) pot 3/4 full with clean water; deposit instruments; cover pot; bring to boil again; boil for 20 minutes; remove items gently with HLD forceps; air dry on a HLD tray or in a HLD container.	Grasp cannulae gently when removing from water. Grasping hot cannulae with forceps may flatten the cannulae. Do not leave cannulae in previously boiled water.
Instruments, Cannulae	Glutaraldehyde (2-4%)	Not easily inactivated by organic materials	Skin, eye, respiratory irritant	Use full strength — never dilute; follow manufacturers' instructions for mixing	20 minutes ¹	Submerge items completely, making sure solution fills cannula interior; soak; remove with HLD forceps; rinse with boiled water; air dry on a HLD tray or in a HLD container.	Discard solution (7 to 28 days) after mixing or sooner if cloudy (follow manufacturers instructions).
	Chlorine (0.1%)	Fast-acting, very effective against HBV and HIV	Corrosive to metal	Dilute to 0.1% for clean equipment using boiled water; 0.5% if tap water used	20 minutes ¹	Submerge items completely in a non-metal container, making sure solution fills cannula interior; soak; remove with HLD forceps; rinse with boiled water; air dry on a HLD tray or in a HLD container.	Change solution daily or sooner if cloudy.
	Hydrogen Peroxide (6%)	Not easily inactivated by organic materials	Corrosive to copper, aluminum, zinc and brass; inactivated by prolonged exposure to heat (over 30° C) or light	Mix 1 part 30% hydrogen peroxide with 4 parts boiled water to make 6% solution	30 minutes ¹	Submerge items completely in a non-metal container, making sure solution fills cannula interior; soak; remove with HLD forceps; rinse with boiled water; air dry on a HLD tray or in a HLD container.	Store hydrogen peroxide in opaque container away from light and heat. Change solution daily or sooner if cloudy.

Source: Tietjen et al, 1995

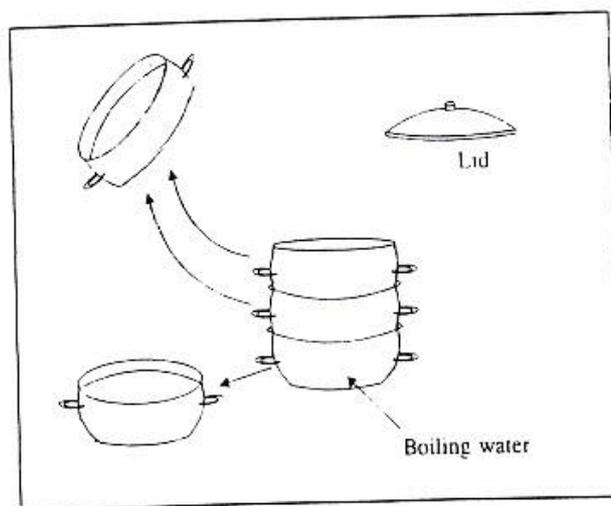
Steaming

Recently, a new process for high-level disinfecting surgical gloves by steaming (low-pressure moist heat) has been reported.⁵ Steaming surgical gloves, which have been washed and thoroughly rinsed, in a one-to-three tiered steamer has been used as the final step in processing gloves for many years in Indonesia and other parts of South East Asia. Until now, however, the effectiveness of this process for HLD was never tested.

In the study reported, the steamer used (**Figure 8-8**) consisted of:

- a bottom pan (about 31 cm in diameter) for boiling water;
- one to three circular pans with multiple 0.5 cm (diameter) holes in their bottoms to permit the passage of steam up through them and water back down to the bottom pan; and
- a lid which fits on the top pan.

Figure 8-8: Steamer

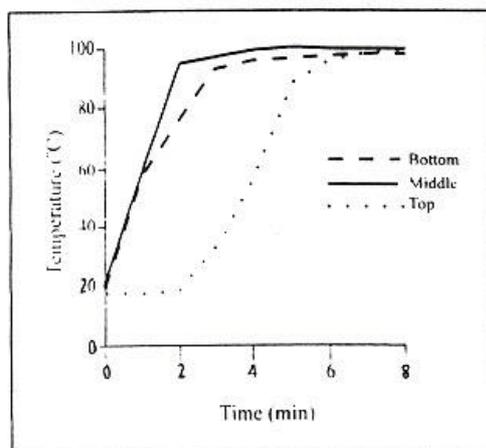


Source: Tietjen et al, 1995.

Two types of tests were conducted to determine whether surgical gloves could be high-level disinfected by this process.

In the first set of experiments, a thermocouple was placed inside a glove in each of the three pans, respectively, and the rate and extent of the temperature change recorded. As shown in **Figure 8-9**, when from 5 to 15 pairs of surgical gloves were placed in each of the three pans, the temperature reached 96-98° C in less than 4 minutes in the bottom and middle pans and within 6 minutes in the upper pan. Thereafter, the temperature remained constant throughout the remaining 20 minutes.

Figure 8-9. Temperature Rise in Surgical Gloves as a Function of Tray Position



Source: McIntosh et al, 1994.⁶

In the second set of experiments, batches of new surgical gloves were contaminated with *Staphylococcus epidermidis*, *Staphylococcus aureus*, *Pseudomonas aeruginosa* and *Candida albicans* as well as *Bacillus subtilis* (heat-sensitive) and *Bacillus stearothermophilus* (heat-resistant) endospores. Next the gloves were placed in one of the three pans and steamed for 20 minutes. After this, they were removed from the pans and incubated for 24 hours in sterile media and then plated on blood agar. In all cases, there was no growth of any microorganisms or *B. subtilis* endospores (6, 15 and 30 gloves per pan) at 24 hours and, as expected, only a reduction in the number of *B. stearothermophilus* endospores.

Based on the results of these experiments, it would appear that steaming is effective in high-level disinfecting surgical gloves.

At the present time **steaming has several distinct advantages over boiling** for the final processing of surgical gloves. Although boiling and steaming gloves are equally easy to do, to date no practical solution for drying boiled gloves has been discovered (i.e., it is difficult to prevent contamination while they are air-drying which takes a long time—up to 24 hours). As a result, health facilities lacking an autoclave either had to use new, disposable sterile gloves for every surgical procedure or wear boiled (high-level disinfected) gloves “wet.” With steaming, the gloves dry in less time (about 4 hours) and preventing contamination while they are drying is not a problem. Additional advantages are that steaming is less destructive and more cost-effective (uses much less fuel) than boiling.

The **major disadvantage of steaming** is that if the steamers available locally are small, it is only practical to use them for small items (e.g., surgical gloves, MVA cannulae and syringes). Large boiling pots are easier to use with metal instruments and require less attention to be sure that the process is being done correctly.^{6,7}

For step-by-step instructions on how to steam gloves, see **Appendix D**.

Products That Should Not Be Used As Disinfectants

Many antiseptic solutions are used incorrectly as disinfectants. While antiseptics (sometimes called “skin disinfectants”) are adequate for cleaning skin before an injection or surgical procedure, they are not appropriate for disinfecting surgical instruments and gloves. **They do not reliably destroy bacteria and viruses and do not destroy bacterial endospores.** For example, Savlon (chlorhexidine gluconate with or without cetrimide) which is readily available worldwide, is a good antiseptic but is often mistakenly used as a disinfectant.

Antiseptics that should not be used as disinfectants are:

- Acridine derivatives (e.g., gentian or crystal violet)
- Cetrimide (e.g., Cetavion®)
- Chlorinated lime and boric acid (e.g., Eusol®)
- Chlorhexidine gluconate (e.g., Hibiscrub, Hibitane)
- Chlorhexidine gluconate and cetrimide, various concentrations (e.g., Savlon)
- Chloroxylonol (e.g., Dettol)
- Hexachlorophene (e.g., pHisoHex)
- Mercury compounds (**toxic and not recommended as an antiseptic or a disinfectant**)

Items that are high-level disinfected in chemical solution should be rinsed well with sterile water/HLD water, dried with a sterile towel and stored in a sterile or high-level disinfected, covered container.

STORAGE AND REASSEMBLY

Sterile Instruments

Sterile packs or containers should be labeled with an expiration date and used within 1 week. If they not used within one week, the item should be re-cleaned and resterilized. Store sterile packs or containers in areas with enclosed shelves off cardboard boxes for storage; they shed dust and may harbor insects. If the packs or containers become wet, the items lose sterility and must be reprocessed.

Instruments, including cannulae, stored in sterile, covered containers remain sterile as long as a sterile technique is used when removing or replacing them. The containers should be dated and unused items reprocessed weekly.

High-Level Disinfected Instruments

Store instruments that have been high-level disinfected in dry, covered, high-level disinfected or sterile containers with tight-fitting lids. Do **not** store the cannulae or instruments in chemical solutions (e.g., glutaraldehyde or antiseptics such as Savlon) because they can become contaminated.

When retrieving a cannula or instrument from the storage container, use only sterile or high-level disinfected forceps to avoid contaminating remaining items. Grasp only the end of the cannula that does not have an opening (aperture) (**Figure 8-10**). It is best to store a small number of cannulae in each container to minimize the risk of contamination.

Figure 8-10. Retrieving Cannulae



MVA Syringes

Reassembling the MVA syringes. Replace the o-ring on the plunger. Lubricate the o-ring by placing one drop of silicone (or glycerol or liquid soap) on the o-ring, then spread the silicone around the ring with a fingertip. Petroleum based products should not be used.

Reassemble the syringe by holding the plunger arms together and inserting the plunger into the barrel. Reattach the collar stop. Push the plunger in and out several times to distribute the lubricant in the barrel.

Check the syringe for vacuum. This should be done after cleaning and again immediately before use. Do this by closing the pinch valve and pulling out the plunger until the locking arms catch. Leave the syringe in this position for 2 to 3 minutes, and then release the pinch valve. You should hear a rush of air into the syringe, which indicates that the syringe maintains a vacuum.

If you do not hear a rush of air, remove the plunger. Check the o-ring for cracks or wear and check the syringe barrel for cracks. If the syringe parts appear undamaged, reassemble the syringe. Repeat the test. If the syringe still loses vacuum when tested, it should be discarded.

Storing the MVA Syringes. Store the syringes in covered containers or plastic bags that will protect them from dust or other contaminants. If not used within 1 week, reprocess by cleaning and drying.

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NINE

POSTABORTION FAMILY PLANNING[†]

BACKGROUND

In many instances, the emergency postabortion care setting may be one of the few contacts a woman has with the health care system. Therefore, the time when she receives postabortion care potentially is an important opportunity for her to receive contraceptive information and services.^{2,3}

Some women may want to become pregnant soon after having an incomplete abortion, and there is no reason to discourage them from doing so, barring medical reasons. Most women receiving postabortion care, however, do **not** want to be pregnant at this time. Furthermore, a woman who has risked the dangers of unsafe abortion has clearly expressed a desire to control her fertility and a need for help in preventing unwanted pregnancy.

Postabortion family planning services need to be initiated immediately because ovulation may occur as early as 11 days following treatment of incomplete abortion and usually occurs before the first menstrual bleeding.

For women with spontaneous abortion, linking postabortion care with family planning services allows women and their families increased access to family planning.

At a minimum, all women receiving postabortion care need **counseling** and **information** to ensure that they understand:

- they can become pregnant again before the next menses,
- there are safe and effective methods to prevent or delay pregnancy, and
- where and how they can obtain family planning services and methods.

Factors Limiting Access to Postabortion Family Planning

Throughout the developing world, many women are trapped in a dangerous cycle of repeat unwanted pregnancy and unsafe, often illegal abortion. Although the importance of linking postabortion care and family planning services seems obvious, these two types of care rarely are offered together. Typically, emergency treatment services for postabortion complications do not include provision of or referral to family planning counseling and method delivery.

Factors limiting provision of family planning services following emergency postabortion care include:

- Health care staff may have misconceptions about which contraceptive methods are appropriate.
- Providers of emergency postabortion care may not view the provision of contraceptive services as their responsibility.

- In hospitals, there may be administrative divisions between emergency postabortion services (Ob/Gyn department) and family planning services (Community Medicine department).
- Often emergency postabortion care and family planning services are not coordinated and may not be available on the same days or at the same location within institutions
- Women who have been treated for incomplete abortion may not realize that their fertility will return soon and therefore may not seek contraceptive protection.
- Women may not know where family planning and other reproductive health services are available.

As a consequence, women are denied access to the means of preventing future unwanted pregnancies as well as being exposed to the risk of additional unsafe abortions, both of which contribute to the poor overall health status of women in many countries. In addition, the lack of comprehensive reproductive health services, including linkages of postabortion care to family planning and treatment for infertility and STDs, prevents women from obtaining the full range of care they need.

POSTABORTION FAMILY PLANNING

Postabortion family planning should include all essential components of good family planning care:

- Information and counseling about methods, their characteristics, effectiveness and side effects
- Choices among methods (e.g., short- and long-term, hormonal and nonhormonal)
- Assurance of contraceptive resupply
- Access to follow-up care
- Counseling about contraceptive needs in the context of the client's reproductive goals and need for protection against sexually transmitted diseases

Postabortion family planning also should be based on an individual assessment of every woman's situation:

- her personal characteristics, needs and reproductive goals;
- clinical condition; and
- the service delivery capabilities where she receives treatment and in the community where she lives.

A thorough discussion of these points is important because the circumstances leading to incomplete abortion vary. Incomplete abortion may reflect that the woman has not been successful in preventing unwanted pregnancy. She may not want to use or know how to use contraception, may not know where to obtain it, or may have stopped using a method. Providers can help the woman to select a family planning method that is appropriate for her if they understand the factors that led to the unwanted pregnancy. Like any clinical service, postabortion family planning services that address clients' individual needs and circumstances are more likely to provide acceptable and effective care than those based solely on standard protocols.

Remember: A woman's personal preferences, constraints and social situation may be as important in postabortion family planning as her clinical condition.

COUNSELING AND INFORMED CHOICE

Strategies to support informed choice:

- provide information on a variety of methods
- conduct in a private, comfortable setting that fosters trust
- focus on client's needs
- adhere to client's rights and social equality- exhibit respect and mutual understanding

The goals of postabortion family planning counseling are:

- to help the woman understand the factors that led to an unwanted pregnancy (if appropriate), in order to avoid repeating the situation;
- to help her and her partner (where appropriate) decide if she wants to use a contraceptive method;
- if she does, to help her (and her partner) choose an appropriate method; and
- to prepare her (and her partner) to use the method effectively.

Informed choice is key to a woman's ability to freely select a method that she can use effectively.

Free and informed choice means that the client chooses a method voluntarily without coercion or pressure. It is based on a clear understanding of the benefits and limitations of the methods that are available. The client should understand that almost all methods can be used safely and effectively immediately after treatment of an incomplete abortion and that she can choose another method later if she wishes to change.

Remember: Clients who have made a free, informed choice of method are more likely to be satisfied with the method and to continue using it effectively.

Although many women do **not** want to become pregnant again immediately after an incomplete or unsafe abortion, some women may not want to make a decision about contraception at the time of postabortion care. A mechanism should be in place to ensure that these women can return for contraceptive services or are referred to a facility in their community. Women who do not choose a contraceptive method immediately should be offered condoms to take home and encouraged to return, with their partners if they wish, for further counseling.

Family Planning Information

The minimum information about family planning that a woman treated for incomplete abortion needs to understand before she is discharged is:

- She will be at risk of repeat pregnancy as soon as 2 weeks from treatment
- That there are a variety of safe contraceptive methods that can be used immediately to avoid pregnancy
- **Where** and **how** to get family planning services (at the time of treatment and also after discharge)

She also needs the following information, either at this time or later:

- Characteristics of all methods (e.g., whether they are reversible, whether they protect against GTIs and other STDs, side effects)
- How to use the selected method correctly, including where and how to get additional supplies (e.g., pills condoms, injectables, or spermicidal tablets or foam)
- How to stop using the method or switch to another

Lack of understanding (possibly due to unclear instructions) may have led to misuse of a contraceptive method and to the previous unwanted pregnancy. “Too much technical information, however, can be as harmful as too little because it may overwhelm the woman and make it more difficult for her to make a decision.”³ The information that the woman receives should be tailored to her needs. For example, a woman who has relied on unsafe abortion repeatedly because she thinks that oral contraceptives cause cancer, has a different need for information than a woman who used the pill incorrectly.

Table 9-1: presents some questions and suggested problem-solving responses regarding counseling and informed choice of method for women treated for incomplete abortion. It is designed to guide providers in enabling women to make family planning decisions.

Table 9-1

Individual Factors and Counseling Recommendations and Rationales (more than one may apply)		
If the woman...	Recommendations	Rationales
Does not want to be pregnant soon	Consider all temporary methods.	Seeking treatment for incomplete abortion suggests that the woman does not want to be pregnant.
Is under stress or in pain	Consider all temporary methods. Do not encourage use of permanent methods at this time. Provide referral for continued contraceptive care.	Stress and pain interfere with making free, informed decisions. The time of treatment for incomplete abortion is not a good time for a woman to make a permanent decision.
Was using a contraceptive method when she became pregnant	Assess why contraception failed and what problems the woman might have had using a method effectively. Help the woman choose a method that she will be able to use effectively. Make sure she understands how to use the method, get followup care and resupply, discontinue use and change methods.	Method failure, unacceptability, ineffective use or lack of access to supplies may have led to unwanted pregnancy. These factors may still be present and may lead to another unwanted pregnancy.
Had stopped using a method	Assess why the woman stopped using contraception (e.g., side effects, lack of access to resupply, etc.). Help the woman choose a method that she will be able to use effectively. Make sure she understands how to use the method, get followup care and resupply, discontinue use and change methods.	Unacceptability or lack of access may have led to unwanted pregnancy. These factors may still be present and may lead to another unwanted pregnancy.
Has a partner who is unwilling to use condoms or will prevent use of another method	If the woman wishes, include her partner in counseling. Protect the woman's confidentiality (even if she does not involve her partner). Discuss methods that the woman can use without her partner's knowledge (e.g., injectables). Do not recommend methods that the woman will not be able to use effectively.	In some instances, involving the male in counseling will lead to his use of and support for contraception; however, if the woman, for whatever reasons, does not want to involve a partner, her wishes should be respected.
Wants to become pregnant soon	Do not try to persuade her to accept a method. Provide information or a referral if the woman needs other reproductive health services.	If the woman has had repeated spontaneous abortions, she may need to be referred for infertility treatment.

Adapted from: Leonard and Ladipo, 1994.¹

COUNSELING AND INFORMED CHOICE PROCESS

Good family planning counseling focuses on the individual woman's needs and situation, and good counselors listen to the woman's questions and concerns. Counseling must be based on trust and respect between the client and the counselor.

Remember: All information exchanged in the counseling session

Family planning counseling should help a client:

- consider her reproductive goals, including the need for protection against STDs;
- make free, informed choices about family planning; and
- understand how to use effectively or stop using her chosen method.

Key to good counseling

A good counselor

- Understands and respects the client's rights
- Earns the clients trust
- Understands the benefits and limitations of all contraceptive methods
- Understands the cultural and personal factors that affect a woman's (or a couple's) decision to use family planning and a particular method.
- Encourages the client to ask questions
- Uses a nonjudgmental approach which shows the client respect and kindness.
- Presents information in an unbiased, client-sensitive manner
- Actively listens to the client's concerns
- Recognizes when s/he cannot sufficiently help a client and refers the client to someone who can
- Understands the effect of nonverbal communication

Adapted from: World Health Organization, 1990.⁴

The Counseling Session

The **GATHER** system is one method used to organize the elements of the counseling process. This acronym is designed to help counselors remember important points in effective counseling.⁵ **GATHER (Table 9-2)** is one approach to counseling after the treatment of incomplete abortion. In practice, counseling should be tailored to the individual circumstances and may follow a different sequence or technique.

