ARAB REPUBLIC OF EGYPT
MINISTRY OF HEALTH AND POPULATION

POSTABORTION CARE TRAINING COURSE FOR DISTRICT AND GENERAL HOSPITALS

TRAINEE'S GUIDE

Draft

November 2005

The CATALYST Consortium is a global reproductive health activity initiated in September 2000 by the Office of Population and Reproductive Health, Bureau for Global Health, U.S. Agency for International Development (USAID). The Consortium is a partnership of five organizations: the Academy for Educational Development (AED), Centre for Development and Population Activities (CEDPA), Meridian Group International, Inc., Pathfinder International and PROFAMILIA/Colombia.

This publication was made possible through support provided by the Office of Population and Health, United States Agency for International Development, under the terms of contract No. HRN-A-00-00-00003-00. The opinions expressed herein are those of the author(s) and do not necessarily reflect the views of the United States Agency for International Development.

Acknowledgments

This manual was developed, to increase awareness of the high rates of maternal mortality and mortality caused by incomplete abortion in Egypt. 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.

This manual has been adapted from the Postabortion Care consortium. It has been updated with the latest National Infection Control Guidelines (2004) and with improvements in the clinical technique developed by CATALYST Peru staff members.

For more information on the member organizations of the Postabortion Care Consortium, they can be contacted directly at the following addresses:

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Preface

Hemorrhage is the leading cause of maternal mortality in Egypt, accounting for 31.9% of all maternal deaths. One reason for this high incidence is that women do not realize bleeding in pregnancy is abnormal and potentially dangerous to their or their infant's health. Many seek medical help too late to be saved. Those who do seek assistance at a hospital often die because of incompetent or inappropriate care. This may be due to the physician's lack of clinical skills and knowledge or inadequate equipment and supplies. It may be a combination of both factors.

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.

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.

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 Worldwide

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 some countries abortion is the cause of as many as 50% of pregnancy-related deaths.[3] And, according to recent World Health Organization (WHO) estimates, up to 15% of pregnancy-related mortality worldwide is due to abortion.[4]

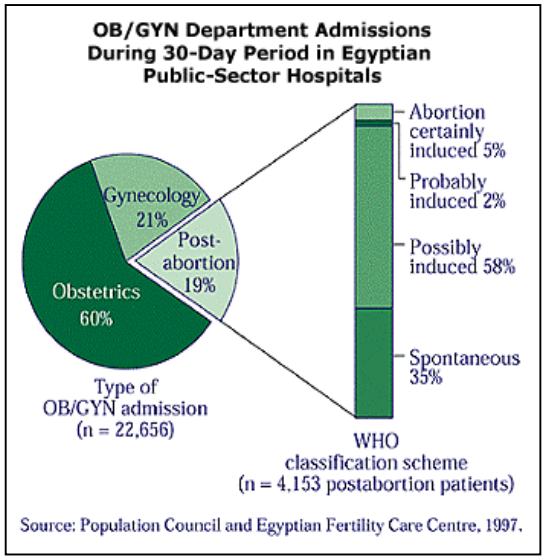
Although accurate data on the impact of unsafe abortion on maternal health is lacking, WHO estimates[5] that:

- Worldwide, 20 million unsafe abortions occur each year.
- 70,000 women die each year as a result of complications following unsafe abortion.
- 1 in 8 pregnancy-related deaths are due to unsafe abortion.

Scope of the Problem in Egypt

Beginning in 1992 the Egypt Ministry of Health and Population, in collaboration with USAID-funded partners, undertook a focused effort to improve the quality of maternal health care. These activities have resulted in a dramatic reduction in maternal mortality, from 174 maternal deaths per 100,000 live births in 1992 to 84 maternal deaths per 100,000 live births in 2000. Among the improvements in maternal care contributing to this reduction are increased use of antenatal care, a gradual shift from home to institutional births, and an increase in skilled attendance at birth. In addition, between 1998 and 2003, contraceptive use among married women has increased from 38 percent to 60 percent, and fertility declined from 4.4 births to 3.2 births per woman.

Despite these gains in maternal health care, the problem of undesired pregnancies remains a significant issue. A 1997 study of 89 public hospitals found that complications related to spontaneous or induced abortion accounted for 19 percent of all admissions.[6] The study reports that approximately 340,000 women present for postabortion care (PAC) annually and 85 percent are less than 12 weeks pregnant. Eighty nine percent of PAC admissions were treated by D&C under general anesthesia, while only three percent were treated with manual vacuum aspiration (MVA) under local anesthesia. Only 47 percent of the women presenting for PAC have ever used contraception, and only 20 percent were provided a contraceptive method as part of PAC services.



The National Population Council/Research Management Unit and Suez Canal University 1993 study found that 26 percent of all women aged 35-60 in Egypt have had one or more abortions.

Health Consequences

The health consequences related to complications of spontaneous or unsafe induced abortion are devastating for women and their families. Death may be a direct result of complications such as sepsis, hemorrhage, genital and abdominal trauma, and perforated uterus or it may result from secondary complications. Long-term disability may occur, related to reproductive tract infections, chronic pelvic pain, pelvic inflammatory disease, and infertility. The majority of women seeking abortion are married and the number of adolescents seeking abortion is increasing.1 Thus, infertility is a significant consequence of abortion complications.

The Egypt National Maternal Mortality Study of 2000 reported that abortion was associated with 20 deaths, contributing to four percent of all maternal deaths. Of these, 11 cases (55 percent) were judged to be spontaneous abortion and nine (45 percent) were thought to be induced abortion. The study notes that "identifying deaths due to abortion is extremely difficult" because "deaths in early pregnancy may be missed and because families will be reluctant to report deaths due to induced abortion in setting where induced abortion is illegal

Unsafe Induced Abortion

The WHO 2000 report on global and regional estimates of the incidence of unsafe abortion and associated mortality states that "Unsafe abortion is entirely preventable. Yet, it remains a significant cause of maternal morbidity and mortality…" The report concludes "Where contraception is inaccessible or of poor quality, many women will seek to terminate undesired pregnancies…Prevention of unplanned pregnancies by improving access to quality family planning services must therefore be the highest priority, followed by improving the quality of….postabortion care.[7]

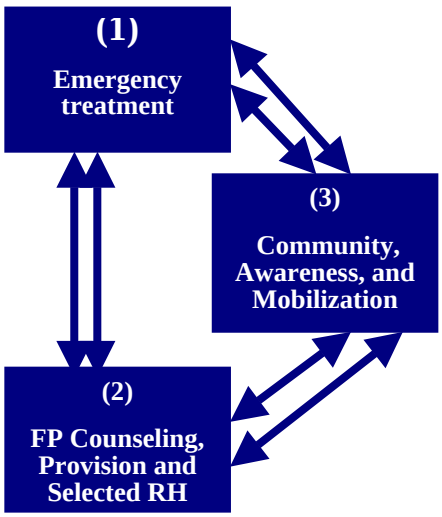
The Cairo Demographic Center 1996 study found that one-third of 1,300 Egyptian women surveyed had tried to terminate a pregnancy.[8] In a study of obstetric visits to public hospitals in 1998, Huntington estimated the induced abortion rate to be 14.8/100 pregnancies and the case fatality rate to be 0.43 deaths per 100 abortion-related admissions.[9]

Elements of Postabortion Care

This model includes the following elements:

Essential Elements of PAC Model

1. Emergency treatment for complications of spontaneous or induced abortion
2. Family planning counseling, service provision, and referral for selected reproductive health services
3. Community awareness and mobilization



1. Emergency Treatment

Every health system provides some level of emergency postabortion care services because at least 15% of all recognized pregnancies end in spontaneous abortion (miscarriage). 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)

2. 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.

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. 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. Information on the provision of postabortion contraception will be discussed later in this manual.

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. For example, providers need to be alert to symptoms of genital tract infections (GTls) and other sexually transmitted diseases (e.g., trichomoniasis or mucopurulent cervicitis) and provide the appropriate treatment for them. Also, 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 (infertility) or advice before attempting to become pregnant again or about prenatal care.

3. Community Awareness and Mobilization

Community awareness and mobilization is crucial to postabortion care services. The following activities are essential top strengthen PAC programs:

1. Recognition of abortion complications.
2. Timely referral to health care system
3. Health education regarding unsafe abortion
4. Family planning information, education, and services

The role of community health workers with basic health training including:

- Traditional Birth Attendants (TBAs)
- Traditional healers
- Community residents

Medical Ethics: Talking To 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."*

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 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, 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.) when receiving counseling or undergoing a physical examination or procedure.

A patient should be made to feel as comfortable as possible when receiving post-abortion 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 non-threatening 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.

Assessment

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 pest 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?

Counseling

In addition, the patient needs information about her health condition and the MVA procedure, or counseling. 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.

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.

The specific elements that need to be addressed during counseling processes:

1. Before the procedure:

- Reassurance and comfort
- Obtain her consent for the operation
- Explain the benefits of local anesthesia
- Explain what is going to happen during the procedure
- Answer her questions and fears

- Explain about the need to use family planning methods for at least 6 months if she would like to get pregnant again or for longer if she does not want to get pregnant again. Explain the possibility of immediate IUD insertion.

2. During the 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. Monitor the patient's condition to be sure she is not experiencing undue discomfort or pain.

Throughout the procedure, health care providers should:

- Reassure her.
- Explain each step to the patient before it happens.
- Help her relax and so decrease her pain.

3. 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. 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.

The topics that need to be addressed are:

- The need for rest

- The need for proper nutrition
- The return of her fertility within 2 weeks
- The need to use family planning methods for at least 6 months if she would like to get pregnant again or for longer if she does not want to get pregnant again.
- The danger signs that make it necessary to come back
- The date and importance of her follow up visit.

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. In Egypt, involving the spouse in the decision making helps the acceptance of FP methods.

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 pre-procedure 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.

MVA Facts

Background

Incomplete abortion is treated by removing the remaining products of conception 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. If skilled staff and supplies are not available, the woman should be referred immediately to an appropriate facility.

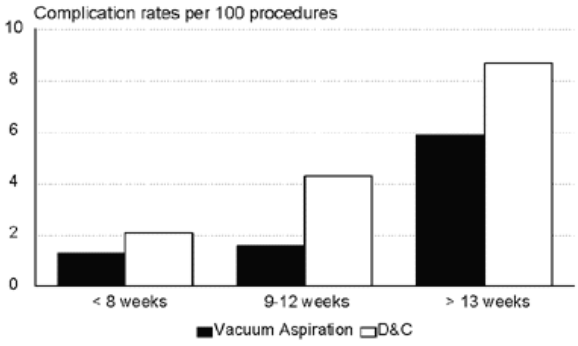
Treatment of first- and early second-trimester incomplete abortions can be performed by vacuum aspiration or Dilatation and curettage (D&C). Vacuum aspiration has been found to result in fewer complications than D&C and causes less trauma to the patient. In addition, vacuum aspiration does not require general anesthesia and can be performed in a clinical procedure or exam room.

Manual vacuum aspiration (MVA) is an effective method for treatment of incomplete abortion. 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. After attaching the syringe to the cannula, the syringe's locking valve is released which transfers a vacuum of approximately 1 atmosphere (26 inches/660 mm Hg) into the uterine cavity. The cannula is rotated while gently and slowly moving it back and forth within the uterus. Suction provided by the syringe gently pulls the contents of the uterus through the cannula and into the barrel of the syringe.

Rationale for the Use of MVA

The treatment of incomplete abortion almost always requires removal of retained products of conception from the uterus. 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 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.

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



Source: Hart and Macharper, 1986

Moreover, as shown in the following table, 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.

Summary of 13 Studies Comparing Vacuum Aspiration and D&C

Major Complications Reviewed	Complications with vacuum aspiration per 100 procedures	Complications with D&C per 100 procedures	Studies with lower complication rates for vacuum aspiration than D&C (%)
	Range of averages (N=95,136)	Range of averages (N=17,166	
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%)

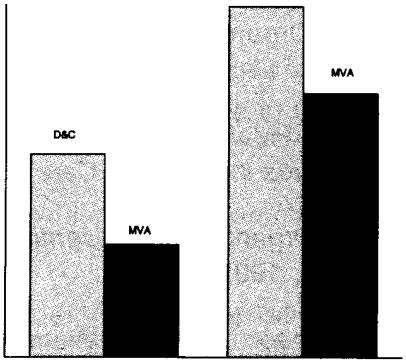
Source: Greenslade et al, 1993.

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%. Similarly, in one Mexican hospital D&C was at least 50% more expensive than MVA. 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.

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 facilities, and therefore are less likely to suffer injury or death as a result of abortion complications. With fewer cases referred to these facilities, staff are able to focus on providing care for serious complications and limited health care resources can be better utilized. A study in Aswan Governorate has shown this is feasible in Egypt.[10] 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. Reduction in the use of operating theater facilities and hospital beds also helps alleviate crowding and reduce delays in treatment.

Average Length of Stay for MVA versus D&C at Two Mexican Hospitals

Source: Greenslade et al, 1993.11

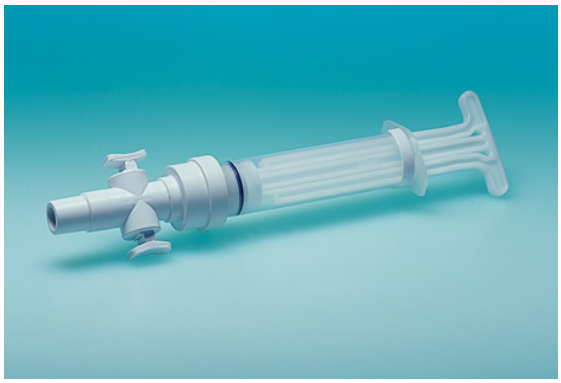


In summary, using MVA as the method of uterine evacuation to treat incomplete abortion is preferred because:

- 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.

MVA Instrument Kits



Basic MVA instrument kits for emergency treatment of incomplete abortion 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 (0) 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. 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.

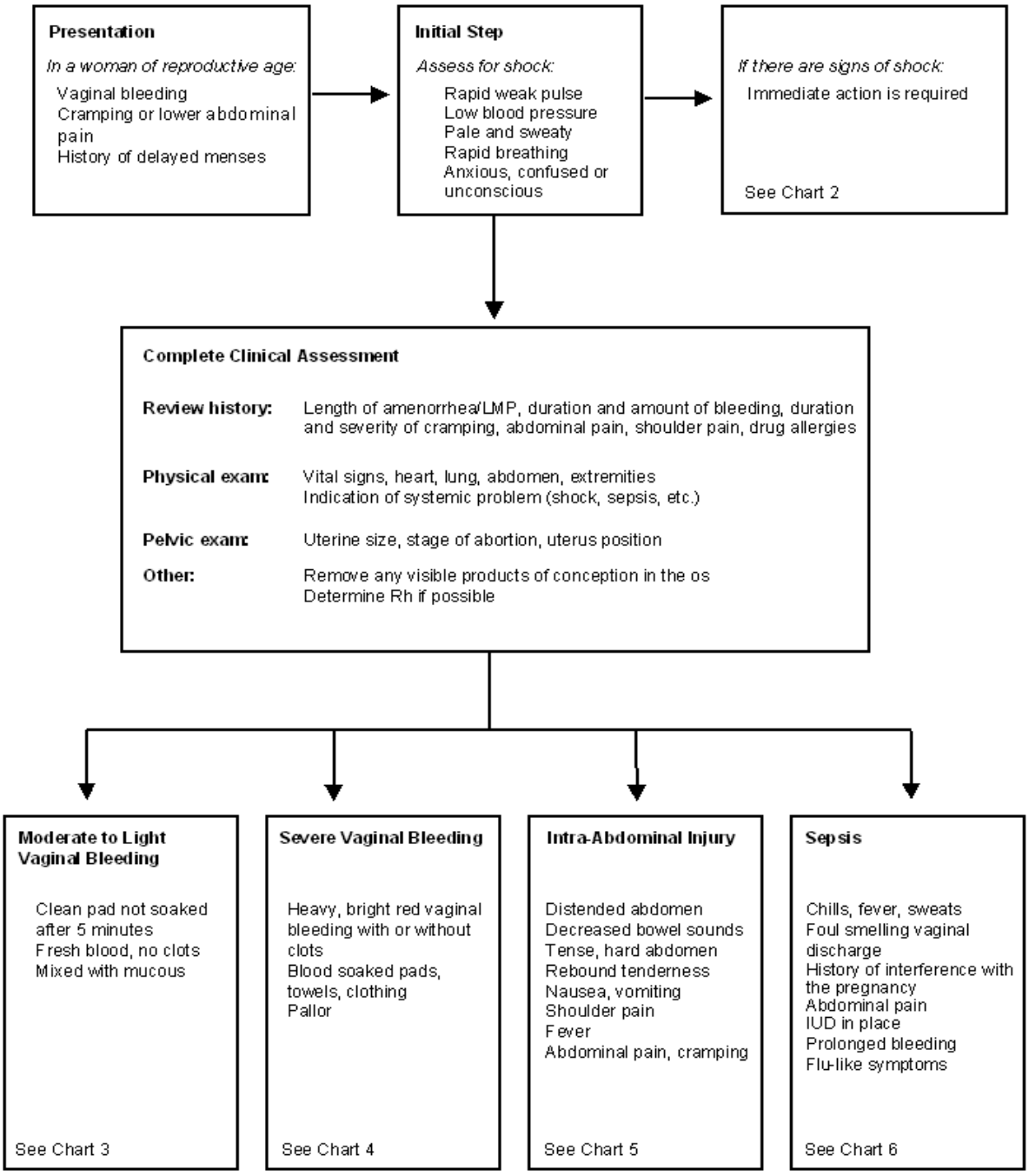
Choice of Equipment

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 the LMP).

Initial Assessment of MVA Patients

Initial Assessment (Chart 1)



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 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 the chapter entitled *Assessment and Treatment of Complications.*

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), 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 are 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, socio-cultural 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. In primary health care facilities, 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, palms or around the mouth)
- Sweatiness
- Rapid breathing (respirations ~ 30 per minute)
- Anxiousness, confusion or unconsciousness

If shock is suspected, **immediately** begin treatment.

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.

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, palms or around the mouth)
- Dizziness, fainting

Begin treatment immediately to replace lost fluid and control bleeding

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.

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.

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.

Medical History

Specific reproductive information that should be obtained includes:

- Missed period (date when her last menstrual period began), other signs of pregnancy
- 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 [1], consistency and position of the uterus, to check for tenderness and to determine the degree of cervical dilation. 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.

[1] 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).

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.

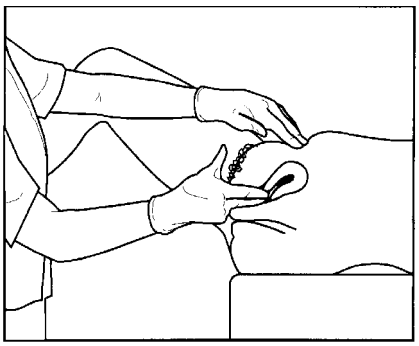
Note any abnormal-smelling discharge, the amount of bleeding and whether the cervix is open (dilated). Check for cervical or vaginal tears or perforations, or pus in the cervix. Cervical infection increases the chance of postoperative uterine infections, including acute pelvic inflammatory disease (PID). 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.

Palpating Anteverted Uterus



If the uterus is larger than expected, it may indicate:

- A more advanced pregnancy than the LMP suggests
- Presence of multiple pregnancies
- A uterus filled with blood clots (i.e. post-abortal 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 titled 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 uterus has been determined. Therefore, if problems in determining the size or position of the uterus is 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.

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.)

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

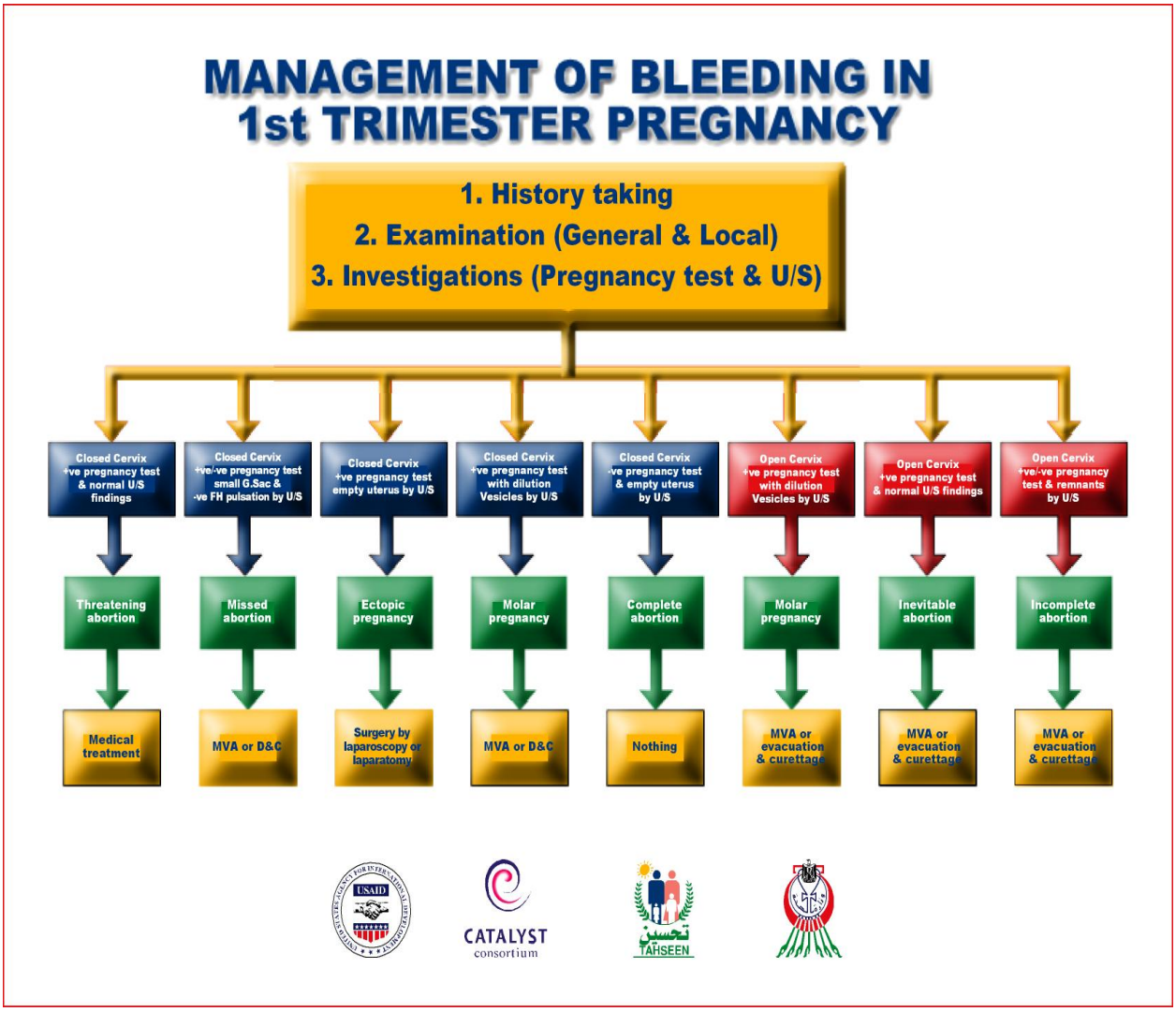
If Rh status **typically** is determined in pregnancy, it should be done during the clinical assessment in cases of incomplete abortion as well. For women who are Rh negative, give Rh (D) immune globulin if available.

The steps in performing the **medical evaluation** are briefly summarized in the following table.

Medical Evaluation	
Medical History	• Ask about and record the following information: • 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	• Check and record vital signs (temperature, pulse, respiration, blood pressure) • Note general health of woman (malnourished, anemic, general poor health) • Examine lungs, heart, abdomen, and 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; and the presence, location and severity of pain.
Pelvic Examination	• 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).

Adapted from: WHO, 1994.

Management of Bleeding



Stages 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 [2]	Little or none	Soft (dilated or closed)	Less than dates by LMP	• Less or no cramping • Expulsion of PC • Uterus firm

[2] 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

MVA Procedure

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 hand-washing 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 an 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

1. Select cannulae according to assessment of uterine size (weeks LMP). It is a good idea to prepare several cannulae for the procedure.

   For endometrial biopsy, 4mm cannula is standard. For treatment of incomplete abortion, follow the chart below. The cannula needs to be large enough to allow passage of tissue expected (according to gestation) and to fit snugly through the cervix.

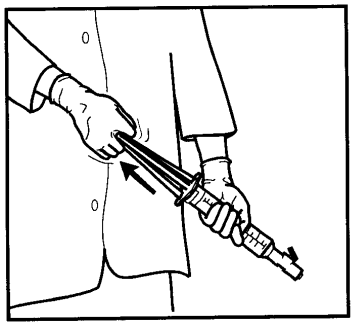
Approximate Uterine Size	Approximate Cannula Size
5-7 LMP	5 mm
7-9 LMP	6 mm
9-12 LMP	7-12 mm

   Inspect cannulae for cracks or defects; discard if any visible signs of weakness or wear.

2. Select syringes and adapters (if needed), according to the table below. It may be useful to prepare two syringes for a procedure because the amount of blood and tissue in the uterus is difficult to predict. Note that the colored dots on the cannulae match the color of the appropriate adapter.

