



## **Dilatation & Evacuation (D&E) Reference Guide**

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INDUCED ABORTION AND POSTABORTION CARE AT OR AFTER 13 WEEKS GESTATION ('SECOND TRIMESTER')

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## **Dilatation & Evacuation (D&E) Reference Guide:**

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### INDUCED ABORTION AND POSTABORTION CARE AT OR AFTER 13 WEEKS GESTATION ('SECOND TRIMESTER')

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## About Ipas

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In accordance with U.S. Food and Drug Administration (FDA) regulations, the manual vacuum aspirator is not labeled for use at or after 13 weeks gestation. This publication was developed and intended to be used in settings where regulations allow reuse of cannulae after sterilization or high-level disinfection for international distribution outside the United States.

In accordance with U.S. FDA requirements, indications for use of Ipas MVA instruments in the United States are:

All Ipas aspirators and cannulae are intended for uterine aspiration/uterine evacuation in obstetrics and gynecologic patients. Clinical indications for uterine aspiration with this product are treatment of incomplete abortion for uterine sizes at or after 13 weeks from last menstrual period, first-trimester abortion (menstrual regulation) and endometrial biopsy. Applications for endometrial biopsy may include cases of infertility, abnormal uterine bleeding, amenorrhea, and screening for endometrial cancer or endometrial infections.

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## List of abbreviations

BPD - Biparietal diameter

DIC - Disseminated intravascular coagulation

D&E - Dilatation and evacuation

FL - Femur length

LMP - Last menstrual period

NPO - Nil per os

NSAID - Non-steroidal anti-inflammatory drug

POC - Products of conception

WHO - World Health Organization

## Chapter 1: Introduction

**This reference guide provides information and recommendations based on evidence for dilatation and evacuation (D&E), a form of abortion that utilizes a combination of specialized forceps and vacuum aspiration to evacuate the uterus at or after 13 weeks gestation, for women who need either induced abortion, treatment of incomplete abortion or postabortion care.**

Health-care providers with previous experience providing high-quality, first-trimester abortion services who want to expand their skills to care for women at or after 13 weeks gestation using uterine evacuation are the primary audience for this guide.

We recognize that the terminology around gestational age is evolving and moving away from the use of “trimester” lexicon. We have chosen, however, to use the term “second trimester” when referring generally to gestations between 13-28 weeks, but will use gestational age in weeks for specific situations/recommendations.

Provision of safe second-trimester services is critical to decreasing injuries and deaths from unsafe abortion. Abortions after the first trimester carry excess morbidity and mortality compared to first-trimester abortions [1]. Abortions after the first trimester disproportionately affect underserved populations including the poor, the very young, and those experiencing violence [2-4]. Women seek later abortions for a variety of reasons including:

- Failure to recognize pregnancy until after the first trimester [5]
- Ambivalence or difficulty with the decision
- Changes in relationship status or life circumstances
- Financial barriers: Second-trimester abortions often cost more, and finding money may be difficult and time-consuming.
- Access and logistic barriers: If first-trimester abortion care is difficult to access, women may not be able to find care until later in pregnancy.
- Limited abortion services: When it is difficult to access safe abortion care, the abortion is often delayed. Because of legal restrictions in their country of origin, many women are forced to travel, including to other countries, and making these arrangements and finding the money to cover the costs takes time.
- Fetal anomalies that are detected or medical conditions that arise later in pregnancy

Lack of access to safe abortion at or after 13 weeks gestation increases the risk of abortion-related morbidity and mortality. The risk of abortion complications increases with advancing gestational age; first-trimester abortion carries less risk than abortions performed in the second trimester [1]. However, the use of evidence-based technologies by a trained, experienced provider can minimize risks.



In some countries, unsafe second-trimester abortion causes the majority of abortion-related mortality [2, 3, 6]. A proposed target for ensuring access to and reducing mortality from second-trimester abortion is to have at least one facility per 500,000 people that can provide this service safely [4]. Health systems must ensure that women have access to abortion at or after 13 weeks gestation and postabortion care services. Provision of second-trimester care contributes to a woman's right to make decisions about her reproductive health needs and, overall, reduces maternal morbidity and mortality.