Table 9-2

The GATHER Technique	
Steps	Activities
GREET	<p>Introduce yourself to the client by name and express personal interest in her situation.</p> <p>If the woman is in a very busy area, try to find a private, calm environment where you can talk (e.g., a curtained area, treatment area that is not in use, a quiet hallway, courtyard).</p> <p>If the woman is lying in a bed, sit down next to her if possible.</p> <p>Ask if she feels able to talk about family planning. If she does not, check with her later or make arrangements for a referral.</p> <p>Explain that your conversation is confidential. Reassure the client that you will not repeat anything that she says.</p>
ASK	<p>Ask the woman how she is feeling and express concern.</p> <p>Assess whether counseling is appropriate at this time. (Is the woman physically and emotionally prepared to discuss family planning?) If not, check with her later or arrange for her to be counseled at another time.</p> <p>If her partner or family members are with her, ask the woman if she would like to speak privately or if she would like to involve her partner.</p> <p>Ask about her reproductive goals, including if she wants to become pregnant soon.</p> <p>Ask if she was using contraception before she became pregnant. If she was, find out if she:</p> <ul style="list-style-type: none"> • used the method correctly, • discontinued use, • had any trouble using the method, or • has any concerns about the method. <p>Ask about her age, marital status and number of pregnancies.</p> <p>Ask her what she has heard about the various contraceptive methods, and if she has a preference for a particular method.</p>

Table 9-2

The GATHER Technique (continued)	
Steps	Activities
TELL	<p>Tell the client about family planning methods without losing sight of her concerns and preferences. It is very important for the client to understand:</p> <ul style="list-style-type: none"> • She can become pregnant again very quickly (as soon as 2 weeks after a first-trimester incomplete abortion). • That safe contraceptive methods are available • Where she can find family planning services close to where she lives <p>Briefly describe the available methods, including characteristics and side effects, which will help her meet her reproductive goals.</p> <p>If feasible, use support materials such as pamphlets, brochures, posters, flipcharts, film or videotape to emphasize points. If the woman wishes, let her handle samples of different methods.</p> <p>Answer any questions or concerns that she has about family planning.</p>
HELP	<p>Help the client consider her needs, and what method best meets them. If she has expressed an interest in a particular method, try to determine together if it will meet her needs. Ask, for example, “Do you think you can remember to take a pill every day?” and “Can you tell your partner that you are using family planning?”</p> <p>Be sure there are no clinical precautions for using a particular method in the immediate postabortion period (e.g., IUDs with severe bleeding or anemia).</p> <p>Do not choose a method for her.</p> <p>Supply method as needed.</p>
EXPLAIN	<p>Explain how the chosen method works and how it should be used.</p> <p>Explain the normal side effects, as well as any warning signs of more serious complications, and what to do if they occur.</p> <p>Ask the client to repeat the information and instructions to be sure she understands.</p> <p>Ask if the woman has questions and provide answers.</p> <p>Give information about resupply, return visits, etc.</p>

Table 9-2

The GATHER Technique (continued)	
Steps	Activities
REFER	<p>Refer the client to an appropriate clinic for followup care as needed. For most women, a clinic near home is the best option.</p> <p>If a contraceptive method was provided after treatment of incomplete abortion, the followup visit should:</p> <ul style="list-style-type: none">• assess whether the client is in good health and satisfied with the method she is using,• address side effects that may have occurred,• provide support and encouragement to help the client continue using contraception effectively, and• help the client change or stop a method when appropriate. <p>If free, informed choice was not possible at the time of treatment, the followup visit should include full family planning counseling. All of the steps in GATHER should be followed.</p> <p>Always ask the woman if she has any questions or concerns and provide answers.</p> <p>Always assess if the woman needs other reproductive health care and provide care or referral as appropriate.</p>

Adapted from: Lettenmaier and Gallen, 1987.⁵

POSTABORTION CONTRACEPTION

A woman's fertility generally returns within 2 weeks after an incomplete abortion in the first trimester. Unfortunately, many women are not aware of this because it differs from the postpartum period where the return of fertility is delayed. Because of the subsequent risk of repeat pregnancy, use of postabortion family planning should be initiated as soon as possible.

In general, all modern methods can be used **immediately** after emergency postabortion care, provided:

- there are no severe complications requiring further treatment,
- the client receives adequate counseling, and
- the provider screens for any precautions for using a particular contraceptive method.

In addition, it is recommended that women not have sexual intercourse until postabortal bleeding stops (usually 5 to 7 days) and any complications are resolved. Finally, natural family planning is **not** recommended until a regular menstrual pattern returns.

Table 9-3

Guidelines for Contraceptive Use by Clinical Condition		
Clinical Condition	Precautions	Recommendations
<p>No complications after treatment of incomplete abortion</p>	<p>Natural family planning: do not recommend until a regular menstrual pattern returns.</p> <p>Female voluntary sterilization: the time of treatment for incomplete abortion usually is not the best time for clients to make decisions about methods that are permanent.</p> <p>Diaphragm or cervical cap: should be refit after a second-trimester incomplete abortion.</p>	<p>Consider all temporary methods.</p> <p>Norplant implants: can begin use immediately.</p> <p>Injectables (DMPA, NET-EN): can begin use immediately.</p> <p>IUD: can begin use immediately.</p> <p>Oral contraceptives (combined or progestin-only): can begin use immediately.</p> <p>Condoms (male/female): can be used when sexual activity is resumed.</p> <p>Spermicidal foams, jellies, tablets, sponge or film: can be used when sexual activity is resumed.</p> <p>Diaphragm or cervical cap: can be used when sexual activity is resumed.</p>
<p>Confirmed or presumptive diagnosis of infection</p> <p>Signs and symptoms of sepsis/infection</p> <p>Signs of unsafe or unclean induced abortion</p> <p>Unable to rule out infection</p>	<p>IUD: do not insert until risk of infection ruled out or infection fully resolved (approximately 3 months).</p> <p>Female voluntary surgical sterilization: do not perform procedure until risk of infection is ruled out or infection is fully resolved (approximately 3 months).</p>	<p>Norplant implants: can begin use immediately.</p> <p>Injectables (DMPA, NET-EN): can begin use immediately.</p> <p>Oral contraceptives (combined or progestin-only): can begin use immediately.</p> <p>Condoms (male/female): can be used when sexual activity is resumed.</p> <p>Spermicidal foams, jellies, tablets, sponge or film: can be used when sexual activity is resumed.</p> <p>Diaphragm or cervical cap: can be used when sexual activity is resumed.</p> <p>Male partner sterilization: at any time if desired.</p>

Table 9-3

Guidelines for Contraceptive Use by Clinical Condition (continued)		
Clinical Condition	Precautions	Recommendations
<p>Injury to genital tract</p> <p>Uterine perforation (with or without bowel injury)</p> <p>Serious vaginal or cervical injury, including chemical burns</p>	<p>IUD: do not insert until serious injury healed.</p> <p>Female voluntary sterilization: do not perform procedure until serious injury healed.</p> <p>Spermicidal foams, jellies, tablets, sponge or film: do not begin use until vaginal or cervical injury healed.</p>	<p>Norplant implants: can begin use immediately.</p> <p>Injectables (DMPA, NET-EN): can begin use immediately.</p> <p>Oral contraceptives (combined or progestin-only): can begin use immediately.</p> <p>Condoms (male/female): can be used when sexual activity is resumed.</p> <p>Spermicidal foams, jellies, tablets, sponge or film: can be used when sexual activity is resumed (can be used with uncomplicated uterine perforation).</p>
<p>Severe bleeding (hemorrhage) and related severe anemia (Hb < 7 gm/dl or Hct < 20%)</p>	<p>Female voluntary sterilization: do not perform procedure until the cause of hemorrhage or anemia resolved.</p> <p>Progestin-only pills: use with caution until acute anemia improves.</p> <p>Norplant implants: delay insertion until acute anemia improves.</p> <p>Injectables (DMPA, NET-EN): delay starting until acute anemia improves.</p> <p>IUD (inert or copper-bearing): delay insertion until acute anemia improves.</p>	<p>IUD (progestin-releasing): can be used with severe anemia (decreases menstrual blood loss).</p> <p>Combined oral contraceptives: can begin use immediately (beneficial when hemoglobin is low).*</p> <p>Condoms (male/female): can be used when sexual activity is resumed.</p> <p>Spermicidal foams, jellies, tablets, sponge or film: can be used when sexual activity is resumed.</p> <p>Diaphragm or cervical cap: can be used when sexual activity is resumed.</p> <p>* "Some experts recommend starting COCs exactly 1 week postabortion, as there is a suggestion of a slight increase in coagulation factors measurable in the first few days after first trimester abortion, in women starting COCs immediately. If started later than 1 week, COCs may not be immediately effective because the ovary resumes follicular development as soon as 1 week after first trimester abortion."⁶</p>

Table 9-3

Guidelines for Contraceptive Use by Clinical Condition (continued)		
Clinical Condition	Precautions	Recommendations
Second-trimester incomplete abortion	<p>Female voluntary sterilization: advisable to delay procedure until uterus returns to prepregnancy size (4 to 6 weeks). If this is not possible, use minilap technique.</p> <p>IUD: size of uterus requires skilled, experienced provider for high fundal placement. If this is not possible, delay insertion for 4 to 6 weeks.</p> <p>Diaphragm or cervical cap: should be refit when uterus returns to prepregnancy size (4 to 6 weeks).</p>	<p>Norplant implants: can begin use immediately.</p> <p>Injectables (DMPA, NET-EN): can begin use immediately.</p> <p>Oral contraceptives (combined or progestin-only): can begin use immediately.</p> <p>Condoms (male/female): can be used when sexual activity is resumed.</p> <p>Spermicidal foams, jellies, tablets, sponge or film: can be used when sexual activity is resumed.</p>

Source: Blumenthal and McIntosh, 1995; Leonard and Ladipo, 1994.^{1,2}

Because little research exists on contraceptive use following complications such as severe bleeding, infection or uterine perforation, appropriate contraceptive choices will depend largely on the severity and outcome of such complications.

Finally, counseling women about methods of postabortion contraception must include assessment of their risk for contracting sexually transmitted GTIs and other STDs, especially hepatitis B and HIV/AIDS. **All women** should be advised that the only contraceptive methods that provide protection against GTIs and other STDs are male and female condoms and, to a lesser extent, spermicides. In combination with more effective contraceptive methods, these methods can significantly reduce risk of both unintended pregnancy and STDs.

Contraception After Postabortion Complications

Women who have been treated for postabortion complications may have medical conditions that could affect the selection of a contraceptive method. **Table 9-4** presents a number of elements that should be considered in the selection of a contraceptive method.

Table 9-4

Guidelines for Selection of Contraception by Method			
Method	Timing After Incomplete Abortion	Advantages	Remarks
<p>Non-Fitted Barriers (latex and vinyl male/female condoms; vaginal sponge and suppositories [foaming tablets, jelly or film])</p>	<p>May begin use as soon as sexual intercourse is resumed.</p>	<ul style="list-style-type: none"> · No method-related health risks · Inexpensive · Good interim method if initiation of another method must be postponed · No medical supervision required · Condoms (latex and vinyl) provide protection against GTIs and other STDs (HBV and HIV/AIDS) · Easily discontinued · Effective immediately 	<ul style="list-style-type: none"> · Less effective than IUD or hormonal methods · Requires use with each episode of intercourse · Requires continued motivation · Resupply must be available · May interfere with intercourse
<p>Fitted Barriers Used With Spermicides (diaphragm or cervical cap with foam or jelly)</p>	<p>Diaphragm can be fitted immediately after first-trimester incomplete abortion; after second-trimester incomplete abortion, fitting should be delayed until uterus returns to prepregnancy size (4 to 6 weeks).</p> <p>Delay fitting cervical cap until bleeding has stopped and uterus has returned to prepregnancy size.</p>	<ul style="list-style-type: none"> · No method-related health risks · Inexpensive · No medical supervision required · Some protection against GTIs and other STDs (HBV and HIV/AIDS) · Easily discontinued · Effective immediately 	<ul style="list-style-type: none"> · Less effective than IUD or hormonal methods · Requires use with each episode of intercourse · Requires continued motivation · Resupply must be available · Associated with urinary tract infections in some users · Requires fitting by trained service provider
<p>Oral Contraceptives (combined and progestin-only)</p>	<p>May begin pill use immediately, preferably on the day of treatment.</p>	<ul style="list-style-type: none"> · Highly effective · Can be started immediately even if infection is present · Can be provided by non-physicians · Do not interfere with intercourse 	<ul style="list-style-type: none"> · Requires continued motivation and daily use · Resupply must be available · Effectiveness may be lowered with long-term use of certain medications (e.g., rifampin, dilantin, griseofulvin) · Condoms recommended if at risk for GTIs and other STDs (HBV and HIV/AIDS)

Table 9-4

Guidelines for Selection of Contraception by Method (continued)			
Method	Timing After Incomplete Abortion	Advantages	Remarks
Injectables (DMPA, NET-EN)	<p>May be given immediately after incomplete abortion in the first or second trimester.</p> <p>May be appropriate for use if a woman wants to delay choice of long-term method.</p>	<ul style="list-style-type: none"> · Highly effective · Can be started immediately, even if infection is present · Can be provided by non-physician · Does not interfere with intercourse · Not user-dependent (except for injection every 2 or 3 months) · No supplies needed by client 	<ul style="list-style-type: none"> · May cause irregular bleeding, especially amenorrhea; excessive bleeding may occur in rare instances · Delayed return to fertility · Must receive injections every 2 or 3 months · Condoms recommended if at risk for GTIs and other STDs (HBV and HIV/AIDS)
Progestin-Only Implants (Norplant implants)	<p>May be given immediately after incomplete abortion. If adequate counseling and informed decision-making cannot be guaranteed, insertion must be delayed and an interim method provided.</p> <p>Should not be inserted until hemorrhage is controlled.</p>	<ul style="list-style-type: none"> · Highly effective · Long-term contraception (implants effective for 5 years) · Immediate return to fertility on removal · Does not interfere with intercourse · No supplies needed by client 	<ul style="list-style-type: none"> · May cause irregular bleeding (especially spotting) or amenorrhea · Trained provider required to insert and remove · Cost-effectiveness depends on long-term use · Condoms recommended if at risk for GTIs and other STDs (HBV and HIV/AIDS)
IUD	<p>Delay insertion until serious injury is healed, hemorrhage is controlled or acute anemia improves.</p> <p>Be sure there is no infection. If infection suspected, delay insertion until infection has been resolved (3 months).</p> <p>First Trimester: IUDs can be inserted if the risk or presence of infection can be ruled out. If adequate counseling and decision making cannot be guaranteed, delay insertion and provide an interim temporary method.</p> <p>Second Trimester: Delay for 4 weeks unless equipment and expertise available for immediate postabortal insertion.</p>	<ul style="list-style-type: none"> · Highly effective · Long-term contraception · Immediate return to fertility following removal · Does not interfere with intercourse · No supplies needed by client · Requires only monthly checking for strings (by client) · Only one followup visit needed unless there are problems 	<ul style="list-style-type: none"> · May increase menstrual bleeding and cramping during the first few months · Uterine perforation can occur during insertion · May increase risk of PID and subsequent infertility for women at risk for GTIs and other STDs (HBV and HIV/AIDS) · Trained provider required to insert and remove

Table 9-4

Guidelines for Selection of Contraception by Method (continued)			
Method	Timing After Incomplete Abortion	Advantages	Remarks
Female Voluntary Sterilization (VS)	<p>VS after a first-trimester abortion is similar to an interval procedure; after a second-trimester abortion it is more similar to a postpartum procedure.</p> <p>Technically, VS procedures usually can be performed immediately after treatment of postabortion complications unless infection or severe blood loss is present.</p> <p>Do not perform until infection is fully resolved (3 months) or injury healed.</p>	<ul style="list-style-type: none"> · Permanent method · Most effective female method · Once completed, no further action required · Does not interfere with intercourse · No change in sexual function · No long-term side effects · Immediately effective 	<ul style="list-style-type: none"> · Adequate counseling and fully informed consent are required before VS procedures; this is often not possible at the time of emergency care. · Slight possibility of surgical complications · Requires trained staff and appropriate equipment · Condoms recommended if at risk for GTIs and other STDs (HBV and HIV/AIDS)
Natural Family Planning	<p>Not recommended for immediate postabortion use. The first ovulation after an abortion will be difficult to predict and the method is unreliable until after a regular menstrual pattern has returned.</p>	<ul style="list-style-type: none"> · No cost associated with method 	<ul style="list-style-type: none"> · Unreliable immediately after abortion · Alternative methods recommended until resumption of normal cycle · Requires extensive instruction and counseling · Condoms recommended if at risk for GTIs and other STDs (HBV and HIV/AIDS) · Requires continued motivation and a thorough understanding of how to use the method by the woman and her partner

Adapted from: Blumenthal and McIntosh, 1995; Benson et al, 1992.^{2,7}

Service Delivery Capabilities

A woman's ability to use a method effectively is based in part on the resources of the community where she lives. To ensure continuity of care, health care providers must consider a woman's family planning needs relative to the overall health care system.

If a woman has travelled far from her home for treatment of postabortion complications, family planning providers need to know what services she will have access to when she returns home in order to help her choose an appropriate method. If provision of either counseling or methods is not possible on-site, refer the woman to a provider of these services in her community. **Table 9-5** summarizes factors to consider in assessing the local capability of delivering family planning services.

Table 9-5

Local Capability to Deliver Services		
Facility, Provider and Community Capability	Issues to Consider	Recommendations
Opportunity, space and private environment for counseling	Emergency care settings may be too crowded and hectic to ensure privacy and informed choice.	Arrange space and time for private counseling.
	Do not give permanent or long-acting methods (e.g., Norplant implants or injectables) without adequate counseling, and assurance that the client has been able to make a well considered decision not influenced by stress, pain or other factors.	If adequate counseling is impossible, offer temporary methods, and provide referrals for further counseling regarding other methods.
Choice of contraceptive methods	Do not limit the range of methods offered. Limiting the availability of methods will deny some women access to their preferred methods.	Make a range of methods available. Reduce provider bias for or against particular methods by educating providers about appropriate use of all methods.
Links with family planning resources in the community	Consider the woman's access to followup care and resupply in recommending methods.	Make sure counselors and providers know about family planning resources throughout the area served. Establish referral links among family planning resources or between postabortion care and family planning services.

Source: Leonard and Ladipo, 1994.¹

While provider-dependent methods may not be the best choice for women with little or no access to ongoing care, women with little access to resupply of condoms or pills may find methods that do not require resupply their **only** workable option. Providers need to help clients think through issues such as convenience or supply and where they would go if they experienced problems after getting long-term or permanent methods.

Providers should be particularly aware of the cost to the woman of a contraceptive method. This is a key principle in limiting use of family planning. High costs of services and methods can prevent women from having access to contraceptives and dramatically influence their ability and willingness to continue to use them.

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TEN

ORGANIZING AND MANAGING SERVICES[†]

BACKGROUND

To be effective in preventing postabortion mortality, emergency postabortion care must be widely accessible throughout the existing health system to all women on a 24-hour basis. Health care facilities and trained medical providers, however, usually are concentrated in cities, leaving women in rural and remote areas, where most of the world's population lives, either unserved or underserved. In order to improve the accessibility of postabortion care, health services should include:

- Provision of care at the lowest level, which has the trained staff and appropriate equipment to provide safe care (see **Table 1-1**)
- Effective referral networks and practices
- Adequate transport between levels of care
- Coordination between the units within larger referral facilities

With the exception of cases of severe complications, most emergency postabortion care can be appropriately provided in existing facilities and with very little specialized equipment.

Offering postabortion care at the lowest level possible provides women with care closer to their homes. Reducing the time spent in seeking and waiting for emergency postabortion care removes a major obstacle many women face in obtaining care.¹

It is the manager's responsibility to see that facilities and equipment do not become barriers to provision of the safest possible postabortion care at the lowest feasible level in the health care system. In most cases, minor changes in existing facilities, changes in patient flow or obtaining minimal new equipment can improve the safety and efficiency of postabortion care and will allow for increased service provision. Such minor changes can greatly increase the number of service delivery points available for emergency postabortion care.

[†] **Adapted from:** World Health Organization: *Complications of Abortion: Technical and Managerial Guidelines for Prevention and Treatment*. Geneva, WHO, 1994.

¹ Thaddeus S and Maine D: *Too Far to Walk: Maternal Mortality in Context*. New York, Columbia University Center for Population and Family Health, 1990.