Cannula Size	Adapter Color
4, 5, 6 mm	Blue
7 mm	Tan
8 mm	Ivory
9 mm	Dark brown
10 mm	Dark green
12 mm	No adapter needed

3. Inspect syringes. Syringe must be able to hold a vacuum. Discard syringes with any visible cracks or defects, or once that do not hold a vacuum.
4. Attach the adapter (if required) to the end of the syringe or cannula.
5. Check the plunger and valve: the plunger should be positioned all the way into the barrel, and the pinch valve open, with the valve button out.
6. Close the pinch valve by pushing the button down and forward until you hear it lock into place.
7. Prepare the syringe by grasping the barrel and pulling back on the plunger until the arms of the plunger snap outward. Plunger arms must be fully secured over the edge of the barrel, so the plunger cannot move forward involuntarily.

   Incorrect positioning of the arms could allow them to slip back inside the barrel, possibly pushing air or the contents of the syringe into the uterus. Never grasp the syringe by the plunger arms.
8. Check the syringe for vacuum tightness before use. Leave the syringe for several minutes with the vacuum established. Open the pinch valve. You should hear a rush of air into the syringe, indicating that there was a vacuum into the syringe. Have the instruments, needles, syringes and supplies required for MVA readily available and prepared.

Pain Management

The need for pain medication (oral, 1M or IV), including use of a paracervical block, 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
- Next, wash hands thoroughly and put high-level disinfected (or sterile) gloves on both hands.
- Shaving the patient's pubic hair is not necessary and may increase the risk of local infection (cellulitis). If pubic hair is long or interferes with use of instruments, trim with scissors.

Pelvic Examination

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

- Uterine size and position (bimanual examination)
- Degree of cervical dilatation (e.g., Does it admit a finger tip?)
- Presence of POC in the vagina and condition of the vagina and cervix (tears, perforation) (speculum examination)

Steps for Performing MVA

Prepare the table with instruments - "metallic moment"

- Insert ring forceps in "rigid zone"
- Place speculum, tenaculum forceps, ring forceps, and MVA Instruments (Aspirator, Canulae, and Adaptors).
- Prepare local anesthetic: 10 cc Lidocaine 1% or xylocaine 1%

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 IUD strings are visible in the cervix, remove the IUD after prepping the cervix (see **Step 2**).

Step 2: Clean the cervix (especially the os) and vagina with antiseptic solution. After inserting the speculum, thoroughly apply antispectic solution two or more times to the cervix (especially the os) and then the vagina using a sponge forceps and gauze or cotton.

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

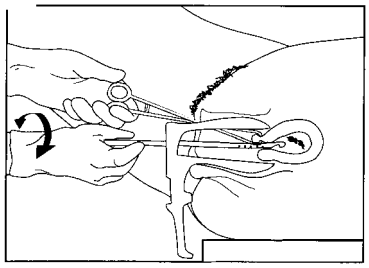
- Infiltrate 5 cc of xylocaine 1% at the 3 and 9 o'clock positions or 5 and 7 o'clock positions of the cervicovaginal fold
- The infiltration is slow with ongoing aspiration

- Wait 5 minutes before continuing procedure

Now prepare the table for the "plastic moment"

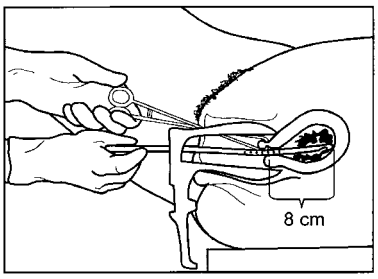
- Request cannula(s) necessary based on size of uterus and place them in vertical position, inside the "rigid zone." The cannula should be a number equal to or smaller than the size of the uterus. Make note of whether cannula 6 is available for final exam.
- If necessary (incomplete abortion), request dilators and place them in horizontal position in superior part of rigid zone. Dilators should be from number 5 up to a number larger than the number of the cannula being used.
- Request syringes, check that they are functional (they retain vacuum) and place them in semirigid zone
- Request adaptors and place on respective cannulas

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.



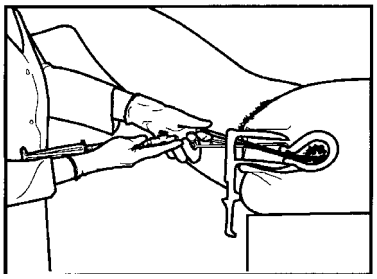
Step 5: **While holding the cervix steady and gently applying traction, insert the cannula** through the cervix into the uterine cavity just past the internal os. (Rotating the cannula while gently applying pressure often helps the tip of the cannula pass through the cervical canal).

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. 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.

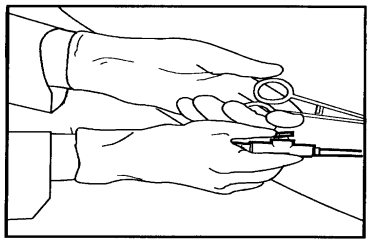


Step 7: **Attach the prepared MVA syringe** to the cannula by holding the forceps (or tenaculum) and the end of the cannula in one hand and the syringe in the other.

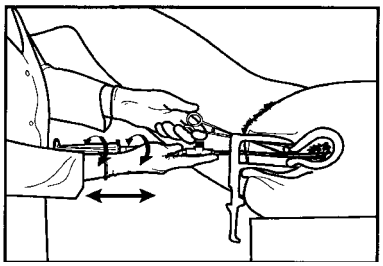
Note: Make sure that the cannula does not move forward into the uterus as you attach the syringe.



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.



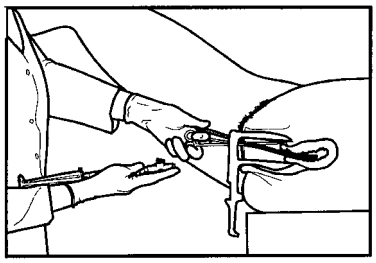
Step 9: **Evacuate any remaining contents of the uterine cavity** by gently rotating the syringe from side to side (10 to 12 o'clock) and then moving the cannula gently and slowly back and forth within the uterine cavity– when using the 4,5 or 6 mm Cannulae.



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 full, follow the instructions to 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 and then place the cannula in the decontamination solution. With 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 the uterus.

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:

Source: IPAS, 1993.

- 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. 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.)

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 above);
- 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 non-pregnant 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[3], if diagnosed, requires immediate evaluation and referral if surgery (minilaparotomy or laparoscopy) is not available.

Management of these problems is discussed later in this guide.

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).

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. Tissue fragments 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.

Step 16: **Immerse both gloved hands in decontamination solution**, and 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 17: Wash hands thoroughly with soap and water.

Monitoring Patient's Recovery

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

[3] 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.

- 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 follow-up information.[4]

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

Other topics that need to be addressed are:

- The need for rest
- 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)
- The need for proper nutrition
- The return of her fertility within 2 weeks
- The need to use family planning methods for at least 6 months if she would like to get pregnant again or for longer if she does not want to get pregnant again.
- Client should return if the following danger signs exist:
  - 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)
- The date and importance of her follow up visit.
- In addition, the patient should be given instructions for taking any prescribed medications.

[4] 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).

Postabortion Family Planning

A woman's fertility returns almost immediately after an incomplete abortion. 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. However, waiting 6 months will diminish the risks in the next pregnancy.

For many women, however, this abortion represents a clear desire not to be pregnant at this time.

Thus, all women (and her partner if she desires) need to receive counseling and information about her return to fertility and available contraceptive methods. 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.

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. Therefore, it is important to use alternative approaches for the safe, effective management of pain.

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 is usually 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.

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.

Pain Management Techniques

Most patients with incomplete abortion can remain comfortable during 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 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.

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:

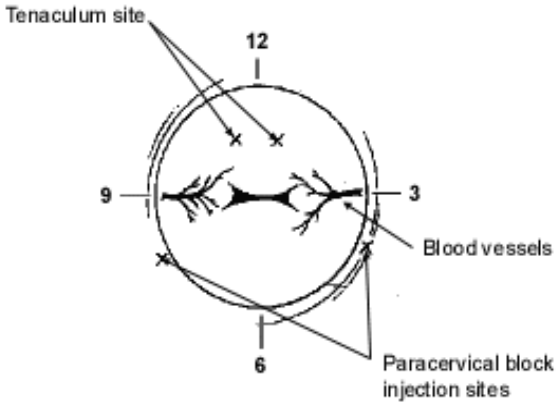
- The emotional state of the patient
- How open (dilated) the cervix is
- Anticipated length of the procedure
- The skill of the provider and assistance of the staff

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

Local Anesthesia

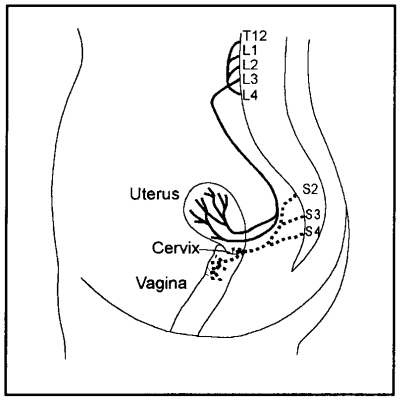
Local anesthesia, most commonly provided by a paracervical block with lidocaine, is widely used to ease cervical pain if additional cervical dilation is necessary. Local anesthesia causes minimal physiologic disturbance, allowing the uterus to contract firmly and the patient to recover rapidly.

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. The nerves transmitting these sensations are higher in the pelvis than local infiltration will reach. Consequently, it does not affect pain of uterine cramping.



Because patients with a para-cervical 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)



Pathways of pain transmission from uterus and cervix to the spinal cord

Source: Margolis et al, 1993.

- 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 or chloroprocaine).
- 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 and chloroprocaine are the anesthetics 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. Chloroprocaine, on the other hand, is more expensive and less available than lidocaine. It also is more likely to cause an allergic reaction, but it is more rapidly broken down by the liver. Therefore, 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. 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)***. 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 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.

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 G) 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.

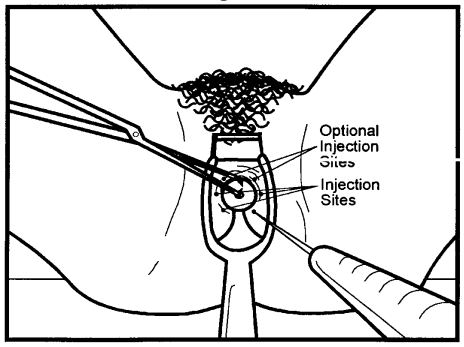
STEP 1: After determining the absence of known allergies to the anesthetic agent or related drugs, fill a 10-20 ml syringe with local anesthetic (1% lidocaine without epinephrine).

STEP 2: Use a 3.5 cm (1 ~ 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). 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.

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. This is the site for insertion of the needle around the cervix. Put the tenaculum on the cervix vertically (one tooth in the external os, the other on the face of the cervix).

Paracervical Block Injection Sites

Source: Margolis et al, 1993



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.

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. When correctly placed, a swelling and blanching of the tissue can be noted.

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). (Example: Maximum dose = 4.5 mg/kg x 50 kg patient = 225 mg.)

Infection Control

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 and HIV viruses. 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 equipments, and disposing of waste. The risk of transmitting infection is reduced through using protective barriers (including hand-washing and appropriate processing of reusable instruments), using the non-touch technique for performing MVA and disposing of contaminated waste properly.

The infection prevention practices discussed in this chapter are taken from the National Guidelines for Infection Control, MOHP 2004.

Infection Prevention in the Operating Theatre

Infection prevention in the operating room is achieved through prudent use of aseptic techniques in order to:

- Prevent contamination of the open wound.
- Isolate the operative site from the surrounding unsterile physical environment.
- Create and maintain a sterile field in which surgery can be performed safely.

Although all infection prevention practices contribute to this effort, aseptic technique refers to those practices performed just before or during clinical procedure including:

- Proper preparation of the client for clinical procedures
- Handwashing
- Surgical hand scrub
- Using barriers such as gloves and surgical attire
- Maintaining a sterile field
- Using good surgical technique
- Maintaining a safe environment in the surgical/procedure area

Principles and maintenance of aseptic practices are imperative in the operating room. Each facility should develop policies and procedures pertaining to aseptic technique.

Preoperative Care and Preparation of the Patient

Preoperative Processes	Instructions
Assessment for infection	• Whenever possible, identify and treat all infections remote to the surgical site before elective operation and postpone elective operations on patients with remote site infections until the infection has resolved. • Adequately control serum blood glucose levels in all diabetic patients and particularly avoid hyperglycemia perioperatively. • Do not withhold necessary blood products from surgical patients as a means to prevent SSI.
Preoperative hair removal	• Do not remove hair preoperatively unless the hair at or around the incision site will interfere with the operation. • If hair is removed, remove immediately before the operation, preferably with electric clippers. Only the incision area is cleared of hair. This is done in the anesthetic room. Shaving is not recommended.
Management of infected or colonized surgical personnel	• Surgical personnel who have acute communicable infections or who are colonized with a pathogen that can be transmitted during surgery should be excluded from surgery until cured.

Antiseptics for Preoperative Preparation of Skin and Hands

Antiseptics are used for:

- Surgical hand antisepsis.
- Skin, cervical and vaginal preparation before a clinical procedure.

Notes on Antiseptics:

- Antiseptic solutions should **never** be used to:
  - Disinfect inanimate objects, such as instruments
  - Clean surfaces, such as floors or countertops
- Instruments and items such as pickups, scissors, scalpel blades, and suture needles should never be left soaking in an antiseptic solution; they should always be stored dry. In addition to the fact that antiseptic solutions are made for killing microorganisms on the skin and mucous membranes, and not on objects; microorganisms can live and multiply in antiseptic solutions and contaminate the instruments and other items, leading to infections.

Common Antiseptics Used in Operating Theaters (OR)

1. Alcohol (60-90% ethyl or isopropyl)

Antimicrobial Spectrum: Effective against a broad range of microorganisms e.g. bacteria, and mycobacteria.

Advantages

- Rapidly active
- Effective in reducing vegetative microorganisms
- Effectiveness is only moderately reduced by blood or other organic material
- Non-staining
- Less expensive

Disadvantages

- Has a drying effect on skin
- Cannot be used on mucous membranes
- Evaporates rapidly and makes contact time difficult to achieve
- No prolonged activity however the reduction in skin flora is so pronounced that re-growth on the skin does not occur for several hours

Comments

- Cannot be used when skin is dirty; area should be washed before applying
- Must dry completely to be effective
- The 60-90% strength is most effective
- Very effective surgical hand antiseptic when used in waterless alcohol handrub formula

2. Chlorhexidine gluconate (4%)

Antimicrobial spectrum: Effective against a broad range of microorganisms, but less so against gram-negative bacteria and fungi and minimal efficacy against *M. tuberculosis*.

Advantages

- Has a good, persistent effect; remains effective for at least 6 hours after being applied.
- Effectiveness is not reduced by blood or other organic material.

Disadvantages

- It stains fabrics brown (in the presence of chlorine-based disinfectants).
- Effectiveness can be reduced by hard water, hand creams, and soaps.

Comments

- Recommended antiseptic for surgical hand antisepsis and skin preparation.
- Preparations without cetrimide are preferable to those with cetrimide.

- Caution: Savlon™ or Citiel products containing at least 4 % chlorhexidine are appropriate for use as antiseptics; Products containing less than 4 % chlorhexidine in an alcohol base are also adequate, but should not be used on mucous membranes. Chlorhexidine is relatively non-toxic. It must not be allowed to come into contact with the brain, meninges, eye or middle ear.

3. Iodine compounds, including tincture of iodine (iodine and alcohol)

Antimicrobial spectrum: Effective against a broad range of microorganisms (same as alcohol)

Advantages

- Fast-acting (tincture preparations only)

Disadvantages

- Can cause skin irritation.
- Effectiveness is markedly reduced by blood or other organic material.
- Less persistent activity.

Comments

- Can cause contact dermatitis therefore has limited usefulness as an OT hand antiseptic. Because of the potential to cause skin irritation, when iodine is used for pre-procedure skin preparation, it must be allowed to dry; then is removed from the skin with alcohol.

4. Iodophors, (solutions such as povidone iodine (e.g., Betadine) that contain iodine in a complex form, making them relatively nonirritating and nontoxic)

Antimicrobial spectrum: Effective against a broad range of microorganisms (mainly gram +ve and gram –ve bacteria. Less effective against mycobacteria).

Advantages

- Less irritating to the skin than iodine tincture can be used on mucous membranes.

Disadvantages

- Effectiveness is moderately reduced by blood or other organic material.
- Release of active ingredient, free iodine, takes relatively long time therefore it needs to be applied to skin and left on for > 2 minutes prior to initiating procedure.
- Less persistent antimicrobial activity compared to chlorhexidine.

Comments

- Recommended for surgical hand antisepsis and pre-operative skin preparation.
- Best antiseptic for use in the genital area, vagina, and cervix.
- Becomes effective >2 minutes after application; for optimal effectiveness, wait several minutes after application.
- Most preparations should be used full strength; do not dilute.
- Distinctly different from iodine but can be confused for iodine tincture.

Note: If any antiseptic solution is received from the facility's pharmacy or central supply that is labeled simply "iodine" the pharmacist or person in charge of supplies should be asked what the solution contains. For example, if a brown liquid in a bottle is received, a small amount has to be put in hand and be rubbed. If it seems more sudsy than usual, it is an iodophor, not iodine.

Antiseptics Appropriate for Use in Clinical Procedures

Antiseptic	Use		
	Surgical Hand Antiseptic	Pre-procedure Skin Preparation	Vagina and Cervix
Alcohol	Yes	Yes	No
Chlorhexidine gluconate with or without cetrimide	Yes	Yes	Yes. However, products containing chlorhexidine may not be the best antiseptics to use in the genital area because of the small potential for irritation. If an iodophor is not available, a product containing chlorhexidine is the best alternative
Hexachlorophene	No	No	No
Iodine, including tincture of iodine (iodine and alcohol)	No	Yes	No
Iodophors	Yes	Yes	Yes

Note: Avoid using the following:

- Hydrogen peroxide is available in antiseptic preparations to prevent infections due to minor cuts, burns and abrasions. These preparations are not appropriate for use in surgical hand antiseptic and client/patient skin preparation.
- Products containing quaternary ammonium compounds, such as benzalkonium chloride (e.g., Zephiran), are disinfectants, and should not be used as antiseptics. These products are easily contaminated by common bacteria, easily inactivated by cotton gauze, and incompatible with soap.
- Compounds containing mercury (such as mercury laurel) should not be used because they are highly toxic, cause blisters, and cause central nervous system disturbances or death when inhaled. They also be absorbed through the skin and can cause birth defects in a pregnant woman who is exposed to small doses.

Tips on using antiseptics

- Never leave cotton balls, cotton wool, or gauze sponges soaking in an antiseptic.
- Never dip cotton or gauze into the antiseptic container. Instead, pour some antiseptic into a small container, dip the cotton or gauze into this small container, and discard the unused antiseptic after patient preparation.

- If an antiseptic is provided in a large container, small amounts (enough for one shift) should be poured in small clean disinfected containers.
- At the end of the shift, left over quantities should be discarded and the container should be appropriately cleaned, disinfected and dried before subsequent use.
- Never leave antiseptic in opened containers.

Preoperative Antimicrobial Prophylaxis

Antibiotic prophylaxis:

- Giving antibiotics before a procedure to prevent infections is not a substitute for good infection control practices and surgical technique.
- D&C and MVA when practiced properly do not require preoperative antibiotics.
- Should you wish to prescribe antibiotics:
  - Use antibiotic agents that are safe, inexpensive, and bactericidal with a spectrum that covers the most probable intraoperative contaminants.
  - Administer the initial dose of antibiotics at the time of surgery.
  - Maintain therapeutic levels of the antimicrobial agent in both serum and tissues throughout the operation and until a few hours after surgery.
  - Do not prolong prophylaxis through the postoperative period. There is no evidence that prolonged use of antibiotics offers any advantage and instead encourages development of antibiotic resistant microorganisms

Preoperative Skin Preparation of OT Personnel

Hand hygiene

Hand hygiene by OT personnel is one of the most effective ways to reduce the risks of infections.

Surgical hand wash

Definition

Surgical hand wash or surgical handrub must be performed preoperatively by surgical personnel to eliminate transient and to reduce resident hand flora. The warm, moist conditions inside surgical gloves provide an ideal environment for the growth of microorganisms.

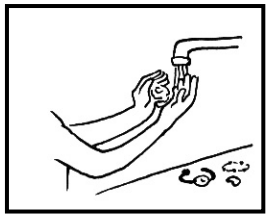
Surgical hand wash with antiseptics before beginning surgical procedures will help prevent this growth of microorganisms for a period of time and will help to reduce the risk of infections to the patient if the gloves develop holes, tears, or nicks during the procedure. Waterless alcohol handrubs have more immediate activity after application and they lower the quantity of skin flora to such an extent that it takes several hours for regrowth.

Indications of surgical hand wash

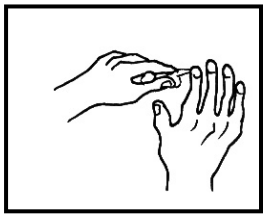
Surgical hand wash is needed for any invasive surgical procedure. All personnel (e.g., doctors, anesthesiologists, and nurses) should perform surgical hand antisepsis before any procedure.

Steps for surgical hand wash

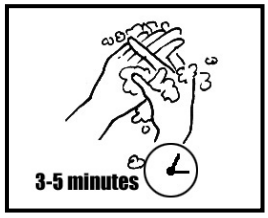
1. Remove all jewelry on hands and wrists. Adjust water to a warm temperature and thoroughly hands and forearms to 5 cm above the elbows in order to remove dirt and transient flora.



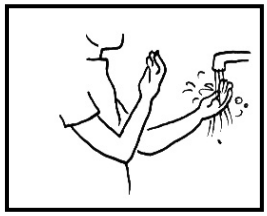
2. Clean under each fingernail and around the nail bed with a nail cleaner prior to performing the first surgical scrub of the day. Keep nails short and do not wear artificial nails or fingernail polish.



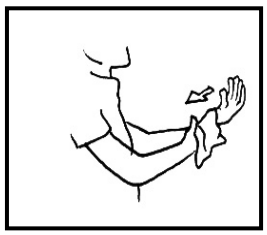
3. Holding hands up above the level of the elbow, apply antimicrobial agent to hands and forearms up to the elbows. Using a circular motion, begin at the fingertips of one hand and lather and wash between the fingers, continuing from fingertip to 5 cm above the elbow. Repeat this process for the other hand and arm. Continue rubbing for 3-5 minutes.



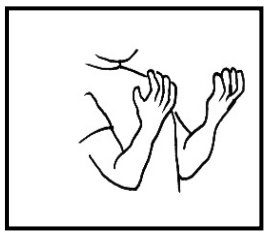
4. Rinse each arm separately, fingertips first, holding hands above the level of the elbow.



5. Using a sterile towel, dry the fingertips to 5 cm above the elbow. Use one side of the towel to dry the first hand and the other side of the towel to dry the second hand.



6. Keep hands above the level of the waist and do not touch anything before putting on sterile gown and surgical gloves



Surgical hand scrub tips

Brushing: Recent studies have shown that using a brush during surgical scrub provides no greater reduction of microorganisms on the hands than washing with antiseptic soap alone. Surgical hand antisepsis wash may be performed using either a soft brush or sponge or using an antiseptic alone. Avoid using a hard brush, which is not necessary and which may irritate the skin.

The brush should be single use and should be discarded (if disposable) or sent for autoclaving (if reusable). Do not share brushes between personnel.

Allergy: When surgical staff develops sensitivity to the available antiseptic solutions or when antiseptics are not available, then perform a surgical scrub with soap and water followed by an alcohol handrub:

- Perform a surgical hand wash with plain soap and warm, running water and then dry hands thoroughly.
- Apply 3-5 ml of alcohol or of alcohol handrub solution.
- Rub hands together until they are dry.

Note: An alcohol handrub does not remove soil or organic material such as blood. If gloves are torn or punctured or if there is blood or other body fluids on your hands after you remove your gloves, a surgical scrub should be performed.

Water temperature: Warm water makes antiseptics work more effectively. Avoid using hot water, which removes protective oils from the skin.

Care of hands: Persons who perform surgical procedures should:

- Keep fingernails short.
- Keep hands above their elbows during and after scrubbing.
- Avoid using a hard brush during scrubbing.

Protective Clothing for Use in the Operating Theatre

The use of barriers minimizes a patient's exposure to microorganisms that might be shed from the skin, mucous membranes, or hair of surgical team members as well as protects surgical team members from exposure to blood and to blood-borne pathogens.

Surgical attire can include such as items as sterile gloves, caps, masks, gowns or waterproof aprons, and protective eyewear.

Issues Related to Surgical Attire

Masks: Standard surgical masks are sufficient for OT personnel. Except for the need to protect the mucous membrane of HCP there is some controversy on whether masks play any role in prevention of SSI. Masks should cover the mouth and nose at all times. The mask *should not* be worn hanging around the neck or be put in pockets to be reused. Masks should be changed frequently, when they become moist, and in between cases. Cotton masks are not considered protective. High efficiency masks should be available for surgical procedures on patients with suspected or proven active disease caused by *M. tuberculosis*.

Gowns: Gowns and waterproof aprons prevent contamination of the OT personnel's arms, chest, and clothing with blood and body fluids. They also minimize shedding of microorganisms from the personnel thus protecting the patient. Sterile gowns should be worn by all personnel in the operating suite.

Sterile drapes: Sterile drapes are used to create a barrier between the surgical field and the potential sources of bacteria. These are placed over the patient.

Scrub suits: Surgical members often wear a uniform called a "scrub suit" or "theater suit" or clothes that consists of pants and a shirt. This should be viewed as a uniform over which a sterile gown or apron is worn. There is no evidence that scrub attire worn by personnel prevents SSI. If available, scrub suits are convenient for personnel to change in the event there is penetration of blood or body fluids through the surgical gown. Scrub suits should be changed when they become visibly soiled.