Two types of abortion procedures are recommended in the second trimester: D&E and misoprostol-based medical methods (mifepristone plus misoprostol or misoprostol only). D&E involves preparing the cervix and then evacuating the uterus with a combination of vacuum aspiration and forceps. It requires skilled clinicians, specialized instruments and more intensive clinical care than aspiration in early pregnancy. D&E provision is appropriate for higher-volume sites, as the experience level of providers is directly related to complication rates. The medical method of abortion uses medication-based regimens with mifepristone plus misoprostol or misoprostol only to both prepare the cervix and induce uterine contractions and eventual pregnancy expulsion. When both abortion methods are available, women should have the option to choose their preferred method. Medical abortion requires fewer technical skills and resources and can be offered in facilities where D&E cannot be provided. Generally, second-trimester medical abortion can be offered wherever obstetrical services are available.

This reference guide provides information about caring for women undergoing D&E for either induced abortion or for postabortion care in the second trimester. It also reviews logistical and managerial considerations for health systems that wish to offer D&E. This reference guide is a companion to Ipas's *Medical Abortion Reference Guide: Induced abortion and postabortion care at or after 13 weeks gestation* ([www.ipas.org/2ndtriMA](http://www.ipas.org/2ndtriMA)). The core technical information will not overlap between these reference guides but some of the general and service-related information does. Generally, the clinical protocols included are appropriate for up to 24 weeks of pregnancy in high- or low-resource settings, and are consistent with scientific evidence through March 2018. As new evidence emerges, recommendations may require updating; yearly updates are reflected in Ipas's *Clinical Updates in Reproductive Health* ([wwwi.ipas.org/clinicalupdates](http://wwwi.ipas.org/clinicalupdates)).

Local regulations may permit clinicians to provide care beyond 24 weeks gestation. Many clinicians experienced in D&E recommend considering alternative management options, like medical abortion, after 24 weeks gestation. As these cases are relatively uncommon, the scientific evidence is limited and clinicians must use their clinical judgment and experience to care for these women.

Many aspects of second-trimester care—including human rights, counseling, infection prevention, adverse events reporting, and contraceptive provision—overlap with first-trimester care. These subjects are covered in detail in

Ipas's *Woman-Centered, Comprehensive Abortion Care Reference Manual, Second edition* (available at [www.ipas.org/cac-reference](http://www.ipas.org/cac-reference)) and *Woman-Centered Postabortion Care Reference Manual, Second edition* (available at [www.ipas.org/pac-reference](http://www.ipas.org/pac-reference)), and are not repeated in this guide.

The successful introduction of second-trimester abortion services requires specific infrastructure, administrative (site, local and government) and supportive staff, in addition to the technical skills and knowledge. Further information on the introduction of abortion services can be found in Ipas's *Second-Trimester Abortion: A Toolkit for Service Delivery* at [www.ipas.org/2ndtritolkit](http://www.ipas.org/2ndtritolkit).

Recommendations for abortion care change as new evidence emerges. Please see Ipas's *Clinical Updates in Reproductive Health* for the most up-to-date recommendations and medical abortion protocols ([www.ipas.org/clinicalupdates](http://www.ipas.org/clinicalupdates)).

## Prerequisite knowledge and skills

This reference guide is designed for use by clinicians with experience providing high-quality first-trimester abortion services utilizing vacuum aspiration. Skills used in first-trimester abortion—such as providing information, counseling, the process of informed consent, vacuum aspiration, pain management, infection prevention and postabortion contraception—will be similar to those needed for second-trimester abortion and will not be discussed in detail in this manual. For more comprehensive information on first-trimester abortion, see Ipas's *Woman-Centered, Comprehensive Abortion Care Reference Manual, Second edition*, at [www.ipas.org/cac-reference](http://www.ipas.org/cac-reference).

Before learning to provide D&E induced abortion and postabortion care, clinicians should already be able to:

- Provide women information about their abortion method options, what to expect during the process, risks, care after the abortion, and warning signs;
- Provide women information about options for contraception and, ideally, have the ability and supplies to start the method immediately postabortion;
- Perform a medical history and physical examination, including a pelvic and bimanual examination and if indicated, laboratory testing;
- Determine the duration of pregnancy based on medical history, clinical examination and if necessary, ultrasonography;
- Perform first-trimester abortion or postabortion care with uterine aspiration;
- Manage pain during a first-trimester abortion—knowing how to administer a paracervical block or to provide other forms of pain control

is desirable;

- Recognize and manage first-trimester abortion complications.