FACILITIES FOR EMERGENCY POSTABORTION CARE

Through the first trimester of pregnancy, emergency care can be provided for uncomplicated incomplete abortions at the primary or first referral level,² since sophisticated medical equipment, specialized staff and operating rooms are usually not required. Care can usually be provided in an outpatient area of the emergency room. MVA can be carried out by trained staff in a simple treatment room and the woman usually can be released after a short recovery period.

Care for incomplete abortions beyond the first trimester and serious complications should be provided in a setting **with more specialized facilities and skilled personnel**. A full-scale operating room is not required unless laparotomy is anticipated or general anesthesia is needed. Hospitalization often is required; however, many services deliver emergency care for uncomplicated second-trimester incomplete abortions on an outpatient basis.

Every effort should be made to provide clinical care and interpersonal communication & counseling in a private environment for emotional support. In some facilities, a separate room may be available for treatment or for counseling and informed choice and recovery but this is not necessary. Privacy can be achieved by placing screens around a bed, cot or couch in an outpatient unit or emergency room.

The facility requirements for postabortion care by level of the health care system, based on the typical staffing pattern and the elements of care that can be provided at each level, are described in **Chapter 1** (see **Table 1-1**).

REFERRAL SYSTEMS

While the majority of emergency postabortion care activities can be provided at lower levels in any health system, the most severe complications require ready access to pre-arranged referral sites. **Prompt communication, decision-making and transfer of patient information between the units involved are important elements of any referral system.**

Indications for referral should be clearly stated in written service protocols and should be reviewed regularly to ensure that they remain relevant. Furthermore, referral arrangements for each level of care should be communicated to all relevant staff for implementation as required.

Transportation Issues

Life-threatening hemorrhage, shock and surgical emergencies can occur anywhere and immediate transport can save many women's lives, particularly those who have serious complications and live in remote areas. In small clinics without ready ambulance service, emergency transfer will require ingenuity and planning. It is important for managers to consider all locally available means of transportation.

². World Health Organization: *Care of Mother and Baby at the Health Centre: A Practical Guide*. Geneva, WHO, 1994.

Community resources for transportation may include: police, military, agricultural extension services, government institutions, civil protection organizations, local non-governmental organizations such as churches and missions, local club, voluntary organization e.g., Rotary club, Lions club, Red cross, VDC, community etc and individual residents.

All available local communication channels can be used to call for transportation to transfer women to referral facilities.³ Community resources such as shortwave radios or telephones can support communication channels available in the facility. When services outside the health system are included in transportation protocols, standing arrangements for the use of these services should be arranged by the program manager to ensure that time is not lost in making arrangements when emergencies occur. These protocols and arrangements should be periodically evaluated and updated by managers. Any changes should be communicated to all staff to avoid unexpected difficulties during emergency situations.

OUTPATIENT AND EMERGENCY ROOM CARE

In most cases, emergency postabortion care can and should be delivered in an outpatient setting in the emergency room with minimal use of anesthesia. This will require appropriately trained staff and adequate equipment that can generally be made available at the primary or first referral level. Emergency care must be available 24 hours a day. Shifting care out of operating rooms (theaters) and into treatment rooms at the primary and first referral level is a major benefit for any hospital or clinic and for the women they serve. Some of the benefits in offering postabortion care at lower levels of the health system on an outpatient basis are:

- Improved access to services by provision of postabortion care as an outpatient service and treatment of some women at lower level facilities who would otherwise be referred
- Reduced delay in treatment by reduced use of hospital beds and operating room facilities
- More timely treatment, since transportation and waiting time required for referral and/or inpatient admission procedures are eliminated
- Increased availability of operating room facilities and staff for other procedures
- Decreased number of cases that must be referred to the secondary and tertiary levels, allowing those centers to focus on care requiring the extra resources available only at the highest level of the health care system

CASELOAD CONSIDERATIONS

In planning for emergency postabortion care; it is important to know what the current caseload is and what the future caseload is likely to be. Current caseload can be determined by reviewing hospital and clinic records on women treated in the past. Problems stemming from a high caseload may be obvious to the manager.

³. Herz B and Measham A: *The Safe Motherhood Initiative: Proposal for Action*. World Bank Discussion Papers No. 9, Washington, D.C., 1987.

For example, women waiting for treatment may be filling the hallways, there may be a lengthy wait for treatment, or the bed occupancy rate may be too high. These findings could indicate a particularly high caseload or poor patient flow (see below).

Managers should monitor the current caseload frequently and remain alert to developments that could affect the projected caseload. Some of the factors that cause the caseload to vary include changing access to contraception, changes in population distribution, efforts to encourage particular groups (such as adolescents) to seek care, changes in the structure of the health system or the referral network, reassignment of staff, construction of additional health care facilities in the community, introduction of similar services in the same catchment area, and changes in abortion laws.

Patient Flow

Effective systems for managing the flow of patients through a facility ensure that, regardless of fluctuations in caseload, women receive care in a logical sequence and without unnecessary delay. Managers can often improve the quality of care significantly by organizing existing resources more efficiently. Three critical questions that managers can examine to improve patient flow are:

- What activities must be carried out in a particular area and in what order?
- Where and why does crowding occur?
- How could use of space and personnel be modified to increase the efficiency of activities and better serve patients?

Examples of ways to make patient flow more efficient include: performing MVA in the emergency room rather than referring patients to the gynecology service, treating most cases on an outpatient basis and using treatment rooms rather than operating rooms.

Use of space and staff to encourage smooth patient flow and to minimize delays may be difficult in an emergency room setting. Presentation of patients for emergency postabortion care is unpredictable, so the manager must plan for fluctuations in caseload and maintain service delivery 24 hours a day.

Coordination Within Facilities

Coordination of services provided within a single facility is an important issue in improving postabortion care. It is the responsibility of facility managers to see that linkages between units providing all elements of postabortion care are made and function smoothly. The “inreach” concept of ensuring that all staff at a facility are oriented to women's needs and how/where to refer for services can help and support these formal linkages.

Unless units are well coordinated, many women will not receive needed care even if official protocols specify appropriate and complete care. For example, a woman with an incomplete abortion may be treated in the emergency room but never receive family planning services unless linkages between departments either make those services available in the emergency room or referrals to a family planning clinic are made regularly. Family planning methods should be available in the PAC room only.

Managers of some first referral, secondary and tertiary care centers in particular, must consider the units within the hospital involved in postabortion care and review the linkages and communication among them. Units, which need to be coordinated, may include:

- Emergency room
- Obstetrics/gynecology and nursing departments
- Operating room or theater
- Family planning clinic
- Outpatient clinic
- Social work unit
- Central equipment sterilization services
- Pharmacy and equipment supply units
- Medical records unit
- Central laboratory
- STI/HIV clinic
- oncology clinic
- sub-fertility clinic

Inadequate communication and linkages at individual service points can restrict access to high quality services.

Equipment and Drugs for Emergency Postabortion Care

Quality postabortion care for incomplete abortions does not require extensive specialized equipment and drugs (see **Appendices F and G**). The manager must be concerned with the logistics of obtaining necessary equipment and supplies, seeing that they are available when and where services are delivered, and supervising their maintenance. S/he must consider the initial investment for equipment, the recurring cost of disposable supplies and the cost savings of preventing serious complications. Some important considerations regarding the purchase, supply and maintenance of equipment are listed below:

- What is the current status of emergency postabortion care services and what material resources exist?
- What type of equipment and supplies are needed?
- What quantity of equipment and supplies will be needed?
- What are the inventory control issues?
- What policies and procedures are needed to manage the logistics of obtaining and maintaining equipment?

These questions and some managerial responses to each are grouped for discussion below.

Current Status and Existing Resources for Postabortion Care

The equipment needs for treatment of uncomplicated incomplete abortion are not elaborate and most of the items will be part of the existing inventory of primary and first referral- level facilities.

Likewise, the equipment needed for treatment of serious complications should be available at institutions that provide general and/or gynecological surgery.

In some cases the manager may wish to adapt current facilities or procedures to deliver more efficient or broader postabortion-related care (e.g., establishing an outpatient treatment room). In this context, additional equipment and supplies may be required to create new treatment areas. In other cases the addition of only a few simple pieces of equipment, such as a light or examining table, is needed.

In any setting, particular care must be taken to ensure that the procedure area is well-stocked with consumable supplies in order to avoid interruptions in care.

Type of Equipment and Supplies Needed

Chapter 6 and **Appendices F** and **G** list the equipment and drug requirements for postabortion care. All facilities must have supplies for resuscitation as well as drugs to control bleeding readily available. These supplies must be maintained in adequate supply to meet emergency needs and replenished promptly when used.

Where there is a choice, the costs and benefits of disposable supplies (those discarded after use) and nondisposable items (those processed for reuse) must be carefully weighed. Disposable supplies are generally more expensive. Since they must be reordered regularly, these supplies also are subject to shortages in stock and problems with shipment. Furthermore, disposal of such supplies must follow standard infection prevention measures (even disposable items should be decontaminated, if possible, before discarding) (see **Chapter 4**).

When nondisposable supplies and equipment are used, staff must be trained in how to decontaminate, clean, process and maintain the equipment properly as well as be supervised regularly in these tasks. Costs will be incurred to purchase the reagents needed for sterilization or high-level disinfection. Nondisposable supplies will require particular diligence in the adherence to recommended infection prevention practices (see **Chapters 4** and **8**) and may be more expensive initially. The manager must balance these factors before making a decision about the use of disposable or nondisposable items.

Some aspects of postabortion care, such as processing instruments or conducting laboratory tests, may be carried out centrally in larger service facilities at the first referral level and above. In these cases, the unit manager may not need to make provisions for equipment and supplies related to these activities.

The type of equipment used can also be influenced by such factors as the availability and dependability of electricity. If electricity is available but not dependable and electric equipment is to be used, a standby generator or manual backup equipment must be purchased and maintained in good working order. In many cases, nonelectric equipment may be preferable for other reasons. The complexity of equipment and the availability of replacement parts and repair services must also be considered when determining the type of equipment to be purchased.

Quantity of Equipment and Supplies Needed

Estimates of the projected caseload and regular monitoring of services determine the quantity of equipment and supplies required. An adequate stock of equipment must be on hand in the unit during all hours when services are provided. If equipment and instruments are processed centrally rather than within the unit where they are used, it is especially important to have an adequate supply of equipment and to have sterilized equipment available in the treatment area whenever it is needed.

Inventory Control and Maintenance

Inventory control and equipment maintenance are essential to ensure that services will not be disrupted because equipment is missing or broken or supplies are out of stock. In planning an inventory control and maintenance system, some issues that the manager must plan for are:

- The quantity and types of equipment and supplies that must be kept in stock
- Adequate storage facilities
- Monitoring stock levels
- Reordering stock
- Security of stock
- Rotation of stock by “first expired, first out” (i.e., the oldest items or those purchased earliest should be used first)
- Process for supply within the institution for all sites of service delivery (e.g., there may be procedure rooms in both the emergency room and the gynecology department)
- Process for supply between facilities for centrally controlled systems (e.g., instrument processing)
- Routine equipment maintenance
- Equipment repair
- Monitoring equipment maintenance and supply logistics

Location (urban or rural) of the postabortion care facility influences both the ready availability of supplies and equipment and the planning time frame required for ordering and receiving disposable items. For instance, if a hospital is a 2-day journey from the nearest provider of essential supplies and the communications and transportation are unreliable, the manager will need to allow several weeks between the placement of an order and its receipt to be assured of timely delivery. Systems must be developed to monitor the inventory of supplies so that shortages may be avoided.

The manager should also consider the issues involved in the delivery system that will be used for future supplies. If equipment will be delivered by an outside agency or individual, a staff member should be responsible for keeping records of items ordered and received. If supplies must be obtained in person, a staff member should be made responsible and provided with sufficient transportation and capability to pay for supplies.

Attention should be given to the security of supplies and the appropriateness of storage facilities. For example, drug expiration dates must be checked and proper temperature and humidity maintained for storage of sensitive drugs and other supplies, and equipment securely stored to prevent theft.

Program managers must ensure that staff members are designated to be responsible for all of the tasks listed above. Special training may be needed to maintain and repair surgical and other mechanical equipment. In such cases, training should be arranged and the trainees should be monitored regularly to ensure that skills learned are being applied.

Policies and Procedures Regarding Equipment and Supplies

Postabortion care service managers must ensure that policies and procedures for storage and handling of all medical equipment and supplies are available and followed. Each institution should develop written protocols for routine maintenance of equipment and criteria for monitoring and evaluating each of the following issues:

- An approved list of medical supplies that may be ordered
- Inventory control, including records of inventory received, distributed or discarded
- Rotation of supplies using the “first expired, first out” system (this is especially important for any material bearing expiration dates)
- Procedure for storage and handling, security and safe discarding of all disposable (single-use) items, such as needles and syringes
- Preventive maintenance
- Plans for continued operation in the event of equipment breakdown or malfunction
- Cleaning, sterilization or HLD, and dating of equipment and supplies
- Wrapping and storage instructions for sterilized or high-level disinfected equipment and instruments
- Management of contaminated equipment and supplies

REFERENCES

1. Thaddeus S and Maine D: *Too Far to Walk: Maternal Mortality in Context*, New York, Columbia University Center for Population and Family Health, 1990.
2. World Health Organization: *Care of Mother and Baby at the Health Centre: A Practical Guide*, Geneva, WHO, 1994.
3. Herz B and Measham A: *The Safe Motherhood Initiative: Proposal for Action*, World Bank Discussion Papers No. 9, Washington, D.C., 1987.

APPENDIX A

ASSESSMENT AND TREATMENT OF COMPLICATIONS[†]

BACKGROUND

Any woman who has experienced an incomplete abortion, particularly if it is the result of an unsafe abortion, may also suffer from one or more serious conditions: shock, severe vaginal bleeding, infection/sepsis or intra-abdominal injury including uterine perforation. In addition, these conditions may occur as rare complications of the MVA procedure.

This appendix outlines the steps in treatment of each condition; they are discussed separately for the sake of clarity, even though it may be necessary to initiate treatment for more than one condition at the same time. Moreover, because of the number of issues that need to be considered in providing emergency postabortion care, the general principles of care are described more fully in **Appendix B**.

SHOCK

Shock is a life-threatening condition that requires immediate and intensive treatment to save the patient's life. Shock is the loss of oxygen supply and blood flow to the tissues due to failure of the circulatory system. It may be due to many causes; however, in the case of incomplete abortion, shock usually is caused by blood loss (hemorrhage), infection/sepsis or trauma.

Patients suffering from shock must be treated immediately and watched closely because their condition can worsen quickly. The primary goal in treating shock is to stabilize the patient; that is, to restore the volume and efficiency of the circulatory system as measured by an increase in the blood pressure and decrease in the pulse and breathing rates.

Signs of shock are:

- Fast, weak pulse (rate \geq 110 per minute)
- Low blood pressure (diastolic $<$ 60)
- Pallor (especially of inner eyelid, palms, tongue or around the lips)
- Sweatiness
- Rapid breathing (respirations \geq 30 per minute)
- Anxiousness, confusion or unconsciousness

[†] **Adapted from:** World Health Organization: *Clinical Management of Abortion Complications: A Practical Guide*. Geneva, WHO, 1994.

Initial TreatmentThe first steps in the care of shock can be life-saving.

- Check **vital signs**. Keep the patient warm because hypothermia is a danger, but do not apply external heat sources. Turn the woman's head to the side so that if she vomits, she is less likely to inhale the vomit. Do **not** give her anything (fluids, medicine or food) by mouth, as surgery may be needed.
- Make sure the **airway** is open. If available, give oxygen, 6-8 liters/minute by mask or nasal cannula.
- Raise the patient's legs or the foot of the bed to help blood return to the heart. If this causes difficulty in breathing, she may be experiencing heart failure and pulmonary edema; in this case, lower her legs and raise her head to relieve fluid pressure on the lungs.

Note: At this point if IV fluids and other medications are not available, make arrangements to transfer the patient immediately to a center where they are.

Be sure to:

- Explain everything to the patient's family
- Send a referral note (see **Appendix C** for an example)
- If possible send two people to the hospital with the patient to give blood
- To restore **fluid volume**, give IV fluids immediately (Ringer's lactate or isotonic saline solution at rate of 1 liter in 15 to 20 minutes). It may take 1 to 3 liters of IV fluids to stabilize a patient who has lost a lot of blood or is in shock. Do **not** give fluids by mouth.
- A hemoglobin of 5 g/100 ml or less or a hematocrit of 15 or less is life-threatening and will require **blood transfusion**.
- If there is any indication that **infection** may be present—including fever, chills or pus—take blood cultures (if available) and give broad-spectrum **antibiotics** (IV or IM).
- **Laboratory tests:** All investigation if possible including high vaginal swab for culture, hemoglobin or hematocrit; complete blood count, including platelet; Rh type and crossmatch blood; draw blood for electrolytes and blood urea nitrogen (BUN) (if available) and measure urine output. Hourly urine output lower than 50 ml is suggestive of decreased circulatory fluid volume (hypovolemia) and may represent acute renal failure.
- Check for and remove any POC present in the vagina.

Definitive Treatment

Once the initial steps have been taken to stabilize the patient, treat the underlying cause of shock promptly while continuing to check her vital signs, urine output and IV fluids closely. Because the cause of shock in patients with incomplete abortion often is retained POC, emptying the uterine cavity by MVA (see **Chapter 6**) is an essential part of definitive management.

SEVERE VAGINAL BLEEDING

Prompt treatment of excessive blood loss is critical in any health care situation; delays in stopping the bleeding and replacing fluid or blood volume can be fatal. If a woman has prolonged or excessive vaginal bleeding and symptoms of incomplete abortion, the bleeding usually is caused by retained POC or by injury to the vagina, cervix or uterus, including perforation of the uterus (see below). These injuries usually mean that the patient (or someone else) attempted to end the pregnancy. Therefore, she may have an infection (from unsafe methods or contaminated instruments) and need antibiotics. Damage from caustic chemical agents used to cause an abortion also can cause severe bleeding. Severe vaginal bleeding after an MVA procedure is quite rare but also should be managed promptly. During assessment and treatment of severe vaginal bleeding, the blood pressure and heart rate (pulse) should be watched closely, as shock may develop at any time.

Signs of severe vaginal bleeding are:

- Heavy, bright red, vaginal bleeding with or without clots
- Blood-soaked pads, towels or clothing
- Pallor (especially of inner eyelids, palms or around the mouth and tongue)
- Dizziness, fainting

Initial Treatment

- Check **vital signs**. Raise the woman's legs or the foot of the bed.
- Make sure the woman's **airway** is open. If available, give oxygen 6-8 liters/minute by mask or nasal cannula.
- To restore **fluid volume**, give IV fluids immediately (Ringer's lactate or isotonic saline solution at rate of 1 liter in 15 to 20 minutes). It may take 1 to 3 liters of IV fluids to stabilize the patient who has lost a lot of blood or is in shock.
- A hemoglobin of 5 g/100 ml or less or a hematocrit of 15 or less is life-threatening and will require **blood transfusion**.
- If there is any indication that infection may be present— including fever, chills or pus—give broad spectrum **antibiotics** (IV or IM) (see **Appendix B**). If the woman may have been exposed to tetanus and her vaccination history is uncertain, give her a **tetanus toxoid**. (Exposure to tetanus is possible if the abortion was not performed with sterile instruments or if the wound was contaminated with dirt or other unclean materials.)
- Give IV or IM analgesia for **pain management** (see **Appendix E**).

Laboratory tests: hemoglobin or hematocrit; Rh type and cross-match blood (if available); measure urine output. (Hourly urine output lower than 50 ml is suggestive of hypovolemia and may represent acute renal failure.)

Definitive Treatment

Once the initial steps have been taken to stabilize the patient, prompt treatment of the underlying cause of bleeding is necessary. Treatment should be done as follows:

- If there are any signs or symptoms of intra-abdominal injury (distended abdomen, decreased bowel sounds, rebound tenderness, nausea/vomiting, shoulder or abdominal pain, fever) or ectopic pregnancy, further assessment and treatment (surgery) are needed immediately. (See the section on **Uterine Perforation** in this appendix.)
- If, on vaginal examination, there are any visible vaginal or cervical tears (lacerations), they should be sutured.
- Treat the incomplete abortion according to the duration of pregnancy. If the uterine size is within the first trimester, the uterus should be evacuated using MVA (see **Chapter 6**).