Surgical caps/hoods: Hair on the face and head must be covered completely either by disposable or recyclable coverings. Coverings reduce contamination of the surgical field by organisms shed from the hair and from the scalp. Hair covering is donned first in order that hair does not fall onto clean scrub clothing. Veiled personnel should remove their veils and put on a sterile cover.

Eye protection and face shields: Eye protection and/or face shields should be worn to protect OT personnel's eyes, nose, and mouth from splashes of blood or other fluids.

Footwear: A change of footwear while in the operating theatre is recommended. Surgeons dealing with heavy blood or body fluids contamination are advised to wear boots that are adequately covered by the plastic apron in order to avoid fluid from going into the shoes/boots. Shoe covers have not been shown to prevent SSIs.

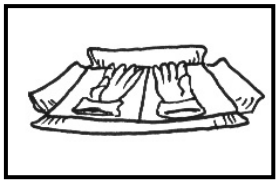
Surgical gloves: Well fitting latex sterile surgical gloves should be worn by all OT personnel involved in a surgical procedure in order to minimize the transmission of microorganisms from the hands of OT personnel to patients and to prevent contamination of team members' hands with patients' blood and body fluids. Gloves must be changed if they become contaminated or if their integrity is compromised. Wearing two pairs of gloves has been shown to reduce skin contact with blood or body fluids from the patient especially during complicated or involved procedures.

Putting on and removing surgical gloves

Surgical gloves are cuffed to make it easier to put them on without contamination. The outside of the glove package is not sterile and should be opened prior to performance of a surgical scrub.

Steps for putting on surgical gloves

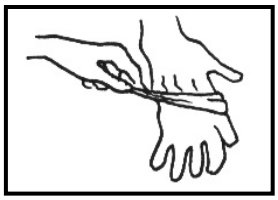
1. Prepare a large, clean, dry area for opening the package of gloves. Perform surgical antisepsis and ask someone (e.g., circulating nurse) to open the package of gloves.



2. Open the inner glove wrapper, exposing the cuffed gloves with the palms up.

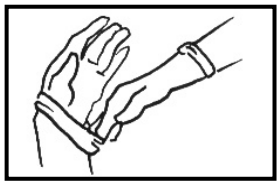
3. Pick up the first glove by the cuff, touching only the inside portion of the cuff (the inside is the side that will be touching your skin when the glove is on).

4. While holding the cuff in one hand, slip your other hand into the glove. (Pointing the fingers of the glove toward the floor will keep the fingers open). Be careful not to touch anything, and hold the gloves above your waist level.



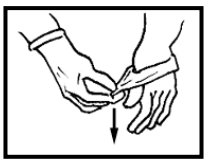
5. Pick up the second glove by sliding the fingers of the gloved hand under the cuff of the second glove. Be careful not to contaminate the gloved hand with the ungloved hand.

6. Put the second glove on the ungloved hand by maintaining a steady pull through the cuff. Adjust the glove fingers and cuffs until the gloves fit comfortably.



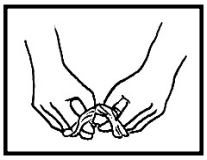
Steps for removing surgical gloves

1. Grasp on glove near the cuff and pull it partway off. The glove will turn inside out. Keep the first glove partially on before removing the second one to protect you from touching the outside of a glove with your bare hand.

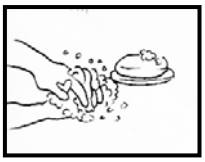


2. Leaving the first glove over your fingers, grasp the second glove near the cuff and pull it partway off. Keep the second glove partially on.

3. Pull off the two gloves at the same time, being careful to touch only the inside surface of the gloves with your bare hand and make sure not to result in splashes in the environment.



4. Gloves are disposed immediately. Wash hands immediately after gloves are removed.



Surgical glove tips

Preparation for gloving: The outside of the glove package is not sterile. Have another member of the OT team open it for you, e.g. the circulating nurse.

Change gloves:

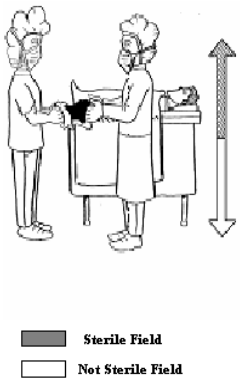
- When gloves become contaminated
- After touching the outside of gloves with a bare hand
- After touching anything that is not sterile or high level disinfected
- When gloves develop holes, tears, or punctures

Establishing and Maintaining a Sterile Field

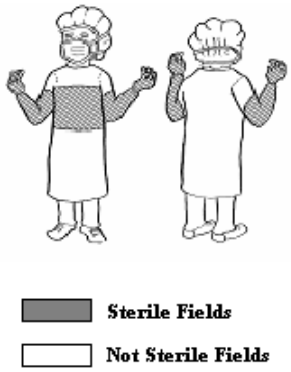
A sterile field must be established and maintained in order to reduce the risk of contaminating the surgical/procedure site. The sterile field is created by placing sterile towels and/or surgical drapes around the surgical/procedure site. Additional sterile fields may also be established, such as on the stand that will hold instruments and other items that are needed during the procedure.

Sterile Field

- A sterile field is maintained by:
- Placing only sterile items within the sterile field;
- Opening, dispensing, or transferring sterile items without contaminating them;
- Considering items located below the level of the draped client to be unsterile;
- Not allowing sterile personnel to reach across unsterile areas or vice versa or to touch unsterile items;



- Recognizing and maintaining the service provider's sterile area. When gowned this area extends from chest to the level of the sterile field; sleeves are sterile from 5 cm above the elbow to the cuff. The neckline, shoulders, and back is considered to be unsterile areas of the gown.
- Recognizing that the edges of a package containing a sterile item are considered unsterile;
- Recognizing that a sterile barrier that has been penetrated (wet, cut, or torn) is considered contaminated;
- Being conscious of where your body is at all times and moving within or around the sterile field in a way that maintains sterility;
- Not placing sterile items near open windows or doors.



Note: When in doubt about the sterility or high-level disinfection of an item or an area, consider it contaminated.

Some recommendations are:

- Sterile drapes should be used to establish a sterile field.
- Items used within a sterile field should be sterile.
- All items introduced into a sterile field should be opened, dispensed, and transferred by methods that maintain sterility and integrity.
- A sterile field should be constantly monitored and maintained.
- Moisture in the sterile field should be avoided. If a solution soaks through a drape, then it should be covered with another sterile drape.

- All personnel moving within or around a sterile field should do so in a manner to maintain the integrity of the sterile field.
- Policies and procedures for basic aseptic technique should be written, reviewed annually, and readily available within the practice setting.

Routine Hand Wash

Routine hand washing is the removal of dirt, organic material, and transient microorganisms. For most routine activities washing with plain soap is sufficient, since soap will remove most transient microorganisms. Routine hand washing is an essential step before surgical scrub and it is preferably done before aseptic hand wash or alcohol rub if the hands are visibly contaminated.

Hands of health care workers are the most common source of cross-infection. A clear policy on hand hygiene is therefore essential and should be followed by all personnel. Although the use of gloves reduces the transmission of bacteria, hand washing is still essential after the gloves have been taken off in order to remove any contamination that might have occurred via small punctures, and the multiplication of organisms that occurred in the warm, moist environment caused by glove wearing.

Microorganisms may cause infection following minor surgical procedures such as MVA 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, is an important infection prevention measures.

Indications

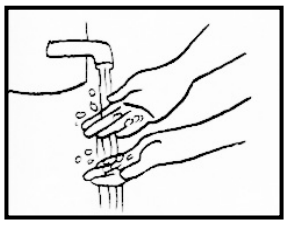
The purpose of hand washing for routine patient care is to remove microbial contamination acquired by recent contact with infected or colonized patients or with environmental sources and to remove contamination with organic matter from the hands.

In the absence of a true emergency, personnel should always wash their hands:

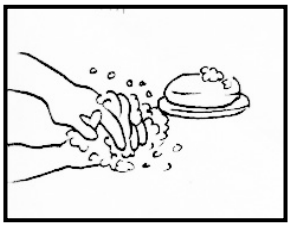
- AFTER completing MVA or D&C
- AFTER taking care of particularly susceptible patients, such as those who are severely immuno-compromised
- AFTER situations during which microbial contamination of hands is likely to occur, especially those involving contact with mucous membranes, blood or body fluids, secretions, or excretions.
- AFTER touching inanimate sources that are likely to be contaminated with virulent or epidemiologically important microorganisms; these sources include MVA and D&C instruments
- BEFORE and AFTER contact with patients
- AFTER using the toilet or latrine
- AFTER removing gloves
- BEFORE serving meals or drinks
- BEFORE leaving work

Steps for Routine Hand Wash

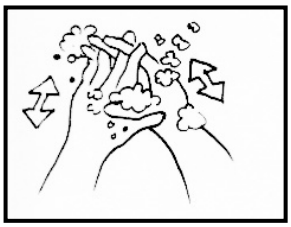
1. Remove all jewelry.
2. Turn on tap with elbow or hands.
3. Wet hands with running water that is as warm as tolerable.



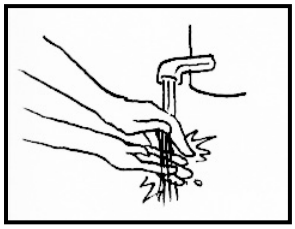
4. Apply soap agent and thoroughly distribute over hands. Make sure to rub all parts of your hand.



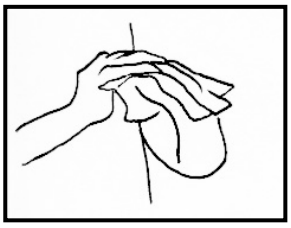
5. Rub fingers together back and forth for 15-30 seconds (longer if hands are visibly soiled). Wash area around the nails and remove debris under the fingernails because the subungual area has higher microbial counts. Rub all parts of the hands paying attention to the frequently missed areas.



6. Rinse hands under a stream of running water until all soap is gone. Never dip hands into a basin or standing pool of water.



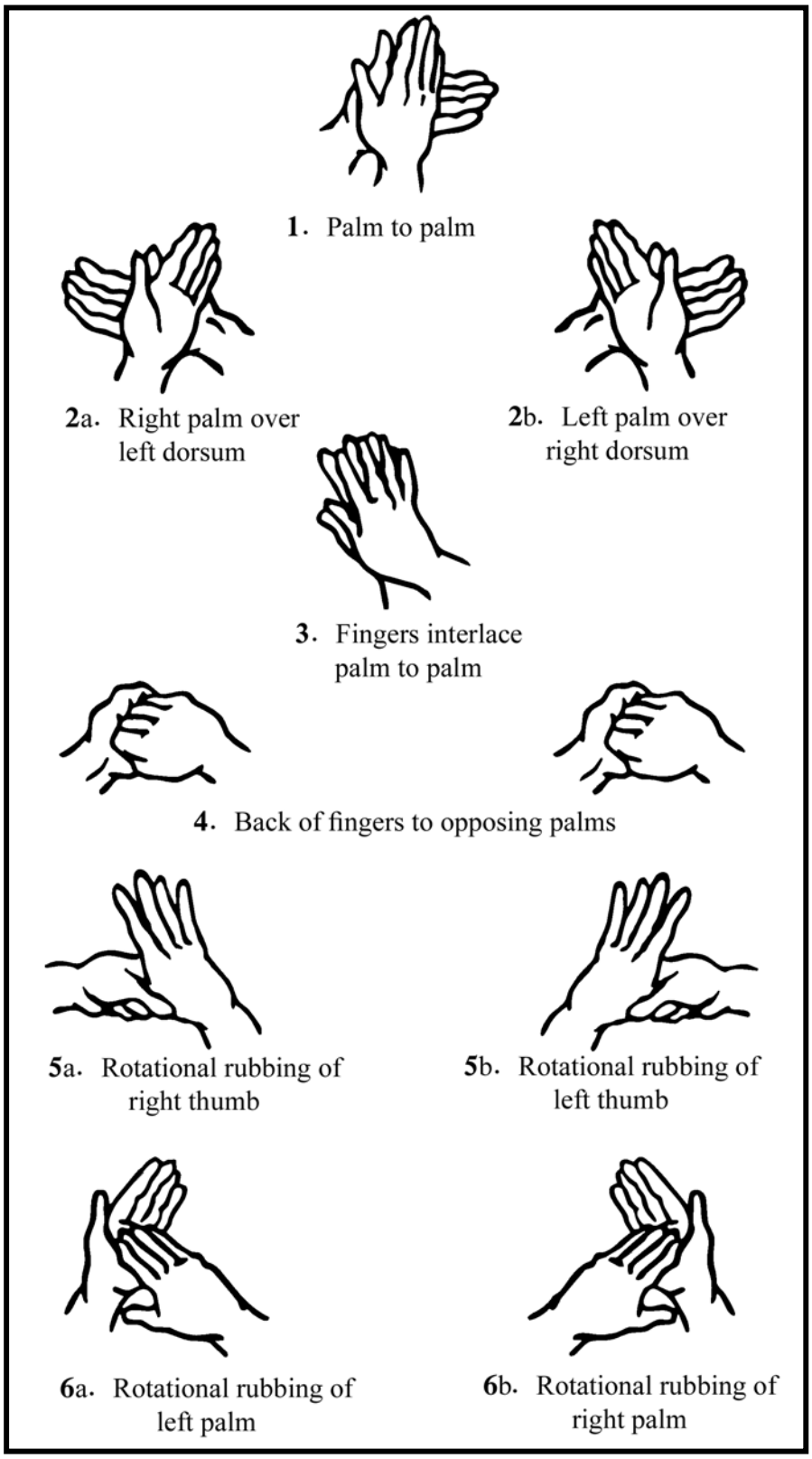
7. Dry hands with a clean single use towel



8. If possible, turn tap with elbows or with a paper towel after drying of the hands.

Hand Washing Technique

Repeat each movement 5 times



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.)

Handling Needles and Syringes

The term "sharps" refers to any object that can cut or puncture the skin including, but not limited to, needles (hypodermic and suture) scalpels, lancets, broken vials or glass, broken capillary tubes, slides and coverslips, and exposed ends of dental wires. The primary cause of occupational exposure to blood-borne pathogens in all health care personnel (HCP) is injury from needlesticks or other sharp objects. At least 20 pathogens have been known to be transmitted following percutaneous exposure to blood. The most important of these pathogens are hepatitis B virus (HBV), hepatitis C virus (HCV), and HIV. Infections with each of these pathogens are potentially life threatening – and preventable.

Risk from Needlestick Injuries

The estimated risk of infection following a needlestick injury varies from one virus to another. The estimated risk of infection after exposure to an HBV infected person from a needlestick injury ranges from 6%-30%. The risk of HCV infection ranges from 0% to 7% with an average of 1.8% by injury while the average transmission rate of HIV is estimated to be 0.3%. Most of this variability in risk of infection is related to the concentration of virus in the source patient's blood.

One-hand Recapping ("Scoop") Technique

Many accidental needlesticks occur when staff recaps needles. Recapping is a dangerous practice: If at all possible, dispose of needles immediately without recapping them. If it is necessary to recap a needle (for example, to avoid carrying an unprotected sharp when immediate disposal is not possible), do not bend or break the needle or remove the needle from the syringe by hand.

To safely recap needles use "the one-hand" technique:

Step 1 *Place the cap on a flat surface, and then remove your hand from the cap.*

Step 2 *With one hand, hold the syringe and use the needle to "scoop up" the cap.*

Step 3 *When the cap covers the needle completely, use the other hand to secure the cap on the needle hub. Be careful to handle the cap at the bottom only (near the hub).*

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 of by burning or burying.

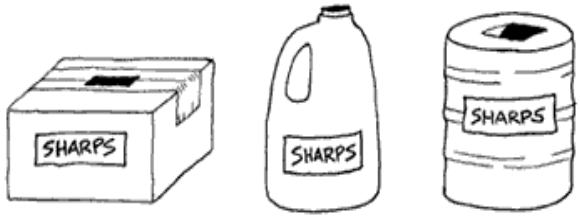
Disposal of Products of Conception (POC)

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 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 put into a sewage system, they must be disposed of by burning or burying. Points to remember when disposing of liquid medical waste:

- Always wear heavy utility gloves and shoes when handling or transporting liquid medical waste. Afterwards, wash both gloves and shoes.
- Consider where the sink, drain or toilet empties. It is hazardous to have medical waste flowing through open gutters or emptying onto the grounds of the facility.
- When carrying or disposing of liquid medical waste, avoid splashing the waste on yourself, on others or on surfaces.
- After disposal rinse the sink, drain, or toilet to remove residual waste, being careful to avoid splashing. Clean the fixture with a disinfectant solution at the end of each day or more often if heavily soiled.
- Decontaminate the container that held the liquid medical waste by filling it with a 0.5% chlorine solution and letting it sit for 10 minutes before washing.

Sharps Disposal Containers (Safety Box)

Never discard needles and sharps in clinical waste bags, as the housekeeping staff might get injured.



Cleaning Levels for Different Clinic Areas

Low-Risk Areas: Waiting Rooms, Administrative Areas

These areas are usually not contaminated with blood or body fluids or with associated infectious microorganisms so the risk of infection is minimal. Routine cleaning- the kind of cleaning you would do in your home – is usually good enough for these areas. In general, clean these areas with a cloth or mop dampened with detergent and water.

Intermediate Risk Areas: Patient Wards

These are areas used for the care of patients who are not obviously infectious and not highly susceptible. These areas are usually cleaned by procedures that control dust, such as damp mopping with detergent cleaners. Dry sweeping or vacuum cleaners are not recommended. The use of detergent solution improves the quality of cleaning. Spills of blood and body fluids are cleaned up with a disinfectant solution.

High Risk Areas

Environmental Cleaning of the Operating Theaters

There should be a simple, clear, cleaning policy that can be adhered to easily. The cleaning equipment for the operating room must be dedicated and kept separate from the outer zone.

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MVA Procedure Complications

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.

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.

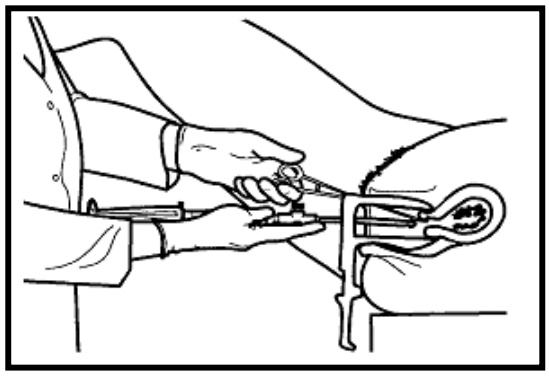
(Do not push the plunger when disconnecting the syringe.)

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 non-sterile 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.

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

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

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.

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 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.).

Vaginal bleeding not due to pregnancy

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

- Progesterone-breakthrough bleeding with use of progestin only contraceptive methods (injectables, subdermal 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, 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.

Post-abortal 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 (vagal symptoms), usually within a few hours after completion of the procedure. (Late post-abortal 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
- Using smelling salts (spirits of ammonia)
- 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[5]
- 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:

[5] If available, give atropine sulfate 0.2 mg (0.4-0.6 ml) IV

- 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)

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

Shock, severe vaginal bleeding and post-MVA infection

Diagnosis and treatment of shock and pelvic infection are fully described later. 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

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

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.

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. However, recent research has shown that those who delay another pregnancy by at least 6 months, have better pregnancy outcomes. For some, postponing the next pregnancy may be wise.

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.

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

Keep hands above the level of the waist and do not touch anything before putting on sterile gown and surgical gloves.

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 mat 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 and 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, characteristics, effectiveness and side effect their characteristics, effectiveness and side effects
- Choices among methods (e.g., short- and long-term, hormonal and non-hormonal)
- Assurance of contraceptive re-supply
- 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.

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

Counseling

The face-to-face, personal communication in which one person helps another to make decisions and then to act on them.

Good counseling has two major elements:

1. Mutual trust is established between client and provider. The provider shows respect for the client and identifies and addresses her/his concerns, doubts and fears regarding the use of contraceptive methods.

2. The client and service provider give and receive relevant, accurate and complete information that enables the client to make healthy decisions.

Interpersonal Communication

Interpersonal communication is the face-to-face process of transmitting information and understanding between two or more people. Face-to-face communication takes place in two forms, verbal and nonverbal, and is both conscious and unconscious, intentional and unintentional.

Verbal communication

- Refers to words and their meaning
- Begins and ends with what we say
- Is largely conscious and controlled by the individual speaking

Nonverbal communication

- Refers to actions, gestures, behaviors, and facial expressions which express, how we feel
- Is complex and largely unconscious
- Often reveals to the observant the real feelings or message being conveyed

Body posture, eye contact, physical appearance, as well as the use of space (or desks and chairs), and too much time spent waiting in a doctor's office can all communicate a message nonverbally.

Nonverbal communication can involve all our senses, while verbal communication is restricted to hearing. Nonverbal communication is especially important because it communicates to clients the level of interest, attention, warmth and understanding we feel towards them.

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 the 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.

Note: 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
- Even if she wants to get pregnant it may be wise to postpone this for about 6 months.
- 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 GTls 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,
- 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.

Individual Factors, Counseling Recommendations and Rationales

If the woman...	Recommendations	Rationale
Does not want to be pregnant soon	• Consider all temporary methods	• Delaying the next pregnancy by at least 6 months diminishes the risks for the next pregnancy
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 follow-up 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 follow-up 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 husband who is unwilling to use condoms or will prevent use of another method	• If the woman wishes, include her husband in counseling. • Protect the woman's confidentiality (even if she does • Not involve her husband). • Discuss methods that the woman can use without her • Husband 's knowledge (e.g., injectables). • Do not recommend methods that the woman will not be • Able to use effectively.	• In some instances, involving the husband 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 husband, her wishes should be respected.
Wants to become pregnant soon	• Do not try to persuade her to accept a method. But do explain that it may be better to wait 6 months. • 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.

General Approach to Counseling

- Counseling is a two-way communication process in which both client and service provider actively participate.
- Counseling is an ongoing process and must be part of every client-provider interaction in health care delivery.
- Counseling should take place in a private, quiet place where client and provider can hear each other, and with sufficient time to ensure that all necessary information, client's concerns and medical requirements are discussed and addressed.
- Confidentiality must be ensured, both in the process of counseling and the handling of client records.
- It is essential that counseling take place in a non-judgmental, accepting and caring atmosphere.
- The client should be able to understand the language the provider uses (e.g., local dialect, simple, culturally appropriate vocabulary, no highly technical medical terminology).
- Clinic staff must use good interpersonal communication skills, including the ability to question effectively, listen actively, summarize and paraphrase clients' comments or problems and adopt a non-judgmental, helpful manner.
- The client should not be overwhelmed with information. The most important messages should be discussed first (e.g., what the client must do to use method correctly and safely) and be brief, simple, and specific. Repeating critical information is the most effective way to reinforce the message. Repeat, repeat, repeat.
- Use audiovisual aids and contraceptive samples to help the client better understand her chosen method. The flipcharts are designed to do this.
- Always verify that the client has understood what has been discussed. Have the client repeat back the most important messages or instructions.

Specific Approach for Counteracting Rumors and Misinformation

- When a client mentions with a rumor, always listen politely. Don't laugh.
- Define what a rumor or misconception is.
- Find out where the rumor came from and talk with the people who started it or repeated it. Check whether there is some basis for the rumor.
- Explain the facts.
- Use strong scientific facts to counteract misinformation.
- Always tell the truth. Never try to hide side effects or problems that might occur.
- Clarify information with the use of demonstrations and visual aids.
- Reassure the client by examining her and telling her your findings.

Gather System

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. GATHER (see below) 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.

The GATHER Technique

Steps	Activities
GREET	• Introduce yourself to the client by name and express personal interest in her situation. • 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). • If the woman is lying in a bed, sit down next to her if possible. • Ask if she feels able to talk about family planning. If she does not, check with her later or make arrangements for a referral. • Explain that your conversation is confidential. Reassure the client that you will not repeat anything that she says.
ASK	**Ask** the woman how she is feeling and express concern. • 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. • 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. • Ask about her reproductive goals, including if she wants to become pregnant soon. • Ask if she was using contraception before she became pregnant. If she was, find out if she: – Used the method correctly, – Discontinued use, – Had any trouble using the method, or – Have any concerns about the method. • Ask about her age, marital status and number of pregnancies. • Ask her what she has heard about the various contraceptive methods, and if she has a preference for a particular method.
TELL	**Tell** the client about family planning methods without losing sight of her concerns and preferences. It is very important for the client to understand: – 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 • Briefly describe the available methods, including characteristics and side effects, which will help her meet her reproductive goals. • If feasible, use support materials such as pamphlets, brochures, posters, flipcharts, film or videotape to emphasize points. If the woman

Steps	Activities
	wishes, let her handle samples of different methods. • Answer any questions or concerns that she has about family planning.
HELP	**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?" • 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). • Do not choose a method for her. • Supply method as needed.
EXPLAIN	**Explain** how the chosen method works and how it should be used. • Explain the normal side effects, as well as any warning signs of more serious complications, and what to do if they occur. • Ask the client to repeat the information and instructions to be sure she understands. • Ask if the woman has questions and provide answers. • Give information about re-supply, return visits, etc.
REFER	**Refer** the client to an appropriate clinic for follow-up care as needed. For most women, a clinic near home is the best option. • If a contraceptive method was provided after treatment of incomplete abortion, the follow-up visit should: – 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. • If free, informed choice was not possible at the time of treatment, the follow up visit should include full family planning counseling. All of the steps in GATHER should be followed. • Always ask the woman if she has any questions or concerns and provide answers. • Always assess if the woman needs other reproductive health care and provide care or referral as appropriate.