Experience providing obstetric care is advantageous for providers since the management of complications from second-trimester abortion is similar to that of obstetrical complications. Since clinicians providing second-trimester care must be able to manage emergencies or stabilize the woman for transfer, at a minimum, emergency obstetric care service and/or skilled birth attendant training should be required for those not formally trained in obstetrics.

The requirements regarding facilities, equipment and personnel are detailed in the section of this guide on service delivery (see page 50) and can also be found in the Ipas's *Second-Trimester Abortion: A Toolkit for Service Delivery* at [www.ipas.org/2ndtritolkit](http://www.ipas.org/2ndtritolkit).

## Chapter 2: Clinical care for women during D&E at or after 13 weeks gestation

This chapter outlines the clinical care of women undergoing a D&E. The chapter is presented in the order of the provision of a D&E.

The steps in providing D&E are:

- Clinical assessment
- The process of informed consent
- Cervical preparation
- Inducing fetal demise (as needed)
- Pain management
- D&E
- Recovery

Special considerations: young women, women with maternal or fetal indications for abortion, prior hysterotomy, placenta previa

### **Clinical assessment**

A provider must first assess a woman's clinical status and eligibility for D&E. The assessment should be conducted in private. The components of the clinical assessment are the medical history, physical examination, collection of any laboratory specimens, as needed, and assessment/confirmation of gestational age. A brief, informal assessment of a woman's psychosocial state may be needed to determine if she has an indication for abortion, in some settings, and/or may be useful to identify women who need additional resources and/or support.

## MEDICAL HISTORY

The provider needs to obtain a comprehensive medical history including:

- Date of the first day of last menstrual period (LMP)
- Results of any pregnancy test or ultrasound examination
- Any vaginal bleeding or other complications during the current pregnancy
- Known drug allergies
- Current medications
- Obstetrical history – number of pregnancies, number of births and abortions, types of delivery (cesarean or vaginal), and history of ectopic pregnancy
- Medical history
- History of mental illness
- Physical or cognitive disability
- Social history, including history of alcohol or drug use

An example of an evaluation form can be found in Appendix 1 (see page 35). For women with certain medical conditions, abortion care may require a high level of clinical expertise and/or monitoring. Referral to a higher-level facility may be appropriate for these women. Table 1 (see page 11) shows some common health considerations that need to be evaluated and may affect management, but is not an exhaustive list.

**Table 1. Health conditions that may affect provision of D&E**

CONDITION	CLINICAL RELEVANCE
Alcohol or drug abuse	Women may require larger doses of medication for pain control; start with standard dosing and titrate up as needed. If opioids are used, consider shorter- acting drugs to avoid delayed respiratory depression.
Anemia	If hematocrit or hemoglobin is very low,* be prepared to manage bleeding and treat appropriately (e.g., availability of uterotonics and agents of tamponade).
Asthma	Women with mild or well-controlled asthma may proceed with routine care. Women with an acute asthma attack or poorly controlled asthma may need to delay care until asthma is under control or receive treatment in a hospital setting. Misoprostol is safe for use in women with asthma.
Blood-clotting disorders	If the woman has an active bleeding disorder, referral to a higher-level facility may be appropriate. Otherwise, prepare for management of hemorrhage (e.g., uterotonics, agents of tamponade, and blood products).
Diabetes	Insulin or other medications to regulate glucose need to be managed in accordance with calorie/food intake. Regular glucose testing should be part of routine monitoring of the woman during her care.
Heart disease	If disease is symptomatic or severe, care may need to be provided in conjunction with intensive cardiac care. Additional monitoring and treatment in a higher-level facility may be necessary.
Hypertension	Methylergonovine (ergot alkaloids) should not be used in women with hypertension.
Morbid obesity	Depending on the magnitude of obesity, changes in routine logistics may need to be considered including weight capacity of exam/surgical tables and leg stirrups, longer instruments, lift teams to move the woman, etc.
Prior hysterotomy	See “special considerations” on page 33.