Continuing Treatment

After treating the cause(s) of bleeding, continue checking the patient's vital signs, urine output and fluid replacement, adjusting treatment as indicated by her condition.

INFECTION/SEPSIS

Infection is a common complication of incomplete abortion. Retained POC provide an opportunity for bacterial growth. In rare cases, infection may occur after an MVA procedure, especially if the recommended infection prevention practices are not followed (see **Chapter 4**). Localized pelvic infection can quickly lead to more generalized infection (sepsis) and septic shock, which can be fatal. Therefore, prompt action to stabilize the patient and to treat the source of the infection is needed to save the woman's life.

The following **signs** and **symptoms** indicate that either local or generalized infection is very likely:

Signs

- Fever (temperature > 38°C), chills or sweats
- Foul-smelling vaginal discharge
- Lower abdominal tenderness (with or without rebound tenderness)
- Mucopus from the cervix
- Cervical motion tenderness on bimanual examination

Symptoms

- History of previous unsafe abortion or miscarriage
- Lower abdominal pain
- Prolonged bleeding (> 8 days)
- General discomfort (flu-like symptoms)

If infection is suspected, assess the patient's risk for developing **septic shock**. She is at **high risk** if:

- the abortion was later than 14 weeks,
- she has a high fever (temperature > 40°C) or subnormal temperature (< 36.5°C),
- she has any evidence of intra-abdominal injury, or
- any evidence of shock (falling blood pressure and rising pulse rate).

Local infection can usually be managed with immediate administration of broad-spectrum antibiotics (IV or IM) that are effective against Gram-negative, Gram-positive, anaerobic organisms and chlamydia.

Note: If the woman has an IUD in place, it should be removed.

If the infection is more generalized, or if the patient is at high risk for septic shock, immediate treatment is necessary to save her life.

Initial Treatment

- Check **vital signs**. Do **not** give the patient anything (fluids, medicine or food) by mouth, as surgery may be necessary.
- Make sure the woman's **airway** is open. If the patient is unstable, give oxygen 6-8 liters/minute by mask or nasal cannulae (if available).
- Begin **IV antibiotics** immediately, using broad spectrum antibiotics. (If blood cultures are available, take cultures before giving antibiotics.)
- If the woman may have been exposed to tetanus and her vaccination history is uncertain, give her a **tetanus toxoid**. (Exposure to tetanus is possible if the abortion was performed using unclean instruments or other objects.)
- If she becomes unstable, give **IV fluids** (Ringer's lactate or isotonic saline solution) at a rate of 1 liter in 15 to 20 minutes or faster. (A patient in septic shock may well require rapid administration of several liters of IV fluids to restore reasonable fluid balance.)
- **Laboratory tests:** If the woman has lost a lot of blood or appears anemic, check hemoglobin or hematocrit, complete blood count, including platelet; type and crossmatch blood; monitor urine output. (Hourly urine output lower than 50 ml is suggestive of hypovolemia and may represent acute renal failure.)
- **Abdominal x-rays:** Flat (horizontal) abdominal x-rays can identify air or fluid levels in the bowel. In the case of clostridial infection, gas may be seen in the tissues. The presence of an IUD may also be confirmed. Upright abdominal x-ray films will show air under the diaphragm if uterine or bowel perforation has occurred.
- If available ultrasound can also be helpful in diagnosing.

Definitive Treatment

With sepsis, prompt treatment can be life-saving. Because retained POC are most often the source of infection, surgery may be necessary for definitive treatment of intra-abdominal injury, pelvic abscess and peritonitis (see next section in this appendix). Uterine evacuation by MVA is an essential part of the treatment (see **Chapter 6**). **All** sources of infection must be treated. Consider the possibility of intra-abdominal injury, pelvic abscess, peritonitis, gas gangrene or tetanus. In addition, if the woman has an IUD in place, it should be removed after starting IV antibiotics. For management of gas gangrene and tetanus, specialized care at a higher level (referral) hospital is required.

Continuing Treatment

After treating the cause of infection, continue checking the patient's vital signs, urine output and fluid replacement; adjust supportive treatment (oxygen, antibiotics and other medication) as indicated by her condition.

INTRA-ABDOMINAL INJURY

Injury to the internal organs is a life-threatening complication as well as a cause of serious long-term poor health among patients with postabortion complications. The most common injury is uterine perforation; damage can also occur to the ovaries, fallopian tubes, omentum (peritoneal tissue around the stomach and intestine), bowel, bladder and rectum. These injuries indicate that attempts were made to end the pregnancy, and the possibility of infection, including tetanus and peritonitis, is very high.

Any internal injury, if not quickly diagnosed and treated, can lead to serious complications including **bleeding, infection** and **death**. Severe bleeding inside the abdomen (intra-abdominal hemorrhage) can occur with **little or no visible vaginal bleeding**. Therefore, whenever a woman is treated for postabortion complications, she should be checked for signs of intra-abdominal injury. During assessment and treatment of an intra-abdominal injury, the patient's blood pressure and heart rate should be watched closely, as shock may develop at any time.

A ruptured ectopic pregnancy or ruptured ovarian cyst also can cause intra-abdominal hemorrhage, and the symptoms will be similar to intra-abdominal injury. The possibility of ectopic pregnancy is greater if the patient has a history of any of the following:

- previous ectopic pregnancy,
- pelvic infection, or
- use of certain contraceptive methods.^{††}

^{††} IUDs and progestin-only contraceptives are highly effective in preventing intrauterine pregnancies, but less so ectopic pregnancies. Thus, if a woman using one of these methods does become pregnant, it is more likely the pregnancy is ectopic (up to 20-30%). When combined with signs of shock (decreased blood pressure and rapid pulse and breathing), the possibility of major intra-abdominal bleeding (hemorrhage) must be considered.

If ectopic pregnancy is suspected, delay in treatment is particularly dangerous, and death can be prevented only by stopping the hemorrhage through the surgical removal of the ectopic pregnancy, stopping bleeding and replacing blood loss, if indicated.

Definitive treatment of abdominal injury ranges from replacement of blood loss and antibiotic therapy to uterine evacuation under direct vision (laparoscopy or laparotomy) and repair or removal of injured tissue. It is important to recognize the signs that may indicate injury, to stabilize the woman's condition if possible, and if abdominal surgery is **not** available, to refer the woman quickly.

Signs and symptoms of intra-abdominal injury are:

Signs

- Distended abdomen
- Decreased bowel sounds
- Rigid (tense and hard) abdomen
- Rebound tenderness

Symptoms

- Nausea/vomiting
- Shoulder pain
- Fever (temperature > 38° C)
- Abdominal pain, cramping

Initial Treatment

The first steps in managing intra-abdominal injury, especially hemorrhage, can be life saving. (If laparotomy is **not** available, promptly prepare the woman for transfer after initial treatment.)

- Check **vital signs**. Raise the woman's legs or the foot of the bed.
- Make sure the woman's **airway** is open. If available, give oxygen 6-8 liters/minute by mask or nasal cannulae.
- Do **not** give the patient anything (fluids, medicine or food) by mouth, as surgery may be necessary.
- To restore **fluid volume**, give IV fluids immediately (Ringer's lactate or isotonic saline solution at rate of 1 liter in 15 to 20 minutes). It may take 1 to 3 liters of IV fluids to stabilize a patient who has lost a lot of blood or is in shock.
- A hemoglobin of 5 g/100 ml or less or a hematocrit of 15 or less is life-threatening and will require **blood transfusion**.
- If there is any indication that infection may be present— including fever, chills or pus discharge—give broad-spectrum **antibiotics** (IV or IM).

- If the woman may have been exposed to tetanus and her vaccination history is uncertain, give her a **tetanus toxoid**. (Exposure to tetanus is possible if the abortion was performed using unclean instruments or other objects.)
- Give IV or IM analgesia for **pain management** (see **Appendix E**).
- **Laboratory tests:** hemoglobin or hematocrit B1 group; type and cross-match blood; measure urine output.
- **Abdominal x-ray:** An upright abdominal x-ray will help determine if there is gas in the abdominal cavity (ruptured/perforated uterus, bowel or bladder).

Definitive Treatment

Any of the following conditions is a surgical emergency, requiring immediate laparotomy:

- A rigid abdomen
- Distended Abdomen
- A patient with acute abdominal pain **and** with persistent low blood pressure or shock that fails to stabilize after infusion of up to 3 liters of isotonic solution or Ringer's lactate
- An abdominal x-ray showing air or gas in the peritoneal cavity

In these cases, laparotomy is necessary to find and repair the injury. Peritonitis, uterine perforation, bowel injury, intra-abdominal injury and a ruptured ectopic pregnancy must be considered. It may be necessary to drain the abdomen. Repair or removal of injured tissue also may be required. In extreme cases, removal of the uterus may be necessary.

Once the intra-abdominal injury is treated, or if intra-abdominal injury is suspected **but** the woman is stable, the x-ray is negative, her abdomen is not rigid and there are no signs of ectopic pregnancy, evacuate the uterus according to the guidelines in **Chapter 6**. If intra-abdominal injury is discovered during the procedure, a laparotomy may be required to repair the injury.

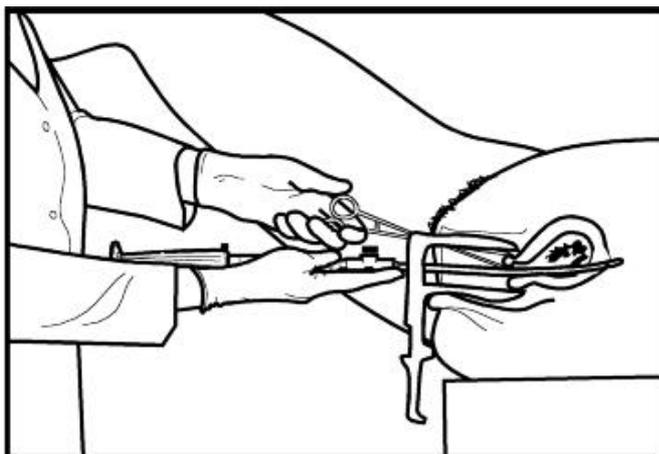
Continuing Treatment

After treating the cause of intra-abdominal injury and evacuating the uterus, check the patient's vital signs, urine output and fluids; adjust supportive treatment (oxygen, antibiotics and other medications) as indicated by her condition.

UTERINE PERFORATION

If uterine perforation occurs **during** the MVA evacuation procedure, it usually causes a very small tear. When it is recognized promptly and adequate precautions are taken, laparotomy is rarely necessary. Contraction of the uterus after evacuation often closes the opening and stops the bleeding.

Figure A-1. Uterine Perforation During MVA Procedure



Source: IPAS, 1994.

Perforation of the uterus as a presenting complication in a woman with incomplete abortion is usually the result of instrumentation by an untrained person in order to induce the abortion. This condition can be life-threatening, and prompt management is indicated because there is a high possibility of infection and damage to other abdominal/pelvic organs.

During the initial assessment, the clinician should suspect a uterine perforation if the woman has a history of unsafe abortion with:

- a fast pulse (rate ≥ 10 per minute),
- falling blood pressure (diastolic < 60), or
- excessive bleeding.

Signs and symptoms of an intra-abdominal injury are: distended abdomen, decreased bowel sounds, rigid abdomen (tense and hard), rebound tenderness, nausea/vomiting, shoulder or abdominal pain, fever and shock. In addition to intra-abdominal injury, if there is a large perforation, it will not close spontaneously, and repair of the defect may be necessary. These tears can bleed profusely and the blood can collect intra-abdominally with little or no bleeding vaginally.

During the procedure, suspect a perforation if:

- an instrument penetrates beyond the expected size of the uterus (based on the bimanual exam),
- the syringe vacuum decreases with the cannula well inside the uterine cavity, or
- the woman continues to bleed excessively after the uterine cavity is empty.

If fat, bowel or omentum is observed in the tissue removed from the uterus, the uterus has been perforated.

The choice of treatment of uterine perforation depends on whether the evacuation is complete when the perforation is discovered and on the health care facility's capabilities. In many instances, prompt referral to a higher level (referral) hospital is the best course of action. A general plan for treatment is outlined below.

If a perforation is found and the evacuation is complete:

1. Begin IV fluids and antibiotics.
2. Give ergometrine (0.2 mg IM), repeat as needed up to 3 doses.
3. **Observe for 2 hours**; check vital signs frequently; make arrangements for possible referral.
 - If the patient remains stable and bleeding slows, give ergometrine (0.2 mg) and continue observation overnight.
 - If the patient's condition worsens and the bleeding does not stop with an increased dose of either oxytocin or ergometrine, a laparoscopy or laparotomy may be necessary to locate and repair the source of the bleeding. If surgery is **not** available, refer patient to higher level of care.

If a perforation is found and the evacuation is not complete:

1. Begin IV fluids and antibiotics. Check the woman's hematocrit, and make arrangements for blood transfusion or plasma volume expander if indicated (and available).
2. Complete the evacuation under direct visual control (laparoscopy or laparotomy) to assess damage to the uterus and to prevent injury to abdominal organs, such as the bowel. If direct visual examination is not available, refer the patient to a higher-level hospital.
3. Repair the damage as necessary at minilaparotomy by either coagulating the bleeder or suturing the defect. Make sure the bowel is intact and there is no injury to other abdominal organs. (If the cervix is torn or cut beyond repair or there is extensive uterine perforation, a hysterectomy may be necessary.)
4. After surgery, give oxytocics (if uterus has not been removed) and observe vital signs every 15 minutes for 2 hours.
 - If the patient becomes stable and bleeding slows or stops, give ergometrine (0.2-0.5 mg IM) and continue observation overnight.
 - If the patient's condition gets worse, prepare her for transfer to a specialized care (referral) hospital.

APPENDIX B

GENERAL PRINCIPLES OF EMERGENCY POSTABORTION CARE

BACKGROUND

A number of issues must be considered in providing emergency postabortion care. Treatment may include stabilization and referral, oxygen, intravenous (IV) fluid replacement, blood transfusion or medicines (e.g., antibiotics, management of pain and tetanus toxoid). These topics are discussed below.

STABILIZATION AND REFERRAL

Stabilization and appropriate and timely referral are essential to help women reach life-saving care. Whether a woman is referred from the primary to the first referral level, or from the first referral to a secondary or tertiary care hospital, the referring site must do what it can to stabilize and treat the woman. The ability of a referring site to promptly transport the patient to the referral center can be life saving. Standing arrangements for transport should exist at all health delivery sites. These may require coordination with community resources such as police, military, agricultural extension services, other health care facilities, governmental institutions and churches and local clubs and involuntary organizations e.g., Rotary, Lions Leo etc. If possible, the referring site should alert the referral center that the patient is coming and send a referral note with the patient (see **Appendix C**).

The central elements in stabilizing the patient for referral¹ are:

- Management of the airway, respiration and circulation
- Control of bleeding
- Intravenous fluid replacement
- Management of pain
- If needed Antibiotic therapy.

In general, in an emergency referral, the patient should be accompanied by trained staff to the referral center. If she is accompanied, then IV therapy and oxygen (if equipment is available) can be continued during transport. If the patient cannot be accompanied by trained staff, others, including family members, can be shown how to manage IV therapy during transport. Whether or not the woman is accompanied, she should be kept warm and her feet should be elevated in cases of shock or hemorrhage. Do not use external sources of heat as skin can be easily burned; use blankets or extra clothing instead.

A summary of the case should be sent with the woman to the referral center. (See **Appendix C**)

¹. World Health Organization: *Complications of Abortion: Technical and Managerial Guidelines for Prevention and Treatment*. Geneva, WHO, 1994.

for an example of a referral form.) This should include:

- immediate and past history of the presenting problem;
- assessment of the patient's condition made at the referring site;
- actions taken at the referring site (for instance, morphine 10 mg IM at 1600 hours); and
- other relevant information obtained by the referring site (for example, patient has a seizure disorder).

INTRAVENOUS (IV) FLUID REPLACEMENT

In many instances of postabortion complications, women will require IV fluids for volume replacement. Generally, isotonic solution (0.9% sodium chloride, also known as normal saline) or Ringer's lactate is preferred. Saline with or without glucose can be used, depending upon the availability. Glucose solutions **without** saline do not provide the salt required to restore fluid balance.

A large bore needle, preferably 16-18-gauge, is best for starting IV fluids so that fluids may be given rapidly and blood can be given later, if needed. A 20-gauge needle is acceptable, however, if a larger size is not available.

Any necessary blood samples for laboratory tests should be drawn when the IV needle is being inserted. Blood drawing at a later point could be more difficult as veins tend to collapse and are found deeper from the surface when shock or other life-threatening complications are present. In addition, this minimizes the woman's discomfort and is a more efficient use of sterile supplies.

Rapid infusion of fluids can be life-saving in the case of shock from reduced blood/fluid volume. Fluids can be infused, at 500 ml to 1 liter per 15 to 20 minutes, while the woman's condition is being assessed and monitored. Normally it takes 1 to 3 liters of IV fluids, infused at this rate or faster, to stabilize a patient in shock. Once the woman's low fluid volume and the cause of shock have been corrected, fluids should be infused at a maintenance rate of 1 liter per 6 to 8 hours as shown in **Table B-1**.

To infuse fluids at different rates consider the:

- amount of fluid to be given,
- time period over which the fluid is to be given, and
- size of tubing and drop size. (Each size of tubing **has a slightly different** drop size. For example, some tubing has 20 drops [gtt] per ml, while another size may have only 10 drops per ml.)

Table B-1 shows how many drops per minute must be given in order to provide a certain amount of fluid over a fixed period of time. To use the table, you must know the **number of drops** per ml (that is, which size tubing is being used).

Table B-1

IV Fluid Rates			
Amount of Fluid	Infusion Time	Drops per ml (size of tubing)	Drops per Minute
1 liter	20 minutes	10	Too fast to count
1 liter	20 minutes	20	Too fast to count
1 liter	4 hours	10	40
1 liter	4 hours	20	80
1 liter	6 hours	10	28
1 liter	6 hours	20	56
1 liter	8 hours	10	20
1 liter	8 hours	20	40

The general formula to figure out **any** IV infusion rate is as follows:

Amount of fluid to be given (milliliters)/ Infusion time (minutes) X Number of drops per ml = Number of drops per minute

Example: $\frac{1000 \text{ ml}}{4 \text{ hours} \times 60 \text{ minutes}} \times 10 \text{ drops per ml} = 41.67 = 40 \text{ drops per minute}$

(In order to convert the infusion time from hours to minutes, multiply the number of hours by 60.)

When the patient has recovered sufficiently to take fluids by mouth, the IV may be discontinued unless it is required for giving medicine. If the IV is **only** being used to give medicines, infuse slowly (about 1 liter per 10 to 12 hours).

It is important to monitor the amount of fluids given. As the patient recovers, take care not to overload her with fluid. Any evidence of swelling (feet and hands), shortness of breath or puffiness may indicate fluid overload. If this happens, discontinue fluids. Diuretics may be necessary if fluid overload has caused severe shortness of breath (pulmonary edema).

BLOOD TRANSFUSION

Blood transfusions may be life-saving in cases of extreme blood loss and shock from incomplete abortion. Nevertheless, they carry risk and may do harm rather than good in certain cases. Therefore, the decision to transfuse a patient should be made very carefully. Facilities for blood replacement should be available at the first referral level. They can be performed by any medical officer, medical assistant, clinical officer, midwife or laboratory worker with suitable training.

The serious risks associated with blood transfusion include the possibility of:

- Blood transfusion reactions e.g., rashes, itching.