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. Precautions are detailed in page

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.

Postabortion Contraceptive Choices

1. **Non-Fitted Barriers and Spermicides: condom, sponge, suppositories, foam tablets, jelly, foam)**

   - Begin use as soon as intercourse is resumed.
   - Useful as interim methods if initiation of another chosen method must be postponed.
   - No medical supervision is required.
   - Provide some protection against STDs.
   - Easily discontinued when pregnancy is desired.
   - Less effective than IUD or hormonal methods.
   - Requires continued motivation and regular use.
   - Resupply must be available.
   - Use related to intercourse.

2. **Oral Contraceptives**

   - Begin pill use immediately, preferably on the day of the abortion.
   - Mechanisms to ensure adequate counseling and informed decision-making must be in place.
   - Highly effective.
   - Can be started immediately even if infection is present.
   - Can be provided by non-physicians.
   - Not related to intercourse.
   - Requires continued motivation and regular use
   - Resupply must be available.
   - Effectiveness may be lowered when certain medications are used (for example, tetracycline, penicillin..etc).

3. Injectables (DMPA, NET-EN)

- First injection can take place immediately after abortion in the first or second trimester.
- Mechanisms to ensure adequate counseling and informed decision-making must be in place.
- Highly effective.
- Easily administered by non-physicians.
- Not related to intercourse.
- May cause irregular bleeding; excessive bleeding may occur in rare instances.
- Possible delayed return to fertility.
- Resupply must be accessible.
- Convenient access to clinic important as regular return visits are required.

4. Implants (Implanon)

- Insertion can take place immediately after abortion.
- If adequate counseling and informed decision-making cannot be guaranteed, it may be best to delay insertion and provide an interim temporary method.
- Highly effective.
- Can be administered by trained non-physicians.
- Long-tem protection (3 years).
- Immediate return to normal fertility following removal.
- Not related to intercourse.
- May cause irregular bleeding or no bleeding; excessive bleeding may occur in rare instances.
- Less effective in heavier women.
- Trained provider required to insert or to discontinue use.
- Cost effectiveness depends on long-term use.

5. IUD

- IUDs can be inserted immediately after first-trimester spontaneous or induced abortion, if the uterus is not infected.
- If adequate counseling and informed decision-making cannot be guaranteed, it may be best to delay insertion and provide an interim temporary method.
- In the second trimester, expulsion rates are lowest if insertion is delayed for six weeks; this consideration must be balanced against the chance that an unwanted pregnancy may occur during the delay. An interim method should be used.
- If infection is evident or suspected, delay insertion until the infection has been resolved and uses an interim method.
- Highly effective.

- Long-term protection (10 years).
- Immediate return to normal fertility following removal.
- Not related to intercourse.
- Uterine perforation can occur during insertion.
- May increase risk of PID and subsequent infertility for women at risk for STDs.
- Removal by trained provider recommended.
- May increase menstrual bleeding and cramping.

6. Female Sterilization

- It is imperative that adequate counseling and informed consent precede sterilization procedures, and this is unlikely in the emergency context.
- Technically, sterilization procedures can be performed immediately after first-trimester spontaneous or elective abortion and after treatment of abortion complications unless infection or severe blood loss is present.
- Infection or the potential for infection as in complications of unsafe abortion indicate the need to delay the tubal occlusion.
- Sterilization after a first-trimester abortion is similar to interval procedures; after a second-trimester abortion it is similar to a post-partum procedure.
- Permanent method.
- Most effective female method.
- Once completed, no further action required.
- Permanence of the method increases the importance of adequate counselling and fully informed consent; this is not likely to be possible at the time of emergency care.
- Slight possibility of surgical complications.

7. Periodic Abstinence

- Not recommended for immediate postabortion use.
- The first ovulation after an abortion will be difficult for the woman to predict and the method is unreliable until after the first postabortion menses.
- No cost associated with method
- Unreliable immediately after abortion.
- Alternative methods are recommended until resumption of normal cycle.
- Women and their partners must be motivated and have a thorough understanding of how to use the method.

Contraception after Postabortion Complications

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.

Women who have been treated for postabortion complications may have medical conditions that could affect the selection of a contraceptive method.

Instrument Processing

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 plastic syringes and MVA cannulae is widespread. There have been many studies that show that re-use of MVA instruments is safe for patients.

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

The following are the internationally accepted FOUR steps for the processing of abortion equipment, and other instruments, safely and effectively. The steps should be followed in the order outlined below.

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

Step 1: ***Soaking***

Step 2: ***Cleaning***

Step 3: ***Sterilization or high-level disinfection***

Step 4: ***Storage and reassembly***

Step 1: Soaking

Sometimes the level of contamination of the instrument makes it necessary to soak items prior to cleaning (e.g. instruments in operating theatres). A deep container, e.g. a bucket, containing a wire-mesh basket can be filled with a 0.5% chlorine solution. 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. The instruments are placed in the wire basket, agitated for 3-5 minutes, and then lifted out. The basket is overturned onto a table or tray in order to separate the instruments prior to cleaning, packing and autoclaving.

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

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

After soaking, 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 0.5 %

Because of their low cost and wide availability, chlorine solutions prepared from liquid or powdered bleach are recommended.

Determine the amount of "active" chlorine

Chlorine-containing compounds are described as having a certain percentage of "active" (or *available*) chlorine. It is the active chlorine in these products that kills microorganisms. The amount of active chlorine is usually described as a percentage, and differs from one product to another. This is important so that a chlorine solution with 0.5% "active" chlorine can be prepared.

Preparing liquid household bleach

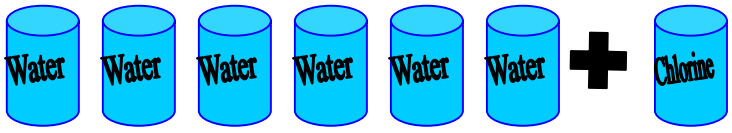
Chlorine in bleach comes in different concentrations. You can use any concentration to make a 0.5% chlorine solution by using the following formula:

[% chlorine in liquid bleach divided by 0.5%] minus 1 = parts of water for each part bleach

Note that "parts" can be used for any unit of measure (e.g., ounce, liter, or gallon) and need not even represent a defined unit of measure (e.g., glass or container).

Example: To make a 0.5% chlorine solution from a 3.5% chlorine concentrate, you must use 1 part chlorine and 6 parts water:

[3.5% divided by 0.5%] minus 1 = [7] minus 1 = 6 parts water for each part chlorine



Note: Chlorine solutions in Egypt are mainly supplied as 5% concentrations. However, varying concentrations such as 5.25% or others are available. Therefore, to ensure appropriate concentrations, parts per million is used instead of percentages. Different concentrations are used for different purposes, such as cleaning, disinfection (low, intermediate, high) and sterilization.

Step 2: Cleaning

After soaking, thoroughly wash all instruments including the syringe and cannulae in lukewarm water with detergent or liquid soap to remove all organic material.

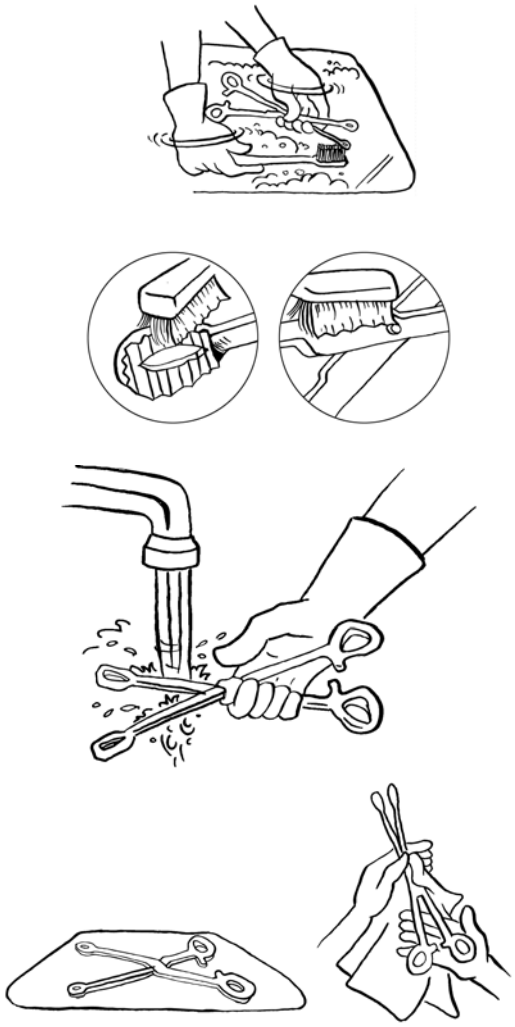
Thorough cleaning is the most effective way to reduce the number of microorganisms on soiled instruments.

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.

Steps for cleaning

1. Wear heavy-duty rubber gloves, a plastic apron, eye protection, and mask during cleaning.
2. Soak the instruments in normal tab water containing a detergent.
3. Scrub instruments and other items vigorously to completely remove all foreign material using a soft brush or old toothbrush, detergent, and water. Hold items under the surface of the water while scrubbing and cleaning to avoid splashing. Disassemble instruments and other items with multiple parts, and be sure to brush in the grooves, teeth, and joints to items where organic material can collect and stick.
4. Flush through lumens with an adapted water jet.
5. Rinse items thoroughly with clean water to remove all detergent. Any detergent left on the items can reduce the effectiveness of further processing.
6. Inspect items to confirm that they are clean.
7. Allow items to air dry or dry them with a clean towel if chemical disinfection is going to be used. This is to avoid diluting the chemical solutions used after cleaning. Items that will be high-level disinfected by boiling or steaming do not need to be dried.



Remember when cleaning:

- Do not use hand soap to clean instruments because fatty acids in the soap react with hard water to leave a soap scum on the instruments.
- Always wear utility gloves, a mask, and eye protection when cleaning instruments.
- Do not use abrasive materials that scratch or pit instruments. Scratches, pits, or grooves can harbor microorganisms and promote corrosion. Automatic washing machines are preferable to washing by hand.

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 0ring 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.

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, soaking and cleaning are sufficient (acceptable) for processing. If HLD or sterilization of syringes is required, use chemical agents. **Do not autoclave, dry heat sterilize or high-level disinfect the syringe by boiling because the valve assembly will crack.**

Step 3: 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 post procedure 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.

Sterilization

Sterilization is a process which achieves the complete destruction or killing of all microorganisms, including bacterial spores.

Sterilization is principally accomplished by:

1. ***Steam under pressure (Autoclaving)***
2. ***Dry heat (Hot Air Oven)***
3. ***Chemical sterilization***

Note: 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. Denniston plastic dilators can be autoclaved (steam sterilized) repeatedly, but not dry-heat sterilized

Pressure steam sterilization (autoclaving)

Steam sterilization is the most common and most preferred method employed for sterilization of all items that penetrate the skin and mucosa if they are heat stable. Steam sterilization is dependable, non toxic, inexpensive, sporicidal, and has rapid heating and good penetration of fabrics.

Method

- The steam must be applied for a specified time so that the items reach a specified temperature. (See next table)

Note: Sterilization time does not include the time it takes to reach the required temperature or the time for exhaust and drying; therefore, it is shorter than the total cycle time.
The temperatures required for steam sterilization are lower than those for dry-heat sterilization because moist heat under pressure allows for more efficient destruction of microorganisms.

Steps for pressure steam sterilization:

1. Clean all items to be sterilized.
2. Open or unlock all hinged items and disassemble items with multiple parts. Do not arrange items close together.
3. Arrange all labeled packs, drums, or unwrapped items in the chamber of the autoclave in a way that allows the steam to circulate freely. DO NOT STACK.

4. Follow the manufacturer's instruction for operating the autoclave. Adjust time, temperature and pressure according to the table before. It is best to use a timer, which helps ensure that the appropriate timing is achieved.
5. Do not begin timing until the autoclave reaches the desired temperature and pressure
   - If the timing process is forgotten, start the cycle again. If the autoclave is automatic, the heat will shut off and the pressure will begin to fall off once the sterilization cycle is complete.
   - If the autoclave is not automatic, turn off the autoclave after achieving the required time.

6. Wait until the pressure gauge reads "0" to open the autoclave. Open the lid or door to allow remaining steam to escape. Leave all items in the autoclave until they dry completely. It may take up to 30 minutes.
7. Remove packs, drums, or unwrapped items from the autoclave using sterile pick-ups to handle unwrapped items. The packs of equipment should come out of the autoclave dry. ***Wet packs must be considered non-sterile***. Do not store packs, drums or unwrapped items until they cool to room temperature. This may take several hours.
8. Store items using the following guidelines:
   - Wrapped items: The length of time that a wrapped, sterile item is considered sterile (shelf life) depends on whether or not a contaminating event occurs not necessarily on how long an item has been stored. Store items in a closed, dry, cabinet with moderate temperature and low humidity in an area that is not heavily trafficked. A wrapped pack can be considered sterile as long as it remains intact and dry. When in doubt about the sterility of a pack, consider it contaminated and re-sterilize the items.
   - Unwrapped items: Use immediately after removal from the autoclave or keep them in a covered, dry, sterile container for up to one week.
9. Label accurately with contents, date of processing and expiration date and store wrapped materials in storage cabinet.

Advantages and disadvantages of steam sterilization

Advantages

- Highly effective
- Rapid heating and rapid penetration of instruments
- Nontoxic
- Inexpensive
- Can be used to sterilize liquids

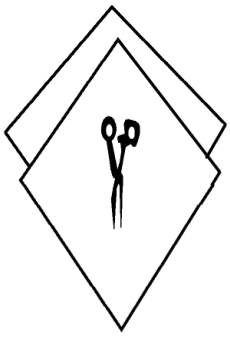
Disadvantages

- Items must be heat and moisture resistant
- Will not sterilize powders, ointments or oils
- Needs good maintenance

Wrapping instruments and other items for steam sterilization

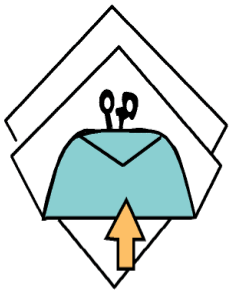
- Wrapping instruments and other items before steam sterilization helps to decrease the likelihood that, after sterilization, they will be contaminated before use.
- To wrap instruments and other items for steam sterilization, use two layers of material such as paper, newsprint, or muslin or cotton fabric. Do not use canvas because it is difficult for steam to go through canvas. Make points while wrapping the instruments and other items so that the packs can be easily opened without contaminating their contents.

Wrapping for steam sterilization



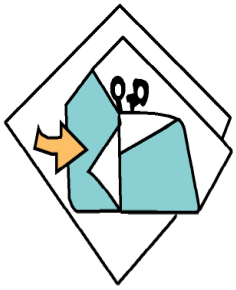
Step 1

Place the instrument or other item in the center of the top wrapper should be positioned so that the points –not the flat edges- are at the top, bottom, and sides.



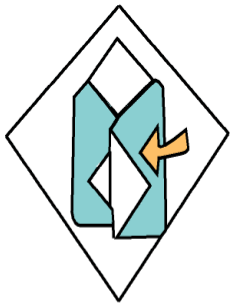
Step 2

Fold the bottom section of the top wrapper to the center, and fold back the point.



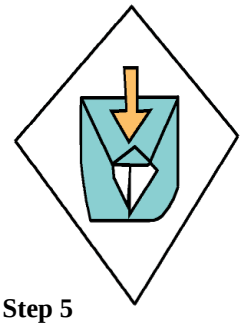
Step 3

Fold the left section to the center, and fold back the point.



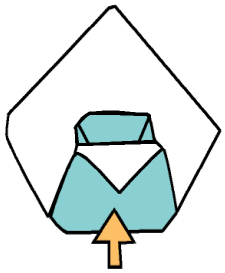
Step 4

Fold the right section to the center, and fold back the point.



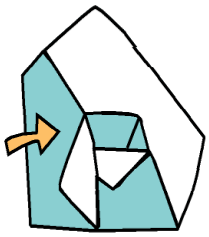
Step 5

Fold the top section to the center, and fold back the point.



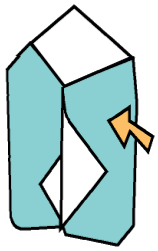
Step 6

Fold the bottom section of the bottom wrapper to the center, and fold back the point.



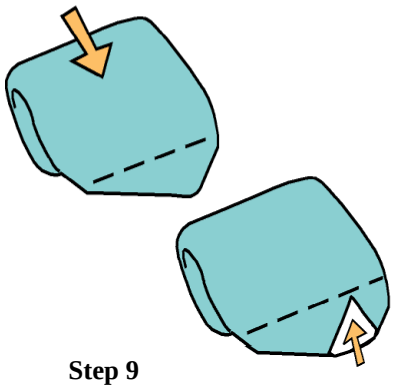
Step 7

Fold the left section to the center, and fold back the point.



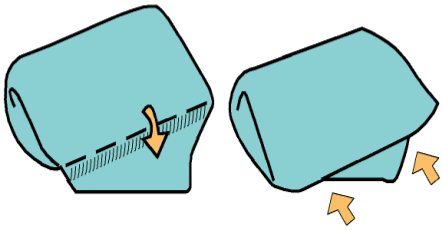
Step 8

Fold the right section to the center, and fold back the point.



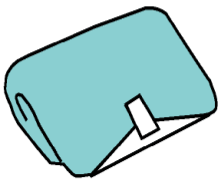
Step 9

Fold the top section to the center, and fold back the point.



Step 10

Tuck the point under the right left sections.



Step 11

Fasten the folds securely, using autoclave tape, if available.

Dry-Heat Sterilization (Hot Air Oven)

Dry heat is preferred for reusable glass, metal instruments, oil, ointments and powders. Do not use this method of sterilization for other items, which may melt or burn such as MVA syringes or cannulae.

Dry heat ovens should have fans to give even temperature distribution and faster equilibrium of load to sterilization temperatures.

Steps of dry-heat sterilization:

1. Clean and dry all items to be sterilized.
2. Either (1) wrap with foil or (2) place unwrapped items on a tray or shelf, or (3) put them in a closed metal container.
3. Place items in the oven and heat to the holding temperature (see table below).

Holding Temperature	Sterilization Time (After reaching the holding temperature)
180 ºC	30 minutes
170ºC	1 hour
160ºC	2 hours
149ºC	2.5 hours
141ºC	3 hours

4. Leave items in the oven to cool to room temperature before removing. When items are cool, remove instruments and other items (using sterile pickups for unwrapped items) and use immediately or store.
5. Proper storage is as important as the sterilization process itself.

Store items using the following guidelines:

- Wrapped items – store in a closed, dry, cabinet with moderate temperature and low humidity in an area that is not heavily trafficked.
- Unwrapped items – use immediately after removal from the autoclave or hot oven, keep them in a covered, dry, and sterile container for up to one week.

Note: The oven must have a thermometer or temperature gauge to make sure that the designated temperature is reached.
Do not begin timing until the oven reaches the desired temperature.
If the timing process is forgotten, start it when the oversight is realized.

Advantages and disadvantages of dry-heat sterilization

Advantages

- Can be used for powders, anhydrous oils, and glass.
- Reaches surfaces of instruments that cannot be disassembled.
- No corrosive or rusting effect on instruments.
- Low cost.

Disadvantages

- Penetrates materials slowly and unevenly.
- Long exposure time's necessary.
- High temperatures damage rubber goods and some fabrics.
- Limited package materials.

Chemical Sterilization

Types of chemical sterilants

Glutaraldehyde is a commonly available solution that can be used for sterilization. Other chemical sterilants may be locally available, such as peracetic acid, 7.5% hydrogen peroxide, or hydrogen peroxide (1%) plus peracetic acid (0.08%). Formaldehyde is obsolete and toxic.

Glutaraldehyde

Uses: A 2% glutaraldehyde solution for at least 10 hours that can be used to sterilize heat labile items. Glutaraldehyde solution is irritating to the skin, to the eyes, and to the respiratory tract. There are two types of glutaraldehyde available in Egypt, (1) alkaline solution that requires activation (e.g., Cidex®) and (2) acidic solution that is stable and does not require activation but is slower in activity than the activated alkaline buffered solution.

Precautions: Glutaraldehyde is an eye and nasal irritant and may cause respiratory illness (asthma) and allergic dermatitis. Glutaraldehyde should not be used in an area with little or no ventilation. Eye protection, a plastic apron, and gloves must be worn when glutaraldehyde liquid is made up, disposed of, and used for sterilization. Latex gloves may be worn and discarded after use if the duration of contact with glutaraldehyde is brief, e.g. less than 5 minutes. For longer duration, nitrile gloves must be worn. Glutaraldehyde should be stored away from heat sources and in containers with close-fitting lids. The length of time that glutaraldehyde solutions can be used varies but they are usually good for up to 14 days. Solutions should be replaced any time they become cloudy.

Peracetic acid

Uses: A 0.2 – 0.35% peracetic solution for 10 minutes can be used to sterilize heat-labile items (e.g. arthroscopes, dental instruments). A special advantage of peracetic acid is that it has harmless decomposition products and leaves little residue on sterilized items. It remains effective in the presence of organic matter and is sporicidal even at low temperatures. Peracetic acid can corrode copper, brass, bronze, plain steel, and galvanized iron, but additives and pH modification can reduce these effects. It is considered unstable, particularly when diluted. It is more effective than glutaraldehyde at penetrating organic matter, e.g. biofilms. It is known to be highly corrosive and its use as a disinfectant in its natural state is therefore limited unless there is a corrosion inhibitor in the formulation. Nu-Cidex® is stabilized peracetic acid solution with a corrosion inhibitor. The solution is activated to provide the appropriate in-use strength. Once prepared the current manufacturer's recommendations is that it should be used within 24 hours.

Sterilization using peracetic acid can be done through an automated reprocessor that dilutes the 35% peracetic acid to a use concentration of 0.2%. This system can only be used if the device being reprocessed is immersible as endoscopes. Filtered water is used to rinse the device. Connectors to assure free flow of the liquid chemical sterilant are important and the

connectors are very specific to each model of device being reprocessed. This system is used to chemically sterilize both flexible and rigid endoscopes.

Special Considerations during Sterilization

Special considerations must be taken when sterilizing liquids, gloves, reusable needles and syringes, linens, and the instruments used during manual vacuum aspiration (MVA).

Liquids

Liquids (such as water used to rinse items after chemical sterilization) can be sterilized only by steam sterilization, not by dry-heat or chemical sterilization. Special procedures must be followed to safely and properly sterilize liquids.

Surgical gloves

Whenever possible, use single-use, disposable surgical gloves that arrive from the manufacturer in a sterile package and are thrown away after one use. Gloves are difficult to process, and processing may make gloves brittle or introduce tiny tears or holes. When surgical gloves must be processed, steam sterilization must be used. (Gloves will melt in dry-heat ovens, and chemical sterilization is impractical because of the difficulty in rinsing off the chemical residue.) If you must reuse them, pay particular attention to appropriate processing for gloves.

Reusable needles and syringes

Whenever possible, use disposable needles and syringes rather than reusable ones, since these items are difficult to process correctly.

- Steam sterilization: Flush needles with boiled water just before wrapping. A small amount of water is needed to steam-sterilize items with lumens or small openings.
- Dry-heat sterilization: Because high temperatures can dull sharp edges, reusable needles should not be sterilized at temperatures higher than 160°C (320°F). Plastic syringes will melt at this temperature and should not be processed with dry heat.
- Chemical sterilization: This is not recommended, since it is difficult to adequately rinse off the chemical residue, which may interact with or inactivate the solution being injected.

Linens (caps, gowns, masks, and surgical drapes)

Only steam sterilization should be used for these items. Many fabrics burn at the high temperatures used for dray heat and the quantity of sterile water that would be needed and the high risk of contamination during drying make chemical sterilization impractical.

When using steam sterilization: Packs containing gowns, drapes, and other linens should not be more than 30 x 30 x 50 cm (12 x 12 x 20 in.) or 5 kg (12 lb.) to allow steam to penetrate the items adequately. Place packs containing sheets, towels, and table covers on their sides to make it easier for the steam to penetrate. (It is easier for steam to go through folds than through flat, compressed surfaces.)

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.

High-Level Disinfection (HLD)

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.

Chemical HLD

Before deciding to use a chemical disinfectant, consider whether a more appropriate method is available. Chemical disinfection is used most commonly for heat-labile equipment (e.g. endoscopes) where single use is not cost effective.

A limited number of disinfectants can be used for this purpose. e.g.:

- Glutaraldehyde 2% for 20 min.,
- Hydrogen peroxide 6% - 7.5% for 20 – 30 min.,
- Peracetic acid 0.2-0.35% for 5 min.
- Ortho-phthalaldehyde (OPA) for 5-12 min.

The object must be thoroughly rinsed with sterile water after disinfection. If sterile water is not available, freshly boiled water can be used. After rinsing, items must be kept dry and stored properly.

Steps:

- Clean and dry all items to be high-level disinfected. Water from wet instruments and from other items dilutes the chemical solution, thereby reducing its effectiveness.
- When using a glutaraldehyde solution: Preparations of glutaraldehyde are non-corrosive to metals and other materials and inactivation by organic matter is very low. Alkaline solutions require activation; once activated they remain active for at least 2 weeks depending on the frequency of use. If the solution is not activated prepare it in a sterile container by following the manufacturer's instructions. Fresh solution should be made each day (or sooner, if the solution becomes cloudy).
- If using a previously prepared solution, use an indicator strip to determine if the solution is still effective. If preparing a new solution, put it in a clean container with a lid and mark the container with the preparation date and expiration date.
- Open all hinged instruments and other items and disassemble those with sliding or multiple parts; the solution must contact all surfaces in order for HLD to be achieved.
- Place all items in the solution so that they are completely submerged. Place bowls and containers upright, not upside-down, so that they fill with the solution.
- Cover the container and allow items to soak for 20 minutes. During this period, do not add or remove any items from the container. Monitor the time.
- Remove the items from the container using, dry, high-level disinfected pickups (e.g., forceps).