CONDITION	CLINICAL RELEVANCE
Seizure disorder	<p>The woman should take her usual dose of anti-seizure medication. She may receive the full range of pain control measures during her care.</p> <p>Because some anti-epileptic drugs interact with hormonal contraception, contraceptive options should be carefully reviewed for medical eligibility (refer to the World Health Organization's <i>Medical Eligibility Criteria for Contraceptive Use</i> (<a href="http://www.who.int/reproductivehealth/publications/family_planning/MEC-5/en/">http://www.who.int/reproductivehealth/publications/family_planning/MEC-5/en/</a>)).</p>
Uterine anomaly	Depending on the type of anomaly, ultrasound guidance during the procedure may be necessary and, in some rare cases, D&E may not be possible.

\*No universal standard exists for what is considered a low hematocrit/hemoglobin prior to D&E, but if a woman experienced a significant bleeding event with an initial hematocrit of 25%, a transfusion would likely be needed.

## PHYSICAL EXAMINATION

The woman should have a complete physical exam including vital signs, heart and lung exam, abdominal and pelvic/ bimanual exam. The pre-abortion physical exam may be a time to provide additional preventative health screening (for example, screening for sexually transmitted infections or cervical cancer), but only if it does not create barriers or delays to abortion care.

## LABORATORY TESTING

In most cases, providers only need the information obtained from a woman's history and physical examination to complete the clinical assessment. Hemoglobin or hematocrit may be helpful in women with suspected or known anemia, to prepare for management of heavy bleeding.

Rh status should be checked if it is recommended by local policies and procedures. WHO does not recommend screening unless anti-D is available for those with Rh-negative bloodtypes [7]. Women who are found to be Rh-negative should be given anti-D immunoglobulin at the time of abortion [8]. No other specialized tests or exams are necessary prior to abortion at or after 13 weeks unless the woman has a medical problem.

## ASSESSMENT AND CONFIRMATION OF GESTATIONAL AGE

Assessment of gestational age is critically important in second-trimester abortion care. Gestational age can be estimated by a woman's LMP and a physical exam that includes a bimanual and abdominal exam. Measuring fundal height, as in routine obstetrical care, can provide additional information on gestational age. Women who present with fetal demise, incomplete abortion or for postabortion care may have discordant LMP dates and uterine size; they should be treated according to uterine size (see Chapter 3, page 44). Other conditions may cause discrepancy between size

and dates, including: multiple gestations, uterine masses (e.g., fibroids), polyhydramnios, gestational trophoblastic disease and maternal obesity.

Ultrasonography can be used to confirm gestational age if a woman's LMP and exam are discordant. The use of ultrasonography is not required unless the other methods of gestational age dating cannot determine whether the gestational age is within the range of eligibility for a D&E — as determined by a provider's skill set, the equipment, and the available methods of cervical preparation to achieve adequate dilation. **Cervical preparation or the D&E should not be initiated until the gestational age and/or uterine size has been confirmed. Errors in dating can lead to serious problems with second-trimester abortion (see box below).** If an ultrasound exam is used to help determine gestational age, a complete history and physical exam still need to be performed.

Complete sonographic biometry is not necessary prior to abortion, as a single biparietal diameter (BPD) (see Illustration 1, page 14) is a simple and sufficiently accurate method to confirm gestational age [9]. BPD is a measurement from the outer surface of the calvarium to the inner surface of the opposite side of the calvarium (in transverse view). A femur length (FL) measurement can be used to confirm the gestational age estimated by the BPD or if there are technical difficulties in obtaining a biparietal measurement, or for a fetus with cranial abnormalities. Many ultrasound machines will automatically calculate gestational age from these measurements. Gestational age estimates based on BPD and FL measurements are presented in Appendix 2, page 38. If ultrasonography is utilized, the number of fetuses, fetal position, and placental location can be noted.

In a setting where ultrasound is not routinely used or available and providers are new to gestational age dating, measuring the fetal foot following the abortion may inform the clinician's assessments as the foot length correlates well to gestational age. Otherwise, routinely measuring the foot length is unnecessary.

### Accurate assessment of gestational age

Accurate assessment of gestational age is a critically important step prior to D&E so that providers do not inadvertently begin a procedure beyond their skill level or without adequate cervical preparation. Rarely, expulsion outside of the facility or during the process of preparing the cervix for D&E can occur — at later gestational ages, this could result in transient fetal survival.

Accurate assessment of gestational age can help providers decide about inducing fetal demise to avoid transient fetal survival (page 19), prepare women and staff for possible transient fetal survival, or help providers plan a referral. Transient fetal survival can be upsetting to staff, the woman and her family. It can also lead to unanticipated medical, social and legal consequences.