- transmission of diseases such as hepatitis B and AIDS,
- immune-related problems such as rapid breakdown of red cells (intravascular hemolysis), and
- circulatory overload.
- Anaphylactic shock and pulmonary oedema

Moreover, blood transfusions are expensive and use a scarce human resource. “The decision to transfuse blood or blood products must be based on a careful assessment which indicates that they are necessary for saving life or for preventing major illness. Blood which has **not** been obtained from appropriately selected donors and/or which has **not** been appropriately screened for infectious agents should **not** be transfused, other than in the most exceptional life-threatening situations.”²

Recommendations for use of blood transfusions in cases of hemorrhage and shock are outlined by the WHO in *Essential Elements of Obstetric Care at First Referral Level*.¹ To quote:

Blood transfusion is often indicated for volume replacement in the treatment of hemorrhage and shock. Whether or not blood transfusion is required for this purpose depends not only on the volume of blood lost, but also on the speed of the loss and the physical condition of the woman. Women in good physical condition can tolerate blood loss to a greater degree than women in poor health. For example, a loss of one liter may be tolerated quite well by a healthy woman, whereas a loss of as little as 200 ml of blood may easily be fatal to an anaemic woman.

Replacement by blood transfusion is **not** necessary in every case of blood loss; plasma volume expanders, solutions of dried plasma and even [isotonic] saline are useful alternatives.

Clinical guidelines specific to the use of blood transfusions and alternatives to their use in the treatment of hemorrhage are described in *Global Blood Safety Initiative: Guidelines for the Appropriate Use of Blood*.² Regarding alternatives to blood use, this reference states:

The amount of blood lost and the patient's clinical condition, assessed by measuring the blood pressure, pulse rate, central venous pressure [if available] and urine flow, will determine the need for and urgency of blood volume replacement. Generally, a previously healthy adult can tolerate a loss of up to 20% of the circulating blood volume [about 1.0 to 1.5 liters] without transfusion. Volume replacement with plasma substitutes will be necessary for a loss of between 20% and 30% [about 1.5 to 2.0 liters]. Blood transfusion will be required, in addition, when the loss exceeds 30%, particularly in patients with massive hemorrhage (more than 50% of blood lost in less than three hours).

Initial volume replacement (50 ml/kg or three times the estimated blood loss) should be with solutions such as [isotonic] saline (0.156 mol/L or 9 g/L). Dextrose solutions are not recommended.

Synthetic colloids may be necessary for the management of continuing hemorrhage, particularly

². World Health Organization: *Global Blood Safety Initiative: Guidelines for the Appropriate Use of Blood*. Geneva, WHO, 1989.

if there are signs of hypotensive shock. Gelatins may be used in doses up to 50 ml/kg, or hydroxyethyl starch or dextran 70 in doses up to 20 ml/kg, during the first 24 hours. Albumin or plasma protein fraction may also be used, but are more expensive.

Plasma is not the first choice for volume replacement because of the risk of transmitting infection. Red cells are not indicated for volume replacement, but (as red cell concentrate or in whole blood) solely for improving oxygen delivery capacity.

Blood components may be required for restoration of hemostasis [clotting] in patients who have massive hemorrhage.

ADMINISTRATION OF MEDICINES

Safety, need and route of administration are important issues to consider in deciding **when, what** and **how** to use medicines to treat a patient.

Before giving medicine it is always important to ask if the patient has ever had an allergic reaction to that medicine. If yes, choose a medicine less likely to cause an allergic reaction.

The **route of administration** is an important decision for reasons of safety and for choosing the best possible way to treat the condition. The choice of routes:

- intravenous (IV),
- intramuscular (IM), or
- by mouth (oral)

must be made **before** choosing the specific medicines because not all medicines can be given by all 3 routes.

Intravenous (IV)

This route is preferred in the following situations: shock, any life-threatening complication that may require urgent surgery, and any serious infection (including sepsis and septic shock) resulting from an incomplete abortion.

Intramuscular (IM)

This route is acceptable when the IV route is not available and if the required medicine only can be given this way; some medicines, however, are not effective when given IM.

By mouth (oral)

Do **not** give any medicines by mouth to a woman in shock or if the woman has an intra-abdominal injury (e.g., uterine perforation, ectopic pregnancy) or other serious condition possibly requiring immediate surgery because she may vomit and inhale (aspirate) the vomit. This route is acceptable **only** in the following situations:

- In cases of referral (even with the above conditions), if transport will take several hours **and** if there are **no** IV or IM medicines available to administer before transfer, then oral antibiotics and pain medicines can be given to a woman, as long as she is **not** in shock. Give just enough water to swallow the medicine.
- If the patient is stable and able to take fluids by mouth.

ANTIBIOTICS

Antibiotics should be used whenever an infection is present. Antibiotics can be life-saving in cases of sepsis, septic shock, intra-abdominal injury and uterine perforation. When there are no complications of the incomplete abortion, no signs of infection and the woman is stable, antibiotics are **not** necessary. It is very important to start antibiotics early whenever infection is suspected or present; they should be started before surgery.

Intravenous administration of antibiotics is preferred because it helps to speed delivery of the drug to the infected tissues. When IV fluids are not available, IM administration of antibiotics is acceptable. Giving antibiotics by mouth is acceptable if IV or IM antibiotics are not available and the woman is **not** in shock, if the infection is minor, or in an attempt to prevent an infection (prophylaxis).

In most cases, broad spectrum antibiotics effective against Gram-negative, Gram-positive, anaerobic organisms and chlamydia are preferable because identification of the particular pathogen is not possible in many situations and because multiple pathogens may be present. Antibiotics should be given in combination to achieve the broadest coverage. The recommended antibiotics and their dosages are listed in **Tables B-2, B-3 and B-4**. More than one choice of antibiotic combination is listed, in order of preference. If a particular antibiotic is not available or the patient is allergic to it, then one of the other recommended combinations can be used.

Table B-2

Antibiotic Therapy for Infected Abortion		
Antibiotic	Dosage	Comments
Ampicillin	2 g stat 1 g 6 hourly or 500 mg 6 hourly	Depending upon the condition
Chloramphenicol (is not in use because of Aplasic anaemia)	1 g IV every 6 hours	Useful when sepsis is present; must be able to monitor blood count to watch for anemia
Gentamicin	1.5 mg/Kg/dose IV or IM every 8 hours 60 mg I/V or I/M 8 hourly	Effective against Gram (-) organisms such as GI tract flora (e.g., E. coli)
Doxycycline or Tetracycline	100 mg every 12 hours (Do not take with milk products or antacids.)	Adequate for both Gram (+) and Gram (-) organisms, including chlamydia; can replace or be used along with ampicillin; good in combination with metronidazole
Metronidazole	500 mg I/V 8 hourly	Good Gram (-) and anaerobic coverage; can be used in combination with ampicillin, doxycycline; an alternative to clindamycin; inexpensive and generally available; oral administration achieves serum levels equivalent to IV administration
Benzylpenicillin	10 million unit IV every 4 hours.	Few serious side effects; effect limited to Gram (+) cocci and gonorrhea (if not resistant)
<p>Notes:</p> <ul style="list-style-type: none"> ● Penicillin (or ampicillin), gentamicin and metronidazole are most commonly used together as the broadest spectrum treatment of patients with severe infectious sepsis of pelvic origin. ● Chloramphenicol quite often is available when other drugs are not. It is effective in combination with penicillin or ampicillin. ● Once started, intravenous therapy should be continued until the patient is afebrile for at least 24 hours, preferably 48 hours. If there is no response in 48 hours, the antibiotic(s) should be changed. ● When recovery is underway, IV therapy should be followed by oral medication. Generally, tetracycline (500 mg by mouth 4 times daily) or doxycycline (100 mg by mouth 2 times daily) for 10 to 14 days is advisable. Allergic reactions to tetracycline are very rare. Some patients on tetracycline may develop a rash when their skin is exposed to the sun. 		

Table B-3 Inpatient Antibiotic Combination Regimens (In order of preference)		
Ceftriaxone or Ciprofloxacin or Spectinomycin	with	Gentamicin or Metronidazole
Doxycycline	with	Metronidazole
Penicillin	with	Chloramphenicol

Table B-4 Outpatient Antibiotic Therapy		
Antibiotic	Oral Dose	Comments
Ceftriaxone or Ciprofloxacin or Spectinomycin	250 mg - single oral dose 500 mg - single oral dose 2 g - single oral dose	Coverage for gonorrhea & general broad spectrum coverage Coverage for gonorrhea and gram (+) cocci
PLUS one of these:		
Doxycycline or Tetracycline or Cotrimoxazole	100 mg oral twice daily for 10 to 14 days 500 mg oral 4 times daily for 10 to 14 days 2 tablets oral twice daily for 10 days	Good chlamydia coverage; inexpensive Good chlamydia coverage; inexpensive Good broad spectrum coverage; inexpensive

PAIN MANAGEMENT

Many women with postabortion complications suffer pain and need prompt and effective medication for their pain. To select appropriate pain management medications, one must consider the conditions present, the timing and route of administration and the precautions for each type of medication.

Assess the woman's condition before choosing and giving analgesics. These medications, if given before the examination, can hide symptoms (pain, fever) that are essential to an accurate diagnosis.

Avoid over-sedation because it can cause the patient to be unable to answer questions well. In addition, over-sedation can hide symptoms that are essential to diagnosis. Any narcotic can depress breathing, which can be fatal; therefore, patients receiving narcotics must be under reasonably close observation so that slow or interrupted breathing will be noticed. This is particularly true of patients who are already sick and may be in early shock. It is essential to consider the transit time and transfer conditions for referral patients. Avoid the use of narcotics if the transfer will be without adequate medical supervision and ability to respond to respiratory depression. The dose should be selected to provide adequate pain management during transfer, but should not interfere with the woman's ability to answer questions. It also should not mask symptoms, which may be needed to accurately diagnose the woman upon arrival at the referral center.

Nonsteroidal anti-inflammatory drugs (NSAIDs), which include ibuprofen and aspirin, often are used to treat pain. Avoid using NSAIDs until a diagnosis is certain (because these drugs may interfere with blood clotting ability). It also is important to consider the precautions to giving

oral medicines and to measure and record the woman's temperature before giving these medicines. In cases that require only MVA, NSAIDs are recommended to relieve the pain of uterine cramping **without** making the bleeding worse.

Pain medication often is accompanied by the use of a sedative such as diazepam. While such combinations provide both sedation and analgesia (pain relief), they also may **increase** the risk of respiratory depression. Therefore, such combinations should be used only when necessary, and avoided if the patient will be transferred.

For a detailed discussion of **anesthetics, analgesics and sedatives** and their recommended use in MVA, dosage and route of administration, see **Appendix E**.

TETANUS

Women who present with postabortion complications may be at risk of developing tetanus. According to Annual Report of Department of Health Service 2000/2001, in spite of the effort made by Expand Programme on Immunization (EPI) in Nepal only 64.6% of pregnant women were adequately protected against Tetanus.

Any evidence that the patient has trauma to the genital tract (vulva, vagina or uterus), which may have been contaminated with dirt or feces, or has received an abortion in which dirty instruments were used, requires careful attention to the issue of tetanus. Although the woman's report of an unsafe abortion is important, initially she may not be able to talk about this (see **Chapter 2**).

A first step in preventing the onset of tetanus is careful cleansing of the wound, drainage of pus and meticulous removal of foreign material and dead or damaged tissue. This reduces the likelihood that *C.Tetani*, which is the bacteria causing tetanus, will be able to grow.³ Starting antibiotics also is essential to minimize bacterial growth. Penicillin and metronidazole can be used.

Specific recommendations for preventing tetanus depend upon the patient's history of immunizations and the severity of the wound. The following are general guidelines:

- If the patient **has** received a full immunization series within the last 10 years and has a clean, minor wound, no further treatment is needed. If the wound is tetanus-prone (i.e., contaminated with dirt or feces, caused by puncture wounds or burns), a dose of tetanus toxoid should be given (0.5 ml IM) and human tetanus immune globulin (TIG) or antitoxin also should be given, if available.
- If the patient has **not** received a full immunization series in the last 10 years or is unsure of her immunization status, tetanus toxoid should be given for any wound and TIG should be given for tetanus prone wounds if it is available. When tetanus toxoid and TIG or antitoxin are given at the same time, it is important to use separate syringes and separate sites of administration.

³. Mandell GL et al (eds): *Principles and Practice of Infectious Diseases*, 2nd ed. New York, Churchill Livingstone, 1990.

DIURETICS

Give diuretics **only** if there is evidence of heart failure and pulmonary edema, **only** if administered by an experienced provider and **only** with very careful monitoring of the patient's condition. The patient must have a catheter in place, hourly urine output must be measured and recorded, and care must be taken to balance the use of diuretics with continued administration of IV fluids. The diagnosis can be confirmed with a chest x-ray, and progress can be confirmed with further chest x-rays.

REFERENCES

1. World Health Organization: Complications of Abortion: Technical and Managerial Guidelines for Prevention and Treatment. Geneva, WHO, 1994.
2. World Health Organization: Global Blood Safety Initiative: Guidelines for the Appropriate Use of blood, Geneva, WHO, 1989.
3. Mandell GL et al (eds): Principles and Practice of Infectious Diseases, 2nd ed, New York, Churchill Livingstone, 1990.
4. Annual Report; Department of Health Services, 2000/2001

APPENDIX C

SAMPLE REFERRAL FORM: POSTABORTION COMPLICATIONS[†]

The responsible health professional (service provider) should complete this form for any patient who is referred for treatment of postabortion complications. The form should accompany the patient to the referral center.

Patient Information

Name: _____ Age: _____
Date of Admission: _____ Time of Admission: _____
Date of Referral: _____ Time of Referral: _____
Referral center: _____

Diagnosis: _____

History (Describe the patient's relevant reproductive history including number of pregnancies, births, etc.)

Chief complaint- _____ Gravidity: _____ LMP: _____
Parity: _____
Abortion: _____

Clinical Condition (vital signs, physical/pelvic exam findings)

Initial Treatment (fluids, drugs given, action to control bleeding, any other medical steps taken)

Assessment of Patient's Condition/Other Information

Reasons for referral

Health Professional (print name)

Location (hospital, clinic)

Signature

Phone

Date

[†] **Adapted from:** World Health Organization: *Clinical Management of Abortion Complications: A Practical Guide*. Geneva, WHO, 1994.

APPENDIX D

PROCESSING SURGICAL GLOVES[†]

The risk in reusing surgical gloves is that processed gloves contain more invisible tears than new ones and therefore provide less protection to the wearer. Autoclaving (sterilization) and high-level disinfection (steaming or boiling) of gloves, when correctly performed, can provide a high quality product; and **double gloving** for high-risk procedures can be done. Therefore, processing of gloves constitutes an **appropriate reuse of disposable items**.

HOW TO DECONTAMINATE AND CLEAN SURGICAL GLOVES BEFORE STERILIZATION OR HIGH-LEVEL DISINFECTION (HLD)

STEP 1: Before removing soiled gloves, immerse hands briefly in a container filled with 0.5% chlorine solution.

STEP 2: Remove gloves by turning inside out and soak in the chlorine solution for 10 minutes. (Performing **Steps 1 and 2** insures that both surfaces of the gloves are decontaminated.)

STEP 3: Wash gloves in soapy water, cleaning inside and out.

STEP 4: Rinse gloves in clean water until no soap or detergent remains. (Residual soap or detergent can interfere with subsequent sterilization or HLD.)

STEP 5: Test gloves for holes by inflating them by hand and holding them under water. (Air bubbles will appear if there are holes.)

STEP 6: Gently dry gloves inside and out before proceeding with sterilization or HLD. (Gloves which remain wet for long periods of time will absorb water and become sticky.)

STEP 7: For gloves, which are to be, steam sterilized, package before further processing.

Note: Gloves should be discarded after processing three times because invisible tears may occur with use and reprocessing.^{1,2}

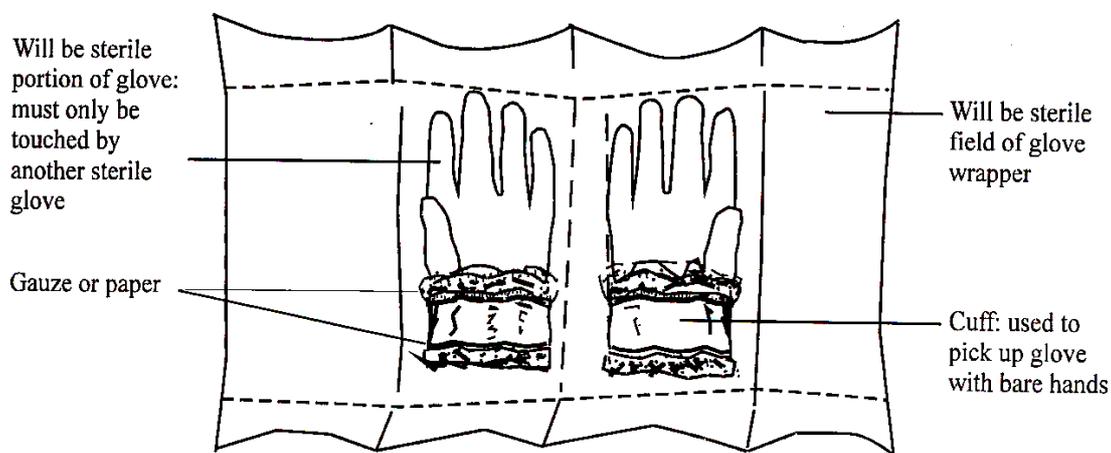
[†] **Adapted from:** Tietjen L et al: *Infection Prevention for Family Planning Service Programs*, 2nd ed. Baltimore, Maryland, JHPIEGO, 1995.

HOW TO STERILIZE SURGICAL GLOVES

After decontamination, cleaning and drying, gloves must be packed prior to sterilizing by autoclaving. First, the cuffs should be folded up, so that after sterilization the gloves can be put on easily without contaminating them. Next, put gauze or paper inside each glove and under the fold of the cuff and wrap them as shown in **Figure D-1**. (Do not tie tightly or wrap glove packs with rubber bands.) Finally, place the glove packs in a wire basket on their sides to allow optimum steam penetration. (If gloves are stacked in piles, penetration of steam under the cuffs may be poor.) Autoclave at 121°C (250°F) for 30 minutes and at a pressure of 106 kPa (15 lb/in²).

Remember: Higher temperatures and pressures are destructive to gloves.

Figure D-1. Preparing Gloves for Autoclaving (steam sterilization)



Source: South East Asia Office/ World Health Organization 1988.

Immediately after autoclaving, gloves are extremely friable and tear easily. Gloves should **not** be used for 24 to 48 hours to allow the elasticity to be restored and to prevent tackiness/stickiness (**Table D-1**).

Table D-1

Tips to Help Avoid Glove Problems	
PROBLEM: TACKY OR STICKY GLOVES	
Probable Cause	Recommended Solution
Residual liquid soap or detergent	Reduce amount of liquid soap or detergent used when washing gloves. Rinse gloves at least three times in clean water.
Heated to high temperature for too long	Use 30 minutes sterilizing exposure at 121°C (250°F) and remove gloves from sterilizer as soon as cycle is completed.
Gloves sterilized with other goods	Sterilize gloves separately.
Gloves not allowed to dry completely after steaming	Wear “wet” within 30 minutes or allow to dry for 4 to 6 hours before using.
Poor powdering	Use absorbable glove powder and follow manufacturer's instructions to insure a film of powder on all surfaces.
Surfaces of gloves touching each other	Gauze or paper wicks should be inserted between the palm and back of hand of each glove and between the hand of the glove and the turned-back cuff. This allows steam to contact all surfaces during sterilization and prevents surfaces from adhering to each other.
Breakdown (deterioration) of rubber (latex) (Rubber gloves deteriorate while stored even though they have not been used. They become soft, sticky and unusable.)	Store in a dry, cool area. Do not store in direct sunlight.
PROBLEM: EXCESSIVE TEARING OR RUPTURING	
Gloves used too soon following sterilization	Do not use gloves for 24 to 48 hours after sterilization. This allows gloves to regain their elasticity before use.