- Rinse thoroughly with boiled water to remove the chemical residue that is left on items. This residue is toxic to skin and to tissues.
- Place items to air-dry on a high-level disinfected tray or in a high-level disinfected container before use or storage. Use instruments and other items immediately or keep them in a covered, dry, high-level disinfected container and use within one week.

Notes on Disinfectants:

- There is no all purpose disinfectant. The best housekeeping disinfectants are not the best instrument disinfections. Example, 2% gluteraldehyde is a good instrument and equipment disinfectant but it is inappropriate for the floors and walls.
- Environmental sampling to verify the effectiveness of disinfectants is of no value.
- For selection of a disinfectant, the level of disinfection required should be determined according to the contamination likely to be present.
- Antiseptics should never be used for HLD. They are for use on the skin and mucous membranes, not on inanimate objects. 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.
- Disinfectants should always be stored in a cool, dark place; they should never be stored in direct light or excessive heat.
- Items that are high-level disinfected in chemical solution should be rinsed well with sterile water, dried with a sterile towel and stored in a sterile or high-level disinfected, covered container.

MVA Disinfection Wall Chart

إجراءات إعادة استخدام أدوات الشفط اليدوى ومنع انتشار العدوى

١- إزالة التلوث بواسطة وضع الآلات فى محلول كلورين ٠,٥ ٪
بعد الاستعمال مباشرة لمدة ١٠ دقائق

٢- غسل الآلات والحقن بعد تفكيكها بماء فاتر
مضاف اليه منظف سائل

٣- وضع الآلات والسرنجات والكانيولات فى محلول
سيدكس (جلوترالديهايد ٢٪)
لمدة ٢٠ دقيقة ← تطهير فائق المستوى
لمدة ١٠ ساعات ← تعقيم

٤- تشطف الآلات والأدوات (الكانيولا والسرنجات)
بماء مقطر أو ماء سبق غليه (لمدة عشرون دقيقة) ثم تم تبريده .
(يجب التأكد من أن التعامل مع الآلات المعقمة يتم باستخدام جفت معقم)

٥- توضع الآلات فى وعاء معدنى سبق تعقيمه
أو تلف بفوطة معقمة لحين إعادة الاستخدام .
(يجب وضع تاريخ التعقيم على الوعاء المعدنى)

USAID
CATALYST consortium
تحسين TAHSEEN

Step 4: Storage and Reassembly

Sterile Instruments

Sterile packs or containers should be labeled with an expiration date and used within 1 week. If they are not used within one week, the item should be re-cleaned and re-sterilized. Store sterile packs or containers in areas with enclosed shelves and off the floor to protect them from dust and debris. Do not use 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) It is best to store a small number of cannulae in each container to minimize the risk of contamination.

Source: Leonard and Yordy, 1994.

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, and 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.

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 chapter 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 in more detail later.

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

Initial Treatment

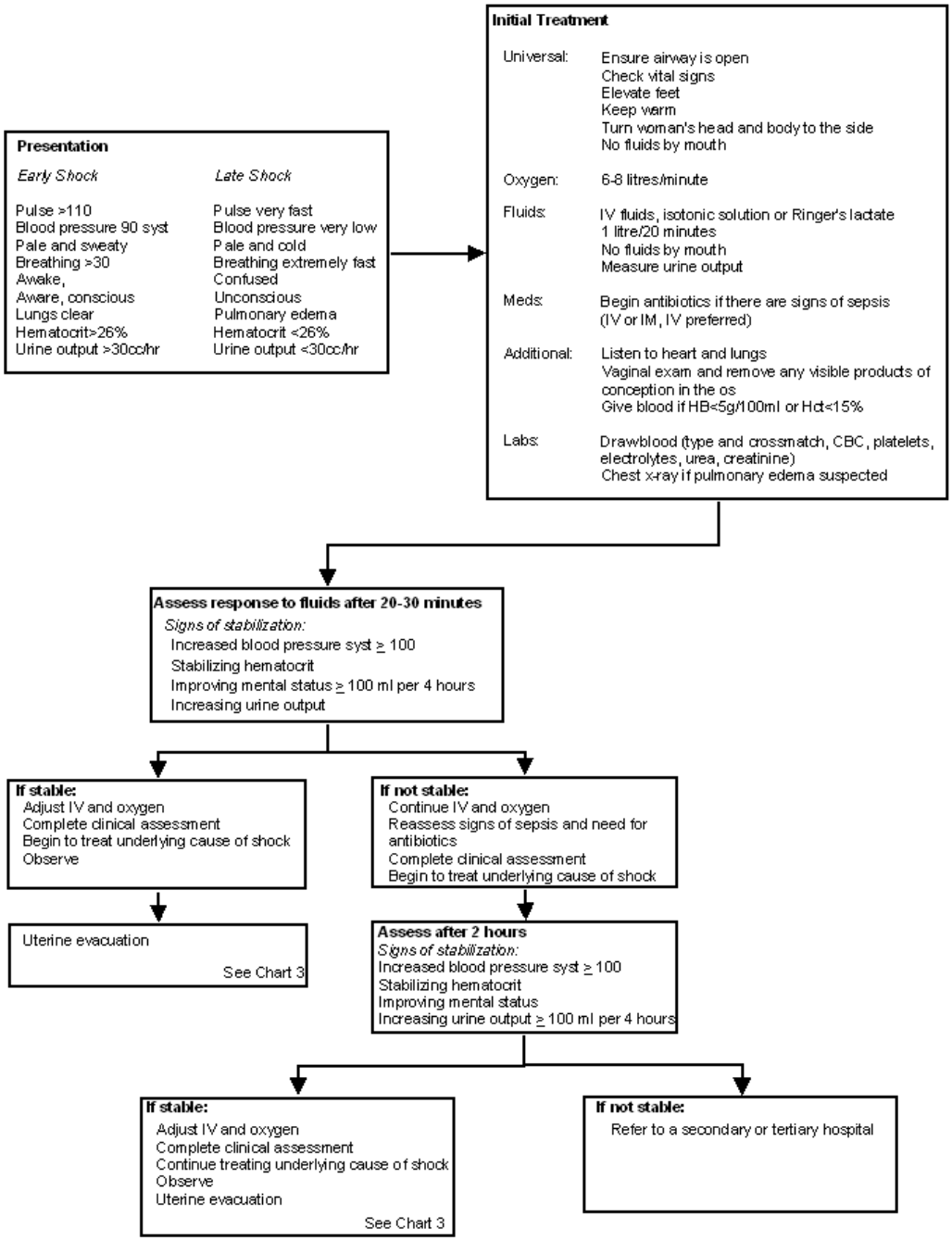
The first steps in the care of shock can be life saving.

- 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.

- 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 1M).
- Laboratory tests: hemoglobin or hematocrit; complete blood count, including platelet; Rh type and cross-match 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.

Treatment of Shock (Chart 2)



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 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)
- 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 presentincluding fever, chills or pus-give broad spectrum antibiotics (IV or 1M). 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 1M analgesia for pain management.
- 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

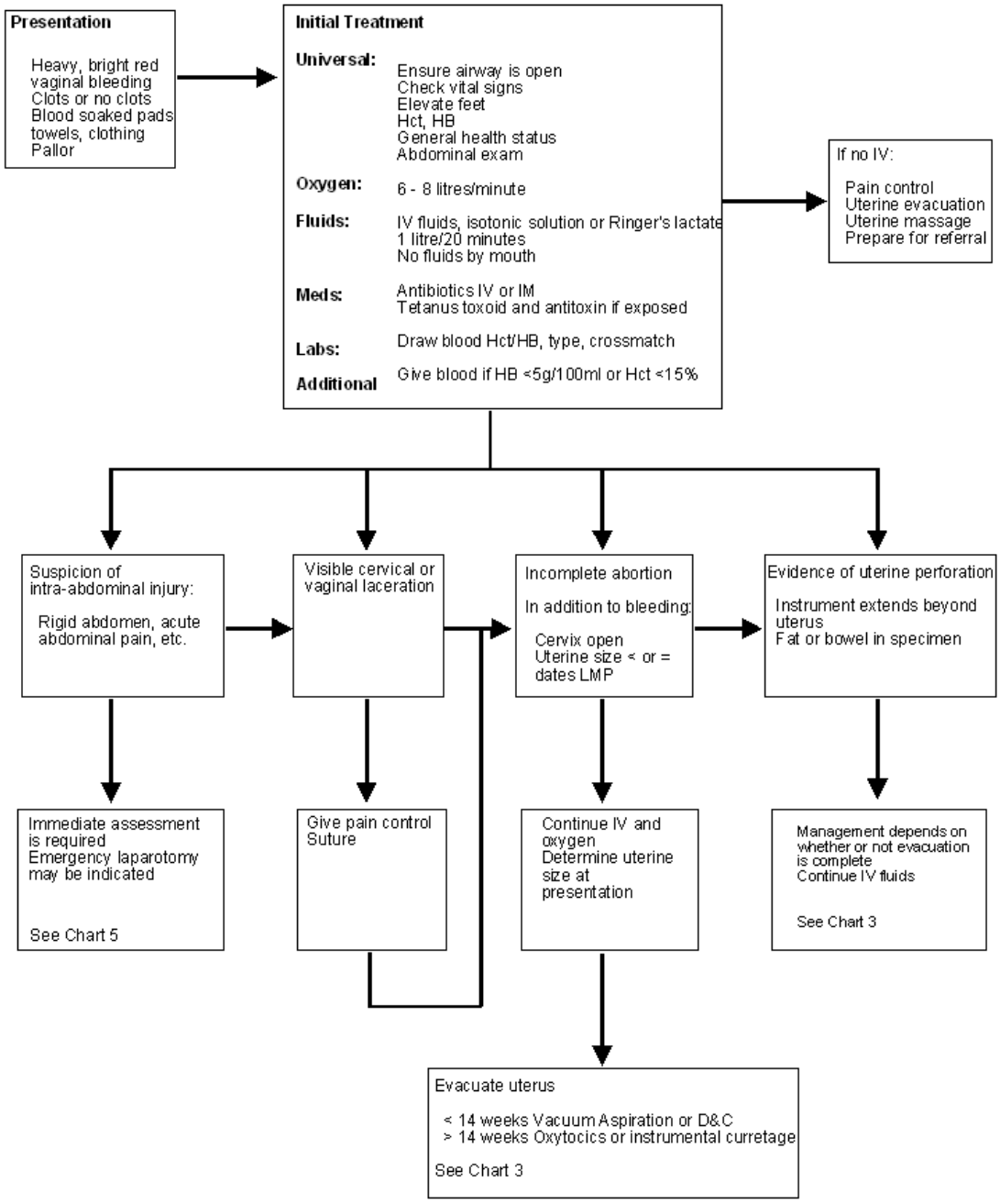
abdominal pain, fever) or ectopic pregnancy, further assessment and treatment (surgery) are needed) immediately. (See section on Uterine Perforation).

- 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.

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.

Severe Vaginal Bleeding (Chart 4)



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.

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

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 breathing), the possibility of major intra-abdominal bleeding (hemorrhage) must be considered.

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 presentincluding fever, chills or pus-give broad-spectrum antibiotics (IV or 1M).
- 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 1M analgesia for pain management.
- Laboratory tests: hemoglobin or hematocrit; 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
- 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.

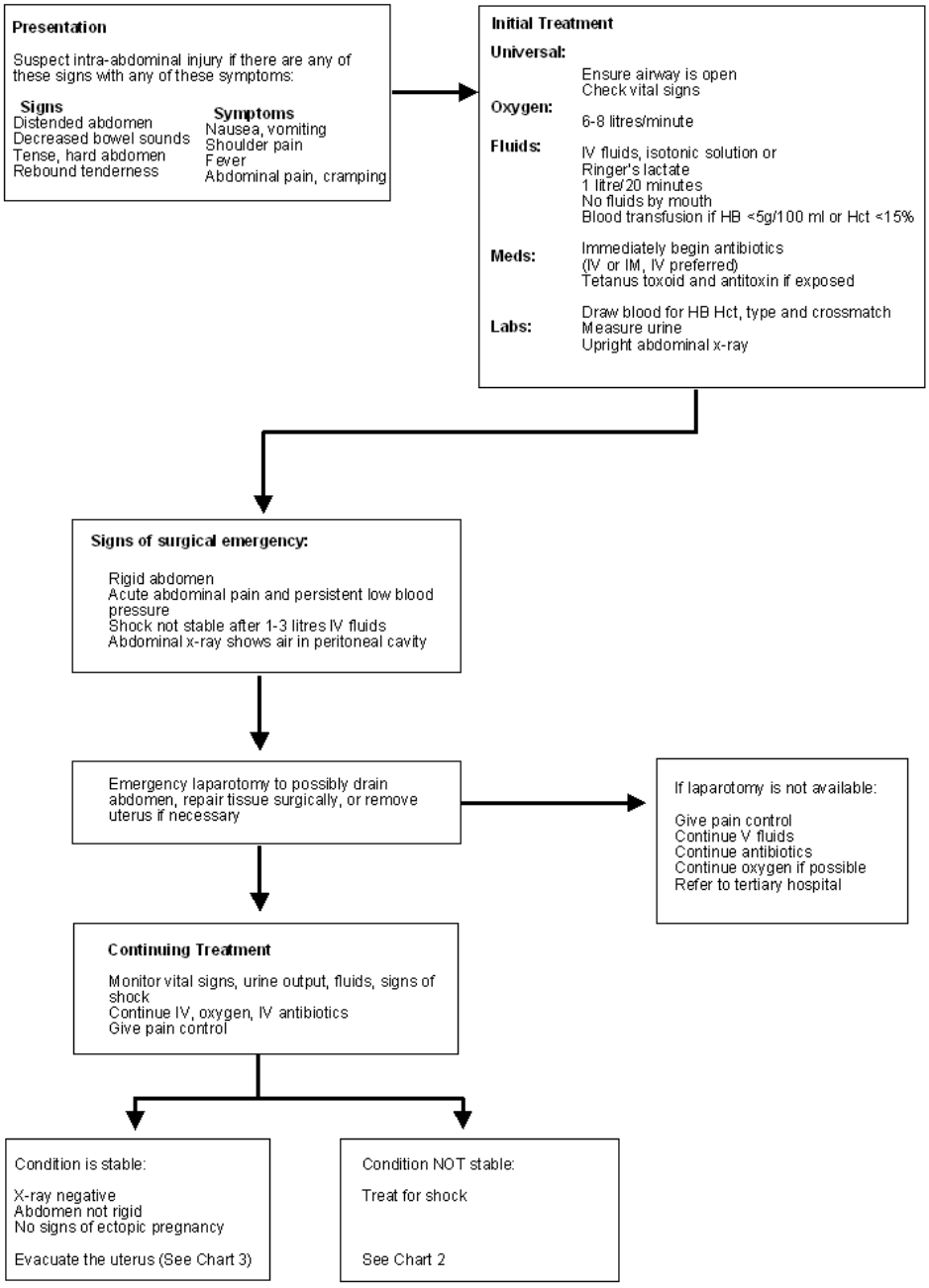
Once the intra-abdominal injury is treated, or if intra-abdominal injury is suspected but the woman is stable, the x-ray is negative, her abdomen is not rigid and there are no signs of ectopic pregnancy, evacuate the uterus according to the guidelines that will be discussed later.

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.

Intra-Abdominal Injury (Chart 5)



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. 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 1M) 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 cross match 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.

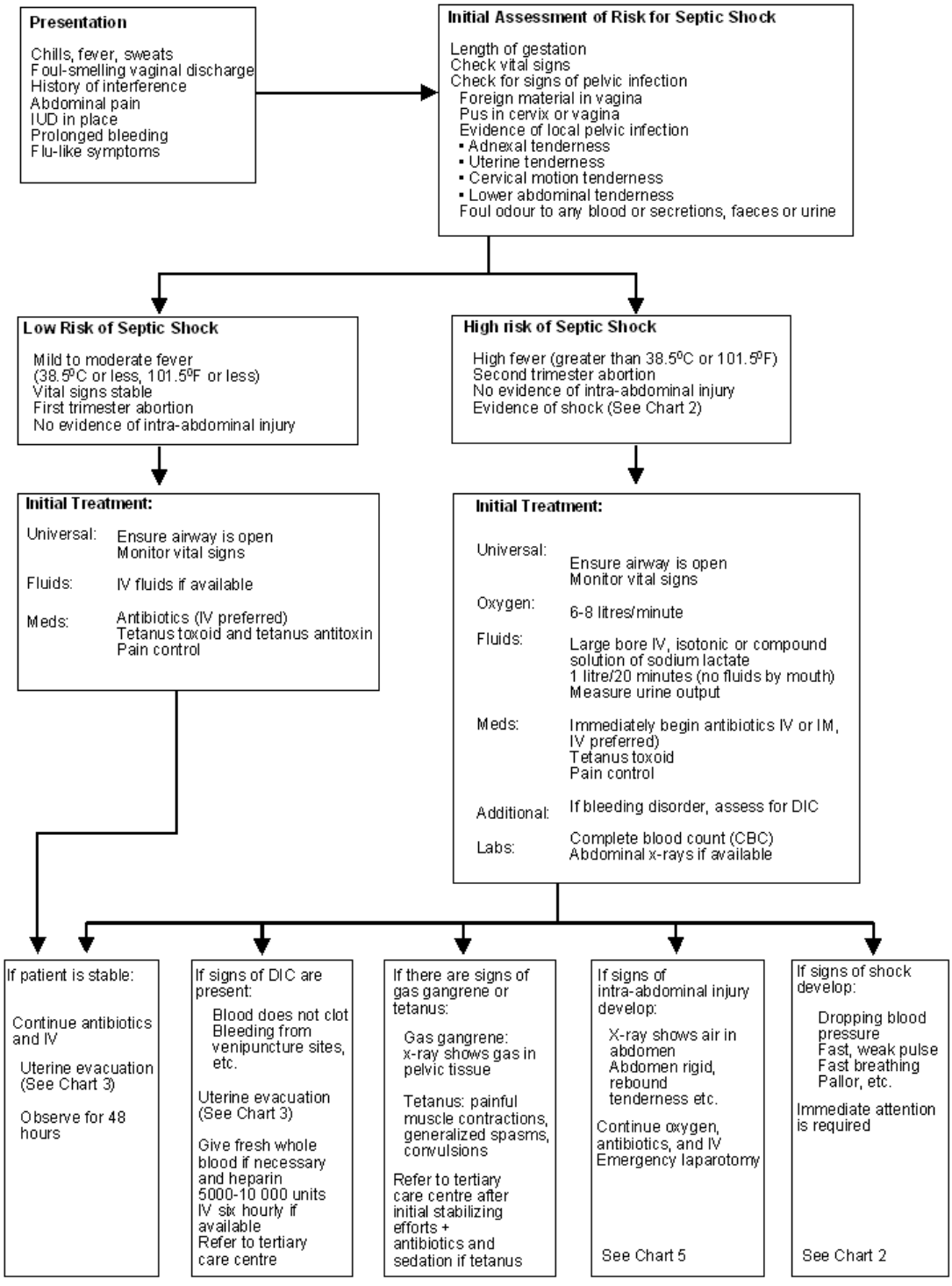
Definitive Treatment

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). Uterine evacuation by MVA is an essential part of the treatment. 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

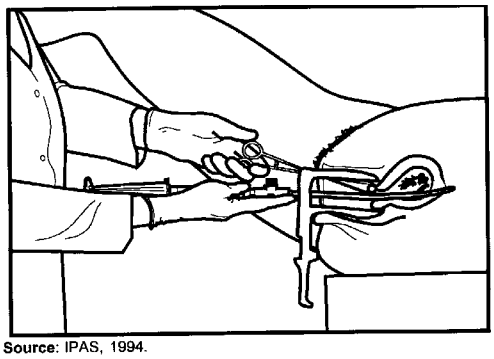
After treating the cause of infection, continue checking the patient's vital signs, urine output and fluid replacement; adjust supportive treatment (oxygen, antibiotics and other medication) as indicated by her condition.

Sepsis (Chart 6)



Uterine Perforation

Uterine Perforation During MVA Procedure



Source: IPAS, 1994.

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.

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 ~ 110 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 1M), 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 (Iaparoscopy 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 1M) and continue observation overnight.
    - If the patient's condition gets worse, prepare her for transfer to a specialized care (referral) hospital.

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. If possible, the referring site should alert the referral center that the patient is coming and send a referral note with the patient.

The central elements in stabilizing the patient for referral are:

- Management of the airway, respiration and circulation
- Control of bleeding
- Intravenous fluid replacement
- Management of pain

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. 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 1M 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 per ml, while another size may have only 10 drops per ml.)

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

- Transmission of diseases such as hepatitis B and AIDS,

- Immune-related problems such as rapid breakdown of red cells (intravascular hemolysis), and
- Circulatory overload.

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.

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***. 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 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.

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.

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.

- 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 (1M) 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 1M 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.
- 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 1M analgesia.
- A 1M injection should be given approximately 30 minutes before the procedure to allow the drug to take effect; IV infusion is effective almost immediately. Trained staff and emergency backup should be available with use of IV or 1M analgesia.
- 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.

Sedatives

- Light to moderate doses of sedatives, such as diazepam, will induce relaxation, reduce fear and decrease memory of the procedure. 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.
- 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.

Equipment and Supplies Needed for MVA

Instruments and Equipment
• Pan and pan cover (1 each)
• Bivalve speculum (small, medium or large)
• Uterine tenaculum (Braun, straight, 91/2" (1) or vulsellum forceps (1)
• Pan emesis (1)
• Kidney dish (1)
• Sponge (Foerster, straight 91/2") forceps (2)
• 10-20 ml syringe and 22-gauge needle for paracervical block (6 each)
• MVA instruments
▸ .MVA vacuum syringes, double valve (1)
▸ Plastic cannulae of different sizes (6 mm to 12 mm)
▸ Adapters
▸ Silicone for lubricating MVA syringe O-ring (1 tube)
• Light source (to see cervix and inspect tissue)
• Strainer (for tissue inspection)
• Clear container or basin (for tissue inspection)
• Simple magnifying glass (x 4-6 power) (optional)
Consumable Supplies
• Swabs/gauze
• Antiseptic solution (preferably an iodophor such as povidone iodine)
• Gloves, sterile or high-level disinfected surgical gloves or new examination gloves
• Gloves, utility
The essential drugs needed for emergency postabortion care that should be available at the primary and referral levels are detailed in the next section.
Items that should be on hand, but are not required for all MVA procedures:
• Local anesthetic (e.g., 1% lidocaine without epinephrine)
• Curettes, sharp, large
• Tapered mechanical dilators (Pratt [metal] or Denniston [plastic])
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
For Environmental Cleaning
• Dry sweeper
• Mop with long handles
• Heavy duty gloves
• Damp cloth
• Mop bucket
• Detergent (e.g., liquid soap)
• Disinfectant (chlorine solution)
• Closed plastic shoes
For High-Level Disinfection or Sterilization of 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:
• Spirits of ammonia (ampules)
• Atropine
• IV infusion equipment and fluid (OSW or O/S)
• Ambu bag with oxygen (tank with flowmeter)
• Oral airways

Essential Drugs for Emergency Postabortion Care

Anesthetics

- Atropine
- Diazepam
- Lignocaine, 1 % without epinephrine
- ANTISEPTICS
- Chlorhexidine,ttt 4% (Hibitane, Hibiscrub)
- Iodine preparations, 1-3% lodophors (Betadine)

Analgesics

- Acetylsalicylic acid
- Ibuprofen
- Pethidine (or suitable substitute)

Disinfectants

- Sodium hypochlorite 5-10% (commercial
- chlorine bleach solution) Formaldehyde, 8% (Formalin) Glutaraldehyde, 2% (Cidex)

Antibiotics

- Broad spectrum antibiotics such as: Ampicillin
- Benzylpenicillin
- Crystalline penicillin Chloramphenicol Metronidazole Sulfamethoxazole Sulfamethoxazole-trimethoprim Tetracycline

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

PowerPoint Presentations

1. PAC Introduction

2. Ethics

3a. Postabortion Family Planning and Counseling

٣b. Postabortion Counseling Wall Charts

٤. MVA Facts

٥. Patient Evaluation and Assessment

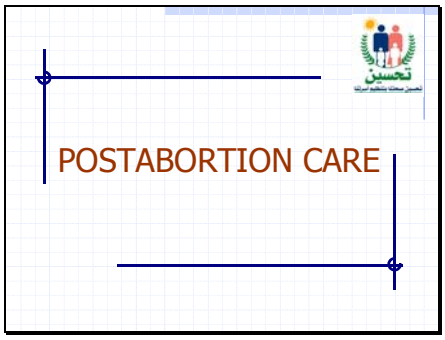
٦. Infection Control

٧. MVA Pain Management

٨. Complications of MVA

٩. Processing MVA Instruments for Reuse

Slide 1



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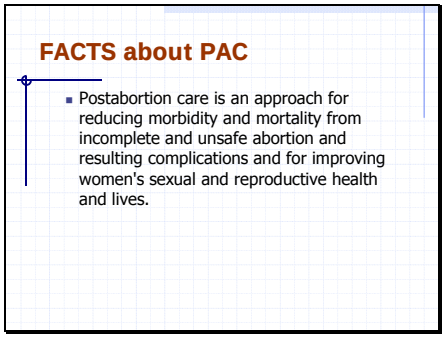

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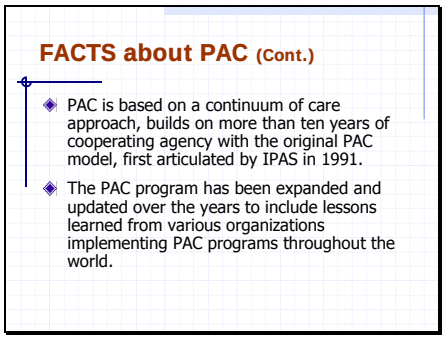

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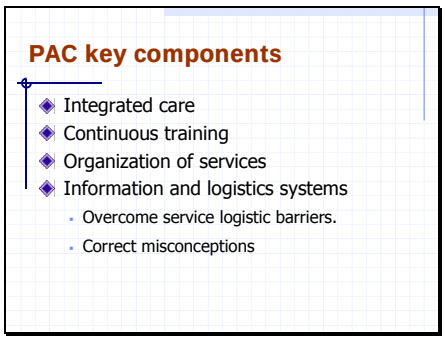

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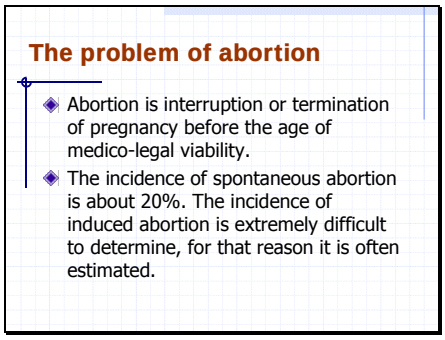

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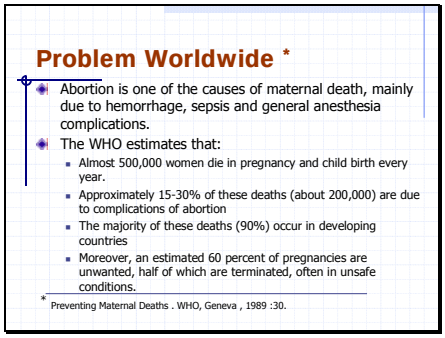

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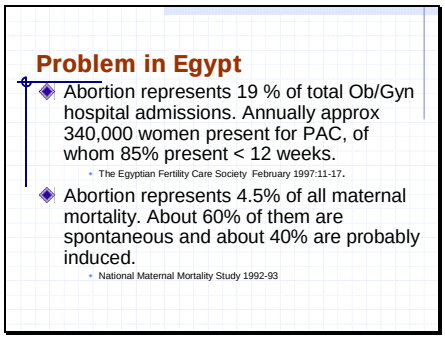

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Slide 9

Problem in Egypt (Cont.)