When women or providers are unsure of the gestational age, assume the pregnancy is more, rather than less, advanced.

Illustration 1.

### Biparietal diameter

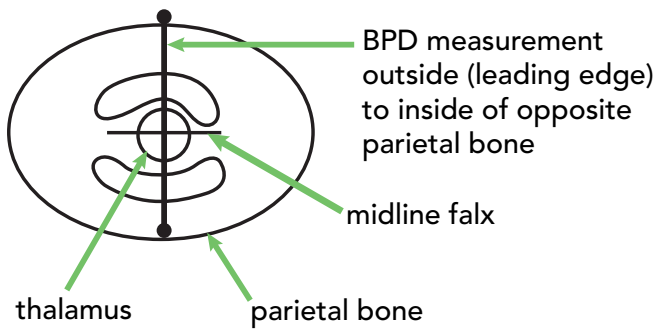
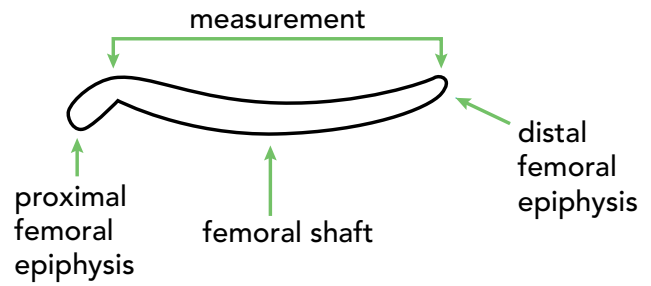


Illustration 2.

### Femur length



## The process of informed consent

Informed consent is a process during which a woman is provided with information she needs to make a voluntary choice to undergo an abortion procedure. Providers need to explain information in language tailored to enhance her understanding while allowing her to ask questions; understand alternatives, risks and benefits; and make a voluntary informed decision. Privacy and confidentiality are critical to the informed consent process.



## WOMEN NEED TO KNOW...

### BEFORE THE PROCEDURE:

- What abortion methods exist and are available, and their advantages/disadvantages;
- The risks inherent to the D&E procedure, including risk of failure, bleeding, hemorrhage, infection, perforation, retained placenta, unplanned surgical procedure including laparotomy/hysterectomy, etc.;
- Options for pain management;
- What part of the process can occur outside the facility and when she needs to return to the facility (following cervical preparation or for any concerning symptoms);
- Approximately how long the process will last;
- What medications she will be given and how they will be administered;
- In general terms, how the uterus is evacuated;
- Who she can have with her during the process;
- What she should wear and/or bring from home to help make her comfortable;
- If desired, her options for contraception post-abortion. Any contraceptive method can be initiated immediately postabortion, including placement of an IUD at the completion of the D&E.

### DURING THE PROCEDURE:

- What medications she will be given, when and how they will be administered;
- When and what she will feel, including symptoms like cramping, bleeding and pain;
- Approximately how long the process will last;
- Options for pain management, and that she should let her care team know when and if she needs additional pain medication.

### AFTER THE PROCEDURE:

- How long she will rest and be monitored at the facility after the D&E;
- What to expect regarding how she might feel after the abortion, including the level or duration of normal symptoms and how to manage them (including bleeding, cramping, breast engorgement);
- How to identify signs/symptoms of potential complications and when and how to contact the care provider and/or facility;
- A routine follow-up visit is unnecessary after an uncomplicated abortion but she may choose to have one;
- If desired, her options for contraception and that most methods can be initiated prior to her going home;
- When she may become pregnant again and how to prepare for that (vaccines, health screenings, vitamins);
- The impact of the abortion on her fertility and future pregnancy outcomes.

## D&E procedure

In general, recommendations are consistent with those in the World Health Organization's (WHO) *Safe Abortion: Technical and Policy Guidance for Health Systems, Second Edition* and *Clinical Practice Handbook for Safe Abortion* [7, 10]. In cases where Ipas clinical recommendations differ, this is due to the incorporation of clinical evidence published since the publication of the WHO guidelines in 2012. This document is intended to promote the use of high-quality, evidence-based, comprehensive abortion care to improve health outcomes by synthesizing and presenting the latest clinical evidence and guidance.