Source: Tomlinson, 1991.⁴

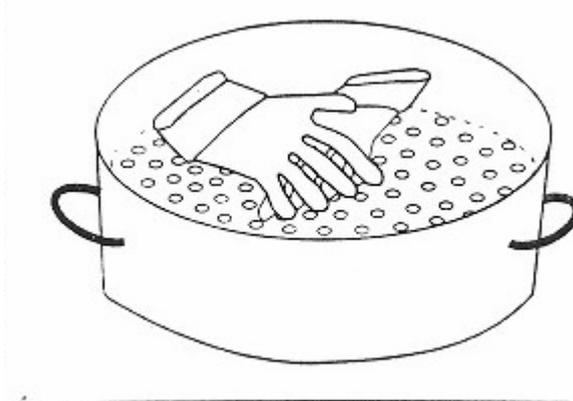
HOW TO HIGH-LEVEL DISINFECT SURGICAL GLOVES BY STEAMING

After gloves have been decontaminated and thoroughly washed, they are ready for HLD by steaming.⁵

STEP 1: Fold up the cuffs of the gloves so that they can be put on easily and without contamination after HLD.

STEP 2: Place gloves into one of the pans with holes in its bottom. To make removal from the pan easier, the cuffs should be facing outward toward the edge of the pan (**Figure D-2**). Five to fifteen pairs can be put in each pan depending on the size (diameter) of the pans.

Figure D-2. Gloves in Steamer Pan



STEP 3: Repeat this process until up to three steamer pans have been filled with gloves. Stack the filled steamer pans on top of a pan containing water for boiling. A second (empty) pan without holes should be placed on the counter next to the heat source (see **Step 9**).

STEP 4: Place lid on top pan and bring water to a full **rolling** boil. (When water only simmers, very little steam is formed and the temperature may not get high enough to kill microorganisms.)

Remember: Be sure there is sufficient water in the bottom pan for the **entire** 20 minutes of steaming.

STEP 5: Reduce heat so that water continues to boil at a rolling boil. (When water boils too violently, it evaporates quickly and wastes fuel.)

STEP 6: When steam begins coming out between pans, start timer or note time on clock and record time in the HLD log.

STEP 7: Steam gloves for 20 minutes.

STEP 8: Remove top steamer pan and place cover on top pan remaining on the stack. Gently shake excess water from the gloves in the pan just removed.

STEP 9: Place pan containing gloves on the second (empty) pan (see **Step 3**). Repeat until all pans containing gloves are restacked on this empty pan. (This step allows the gloves to cool and dry without becoming contaminated.)

Remember: Do **not** place pans containing gloves down on a table top, counter or other surface as gloves will be contaminated.

STEP 10: Allow gloves to air dry in the steamer pans (4 to 6 hours) before using.^{††} Gloves which were removed from the steamer pan(s) to be used “wet” or “damp,” but were not used during the clinic session, should be reprocessed before use.

STEP 11: Using a high-level disinfected forceps, transfer the dry gloves to a dry, high-level disinfected container^{†††} with a tight-fitting lid. Store for up to 1 week. (Gloves also can be stored in the stacked and covered steamer pans).

HOW TO HIGH-LEVEL DISINFECT SURGICAL GLOVES BY BOILING

Although boiling effectively high-level disinfects gloves, it is difficult to dry them without contaminating them. Therefore, boiling surgical gloves should be done **only** if the gloves are to be used immediately (i.e., worn “wet” after boiled and cooled).

After surgical gloves have been decontaminated and thoroughly washed they are ready for HLD by boiling for 20 minutes.

STEP 1: Place gloves in a bag made of plastic or nylon netting.

STEP 2: Place a weight in the bag so that all gloves and the bag will be at least 2.5 cm (1 inch) below the surface of the water.

STEP 3: Close lid over pan and bring water to a full, **rolling** boil. (When water only simmers, the temperature at the surface may never get high enough to kill microorganisms.)

STEP 4: Reduce heat so that water continues to boil at a rolling boil. (When water boils too violently, it evaporates quickly and wastes fuel.)

<p>Remember: Be sure there is sufficient water in the pan to cover items for the entire 20 minutes of boiling.</p>
--

STEP 5: When rolling boil begins, start timer or note time on clock and record in HLD log. (**No objects or water should be added after timing starts.**)

STEP 6: Boil gloves for **20 minutes**.

^{††} Alternatively, allow gloves to cool for 5 to 10 minutes before wearing “wet.” Gloves should be used within 30 minutes, if possible. After this time, the fingers of the gloves stick together and the gloves are hard to put on despite being damp. Gloves which have been removed from the steamer pan(s) to be worn “wet” but were not used during the clinic session should be reprocessed.

^{†††} To prepare a high-level disinfected container, boil (if small) or fill a plastic container with 0.5% chlorine solution and soak for 20 minutes. (The chlorine solution can then be transferred to another container and reused.) Rinse the inside thoroughly with boiled water and allow to air dry.

STEP 7: After boiling for 20 minutes, remove bag of gloves with **high-level disinfected**, dry forceps. (Never leave boiled objects in water which has stopped boiling. As the water cools and steam condenses, air and dust particles are drawn down into the container and may contaminate the gloves.⁶)

STEP 8: Allow excess water to drip off gloves (shake the bag gently). Place the bag in a high-level disinfected container, cover and allow to cool (about 5 to 10 minutes) before use.

STEP 9: Wear high-level disinfected gloves to untie the bag. Remove gloves from the container using high-level disinfected forceps. Gloves which are worn “wet” may be weakened and less stretchy (elastic). Therefore, put on “wet” gloves very carefully.

Note: After boiling, gloves should be used within 30 minutes, if possible. After this time, the fingers of the gloves stick together and the gloves are hard to put on despite being damp.

STEP 10: Gloves remaining in the bag (not used) at the end of the clinic session should be reprocessed. They will not dry completely (inside and outside).

ACCIDENTAL CONTAMINATION OF STERILE OR HIGH-LEVEL DISINFECTED GLOVES

There are several ways to contaminate sterile or high-level disinfected surgical gloves:

- tearing or puncturing the glove,
- touching any nonsterile object with the sterile glove, or
- touching the outside of a sterile glove with an ungloved hand.

Service providers wearing sterile or high-level disinfected gloves should be careful not to contaminate gloved hands inadvertently by touching nonsterile objects, unprepped skin or mucous membranes.

REGLOVING AFTER CONTAMINATION

To reglove after contaminating a glove during a procedure:

- Remove contaminated glove by the cuff, and place in chlorine solution for decontamination (if reusing) or in waste container.

Sterile Glove

- Have circulating nurse or technician open sterile glove pack, laying the glove package on a clean surface.
- Put on replacement glove in the usual manner.

Alternatively:

- Have scrub nurse or technician open the sterile glove package, remove a sterile glove and hold the glove open by the cuff. Put hand into the glove without touching the outside of the glove.
- Adjust the glove after the scrub nurse or technician lets go of the cuff.⁷
- Remove contaminated glove by the cuff, and place in chlorine solution for decontamination (if reusing) or in waste container.

High-Level Disinfected Glove

- Have circulating nurse or technician pick up replacement glove with high-level disinfected forceps.
- Grasp replacement glove by turned-down cuff and put on glove in the usual manner.

Alternatively:

- Have scrub nurse or technician remove a replacement glove from the high-level disinfected container with forceps and hold the glove open by the cuff. Put hand into the glove without touching the outside of the glove.

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APPENDIX E

USE OF MEDICATIONS FOR PAIN

TYPES OF MEDICATION

There are three categories of medications for management of pain: **anesthetics**, **analgesics** and **sedatives**. The effects of each type of medication are as follows:

Anesthetics (local, regional and general) numb all physical sensation.

General anesthetics cause the patient to become completely unconscious. Examples include halothane and ether.

Regional anesthetics (spinal or epidural) allow the patient to remain awake but block all sensation below a particular point in the spinal cord. Examples include lidocaine and chloroprocaine.

Local anesthetics block pain in a small area of the body by injection of the drug in the soft tissue surrounding the nerve endings. Examples include lidocaine and chloroprocaine. (See **Chapter 5** for use of paracervical block for MVA.)

Non-narcotic **analgesics** reduce the sensation of pain in the spinal cord and brain. Narcotics, one type of analgesic, induce stupor as well as block the transmission of pain. Analgesics can be used for mild to severe pain and can be administered orally or by intramuscular (IM) or intravenous (IV) injection. Examples include morphine, meperidine and Paracetamol®.

Sedatives depress the functions of the central nervous system but do **not** actually reduce pain. They are used to reduce anxiety, produce calm, relax muscles and promote sleep. Examples include diazepam and midazolam.

ANALGESIA

Analgesia can ease both cervical and pelvic discomfort associated with treatment of incomplete abortion using MVA. Analgesics are used in combination with local anesthesia to reduce pain. Because paracervical block does not reach the major nerves of the uterus, which are high in the pelvis, it does **not** affect the pain of uterine cramping; analgesics reduce this pain. The most appropriate analgesic and route of administration to use will depend upon the severity of the pain anticipated and the facilities available. In many situations oral or IM administration is appropriate; however, IV administration may be more appropriate, particularly if the patient is on IV fluids because of an existing condition, or is experiencing significant pain. Intravenous administration requires closer monitoring for adverse reactions than do other routes (see **Appendix B**).

Oral analgesics such as **ibuprofen** or **acetaminophen** (with or without codeine) are appropriate when mild to moderate pain is expected. The MVA procedure should not be started until the drug has taken effect. For orally administered drugs this takes at least 30 to 60 minutes.

A nonsteroidal anti-inflammatory drug (NSAID) such as ibuprofen may be effective in diminishing the sensation of uterine spasms. NSAIDs have been shown to reduce the sensation of pain during and immediately after the MVA procedure.[†] NSAIDs may be combined with narcotics to produce an additive analgesic effect, thus allowing for the use of a lower dose of narcotics to achieve similar alleviation of pain.

Narcotics such as meperidine or codeine are helpful for moderate to severe pain.[†] When a patient is given a narcotic, however, her recovery must be carefully monitored because of the risk of respiratory depression.^{††} In addition, clinicians should be mindful of the heightened effects of narcotics on chronically ill patients or those who have suffered significant blood loss.

If difficult cervical dilation is anticipated, parenteral analgesia may be indicated. Other agents such as **local anesthesia** or sedatives may be used in combination with **IV or IM analgesia**.^{†††}

An IM injection should be given approximately 30 minutes before the procedure to allow the drug to take effect; IV infusion is effective almost immediately. (See **Table E-1** for dosage and administration information.) Trained staff and emergency backup should be available with use of IV or IM analgesia.

Complications of Analgesia

Non-narcotic analgesics in single doses rarely produce complications. Narcotic analgesics, however, can slow or even halt respiration. If the patient experiences severe respiratory depression, the clinician must assist her breathing with a ventilating (Ambu) bag and oxygen. (Both Pethidine[®] and Fentanyl[®] can be reversed with Naloxone; 0.4 mg IV.)

[†] Oral morphine is not recommended here because it is too long-acting for the short MVA procedure.

^{††} Health facilities providing narcotics must be prepared to manage respiratory arrest. Providers trained in cardiopulmonary resuscitation (CPR), and use of appropriate antagonist drugs (Naloxone[®] and flumazenil) and resuscitative equipment must be available.

^{†††} Both sedatives and narcotics have an additive effect and may increase the risk of respiratory depression. When a sedative is combined with a narcotic, respiratory arrest may occur at lower doses than if each medication were used alone. Therefore, when combining these medications, the clinician must choose doses carefully and watch closely for any signs of respiratory depression.

Table E-1

Analgesic Drugs for MVA					
Type of Analgesia	Drug Name (generic)	Usual Dose and Timing	Duration of Effect	Common Side Effects	Comments
Narcotic	Demerol [®] Pethidine [†] (meperidine)	25-50 mg IV ^{††} 50-100 mg IM 30 minutes before procedure 100-150 mg orally 30 to 60 minutes before procedure	2 hours	Drowsiness, light-headedness, weakness, euphoria, dry mouth.	Reverse with naloxone [†] 0.4 mg IV. Oral dose of meperidine much less effective than IM or IV.
Narcotic	Sublimaze [®] (fentanyl)	0.05-0.06 mg IV ^{††}	30 to 60 minutes	Drowsiness, light-headedness, weakness, euphoria, dry mouth.	Reverse with naloxone [†] as above
Narcotic combination	Paracetamol (acetaminophen) with codeine	300/30 mg orally 1 hour before procedure	3 to 6 hours	Drowsiness, light-headedness, weakness, dry mouth.	
Non-narcotic* (NSAID)	(ibuprofen) [†]	400-800 mg orally 30 to 60 minutes before procedure	Up to 5 hours	Possible gastrointestinal upset	Antiprostaglandin in effect
Non-narcotic	Paracetamol (acetaminophen) [†]	500-1000 mg orally 30 to 60 minutes before procedure	Up to 4 hours		

[†] Appears in the World Health Organization's list of essential drugs.¹

^{††} All analgesic drugs given intravenously should be administered slowly and in small doses. They should be given just before starting the procedure, keeping in mind that their effects, while rapid in onset, are not immediate and in combination they are more likely to produce side effects (respiratory depression). Repeated addition of small doses is a safe way to administer these potent drugs to obtain their important effects without encountering problematic side effects.

* These drugs are being practiced in Nepal.

SEDATIVES

Light to moderate doses of sedatives, such as diazepam, will induce relaxation, reduce fear and decrease memory of the procedure. (See **Table E-2** for specific dosages.) They are useful when a woman is having severe pain or anxiety but is in otherwise stable physical condition. Midazolam also alters recent memory (has an amnestic effect) which can be beneficial.

¹. World Health Organization. *The Use of Essential Drugs*, Fourth Report of the WHO Expert Committee. Geneva, WHO, 1990.

Sedatives may be administered by oral or parenteral routes. It is important **not** to **oversedate** the patient as heavy sedation can prolong recovery and depress the patient's respiratory function. When sedatives, especially midazolam, are administered intravenously it is important to give small doses over several minutes, while closely monitoring the patient's reaction.

Both diazepam and midazolam are effective sedatives. Midazolam has a quicker onset and shorter duration; therefore, it should be given just before the procedure, as long as the antagonist “reverser” drug (flumazenil) is available for emergency use. If women must wait some time before treatment, diazepam may be a good choice.

Complications of Sedatives

Complications from sedatives such as diazepam and midazolam include respiratory depression. When combined with narcotics, respiratory depression may occur with low dosages. These drugs can be reversed with 0.2 mg flumazenil (Mazicon or Reversed) given intravenously. Repeat in 1 minute if necessary. Respiratory support (oxygen, airway and resuscitation equipment) must be available and provided when necessary.

Table E-2

Sedatives for Use with Analgesics and/or Anesthesia in MVA					
Type of Sedative	Drug Name (Generic)	Usual Dose and Timing	Duration of Effect	Common Side Effects	Comments
Central nervous system depressant; benzodiazepine	Valium® (diazepam) [†]	5-10 mg IV ^{††} 10 mg orally 30 to 60 minutes before procedure	2 hours	Blurred vision, dizziness, headache, nausea, redness/pain at injection site, numbness/tingling/pain of hands or feet	Reversal of benzodiazepines can be accomplished by flumazenil (Mazicon® or Reversed®) 0.2 mg IV. Repeat in 1 minute if necessary. Diazepam has a slight amnesic effect.
	Versed® (midazolam)	0.5-1.0 mg IV ^{††}	30 to 60 minutes	Blurred vision, dizziness, headache, nausea, redness/pain at injection site, numbness/tingling/pain of hands or feet	Same as above. Midazolam has a moderate amnesic effect.

[†] Appears in the list of essential drugs published by the World Health Organization.

^{††} All analgesic and sedative drugs given intravenously should be administered slowly and intermittently. They should be given just before starting the procedure, keeping in mind that their effects, while rapid in onset, are not instantaneous and in combination they are more likely to produce side effects. Repeated titration of small doses is a safe way to administer these potent drugs to obtain their important effects without encountering problematic side effects.

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APPENDIX F

EQUIPMENT AND SUPPLIES NEEDED FOR MVA

Basic instruments and consumable supplies needed to perform MVA include:

- Bivalve speculum (medium)
- Uterine tenaculum or vulsellum forceps
- Sponge holding forceps (2)
- 10-20 ml syringe and 22-gauge needle (for paracervical block)
- MVA instruments
 - MVA vacuum syringes, single or double valve
 - flexible cannulae of different sizes
 - adapters
 - silicone for lubricating MVA syringe o-ring
- Light source (to see cervix and inspect tissue)
- Swabs/gauze
- Antiseptic solution (preferably an iodophor such as povidone iodine, betadine)
- Gloves, sterile or high-level disinfected surgical gloves or new examination gloves
- Gloves, utility
- Strainer (for tissue inspection)
- Simple magnifying glass (x 4-6 power) (optional)
- Clear container or basin (for tissue inspection)

Items that should be on hand, but are not required for all MVA procedures:

- Local anesthetic (e.g., 1% lidocaine without epinephrine)
- Curettes, sharp
- Tapered mechanical dilators (Pratt [metal] or Denniston [plastic])

The essential drugs needed for emergency postabortion care that should be available at the primary and referral levels are listed in **Appendix G**.

Furniture and Equipment

Before beginning the MVA procedure, make sure that the following equipment and supplies are in the treatment room and in working order:

- Examination table with stirrups
- Strong light (e.g., gooseneck lamp)

- Seat or stool for clinician (optional)
- Plastic buckets for decontamination solution (0.5% chlorine)
- Puncture-proof container for disposal of sharps (needles)
- Leak-proof container for disposal of infectious waste
- Soap with soap-case
- Running water of water bucket with tap
- Towel

For High-Level Disinfection or Sterilization of Instruments

These items should be available for processing instruments:

- Nonmetal (plastic) containers
- Detergent
- Clean water
- Chlorine solution (concentrated solution or dry powder)
- High-level disinfectant or sterilization agent (optional)
- Large pot for boiling cannulae (optional)
- Steamer for steaming surgical gloves, cannulae and surgical instruments
- Autoclave (steam) or convection oven (dry heat)

For Emergency Resuscitation

These items are seldom required in uterine evacuation cases but are needed for possible emergency use:

- Atropine
- IV infusion equipment and fluid (RL, NC, DNS)
- Tape and scissors
- Ambu bag with oxygen (tank with flowmeter)
- Oral airways
- Adrenaline
- Suction machine

APPENDIX G

ESSENTIAL DRUGS FOR EMERGENCY POSTABORTION CARE[†]

ANESTHETICS, LOCAL^{††}

Atropine
Diazepam
Lignocaine, 1% without epinephrine
Adrenaline

ANALGESICS

Acetylsalicylic acid
Ibuprofen, diclofenac
Pethidine (or suitable substitute)

ANTIBIOTICS

Broad spectrum antibiotics such as:
Ampicillin

Crystalline penicillin
Chloramphenicol
Metronidazole
Sulfamethoxazole
Sulfamethoxazole-trimethoprim
Tetracycline
Benzylpenicillin

BLOOD PRODUCTS^{††}

Dried human plasma

ANTISEPTICS

Chlorhexidine,^{†††} 4% (Hibitane,
Hibiscrub)
Iodine preparations, 1-3%
Iodophors (Betadine)

DISINFECTANTS

Sodium hypochlorite 5-10% (commercial
chlorine bleach solution)
Glutaraldehyde, 2% (Cidex)

TETANUS TOXOID^{††††}

OXYTOCICS^{††}

Ergometrine injection
Ergometrine tablets
Oxytocin injection

INTRAVENOUS SOLUTIONS^{††}

Water for injections
Sodium lactate (Ringer's)
Glucose 5% and 50%
Glucose with isotonic saline
Potassium chloride
Sodium chloride

[†] **Adapted from:** World Health Organization, *Essential Obstetric Functions at First Referral Level*. Geneva, WHO, 1991.

^{††} Should be available at all secondary or referral facilities.

^{†††} Savlon, which contains chlorhexidine, is not listed because the concentration of chlorhexidine varies from country to country from as little as 1% to 4%. (Check local products for approximate concentration before using.)

^{††††} Anti-D tetanus immunoglobulin (human), or antitoxin, if available, should be provided when indicated.

APPENDIX H

PRECAUTIONS FOR PERFORMING MVA

In the course of the initial assessment, conditions may be discovered that indicate the need to **delay** the MVA procedure, **initiate** other treatment before beginning the MVA or the need to **use** a different technique for emptying the uterine cavity. The **precautions** and **rationale** for each of these conditions is outlined below.