- In 1994, the Egyptian Fertility Care Society (EFCS) and the Population Council International (PCI) carried out a pilot study that demonstrated the feasibility of improving PAC services in Egypt.
- In 1997, the EFCS and PCI introduced a short trial to use MVA in some hospitals, but it failed to establish the procedure as a modality for treatment of incomplete abortion.
- In 2000, the EFCS extended the trial to three years and succeeded to establish PAC services.
- Sustainability of PAC in Egypt is continuing through the efforts of ANE OR/TA, FRONTIERS, MOHP, and the TAHSEEN Project.

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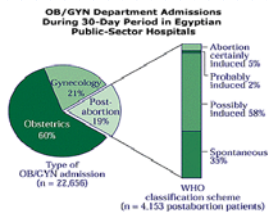

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PAC STRATEGY FOR EGYPT

- **USAID PAC model to include the following three essential elements:**
  - Emergency treatment for complications of spontaneous or unsafe abortion;
  - Family planning counseling, service provision, and referral for selected reproductive health services; and
  - Community awareness and mobilization.

Slide 12

Lessons learned

- A high demand for family planning services exists among postabortion clients
- Postabortion family planning acceptance is highest when services, including both counseling and methods, are provided at the same location where treatment is offered
- Postabortion family planning services can reduce subsequent unplanned pregnancies and the incidence of repeat abortions

Slide 13

Lessons learned (Cont.)

- MVA does not equal PAC. Where MVA is not available, dilation and curettage (D&C) is life-saving and is a legitimate practice to provide life-saving emergency care
- MVA is safer, less costly, and as effective as D&C for treating postabortion complications
- PAC training can effectively change provider attitudes to be less judgmental towards PAC patients
- The comprehensive PAC strategy for Egypt is based on these three essential elements and key lessons learned.

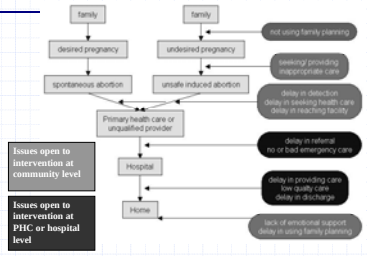
Slide 14

Access to care is often impeded by "the 3 delays."

1. Delays in deciding to seek care
2. Delays in reaching care
3. Delays in receiving care

Slide 15

Conceptual framework

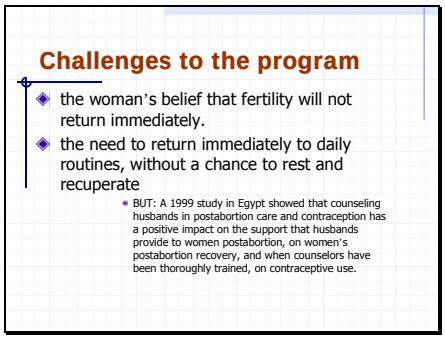


Slide 16

Program structure

- Mobilize the community and providers around PAC as an obstetric emergency, and emphasize the need for family planning counseling and provision and the importance of husband involvement in postabortion support and counseling.
- Training of PHC
- ***Clinical training for hospital staff.***

Slide 17



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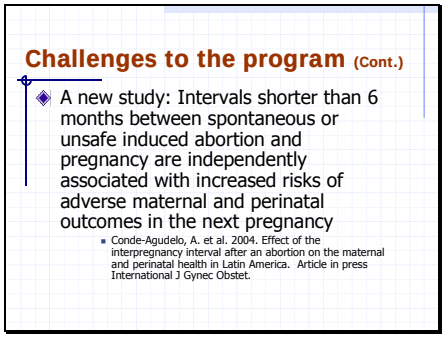

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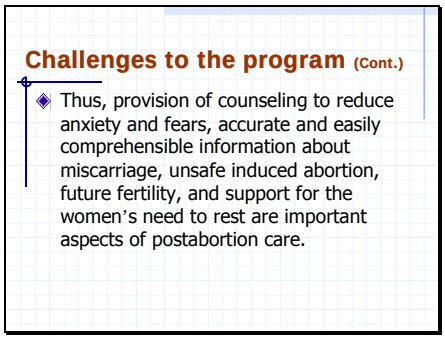

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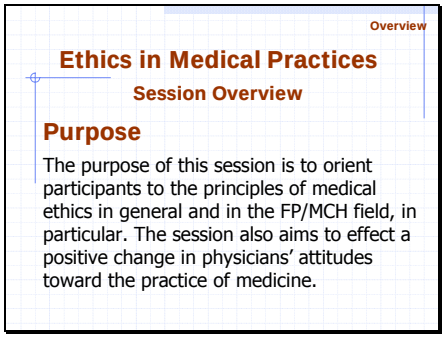

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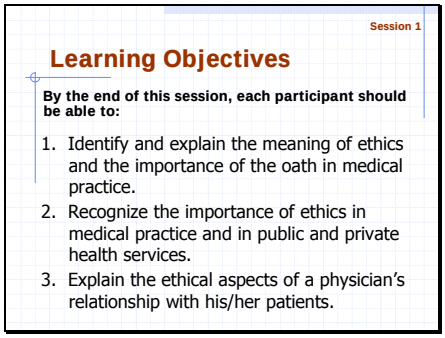

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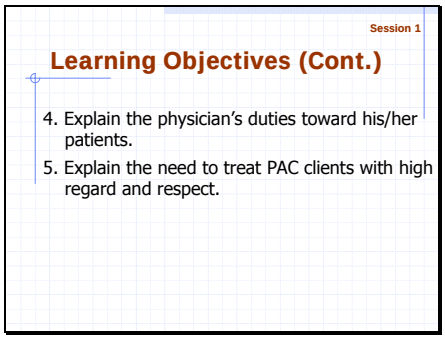

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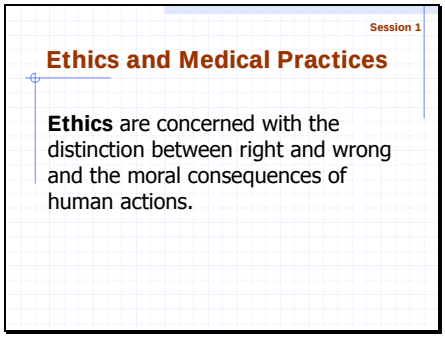
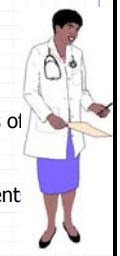


Slide 5

Session 1

Medical ethics are related specifically to the principles of proper professional conduct relative to the rights and duties of physicians, patients and fellow practitioners, as well as patient care and interactions with patient families.



Slide 6

Session 1

قسم الطبيب

أقسم بالله العظيم

- أن أراقب الله في مهنتي .
- وأن أصون حياة الإنسان في كافة أدوارها، في كل الظروف والأحوال باذلاً وسعي في استنقاذها من الهلاك والمرض والألم والقلق.
- وأن أحفظ للناس كرامتهم، وأستر عورتهم، وأكتم سرهم.
- وأن أكون على الدوام من وسائل رحمة الله، باذلاً رعايتي الطبية للقريب والبعيد، والصالح والخاطئ، والصديق والعدو.
- وأن أثابر على طلب العلم، وأسخره لنفع الإنسان .. لا لأذاه.
- وأن أوقر من علمني، وأعلم من يصغرني، وأكون أخاً لكل زميل في المهنة الطبية متعاونين على البر والتقوى.
- وأن تكون حياتي مصداق إيماني في سري وعلانيتي، نقية مما يشينها تجاه الله ورسله والمؤمنين.

والله على ما أقول شهيد

Slide 7

Session 1

علاقة الأطباء بمرضاهم

- حق المريض في الموافقة على العلاج الذي يقترحه الطبيب.
- لا يفرض على المريض طبيب لا يختاره إلا في حالات الطوارئ و أمراض الحجر الصحي .
- في حالات الطوارئ يكون من حق الطبيب أن يقوم باللازم دون رضاء المريض أو ذويه
- على الطبيب أن يقوم بالعمل الطبي مستخدما الوسائل الطبية ا

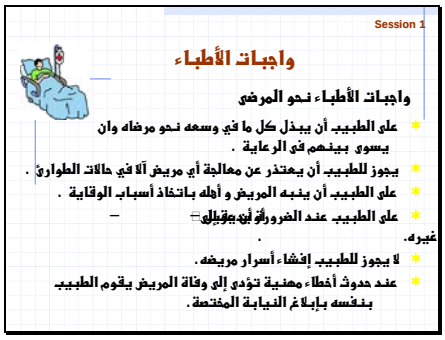
Slide 8

Session 1

علاقة الأطباء بمرضاهم

- لا يكون الطبيب مسئولا عن أي نتائج ضارة قد تحدث إذا لم يثبت وجود خطأ فني.
- يوقع المريض إقرار بقبول أي عملية جراحية أو تخدير يراه الطبيب لازما لحالته .
- يجب ان يكون مفهوما لدى المريض أن عقد العلاج ليس عقد للشفاء .
- يلتزم الطبيب بتبصير المريض بالمخاطر الهامة والمعتادة فقط.

Slide 9



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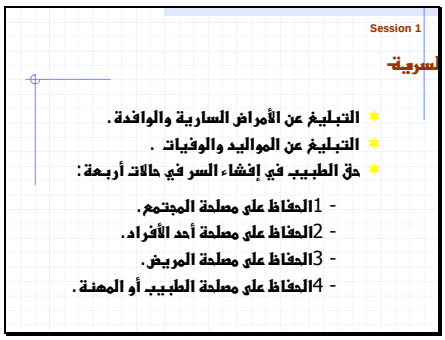

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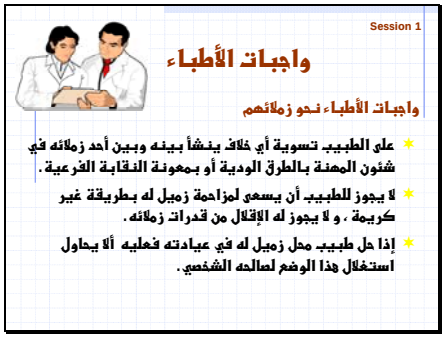

Slide 13

Session 1

واجبات الأطباء

واجبات الأطباء نحو زملائهم

- لا يجوز للطبيب أن يتقاضى أتعاباً عن علاج زميل له أو علاج زوجته أو أولاده.
- لا يجوز للطبيب فحص أو علاج مريض يعالجه زميل له في المستشفى إلا إذا استدعاه لذلك الطبيب المعالج أو إدارة المستشفى.
- لا يجوز للطبيب المعالج أن يرفض طلب المريض أو أهله دعوة طبيب آخر ينضم إليه على سبيل الاستشارة.

Slide 14

Session 1

واجبات الأطباء

واجبات الأطباء نحو مهنتهم

- على الطبيب أن يراعي الدقة والأمانة في جميع تصرفاته وأن يحافظ على كرامته وكرامة المهنة.
- لا يجوز لطبيب أن يضع تقريراً أو يعطي شهادة تغاير الحقيقة.
- لا يجوز للطبيب أن يستغل وظيفته بقصد الاستفادة من أعمال المهنة أو الحصول على كسب مادي من المريض.

Slide 15

Session 1

أخطاء المهنة

أ. الخطأ القائم على الإهمال.

ب. الخطأ الفني.

Slide 16

Session 1

بعض الحالات التي يرتكب فيها الأطباء أخطاء ضد الإنسانية

- الطبيب الذي يجري عملية جراحية دون رضاء المريض في غير حالات الطوارئ.
- إذا تدخل تدخلا يضر بالجسم دون فائدة للصحة.
- إذا عرض المريض لخطر عملية لا يتناسب مع الغير المتوقع منها.
- لم يتخذ احتياطات منع العدوى اللازمة.
- إذا أعطى للمريض وصفة مكتوبة تحمل ضررا للمريض.
- إذا نسى خطأ شيئا داخل الجسم.

Slide 17

Session 1

مسئولية الأطباء الجزائية عن أخطائهم في ممارسة المهنة

حدد القانون أحوال الخطأ كما يلي

- الرعونة.
- التفريط (أي عدم الاحتياط.)
- الإهمال.
- عدم الانتباه.
- عدم مراعاة اللوائح.

Slide 18

Session 1

بعض آداب الممارسة المهنية

- المسئولية الطبية عن الإجهاض.
- المسئولية الطبية عن التلقيح الصناعى .
- المسئولية الطبية عن التعقيم .
- المسئولية الطبية عن البحوث على الحوامل
- المسئولية الطبية عن التقرير الطبى .

Slide 19

Ethics in practice

- Women seeking treatment for incomplete abortion often are under severe emotional stress
- 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.

Slide 20

Patient rights

- The right to immediate emergency treatment, regardless of whether they have had a spontaneous abortion or resorted to unsafe abortion.
- The right to information about their condition.
- The right to discuss their concerns and condition in an environment in which they feel confident.
- The right to privacy and confidentiality.

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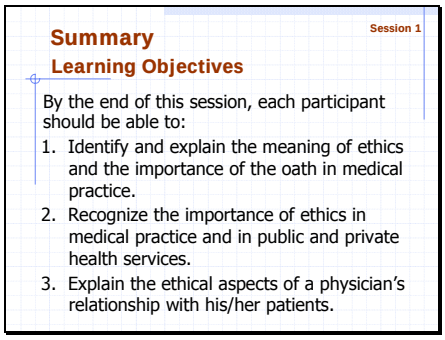

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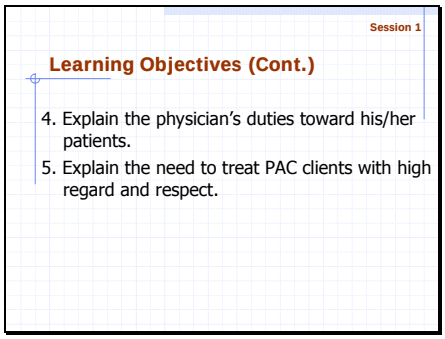

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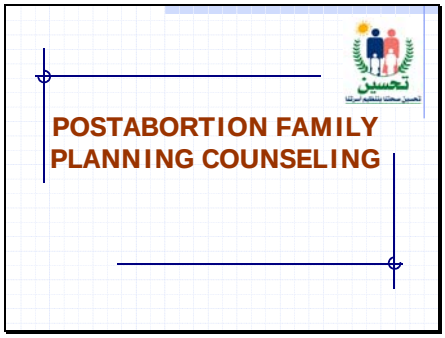

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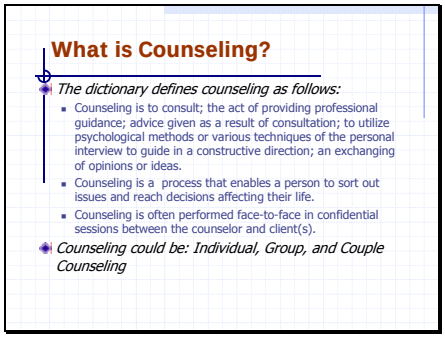

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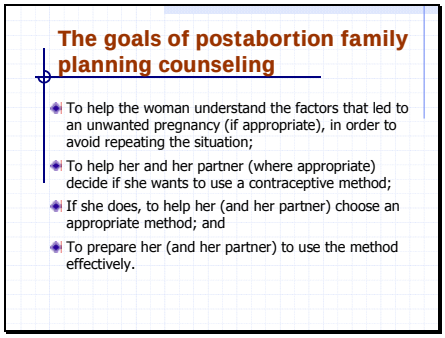

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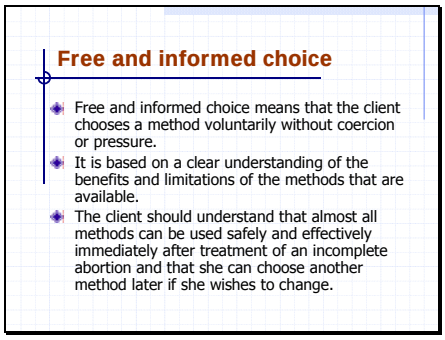

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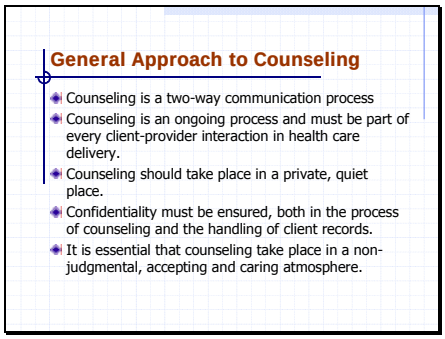

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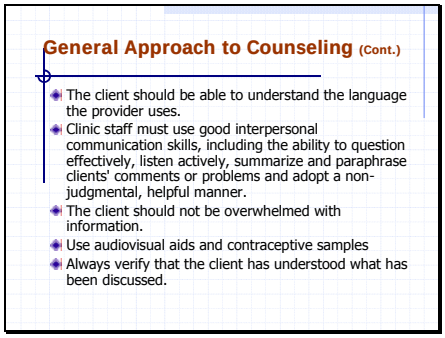

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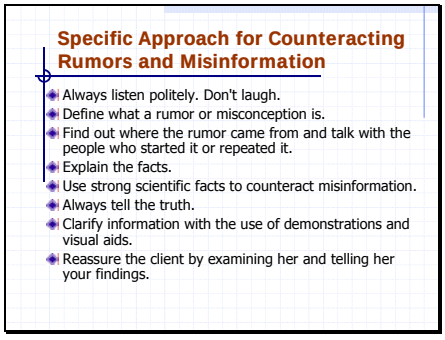

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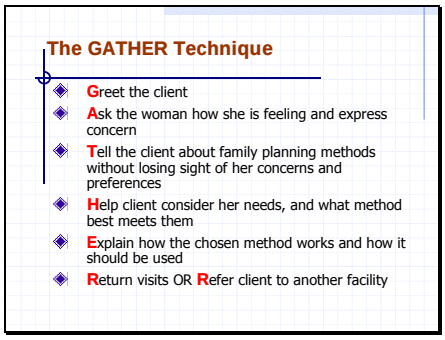

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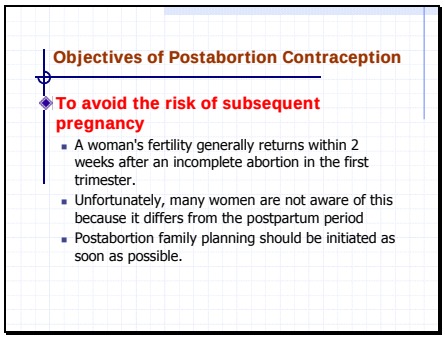

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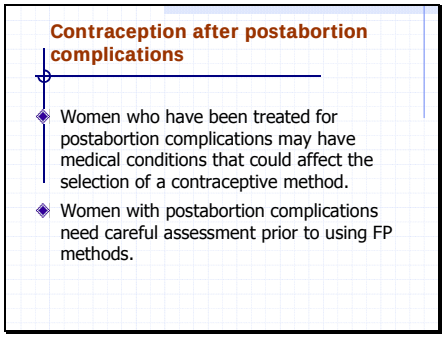


Slide 12

Slide 1


خطوات المشورة لحالات ما بعد الاجهاض
قبل العملية
• طمأنة المريضة وتشجيعها
• اخذ موافقة المريضة على اجراء العملية
• شرح مزايا المخدر الموضعى وعيوب المخدر الكلى
• وصف مبسط لخطوات العملية
• الرد على تساؤلات المريضة ومخاوفها
اثناء العملية
• التحدث الى المريضة بطريقة ودية وتهدئتها
• شرح مبسط لما يحدث اثناء العملية
• مساعدة المريضة على الاسترخاء والتخفيف من الامها
بعد العملية
التحدث مع المريضة بطريقة وديه وطمأنتها على صحتها مع توضيح الاتى:
• الحاجة الى الراحة
• التغذية السليمة
• عودة الخصوبة فى خلال اسبوعين
• اهمية إستخدام وسيلة لتنظيم الأسرة
• علامات الخطر
• مواعيد وأهمية المتابعة

Slide 2


MANAGEMENT OF BLEEDING IN
1st TRIMESTER PREGNANCY
1. History taking
2. Examination (General & Local)
3. Investigations (Pregnancy test & U/S)
CATALYST

Slide 1

MVA FACTS

Slide 2

Objectives

1. Explain the mechanism of MVA.
2. List the advantages of the MVA procedure over other methods of uterine evacuation.
3. Identify MVA indications, contraindications, warnings, and precautions.
4. Identify the parts of the MVA instruments.

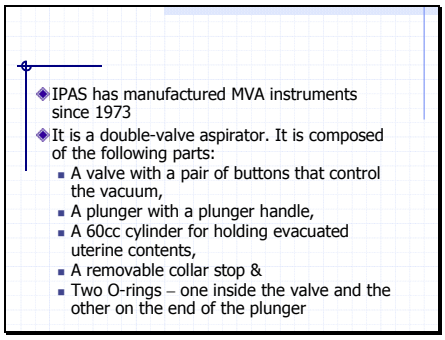
Slide 3

Manual Vacuum Aspiration instruments for uterine evacuation use flexible cannulae and a locking 60cc syringe. Indications for use are: endometrial biopsy, treatment of incomplete abortion

Slide 4

- MVA, is a safe and effective technique for uterine evacuation whose low cost, simplicity and portability make it an especially valuable reproductive-health technology.
- More than 25 years of clinical research in over 100 countries has shown vacuum aspiration for uterine evacuation to be safer than and as effective as sharp curettage.

Slide 5



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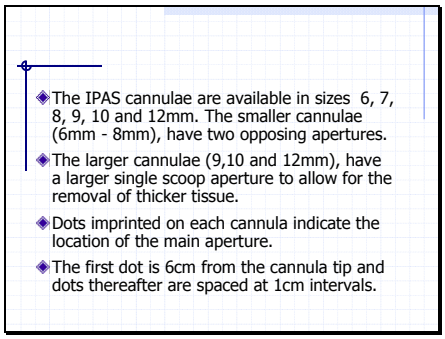

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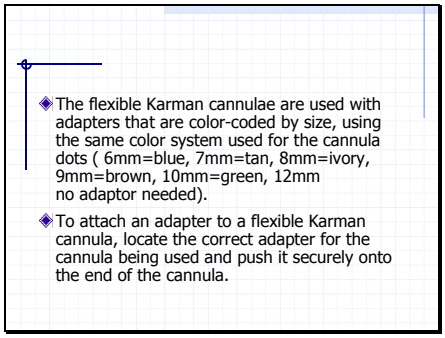

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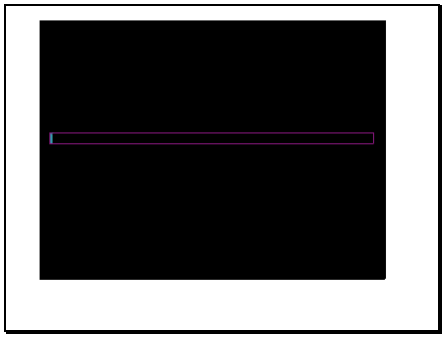

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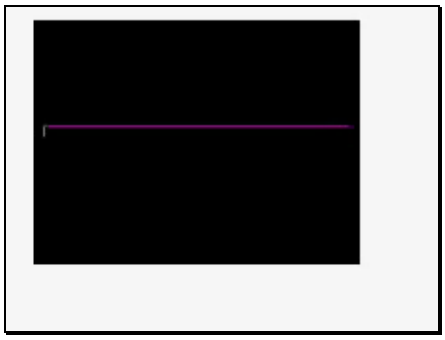


Slide 10

Effectiveness

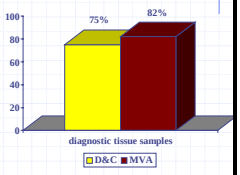
	Treatment of Incomplete Abortion
Studies	19
Procedures	>5.000
Evacuation Rate	**Majority ±98%**

Adapted from Greenaldo et al, 1993.

Slide 11

Effectiveness

- MVA is more effective than D&C in collecting diagnostic tissue samples (79% v 82%)
- MVA is equally good at detecting endometrial cancer (Suarez,1983)



Slide 12

Safety

Complications per 100 Abortion Procedures

Type of Procedure	Total	Major
Vacuum Aspiration	5.0	0.4
Sharp Curettage	10.6	0.9

Slide 13

Safety: Selected Studies Comparing Complications of MVA & Sharp Curettage

Author (Year) Country	Excess Blood Loss		Pelvic Infection		Cervical Injury		Uterine Perforation	
	MVA	SC	MVA	SC	MVA	SC	MVA	SC
Verkuyl & Crowther (93) Zimbabwe	2.8	10.0	1.5	5.3	NA		0.0	0.8
Mohamed et al. (92) Zimbabwe	0.2	0.7	NA		0.1	0.3	0.0	0.2
Kizza & Rogo (90) Kenya	3.3	5.8	5.4	6.0	NA		0.0	0.4

Slide 14

Studies Comparing Complications of Vacuum Aspiration (VA) and Sharp Curettage (SC)

Finding: Complication rate for VA lower than or equal to SC

- Excess Blood Loss — 10 out of 13 studies
- Pelvic Infection — 7 out of 9 studies
- Cervical Injury — 6 out of 7 studies
- Uterine Perforation — 10 out of 12 studies

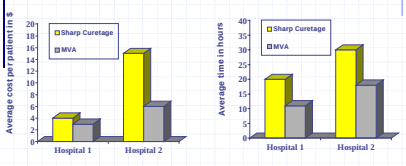
Slide 15

MVA Advantages

- Outpatient procedure
- Pain Control: only by oral analgesia – Paracervical Block and heavy sedation is not necessary. (could be done in absence of anesthesiologist as is the case in some Egyptian hospitals in district areas)
- Patients recover more quickly and return home sooner! (356 min. vs 2,577 min.)

Slide 16

Advantages over Sharp Curettage



Cost Reduction in Kenya

Hospital stay reduction in Mexico

Slide 17

MVA Advantages

- Syringe and cannula made of durable plastic
- Flexible cannula has rounded tip, narrow, uniform width:
  - Little dilation is required (the size of cannula chosen depends on: size of intrauterine remnants and cervical dilatation)
  - Gentle to uterine lining
- Aspiration time is 3 – 5 minutes.

Slide 18

Indications

- Uncomplicated incomplete abortion < 12 weeks
- Infected abortion after managing the infection
- Inevitable abortion < 12 weeks
- Uncomplicated missed abortion < 12 weeks
- Hydatiform mole < 12 weeks

Slide 19

Use with precautions

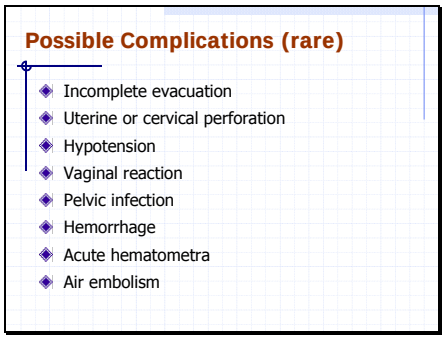
- Excessive anxiety
- Antecedents of coagulation disorders
- Recent uterine surgery
- Suspicion of uterine perforation
- Severe anemia
- Uterine myomas
- Uterine abnormalities
- Hemodynamic instability:
  - Cardiopathy
  - Hypovolemic shock
  - Septic shock
- Acute purulent cervicitis.

Slide 20

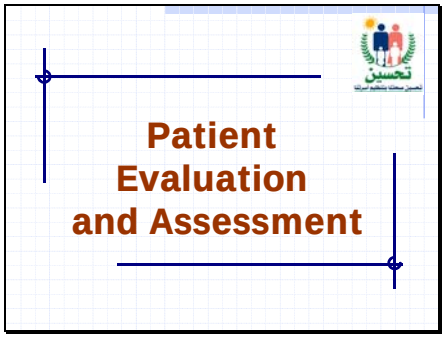
Contraindications

- Biopsy: Suspicion or confirmation of pregnancy
- Uterine size greater than 12 weeks since last menstrual period (LMP)
- Dilation greater than 12 mm

Slide 21


Possible Complications (rare)
Incomplete evacuation
Uterine or cervical perforation
Hypotension
Vaginal reaction
Pelvic infection
Hemorrhage
Acute hematometra
Air embolism

Slide 1



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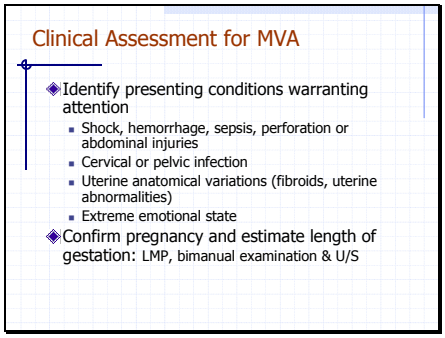

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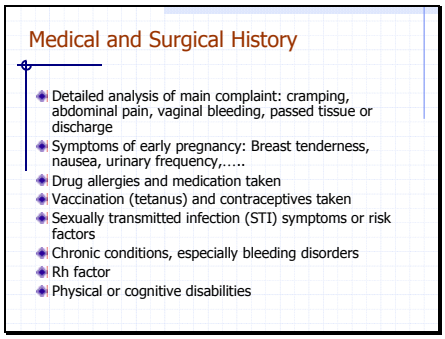

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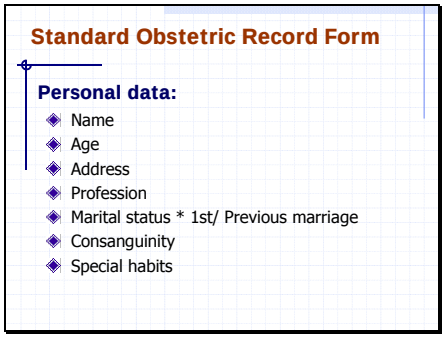


Slide 5

-***L.M.P.*** ***EDD.***

- Pattern
- Amount
- Date of 1st day

Slide 6

Obstetric data:
GP

- Parity number (pregnancy outcome, route of delivery)
- Live births (sex and age)
- Still births (sex and number)
- How many children are presently living?
- If they died, from what causes?
- Mode of delivery (cesarean, forceps, ventous, normal)
- Abortions (gestational age, number and types)
- Date of last labor
- Date of last abortion
- Congenital anomalies of previous

Slide 7

Vaginal bleeding

- ✓ Color
  - * Brownish
  - * Rosy
  - * Red
- ✓ Amount
  - * Light
  - * Moderate
  - * Severe
- ✓ Duration
- ✓ Presence or absence of clots
- ✓ Passed tissue or not

Slide 8

Pain

- Back pain
- Lower abdominal pain

Slide 9

Symptoms of Hypotension / Hypovolemia

- Dizziness (drowsiness)
- Nausea / Vomiting
- Headache
- Pallor
- Visual disturbances
- Thirst
- Diaphoresis
- Fainting
- Oliguria

Slide 10

Associated urinary tract symptoms

- Dysuria
- Frequency
- Retention
- Urinary flow interruption
- Oliguria

Slide 11

Psychosocial Assessment

- Open communication can aid in developing the best treatment plan
- Encourage but do not force, patient to discuss the circumstances of her abortion
- The patient's pain may result from patient's physical and emotional status

Slide 12

Examination of a Client at Risk of Abortion

When gestational age < 12 weeks, associated with mild bleeding and colic, management should include the following:

- No examination
- No intercourse
- Bed rest
- Ultrasound
- Follow-up

Slide 13

When gestational age < 12 weeks, associated with moderate/severe bleeding and colic, management should include the following:

- Pelvic/vaginal examination
- First aid measures
- Termination

Slide 14

Physical Examination

- General health
- Vital signs
- Assess heart, lungs and abdomen
- Perform pelvic exam
  - Speculum exam
  - Bimanual exam

Slide 15

Pelvic Examination

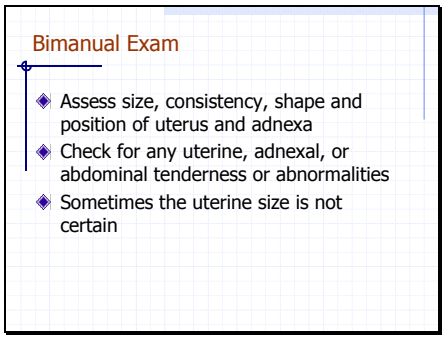
- Briefly explain the purpose of exam to patient
- Support her while she assumes lithotomy position
- Assure privacy:
  - Cover patient
  - Close door
  - No unnecessary equipment in room
  - Files are confidential

Slide 16

Speculum Exam

- Inspect perineum for bleeding, trauma, discharge and lesions
- Check vagina and os for bleeding, lesions and friability
- Note any pus from os, suggesting infection and need for antibiotic coverage before procedure
- Manually remove tissue and any foreign bodies protruding from os

Slide 17



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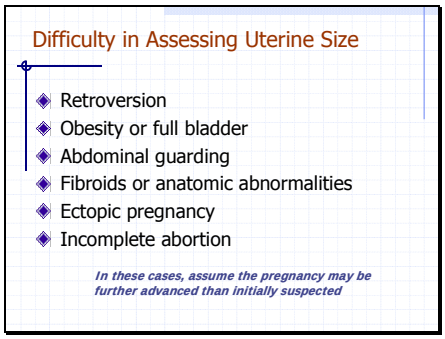

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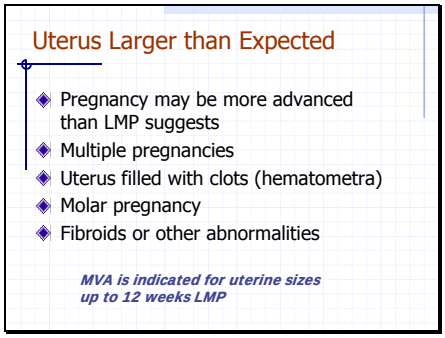

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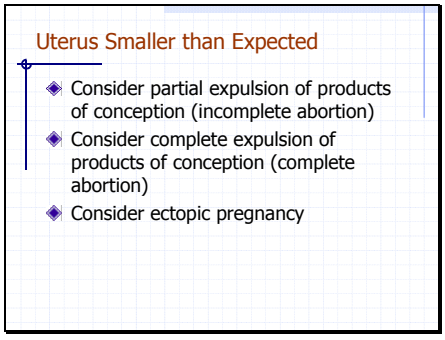


Slide 21

Investigations Required for Case of Bleeding in Pregnancy
(Before 12 Weeks Gestation)

Slide 22

A. Blood

- Complete Blood Count (CBC)
- Hematocrit
- ABO-Rh
- Sample for cross-matching
- Serum chorionic gonadotropin (B-subunit)

Slide 23

B. Urine

- Complete urine analysis
- Urinary chorionic gonadotropin

C. Ultrasonography

- Uterine size and content
- Adenexal masses
- Pouch of Douglas (blood collection/masses)
- State of the cervix

Slide 24

Following Clinical Assessment

- Determine if evacuation is indicated
- If so, determine appropriate plan, based on clinician's judgment and woman's preference
- Determine method of evacuation (MVA, D&C)
- Determine pain management plan
- Obtain informed consent before patient is medicated

Slide 25

If the Cervix is Open

Before 12 weeks:

Consider incomplete, inevitable abortion, or molar pregnancy. In these cases empty the uterus by MVA or curettage.

Slide 26

If the Cervix is Closed

Consider ectopic pregnancy, threatened or missed abortion, and molar pregnancy.

1. Perform an ultrasound examination. A gestational sac should be visible in a normal pregnancy six weeks after the last menstrual period and when serum chorionic gonadotropin is equal to or greater than 3,000 mIU/ml.

Slide 27

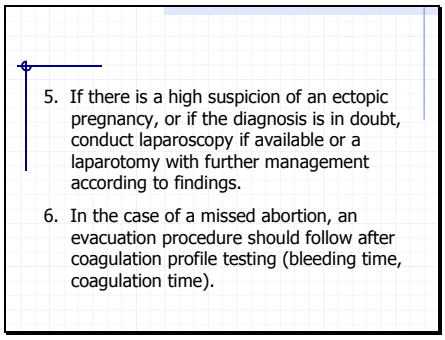
2. Check blood chorionic gonadotropin levels, which double every two days in 66% of normal pregnancies. If the level is decreasing or has plateaued, consider an ectopic pregnancy or a blighted ovum. A molar pregnancy may exist if the levels of chorionic gonadotropins are very high (more than 100,000 mIU/ml serum or 1,000,000 IU/liter urine).

Slide 28

3. If a diagnosis of threatened abortion is made, recommend bed rest and no sexual relations. Follow-up weekly in the outpatient clinic. Repeat quantitative hematocrit and chorionic gonadotropin.

4. For threatened abortion, admit the patient and follow the management flow chart; if the situation changes into an inevitable abortion, evacuate the uterus.

Slide 29



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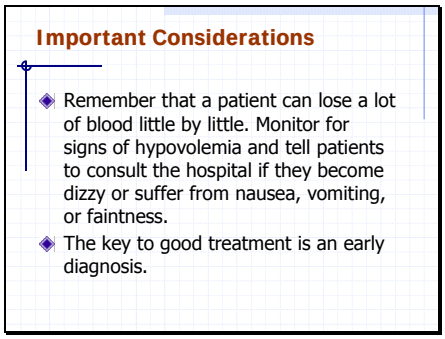

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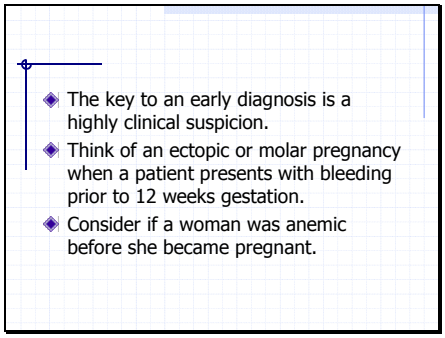

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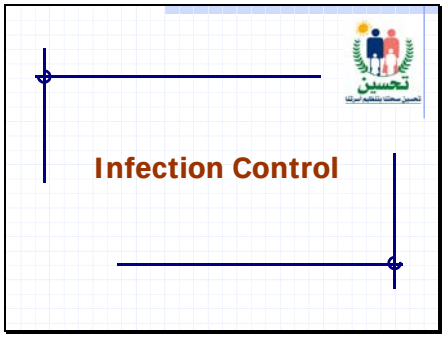

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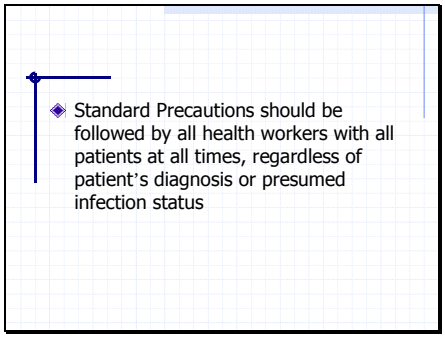

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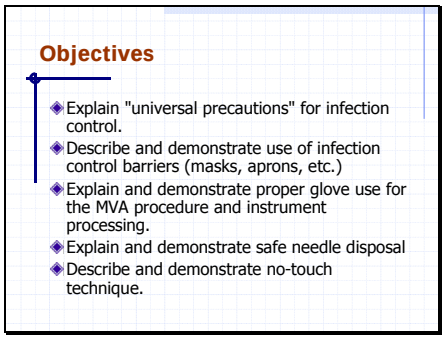

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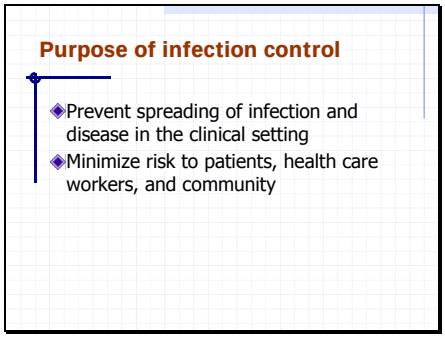

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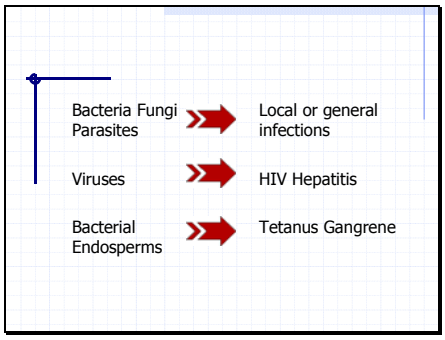

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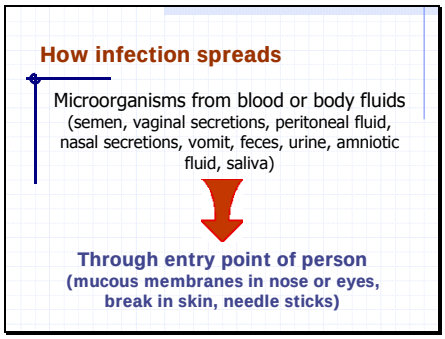

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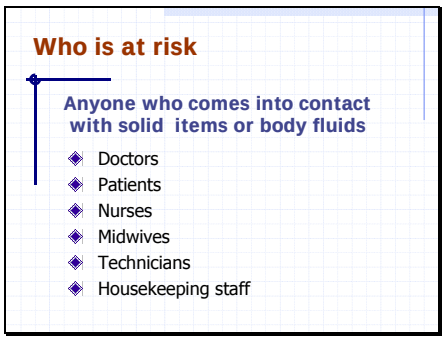


Slide 8

Slide 9

Universal Precautions Include:

1. Hand-washing
2. Use of barriers
3. Use aseptic techniques
4. Protection from sharp instruments and fluid splash
5. Safe waste disposal
6. Cleaning of operative rooms and tables
7. Decontamination and processing instruments

Slide 10

Universal precautions:
1- Hand Washing

The single most important step in preventing infection

Slide 11

Slide 12

When you wash your hands

- Wash before putting on gloves
- Wash immediately after removing gloves
- Wash after any possible contamination (pelvic exam)

Slide 13

How to wash your hands

- Use soap and running water
- Rub hands together 15-30 seconds
- Wash all parts of hands
- Use clean towel or air dry (do not share towels)

Slide 14

Universal precautions: 2- Use of barriers

Wear gowns, aprons, goggles, gloves

- Whenever doing patient care involving blood or body fluids
- Whenever handling body items including instruments or sheets

Slide 15

Gloves

- Use high-level disinfected exam gloves for patient exams and MVA procedure (make sure gloves have no cracks or holes)

Wash hands and change gloves between patient contacts

Slide 16

Gloves

- Use clean, heavy utility gloves when cleaning
  - **Instruments**
  - **Equipment**
  - **Tables**
  - **Rooms**

- Make sure gloves have no cracks or holes)

Slide 17

Putting on sterile gloves:
A) Open method

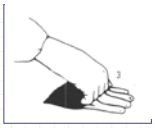
- When the right glove is put on first, the cuff is grasped on the inside by the left hand

Slide 18

- The right hand is inserted into the glove, which is then pulled into place with the left hand (the cuff is left in a turned-down position). The grasp is then released.

Slide 19

- Now the right gloved hand can pick up the left glove by inserting the fingers under its cuff. (the outside is the sterile side.)



Slide 20

- The left hand is inserted into the left glove and the glove is pulled into place. The cuff is left in a turned-down position

Slide 21

- After folding the gown cuff snugly to the wrist, and while holding this fold in place with the sterile right gloved thumb, the fingers can safely pull the sterile glove cuff over the gown cuff

Slide 22

Another method:

- The scrub nurse holds the glove open for the person donning the gloves. The glove is held with the thumb facing the recipient. The top of the glove is spread wide so that the hand can be thrust into the glove without touching the person holding the glove. The glove is pulled up over the gown cuff

Slide 23

Universal precautions:
3- Use aseptic Technique

- No-touch technique: Instruments entering the uterus must not contact contaminated surfaces, including vaginal walls, before insertion
- Antiseptic preparation of cervix
- Properly processed instruments

Slide 24

Universal precautions:
4- Protection from sharp instruments & fluid splash

- Injuries from sharp instruments are the most common way HBV and HIV are transmitted in health care situations

Slide 25

To protect from needle sticks and other injuries

- Keep handling of sharp instruments to minimum

Pass sharp instruments on a try

Slide 26

To protect from needle sticks and other injuries

- Always have puncture-proof container for sharp within reach

Slide 27

To protect from needle sticks and other injuries

- Use "no hand" method to recap needles

Slide 28

- **If you do get a needle stick**
  1. Remove gloves and wash wound immediately with soap and water
  2. If possible, get immune globulin injection

Slide 29

- **If blood or body fluids splash in your eyes**
  1. Wash eyes thoroughly with clean water or saline solution
  2. If possible, get immune globulin injection

Slide 30

Universal precautions:
5- Safe waste disposal

- **Two methods to dispose of medical waste**
  1. Careful incineration
  2. Burial in sealed containers

Slide 31

Slide 32

Universal precautions:
6- Cleaning of operative rooms & tables

- Use utility gloves and chlorine solution when mopping up spills to decontaminate surfaces
- Wash with detergent and water

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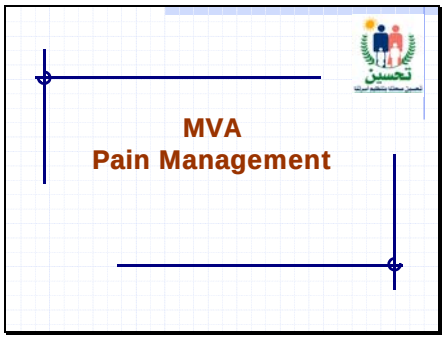

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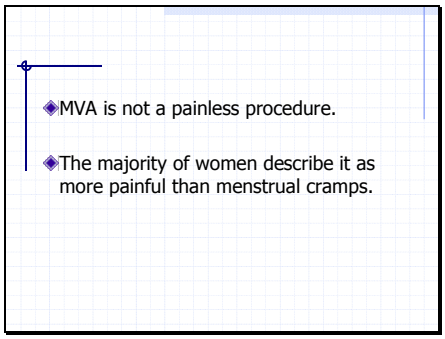

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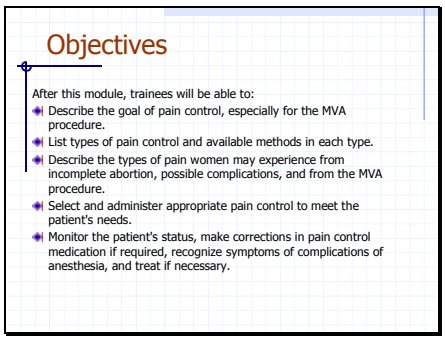

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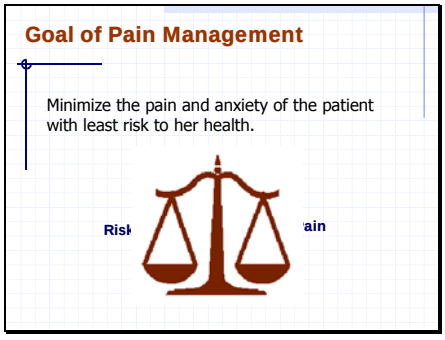

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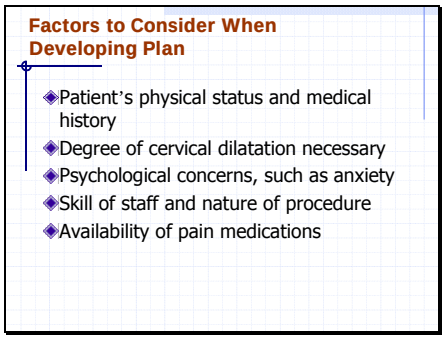

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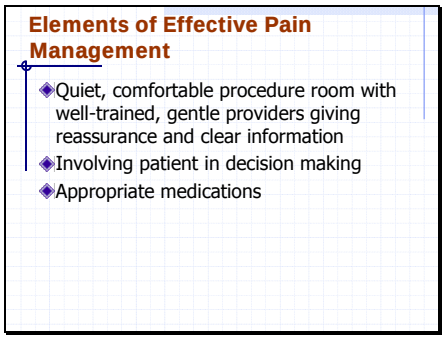

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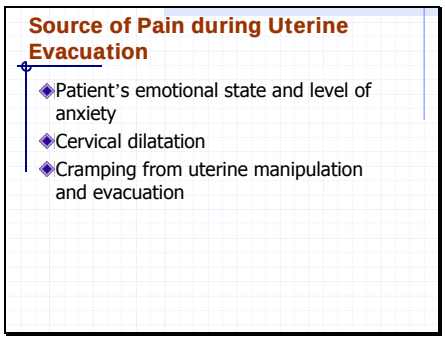