Condition	Precaution/Management	Rationale
<p>Shock (due to hemorrhage or sepsis)</p> <ul style="list-style-type: none"> • rapid, weak pulse (> 110) • low blood pressure (diastolic < 60) • pallor (Hb < 7 gm/dl) • sweatiness, cold extremis • rapid breathing (> 30) • anxiousness, confusion, unconsciousness 	<p>Stabilize the patient:</p> <ul style="list-style-type: none"> • oxygen • IV fluids • antibiotics (if there are signs of septic shock) • blood transfusion if needed <p>Delay MVA until shock management has begun.</p> <p>Perform MVA without delay after the patient's condition has stabilized.</p>	<p>Shock is a life-threatening condition. It should be managed and the patient stabilized before the MVA is performed.</p>
<p>Severe vaginal bleeding</p> <ul style="list-style-type: none"> • heavy bright red bleeding, with or without clots • blood soaked pad, towels, clothing • pallor (Hb < 7 gm/dl) 	<p>Assess all causes of bleeding.</p> <p>Sources of bleeding other than retained POC (e.g., vaginal/cervical laceration, genital trauma, intra-abdominal injury, uterine perforation) should be managed first.</p> <p>If tissue can be seen in the cervical os, remove it.</p> <p>Evacuate the POC using MVA after patient's condition has been stabilized.</p>	<p>Severe bleeding may also be due to intra-abdominal injury, cervical or vaginal laceration, or uterine perforation, and may be life-threatening.</p> <p>Sometimes the simple act of removing tissue will allow the uterus to contract and slow the bleeding.</p>
<p>Intra-abdominal injury (including suspicion of ectopic pregnancy or existing uterine perforation)</p> <ul style="list-style-type: none"> • distended abdomen • decreased bowel sounds • rigid abdomen (tense and hard) • rebound tenderness • nausea, vomiting, pain, fever, abdominal pain, cramping 	<p>Assess and manage potential intra-abdominal injury immediately (IV fluids, antibiotics and blood transfusion if signs of shock).</p> <p>Perform surgery (laparoscopy or laparotomy as required).</p> <p>Evacuate the POC using MVA after patient's condition has been stabilized.</p>	<p>A rigid abdomen or severe acute abdominal pain indicates the possibility of a serious intra-abdominal injury and the need for immediate surgical assessment.</p>

Condition	Precaution/Management	Rationale
<p>Septic abortion (local or generalized infection from the abortion)</p> <ul style="list-style-type: none"> • chills or sweats • fever (> 38? C) • foul-smelling or purulent (pus-like) vaginal discharge, blood stain • distended abdomen • rebound tenderness • history of unsafe abortion • abdominal pain • prolonged bleeding • general discomfort; flu-like symptoms 	<p>Give antibiotics (preferably intravenously) and IV fluids.</p> <p>If exposure to tetanus possible and if uncertain about patient's vaccination history, give tetanus toxoid or tetanus antitoxin.</p> <p>Evacuate POC using MVA as soon as antibiotic cover is established.</p>	<p>Infection/sepsis (tetanus and gangrene), septic shock, septicemia and peritonitis can develop due to retained POC. Such infections can be life-threatening and must be treated immediately.</p> <p>Performing MVA without first initiating antibiotic treatment can worsen the infection.</p>
Medical History		
<p>History of blood disorder that could lead to coagulopathy (excessive bleeding)</p>	<p>MVA should be performed with extreme caution and where full emergency backup facilities are available, including fresh blood and clotting factor products.</p>	<p>The potential for excessive bleeding during and after MVA requires that full emergency backup facilities must be immediately available.</p>
<p>Severe anemia (Hb < 7 gm/dl)</p>	<p>Perform MVA with extreme caution where full emergency backup facilities are available, especially IV fluids and possibly plasma expanders.</p>	<p>The bleeding resulting from MVA potentially could further worsen the anemia, leading to shock.</p>
Physical/Pelvic Examination		
<p>Uterine size larger than LMP history (large for date)</p>	<p>Review history for possible causes of size discrepancy.</p> <p>Repeat pelvic exam after patient has emptied her bladder.</p> <p>Be sure enlargement is not due to adnexal or rectal mass.</p> <p>Have more experienced provider examine the patient.</p> <p>Proceed with caution and where full emergency backup facilities are available.</p>	<p>May indicate pregnancy is more advanced than LMP history, multiple pregnancies, molar pregnancy (trophoblast disease), uterine cavity filled with blood clots (postabortal syndrome) or uterine fibroids.</p>

Condition	Precaution/Management	Rationale
Uterine size uncertain	<p>If there is uncertainty about the uterine size, proceed as if the uterus is larger than the history indicates.</p> <p>Suggestions for getting a better assessment of uterine size:</p> <ul style="list-style-type: none"> • A retroverted uterus may be more accurately assessed by rectovaginal exam. • A more experienced provider may give a more accurate sizing. • Ultrasound, if available, can give an accurate assessment of uterine size. 	The potential for excessive bleeding and the clinical skill required increase with uterine size. It is imperative that the clinician who performs the MVA be as certain as possible about the size of the uterus before beginning the procedure.
Uterine fibroids	<p>If uterine fibroids make it impossible to assess uterine size, perform MVA with extreme caution. Full emergency backup facilities should be available.</p> <p>See “Uterine size uncertain” above.</p>	When fibroids are present the risk of incomplete evacuation is increased. It is important that full emergency backup be available.
Uterine size by pelvic examination beyond the first trimester (based on weeks from LMP)	Insure that instruments and personnel capable of evacuating a large uterus are present. This may require large bore canulae or large curettes/forceps capable of removing retained placental/fetal fragments.	When gestations greater than the first trimester are present, simple vacuum aspiration equipment may not be sufficient to safely and effectively remove retained POC.

APPENDIX I

PREPARING INSTRUMENTS FOR MVA

STEPS IN PREPARING MVA INSTRUMENTS

Place on a sterile or HLD tray several appropriately sized cannulae. In order to effectively transfer the vacuum from the syringe to the uterus, the cannula should fit snugly in the cervix. Estimation of the most appropriate cannula size is based on the **actual** size of the uterus and the cervical dilation present as determined by pelvic examination. It is advisable to have cannulae of several sizes on hand.

Table I-1. Appropriate Cannula by Uterine Size

Approximate Uterine Size (Weeks LMP)	Approximate Cannula Size
6-8	6 mm
>8	size equal to weeks LMP

Source: IPAS, 1994

Prepare MVA syringes and adapters (if needed), referring to the following table. It is helpful to have two MVA syringes available before beginning a procedure because it is difficult to predict how much blood and tissue will be remaining in the uterus. Note that the colored dots on the cannulae match the color of the appropriate adapter.

Table I-2. Compatible Instrument Parts

Cannula Size	Adapter Color	Syringe Type
4, 5, 6 mm	No adapter needed	Single
6 mm	blue	Double
7 mm	tan	Double
8 mm	ivory	Double
9 mm	dark brown	Double
10 mm	dark green	Double
12 mm	No adapter needed	Double

Source: IPAS, 1994.

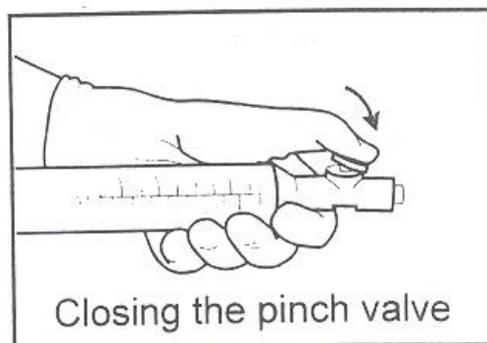
Inspect the syringes and cannulae. In order to be effective, a syringe must be able to maintain a vacuum. Discard any syringes with visible cracks or defects, or syringes that do not hold a vacuum. Discard any cannulae with cracks or other signs of wear.

Attach the adapter (if required) to the end of the syringe or cannula. Once the tip of the cannula has been inserted through the cervix, it will be attached to the syringe using the adapter.

Check the plunger and valve. The plunger should be positioned all the way into the barrel and the pinch valve should be open with the valve button(s) out.

Close the pinch valve by pushing the button(s) down and forward toward the syringe tip. The valve can be felt locking into place.

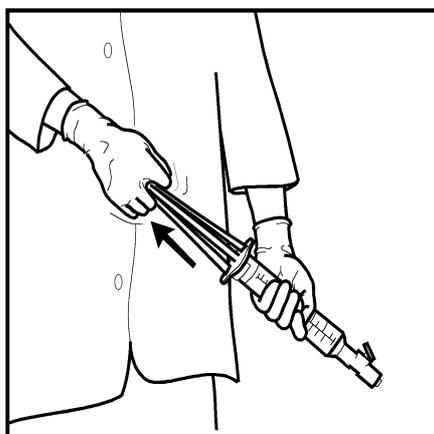
Figure I-1. Closing the Pinch Valve



Source: IPAS, 1994

Prepare the syringe by grasping the barrel and pulling back on the plunger until the arms of the plunger snap outward at the end of the syringe barrel, holding the plunger in place. Check that the plunger arms are in a stable position, fully extended to the sides and secured over the edge of the barrel. With the arms snapped in this position, the plunger will not move forward and the vacuum will be maintained. Incorrect positioning of the arms could allow them to slip back inside the barrel, possibly pushing the contents of the syringe or air into the uterus. Never grasp the syringe by the plunger arms.

Figure I-2. Preparing the Syringe



Check the syringe for vacuum tightness before use. Leave the syringe for several minutes with the vacuum established. Open the pinch valve by releasing the button(s). Air can be heard rushing into the syringe, indicating that there was a vacuum in the syringe. If a rush of air is not heard, follow the instructions in **Chapter 8** to lubricate the o-ring with silicone and test the vacuum again. Replace the o-ring or use another syringe if the syringe still will not hold a vacuum.

Re-establish the vacuum at the time of the procedure.

POSTABORTION CARE JOBAID

Initial Assessment

Welcome-greet

Ensure that Privacy/comfort is maintained well

Check vital signs to ensure that client is not in shock. If in shock, treat for shock immediately. The signs of shock are:

- Blood pressure below 90/<60 mm Hg
- Pulse>110/min
- RR>30/min
- Pallor, sweating, anxiousness, confusion or unconsciousness

Check to assess if there is vaginal bleeding. If bleeding seen, assess the amount of blood loss and evacuate uterus immediately.

Check for infection and if present treat appropriately: Check for signs for infection:

Temperature>102°F, foul smelling vaginal discharge, Lower abdominal tenderness, Mucopus from Cervical Os, Cervical tenderness.

Check for any Abdominal Injury (interference case). Check for signs and symptoms of abdominal injury

- History of interference cases
- Nausea, vomiting, fever, abdominal pain, shoulder pain
- Prolonged bleeding, distended abdomen, absent bowel sounds, rebound tenderness
- If abdominal injury is suspected, stabilize the woman and refer to doctor.

Ask/Observe/Examine

(If woman not in a condition to speak, ask her attendant)

1. Name, age and address
2. Obstetric history, contraceptive use, Menstrual history
3. Physical examination
 - a. Perform general examination of abdomen
 - b. Examination of pelvis
4. Follow the MVA criteria to screen woman for MVA procedure

Once you decide to perform MVA:

Counsel the client on PAC procedure and Family Planning

- Provide general information on PAC procedure including pain management
- Give psychological and emotional support
- Talk about limitations and benefits of the Family Planning method
- Informed consent for procedure and Family Planning

Ensure that the following equipment is ready.

1. MVA syringe, different size of cannulae adapters
2. MVA set
3. Strainer
4. Virex
5. Surgical
6. Plastic gown/hoot/cap masks
7. Waste disposable container and sharp disposal container
8. Emergency drugs
9. Family Planning Commodities
10. (at least minimum standard of condoms, pills and depo) Norplant and IUCD

1.

Procedure for MVA

1. Ensure that pre-medication for pain is administered.
2. Make sure all the emergency drugs, equipment is available.
3. Ensure that sterilized/High Level Disinfectant instruments are ready
4. Wash hands properly
5. Put on sterilized/HLD gloves
6. Provide emotional support and comfort (VERBACAIN)
7. Reconfirm the size and position of uterus and visualize cervix by applying Graves's or Cosco speculum
8. Apply betadine (antiseptic) solution to cervix twice
9. Clamp forceps on posterior lip of cervix (5 or 7 o'clock position)
10. Insert appropriate size cannula inside the uterus and ensure that cannula touches the fundus and then withdraw cannula about 1 cm
11. Attach the prepared MVA syringe to the cannula by holding the end of the cannula in one hand and the syringe in the other
12. Release the pinch valve and rotate the cannula in 10-2 o'clock movement
13. Ensure that vacuum is not lost in the syringe
14. Check for signs of completion of the procedure (foam, gritty feeling, uterine cramp)
 - Check product of conception
 - If sign of completion is not seen or P/V
15. Do bimanual massage of the uterus
16. Monitor the vitals throughout the procedure
17. If complications like bleeding/trauma to cervix and shock are noted during the procedure, need to manage or refer
18. Provide FP counseling and service according to clients need/choice
19. Decontaminate all used instruments before removing gloves
20. Dispose medical waste and needle properly
21. Immerse hands with gloves in virex solution then remove
22. Ensure that patient is well and comfortable.

Post Procedure Care (Monitoring Client Recovery)

- Check vital signs and P/V bleeding
- If cramping continues give tab ibuprofen (600 mg. 1xorally)
- Discharge client if she is comfortable, stable. Counsel the client properly before discharging and ensure that she can walk without assistance
- Give information booklet to the client along with discharge slip and instructions for follow-up

• **Record all the findings before discharge**

Before Discharge

Post Procedure Counseling

- Approach the client at the right time (relaxed, able to listen)
 - Ensure privacy, comfortable place for the client
 - Start counseling by asking the client how she feels
 - Give critical and necessary information according to client need
 - If the client is comfortable, include husband or family member/friend or the client's attendant when giving instructions/counseling
 - **Ensure that the client's reproductive goals are discussed/addressed**
 - Check for other concerns with the client-RH linkages
 - Counsel for different FP methods-informed choice
 - Reconfirm discharge instructions to the client
- Ensure that the woman and her attendant are aware about the following, which would require prompt medical attention:

Symptoms of warning for medical attention:

- Prolonged cramping severe pain in lower abdomen (more than 4-5 days)
- Prolonged or heavy bleeding (more than 2 weeks)
- Bleeding more than normal menstrual bleeding, for example passage of clots
- Fever, chills or malaise
- Fainting

Follow-up after 4 weeks

- Linkages to reproductive services site for other RH goals

(Refer to Gyane OPD for follow-up)

APPENDIX K

ANATOMY AND PHYSIOLOGY¹

INTRODUCTION

Both males and females produce specialized reproductive germ cells, called gametes. In the male they are spermatozoa and in the female, ova. The gametes contain the genetic material, or genes on chromosomes, which is passed on to the next generation. In other body cells there are 46 chromosomes arranged in 23 pairs but in the gametes there are only 23, one from each pair. When the ovum is fertilized by a spermatozoon the resultant zygote contains 23 pairs of chromosomes, one of each pair obtained from the father and one from the mother.

The zygote embeds itself in the wall of the uterus where it grows and develops during the 40 week gestation period before birth. The function of the female reproductive system is, therefore, to form the ovum and if it is fertilized, to nurture it until it is born and then feed it with breast milk until it is able to take a mixed diet. The function of the male reproductive system is to form the spermatozoa and transmit them to the female.

FEMALE REPRODUCTIVE SYSTEM

The female reproductive organs, or genitalia, are divided into external and internal organs.

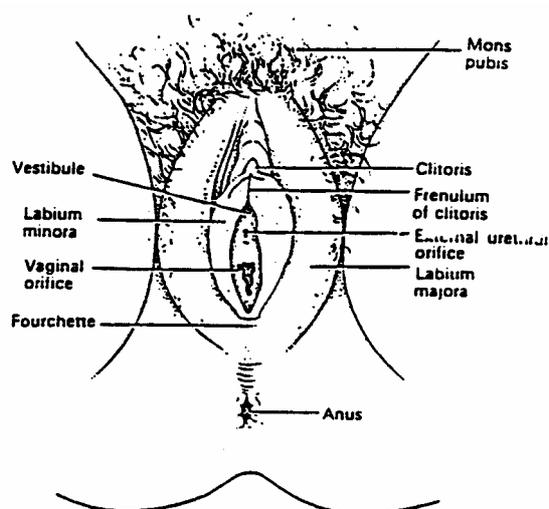
EXTERNAL GENITALIA

The external genitalia are known collectively as the vulva, which consists of:

- Labia majora
- Labia minora
- Clitoris
- Hymen
- Vestibule
- Greater vestibular glands

¹Taken from *Anatomy and Physiology in Health and Illness*, Seventh Edition. Kathleen J. W. Wilson, Churchill Livingstone, Edinburgh, 1990.

Figure K-1: The external genitalia in the female



Labia Majora

These are the two large folds, which form the boundary of the vulva. They are composed of skin, fibrous tissue and fat and contain large numbers of sebaceous glands. Anteriorly the folds join in front of the symphysis pubis, and posteriorly they merge with the skin of the perineum. At puberty hair grows on the mons pubis and on the lateral surfaces of the labia majora.

Labia Minora

These are two smaller folds of skin between the labia majora, containing numerous sebaceous glands. Posteriorly they fuse to form the fourchette.

The cleft between the labia minora is the vestibule. The vagina, urethra and ducts of the greater vestibular glands open into the vestibule.

Clitoris

The clitoris corresponds to the penis in the male and contains erectile tissue but it has no reproductive significance.

Hymen

The hymen is a thin layer of mucous membrane, which partially occludes the opening of the vagina.

Greater Vestibular Glands

The greater vestibular glands (Bartholin's glands) are situated one on each side near the vaginal opening. They are about the size of a small pea and have ducts opening into the vestibule immediately lateral to the attachment of the hymen. They secrete mucus that keeps the vulva moist.

Blood Supply, Lymph Drainage and Nerve Supply of the External Genitalia

Arterial supply is by branches from the internal pudendal arteries that branch from the internal iliac arteries and by external pudendal arteries that branch from the femoral arteries. Veins form a large plexus, which eventually drains into the internal iliac veins. Lymph drainage is through the superficial inguinal nodes. Nerve supply is by branches from pudendal nerves.

Perineum

The perineum is the area extending from the fourchette to the anal canal. It is roughly triangular and consists of connective tissue, muscle and fat. It gives attachment to the muscles of the pelvic floor.

INTERNAL ORGANS

The internal organs of the female reproductive system lie in the pelvic cavity and consist of the vagina, uterus, two uterine tubes and two ovaries.

Figure K-2: The female reproductive organs in the pelvis and their associated structures. Lateral view.