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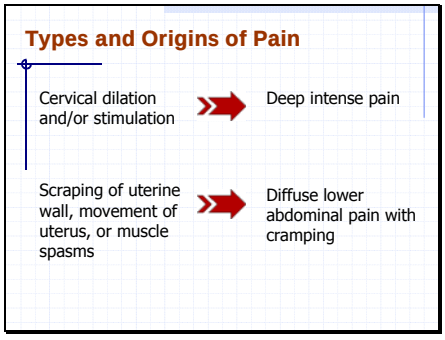

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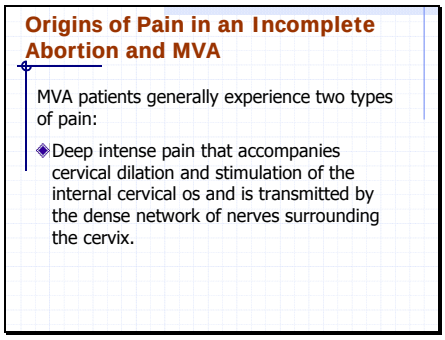

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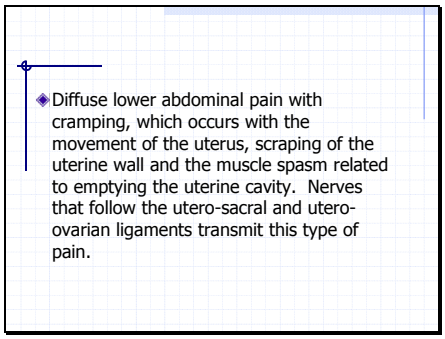

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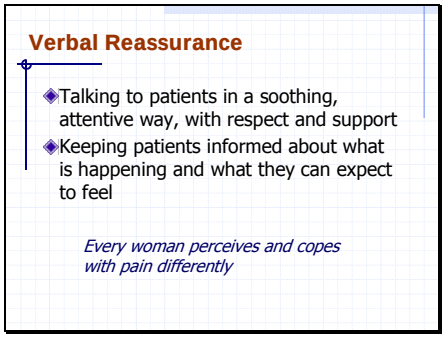

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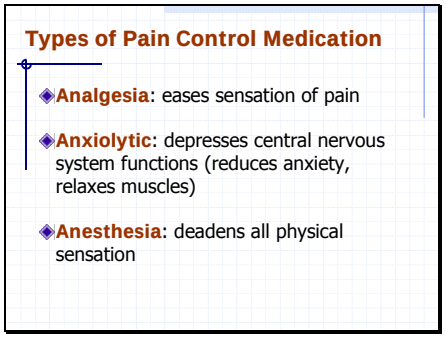

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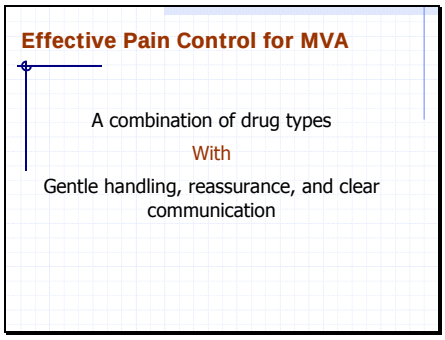

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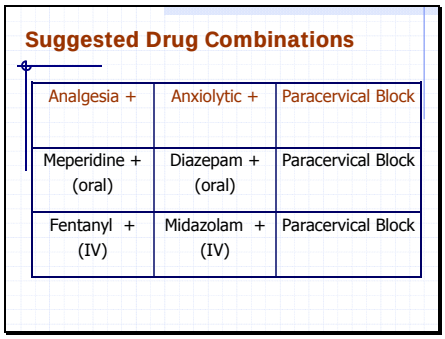

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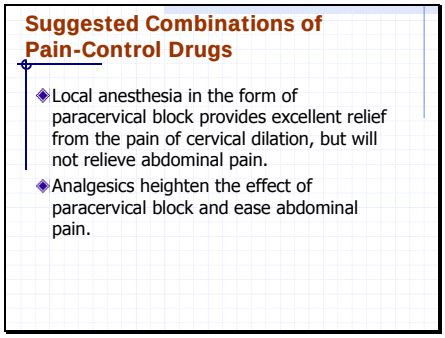

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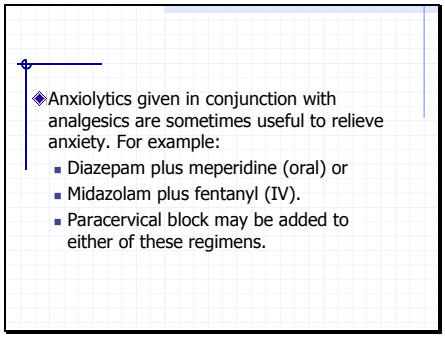

Slide 17

Pain Control Medications for MVA Procedures

Cause of pain	Type of Medication Recommended	Example of Medication
Anxiety	Anxiolytic	Diazepam
Cervical dilatation	Local anesthetic	Lidocaine
Evacuation	Analgesic	Ibuprofen Paracetamol

Slide 18

Use of Analgesia in MVA

Drug Name (Generic)	Mode	Duration of Effect	Common Side Effects
Demerol Pethidine (meperidine)	IV, IM, or oral	2 hrs.	Drowsiness, light-headedness, weakness, euphoria, dry mouth
Sublimaze (tentanyl)	IV or IM	30-60 min	
Paracetamol (acetaminophen with Codeine	Oral	3-6 hrs.	

Slide 19

Use of Analgesia in MVA

Drug Name (Generic)	Mode	Duration of Effect	Common Side Effects
(Ibuprofen)	Oral	Up to 5 hrs.	Possible gastro-intestinal upset
Paracetamol (acetaminophen)	Oral	Up to 4 hrs.	
Ketamine (ketalar)	IV	10-15 min.	

Slide 20

Use of Anxiolytics in MVA

Drug Name (Generic)	Mode	Duration of Effect
Valium (diazepam)	IV, oral	2 hrs.
Versed (midazolam)	IV	30-60 min.

Slide 21

Back up required for narcotics and anxiolytics:

- Clinicians trained in resuscitation
- Appropriate antagonist drug
- Resuscitative equipment:
  - Ambo bag
  - Oxygen
  - Oral Airway

Slide 22

Characteristics of Anesthesia

- **General**: Affects pain receptors in brain, produces complete unconsciousness
- **Regional**: Blocks sensation from a specific point on the spine, patient awake
- **Local**: Interrupts transmissions of sensations in local tissue only

Slide 23

General Anesthesia is Not Recommended

- Can increase risk to the woman
- Lengthens recovery time
- Increases cost

Slide 24

Characteristics of Anesthesia

	Risk of Complication	Recovery Time	Possible Complications
Local	Lower	Shorter	Drug allergy or seizure (rare), vaso-vagal reaction
Regional	Higher	Longer	Hypertension, cardiac arrest, central nervous system infection, spinal cord injury, drug allergy, seizure
General	Higher	Longer	Hypoxia, cardiac arrest, drug allergy, aspiration of gastric contents

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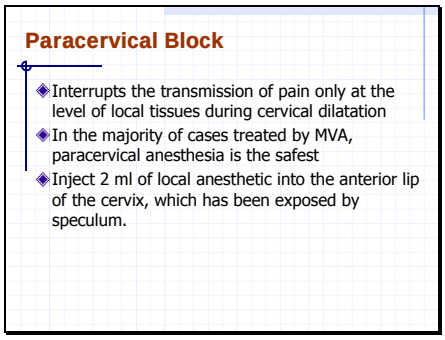

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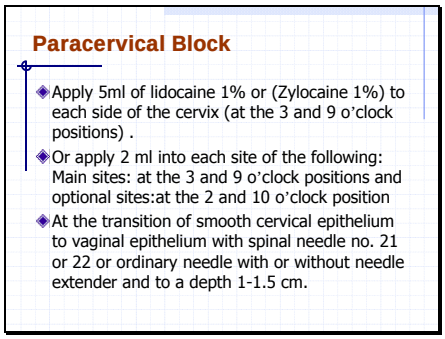

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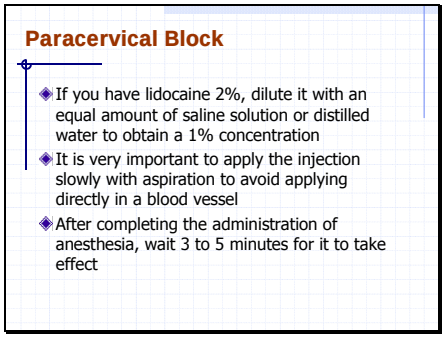

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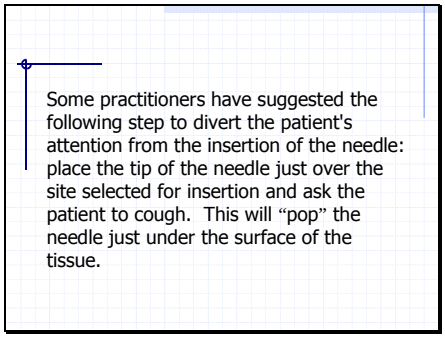

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Anesthetics for Paracervical Block

	Xylocaine (lidocaine)	Nesacaine (chloroprocaine)
Duration	60-90 min.	30-45 min.
Advantages	Rare allergic reactions	Less toxic due to rapid breakdown
Disadvantages	More toxic due to slow breakdown	More allergic reactions, more costly
Side Effects	Buzzing in ears, numbness of mouth, tongue, metallic taste	

Slide 30

Performing Paracervical Block

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Equipment Needed for Paracervical Block

- Lidocaine (1.0%)
- Antiseptic solution such as Betadine
- 10 ml syringe with 22-gauge regular or spinal needle
- Tenaculum
- Gauze and sponges

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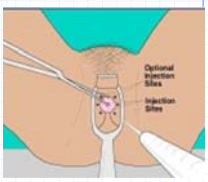
Performing a Paracervical Block

- Prepare syringe of lidocaine
- Clean cervix
- Aspirate, then inject solution
- Place tenaculum and apply traction to cervix
- Slowly inject additional lidocaine at several points



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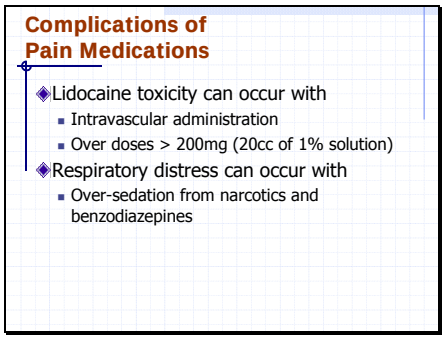

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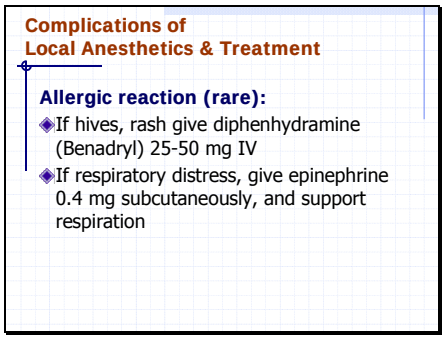

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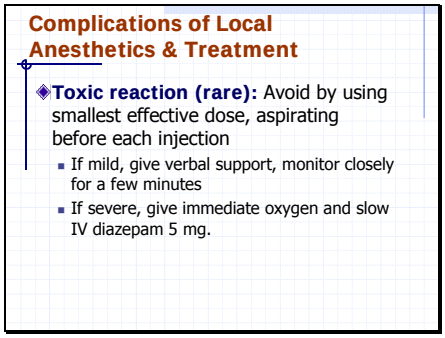


Slide 1

Complications of Manual Vacuum Aspiration (MVA)

Slide 2

Objectives

After this module, trainees will be able to:

- Describe possible complications of the procedure and their signs and symptoms.
- Describe management of uterine perforation (with and without laparotomy).

Slide 3

Complications

- Procedure difficulties
- Incomplete evacuation
- Blank evacuation
- Uterine perforation
- Hematometra
- Gaseous emboli
- Neurogenic shock
- Anaesthetics reaction

Slide 4

(1) Procedural difficulties:
a-Losing Vacuum During Procedure

- If the syringe vacuum decreases, it is either because:
  - Syringe is full
  - Cannula is withdrawn from the uterus

Slide 5

(1) Procedural difficulties:
b- Syringe Full:

- Close the valve(s)
- Disconnect the syringe leaving the tip of the cannula inside the uterus
- **Do not push in the plunger when disconnecting the syringe**
- Open the pinch valve. Empty syringe into a container
- Re-establish vacuum, reattach the syringe and resume aspiration, OR attach a prepared empty syringe and resume the aspiration

Slide 6

(1) Procedural difficulties:
c- Cannula withdrawn

- If cannula is withdrawn from aperture, you must detach, empty, and reestablish vacuum in syringe before resuming the procedure

Slide 7

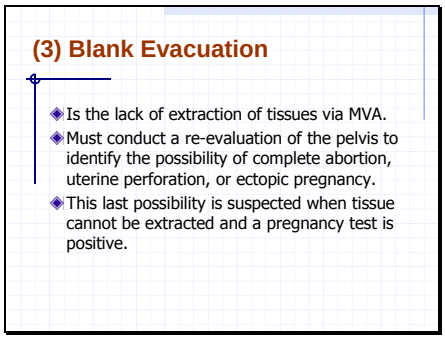
- Do not touch cannula to vaginal walls or other non-sterile surface
- If contamination occurs, use another sterile cannula

Slide 8

(2) Incomplete evacuation

- It is the intrauterine retention of tissue post-MVA that can lead to haemorrhage and infection.
- The best way to prevent incomplete evacuation is to carefully observe signs of having completed the procedure.
- Incomplete evacuation is treated by repeating the evacuation and administering antibiotics when necessary

Slide 9



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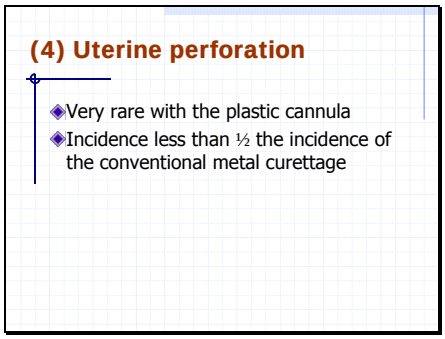

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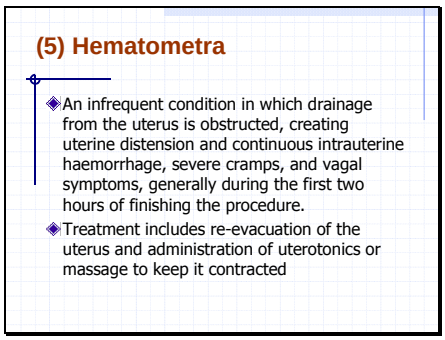

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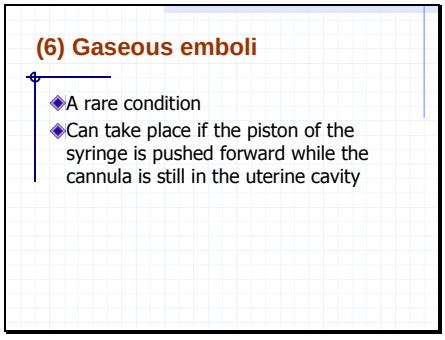

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(7) Neurogenic shock

- Results from intense pain in very anxious patients, causes a vagal reaction, with hypotension and bradycardia, which leads to syncope.
- Treatment should be fundamentally preventive.
- Should provide cardio-respiratory support and immediately apply 0.5 mg atropine via IV.

Slide 14

(8) Anesthetic reaction & toxicity

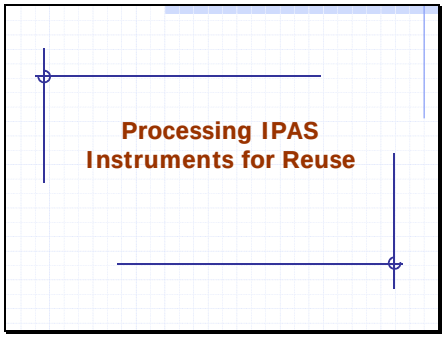
- Can produce an allergic or toxic reaction to the drug used.
- Treatment is in accordance with the type of complication.

Slide 15

Complications in women undergoing MVA procedures

SIGNS AND SYMPTOMS	DIAGNOSIS
Vaginal bleeding: uterus smaller than expected; less tissue than expected; abdominal pain; signs of infection.	Incomplete evacuation Retained tissue.
Torn or lacerated cervix; heavy vaginal bleeding; vaginal bleeding after evacuation; sudden excessive pain; rapid heart rate; falling blood pressure; instruments pass further than expected; fat, bowel or omentum in aspirate.	Cervical/abdominal injury/ uterine perforation.
Vaginal bleeding: large soft uterus	Uterine atony
Fever; chills; foul-smelling discharge; lower abdominal pain; prolonged vaginal bleeding; uterine tenderness.	Pelvic infection
Positive pregnancy test, continued signs of pregnancy; no POC on tissue inspection.	Failed abortion
Respiratory distress; rash; swollen face; metallic taste; ringing in ears; disorientation; seizures; slurred speech.	Medication-related reaction
Hard, enlarged, blood-filled uterus hours or days after procedure; pelvic pain; scant vaginal bleeding	Acute hematometra
Inability of blood to clot, bleeding	DIC
Less tissue than expected, difficult dilatation and cannula insertion	Asherman's syndrome

Slide 1



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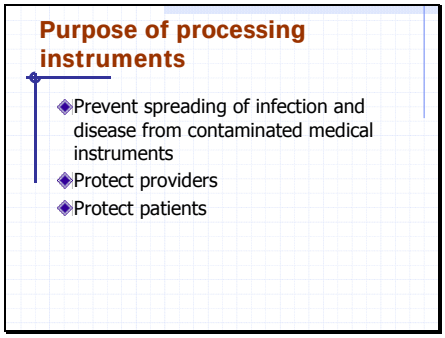

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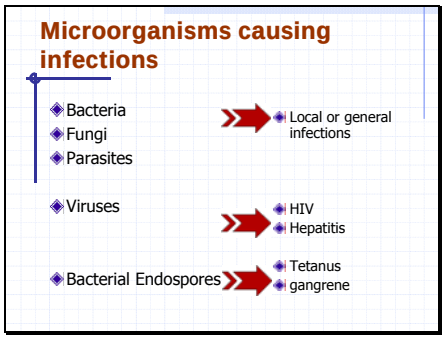

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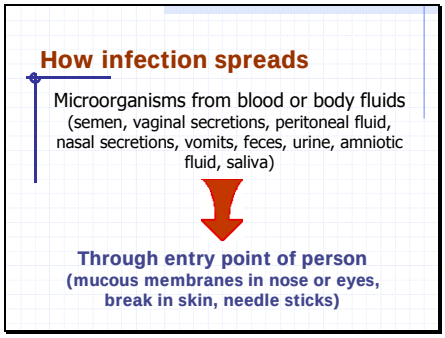

Slide 5

How to protect against infection

- Follow the steps to process instruments for reuse:
  - **Step 1:** Decontamination
  - **Step 2:** Cleaning
  - **Step 3:** Sterilization or High-Level Disinfections
  - **Step 4:** Storing instruments safely

Slide 6

Step 1: Soaking

- Is the first step in the processing of instruments.
- Destroys the HIV and Hepatitis B viruses.
- Instruments should be submerged in a plastic container that contains a 0.5% solution of chloride for 10 minutes.

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Step 1: Soaking (Cont)

- Soak all instruments and gloves immediately after use in a 0.5% chlorine solution
  1. Draw solution through cannula into syringe

Slide 8

Step 1: Soaking (Cont)

2. Drop soiled instruments – syringe, cannula, gloves – directly into solution
   - Soak for 10 minutes. (Longer soaking will corrode metal).

Slide 9

Step 1: Soaking (Cont)

3. When removing items, use gloves or strainer bag to avoid contact with skin.
   - Change solution at least once daily

Slide 10

Step 2: Cleaning

- Consists of removing all visible foreign material and microorganisms.
- Disassemble instruments and submerge in water with detergent.
- Remove the dirt with brushes .
- Rinse and dry.

Slide 11

Step 2: Cleaning (Cont.)

- Wash the syringe and cannula in lukewarm water with detergent (not soap)
- Hot water will coagulate blood and make it harder to clean

Slide 12

Step 2: Cleaning (Cont.)

- To disassemble the syringe:
  - Remove the collar stop, pull plunger out of barrel, remove valve set, and open valves.
  - Remove –ring from plunger

Slide 13

Step 2: Cleaning (Cont.)

- To clean the syringe:
  - Wash all parts with lukewarm sudsy water
  - While holding syringe under surface of water, scrub with soft brush

Slide 14

Step 2: Cleaning (Cont.)

- After washing, rinse syringe and cannula thoroughly with clean water
- Dry by air or with a clean towel

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Step 3: Sterilization or high level of disinfections

High Level of disinfections:

- Process that destroys the majority of microorganisms except endospores.
- HLD by boiling: Place cannulas in container with boiling water for 20 minutes.
- Chemical HLD: Submerge cannulas in disinfectant solution for 20 minutes:
  - Glutaraldehyde 2% (Cidex)
  - Formaldehyde 8%
  - Sodium hypochlorite 0.5% (bleach)

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Step 3: Sterilization or high level of disinfections (Cont.)

Sterilization:

- Process that destroys all microorganisms including endospores.
- Cannulas should not be subjected to wet heat (autoclave) nor dry heat.
- Chemical sterilization: Submerge cannulas in: Cidex 2% for 10 hours or formaldehyde 8% for 24 hours.

Slide 17

Step 3: Sterilization or high level of disinfections (Cont.)

- All clean, dry instruments should be either sterilized or high-level disinfected
- **Use:**
  - Boiling
  - 2% Glutraldehyde
  - Other chemical high-level disinfections methods
- **Do not use:**
  - Autoclaving (steam)
  - Dry heat

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Step 3: Sterilization or high level of disinfections (Cont.)

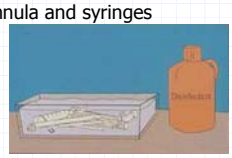
Sterilization vs. HLD

- **Sterilization**: kills all microorganisms, including bacterial endospores
- **High-Level Disinfection**: kills all microorganisms, but may not kill bacterial endospores
- When sterilization of cannula is unavailable, HLD is the only acceptable alternative for protecting against infection

Slide 19

Step 3: Sterilization or high level of disinfections (Cont.)

- Be sure items are completely submerged
- Be sure the solution fills the inside of cannula and syringes



Slide 20

Step 3: Sterilization or high level of disinfections (Cont.)

- Low-level disinfectants and antiseptics will not kill microbes on cannula
- Cannula must be sterilized or high-level disinfected

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Step 3: Sterilization or high level of disinfections (Cont.)

- Sterilizing cannula with 2% Glutaraldehyde (Cidex)
  1. Soak cannula for 10 hours
  2. Remove the sterile forceps
  3. Rinse with sterile water
  4. Air day

Note: Solution lasts up to 14 days

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Step 3: Sterilization or high level of disinfections (Cont.)

- High-level Disinfecting Cannula by Boiling
  - Place cannula in boiling water
  - Bring to boil again
  - Boil for 20 minutes
  - Remove with HLD forceps
  - Rinse with boiled water & air dry

Note: Boiling syringes will crack the valves

Slide 23

Step 3: Sterilization or high level of disinfections (Cont.)

HLD for cannula or syringes with chlorine

- 1. Soak items for 20 minutes in non-metal container
- 2. Remove with HLD forceps
- 3. Rinse with boiled water & air day

Note: Change solution daily

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Step 3: Sterilization or high level of disinfections (Cont.)

- Mid-Level Disinfection for syringes with Alcohol/Iodophors
  - Soak for 20 minutes
  - Remove with HLD forceps
  - Rinse with boiled water
  - Air dry

Note: Change solution daily, or when cloudy

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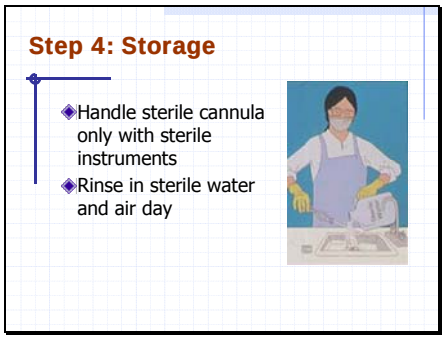

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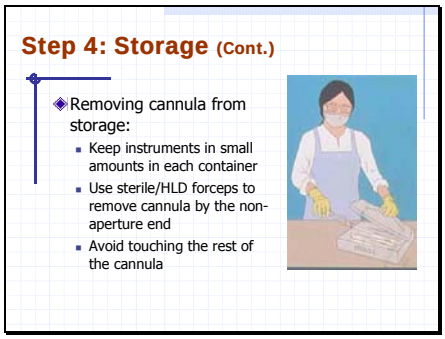

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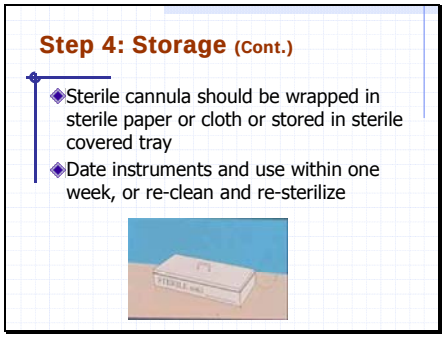

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