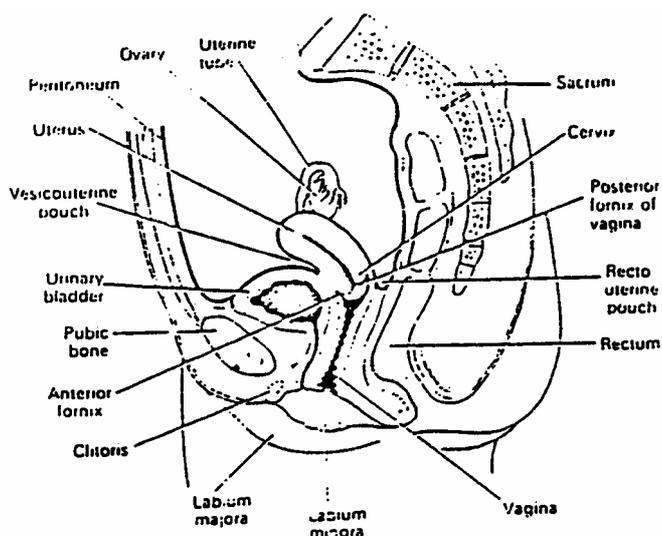
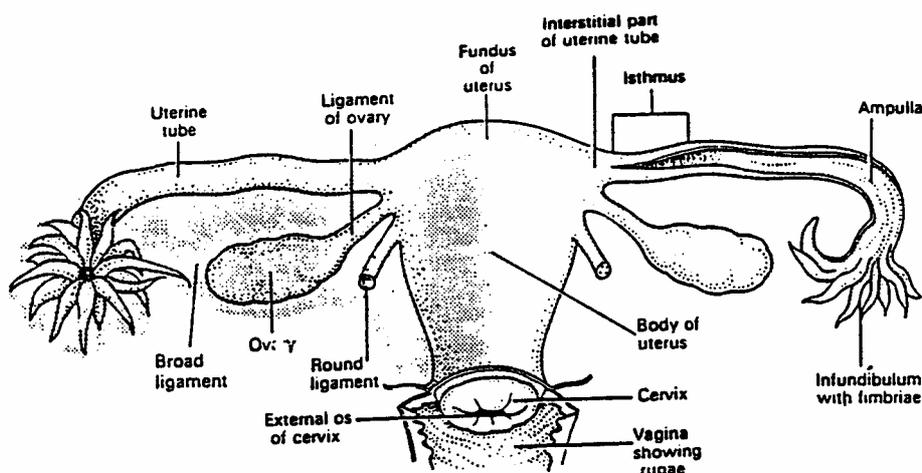


Figure K-3: The female reproductive organs in the pelvis. Posterior walls of the vagina and right uterine tube removed.



Vagina

The vagina is a fibromuscular tube lined with stratified epithelium, connecting the external and internal organs of reproduction. It runs obliquely upwards and backward at an angle of about 45° between the bladder in front and the rectum and anus behind. In the adult the anterior wall is about 7.5 cm (3 inches) long and the posterior wall about 9 cm long. The difference is due to the protrusion of the cervix through the anterior wall.

Structure

The vagina has an outer covering of areolar tissue, a middle layer of smooth muscle and an inner lining of stratified squamous epithelium. It has no secretory glands but the surface is kept moist by cervical secretions. Between puberty and menopause *Lactobacillus acidophilus* microbes are normally present and they secrete lactic acid, maintaining the pH between 4.9 and 3.5. The acidity inhibits the growth of most microbes that may enter the vagina from the perineum.

Blood supply, lymph drainage and nerve supply

An arterial plexus is formed around the vagina, derived from the uterine and vaginal arteries, which are branches of the internal iliac arteries. A venous plexus situated in the muscular wall, drains into the internal iliac veins. The lymph drainage is through the deep and superficial iliac glands. The nerve supply consists of parasympathetic fibres from the sacral outflow, sympathetic fibres from the lumbar outflow and somatic sensory fibres from the pudendal nerves.

Uterus

The uterus is a hollow muscular pear-shaped organ, flattened anteroposteriorly. It lies in the pelvic cavity between the urinary bladder and the rectum in an antverted antiflexed position. Anteversion means that the uterus leans forward. Anterflexion means that it is bent forward almost at right angles to the vagina with its anterior surface resting on the urinary bladder. As the bladder fills the degree of anteflexion is reduced slightly.

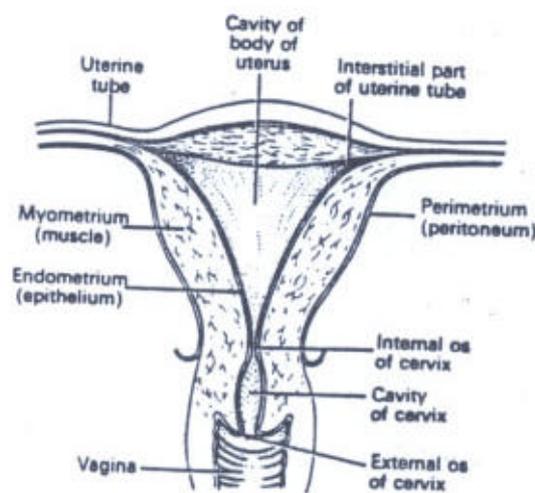
When the body is in the upright position the uterus lies in an almost horizontal position. It is about 7.5 cm long, 5 cm wide and its walls are about 2.5 cm thick. It weighs from 30 to 40 grams. The parts of the uterus are the fundus, body and cervix (**Figure K-4**).

The fundus is the dome-shaped part of the uterus above the openings of the uterine tubes.

The body is the main part. It is narrowest inferiorly at the internal os where it is continuous with the cervix.

The cervix protrudes through the anterior wall of the vagina, opening into it at the external os.

Figure K-4 Diagram of a section of the uterus.



Structure

The walls of the uterus are composed of three layers of tissue: perimetrium, myometrium and endometrium.

Perimetrium consists of peritoneum, which is distributed differently on the various surfaces of the uterus (see **Figure K-2**). Anteriorly it extends over the fundus and the body where it is reflected on to the upper surface of the urinary bladder. This fold of peritoneum forms the vesicouterine pouch. Posteriorly the peritoneum extends over the fundus, the body and the cervix, then it is reflected on to the rectum to form the rectouterine pouch. Laterally only the fundus is covered because the peritoneum forms a double fold with the uterine tubes in the upper free border. This double fold is the broad ligament, which, at its lateral ends, attaches the uterus to the sides of the pelvis.

Myometrium is the thickest layer of tissue in the uterine wall. It consists of a mass of smooth muscle fibers interlaced with areolar tissue, blood vessels and nerves.

Endometrium consists of columnar epithelium. It contains a large number of mucus-secreting tubular glands. The upper two-thirds of the cervical canal is lined with mucous membrane. The lower third is lined with squamous epithelium, continuous with that of the vagina.

Blood supply, lymph drainage and nerve supply

The arterial supply is by the uterine arteries, which are branches of the internal iliac arteries. They pass up the lateral aspects of the uterus between the two layers of the broad ligaments. They supply the uterus and uterine tubes and join with the ovarian arteries to supply the ovaries. Branches pass downwards to anastomose with the vaginal arteries to supply the vagina.

Venous drainage. There are deep and superficial lymph vessels, which drain lymph from the uterus and the uterine tubes to the aortic lymph nodes and groups of nodes associated with the iliac blood vessel.

Nerve supply. The nerves supplying the uterus and the uterine tubes consist of parasympathetic fibres from the sacral outflow and sympathetic fibres from the lumbar outflow.

Supports of the Uterus

The uterus is supported in the pelvic cavity by surrounding organs, muscles of the pelvic floor and ligaments that suspend it from the walls of the pelvis.

Two broad ligaments are formed by a double fold of peritoneum, one on each side of the uterus. They hang down from the uterine tubes as though draped over them and at their lateral ends they are attached to the sides of the pelvis. The uterine tubes are enclosed in the upper free border and near the lateral ends they penetrate the posterior wall, one on each side. Blood and lymph vessels and nerves pass to the uterus and uterine tubes between the layers of the broad ligaments.

The round ligaments are bands of fibrous tissue between the two layers of broad ligament, one on each side of the uterus. They pass to the sides of the pelvis then through the inguinal canal to end by fusing with the labia majora.

Two uterosacral ligaments originate from the posterior walls of the cervix and vagina and extend backwards, one on each side of the rectum, to the sacrum.

Two transverse cervical ligaments (cardinal ligaments) extend from the sides of the cervix and vagina to the sidewalls of the pelvis.

The pubocervical fascia extends forward from the transverse cervical ligaments on each side of the ladder and is attached to the posterior surface of the pubic bones.

Functions

After puberty the uterus goes through a regular cycle of changes, the menstrual cycle, which prepares it to receive, nourish and protect a fertilized ovum. It provides the environment for the growing fetus during the 40-week gestation period, at the end of which the baby is born. The cycle is usually regular, lasting between 26 and 30 days. If the ovum is not fertilized a new cycle begins with a short period of bleeding (menstruation).

If the ovum is fertilized the zygote embeds itself in the uterine wall which relaxes to accommodate the fetus as it grows. At the end of the gestation period labour begins and is concluded when the baby is born and the placenta extruded. During labour, the muscle of the fundus and body of the uterus contract intermittently and the cervix relaxes and dilates. As

labour progresses the uterine contractions become stronger and more frequent. When the cervix is fully dilated the mother assists the birth of the baby by holding her breath and bearing down during the contractions.

Uterine Tubes (Fallopian tubes)

The uterine tubes are about 10 cm long and extend from the sides of the uterus between the body and the fundus. They lie in the upper free border of the broad ligament and their trumpet-shaped lateral ends penetrate the posterior wall, opening into the peritoneal cavity close to the ovaries. The end of each tube has finger-like projections called fimbriae. The longest of these is the ovarian fimbria, which is in close association with the ovary.

Structure

The uterine tubes have an outer covering of peritoneum (broad ligaments), a middle layer of smooth muscle and are lined with ciliated epithelium.

Blood supply, lymph drainage and nerve supply

These are the same as for the uterus.

Function

The uterine tubes convey the ovum from the ovary to the uterus by peristalsis and ciliary movement. The mucus secreted by the lining membrane provides ideal conditions for movement of ova and spermatozoa. Fertilization of the ovum usually takes place in the uterine tube and then the zygote is moved into the uterus.

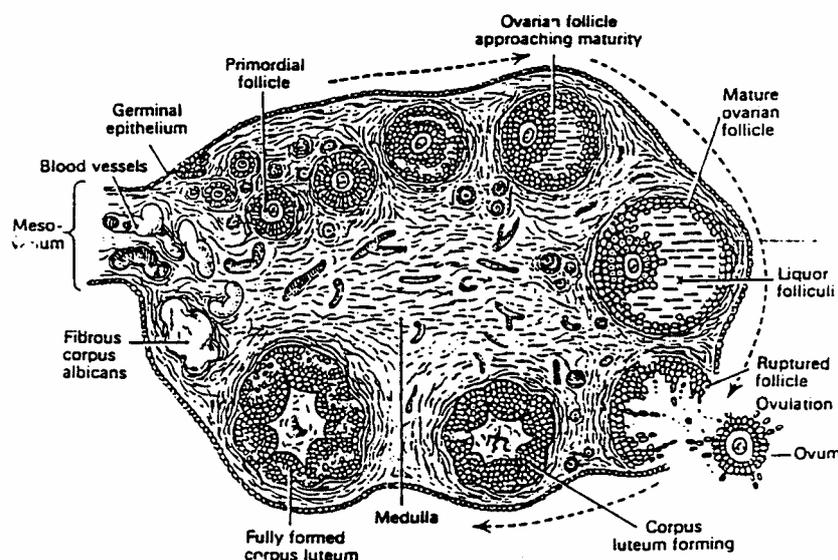
Ovaries

The ovaries are the female gonads, or glands, and they lie in a shallow fossa on the lateral walls of the pelvis. They are 2.5 to 3.5 cm long, 2 cm wide and 1 cm thick. Each is attached to the upper part of the uterus by the ligament of the ovary and to the back of the broad ligament by a broad band of tissue, the mesovarium. Blood vessels and nerves pass to the ovary in the mesovarium.

Structure and Functions

The ovaries have two layers of tissue. The medulla lies in the centre and consists of fibrous tissue, blood vessels and nerves. The cortex surrounds the medulla. It has a framework of connective tissue, or stroma, covered by germinal epithelium. It contains ovarian (Graafian) follicles, each of which contains an ovum. Before puberty the ovaries are inactive but the stroma already contains immature (primordial) follicles. During the childbearing years one ovarian follicle matures, ruptures and releases its ovum into the peritoneal cavity during each menstrual cycle (**Figure K-5**).

Figure K-5: Diagram of a section of an ovary showing the stages of development of one ovarian follicle.



Maturation of the follicle is stimulated by follicle stimulating hormone (FSH) from the anterior pituitary. While maturing, the follicle lining cells produce the hormone oestrogen. After ovulation the follicle lining cells develop into the corpus luteum (yellow body), under the influence of the luteinizing hormone (LH) from the anterior pituitary. The corpus luteum produces the hormone progesterone. If the ovum is fertilized it grows and develops and produces the hormone human chorionic gonadotrophin which stimulates the corpus luteum to continue secreting progesterone for the first 3 months of the pregnancy. If the ovum is not fertilized the corpus luteum degenerates and a new cycle begins with menstruation. At the site of the degenerate corpus luteum an inactive mass of fibrous tissue forms, called the corpus albicans. Sometimes more than one follicle matures at a time, releasing two or more ova in the same cycle. When this happens and the ova are fertilized the result is a multiple pregnancy.

Blood supply, lymph drainage and nerve supply

Arterial supply is by the ovarian arteries which branch from the abdominal aorta just below the renal arteries.

Venous drainage is into a plexus of veins behind the uterus from which the ovarian veins arise. The right ovarian vein opens into the inferior venacava and the left into the left renal vein.

Lymph drainage is to the lateral aortic and pre-aortic lymph nodes. The lymph vessels follow the same route as the arteries.

Nerve drainage is to the lateral aortic and pre-aortic lymph nodes. The lymph vessels follow the same route as the arteries.

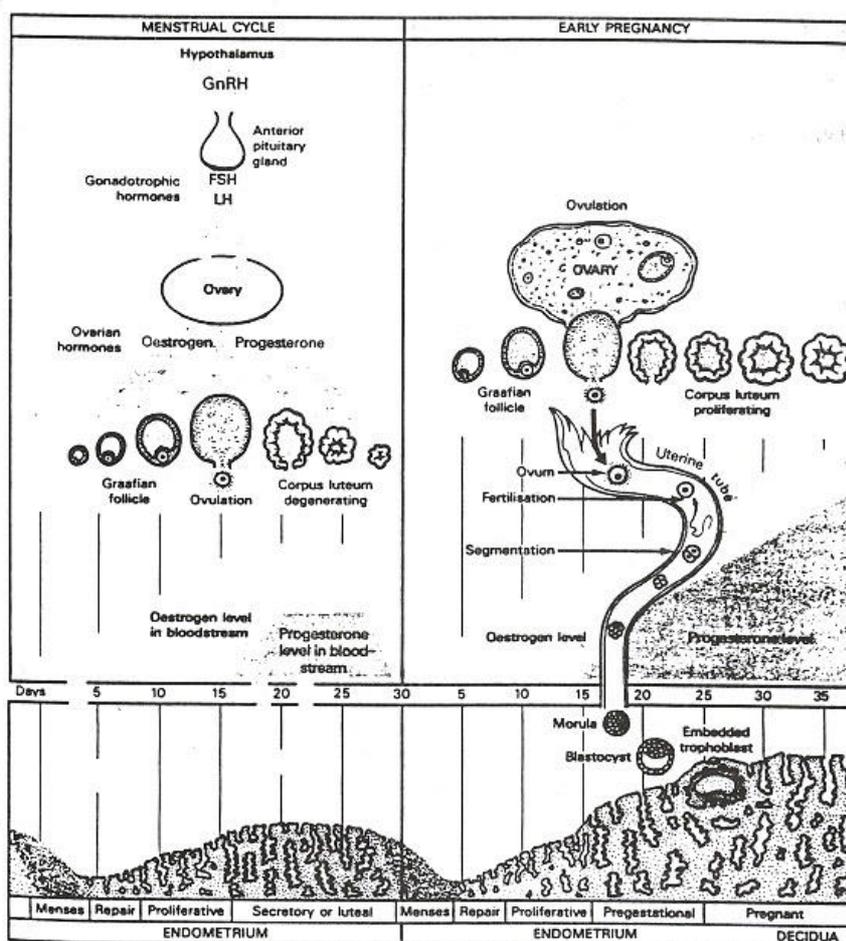
Nerve supply. The ovaries are supplied by parasympathetic nerves from the sacral outflow. Their precise functions are not yet fully understood.

MENSTRUAL CYCLE

This is a series of events, occurring regularly in females every 26 to 30 days throughout the childbearing period of about 36 years. The cycle consists of a series of changes that take place concurrently in the ovaries and uterine walls, stimulated by changes in the blood concentrations of hormones. Hormones secreted in the cycle are regulated by feedback mechanisms.

Figure. K-7 Diagram showing the endometrium at the various stages of the menstrual cycle and the associated hormones.

Figure K-8 MENSTRUAL CYCLE (left half). Diagrammatic representation of the action of the gonadotrophic hormones on the ovary and of the ovarian hormones on the endometrium. EARLY PREGNANCY (right half). Diagrammatic representation showing ovulation, fertilization, decidual reaction and embedding of the fertilized ovum.



MENSTRUATION

When the ovum is not fertilized, the high level of progesterone in the blood inhibits the activity of the pituitary gland and the production of luteinizing hormone is considerably reduced. The withdrawal of this hormone causes degeneration of the corpus luteum and thus progesterone production is decreased. About 14 days after ovulation the lining of the uterus degenerates and breaks down and menstruation begins. The menstrual flow consists of extra secretions, endometrial cells, blood from the broken down capillaries and the unfertilized ovum.

When the amount of progesterone in the blood falls to a critical level another ovarian follicle is stimulated by FSH and the proliferative phase begins.

Proliferative phase

At this stage an ovarian follicle, stimulated by FSH, is growing towards maturity and is producing oestrogen. Oestrogen stimulates the proliferation of the endometrium in preparation for the reception of a fertilized ovum. The endometrium becomes thicker by rapid cell multiplication accompanied by an increase in the numbers of mucus secreting glands and blood capillaries. This phase ends when ovulation occurs and oestrogen production stops.

Secretory phase

Immediately after ovulation, the lining cells of the ovarian follicle are stimulated by LH to develop the corpus luteum, which produces progesterone. Under the influence of progesterone the endometrium becomes oedematous and the secretory glands produce increased amounts of watery mucus. This is believed to assist the passage of the spermatozoa through the uterus to the uterine tubes where the ovum is usually fertilized. There is a similar increase in the secretion of watery mucus by the glands of the uterine tubes and by cervical glands which lubricate the vagina.

The ovum may survive in a fertilizable form for a very short time after ovulation, probably as little as 8 hours. The spermatozoa, deposited in the vagina during coitus, may be capable of fertilizing the ovum for only about 24 hours although they may survive for several days. This means that the period in each cycle during which fertilization can occur is relatively short. However, the date of ovulation cannot be predicted with certainty, even when cycles are regular.

If the ovum is not fertilized menstruation occurs and a new cycle begins.

If the ovum is fertilized there is no breakdown of the endometrium and no menstrual flow. The fertilized ovum (zygote) travels through the uterine tube to the uterus where it becomes embedded in the wall and produces the hormone human chorionic gonadotrophin (HCG) which is similar to anterior pituitary luteinizing hormone. This hormone keeps the corpus luteum intact enabling it to continue to secrete progesterone for the first 3 to 4 months of the pregnancy, inhibiting the maturation of ovarian follicles. During that time the placenta develops and produces oestrogen, progesterone and gonadotrophins. The placenta provides an indirect link between the circulation of the mother and that of the fetus. Through the placenta the fetus obtains nutritional materials, oxygen and antibodies and gets rid of carbon dioxide and other waste products.

EVALUATION OF POSTABORTION CARE REFERENCE MANUAL

Please indicate on a 1-5 scale your opinion of the following chapters

5-Excellent 4-Very Good 3-Satisfactory 2-Needs Improvement[†] 1-Unsatisfactory[†]

CONTENTS	Easy to read	Contains need to know information	Figures and tables helpful	Useful in problem solving
Overall Evaluation of Manual: Postabortion Care				
CHAPTER				
1. Introduction to Postabortion Care				
2. Talking with Patients				
3. Initial Assessment				
4. Infection Prevention				
5. Pain Management				
6. Treatment of Incomplete Abortion				
7. Management of Problems and Complications During MVA				
8. Processing MVA Equipment and Other Items				
9. Postabortion Family Planning				
10. Management of Services				

[†] Please comment on the back if you rated any chapters less than satisfactory (2 or 1)

ADDITIONAL COMMENTS

1. What topics (if any) should be included in **more detail** to improve the manual?

2. What topics (if any) should be **reduced in detail** to improve the manual?

3. What topics (if any) should be **added** (and why) to improve the manual?

4. What topics (if any) should be **deleted** (and why) to improve the manual?

5. Did you receive this manual by attending a training course? If not, how?