Ensure that before the abortion process begins (at the time of cervical preparation) that the following items have been completed:

- the clinical assessment (see page 9), including general physical and pelvic/bimanual examinations;
- the clinician is confident of the gestational age of the pregnancy;
- the woman understands and has consented voluntarily to the procedure.

The D&E abortion process begins at the initiation of cervical preparation; in the rare case a woman changes her mind about proceeding with abortion after starting cervical preparation, it may be impossible to stop the process or she may be at risk for infection and/or preterm labor/delivery if she does not continue. Although she should receive counseling regarding the potential consequences and risks, she may change her mind and choose not to proceed with uterine evacuation.

Although the medical history, general physical exam, counseling, informed consent process and cervical preparation may be done by a nurse or clinician other than the primary provider performing the D&E, it is critical that the clinician performing the D&E confirms the gestational age dating and performs a pelvic/bimanual exam to assess the cervix and uterine position prior to performing the procedure.

### ANTIBIOTIC PROPHYLAXIS

Prophylactic antibiotics are recommended for all women prior to the D&E procedure to decrease the risk of postabortion infection [11, 12]. As the rate of infection after D&E is low, an inability to provide antibiotics should not limit access to abortion [7, 13]. Some providers start antibiotics at the time of osmotic dilator placement (see page 17 on cervical preparation) while others dose peri-operatively; there are no studies comparing different antibiotic start times and postabortion infection.

Many antibiotic regimens for abortion prophylaxis have been studied, but the ideal antibiotic, dose and timing has not yet been established [12]. The following table (Table 2, page 17) lists some commonly-used regimens in clinical practice or those recommended by professional organizations [11, 14]. These regimens are based on clinical evidence and expert opinion. Providers should choose a regimen based on the expense and availability of

the antibiotics, local prevalence of sexually transmitted infections, and local protocols for sexually transmitted infection testing and treatment.

**Table 2. Commonly-used antibiotic regimens for D&E infection prophylaxis**

COMMON REGIMENS	RECOMMENDER
Doxycycline, 200mg orally, 1 hour before the procedure	American College of Obstetricians and Gynecologists (2018) [11]
Doxycycline, 200mg orally, before the procedure <b>OR</b> Azithromycin, 500mg orally, before the procedure <b>OR</b> Metronidazole, 500mg orally, before the procedure	Planned Parenthood Federation of America (2016) [14]
Doxycycline, 200mg orally, within 2 hours before the procedure <b>OR</b> Azithromycin, 500mg orally, within 2 hours before the procedure	Royal College of Obstetricians and Gynaecologists (2015) [15]

Women at high risk should be screened for sexually transmitted infections in addition to receiving prophylactic antibiotics. Women who have signs and symptoms of sexually transmitted infection should be provided abortion services without delay and receive appropriate antibiotic treatment according to evidence-based regimens [7, 16].

## CERVICAL PREPARATION

Adequate cervical preparation is a key to performing a D&E safely and decreases the risk of complications [13, 17]. There is no single standard regimen for preparing the cervix and the choice of method is often dictated by the provider, skill level, the gestational age of the pregnancy, the cost of different methods, the woman's parity, and method availability [17, 18]. Many cervical preparation agents are used alone or in combination. The agents most commonly used are osmotic dilators (laminaria or synthetic osmotic dilators), misoprostol and mifepristone. Table 2 (see page 22) describes the different attributes of these agents.

### Misoprostol-only cervical preparation

Misoprostol is inexpensive, safe [19] and more readily available than osmotic dilators in many low-resource settings. The use of misoprostol alone for cervical preparation has been studied prior to D&E up to 18 weeks gestation [20]. An advantage of a misoprostol-only cervical preparation is that it allows same-day D&E, is easy to administer and only takes a few hours to work. However, providers should be prepared for and have the equipment necessary to mechanically dilate the cervix when using a misoprostol-only cervical preparation — especially for gestations between 16-18 weeks. Disadvantages of misoprostol-only cervical preparation are the frequent side effects, like bleeding and cramping, that women experience while awaiting the D&E. Additionally, there is a small risk of pregnancy expulsion while awaiting D&E.

Vaginal and buccal administrative routes of misoprostol have been studied prior to D&E; however, sublingual dosing has not yet been investigated for this indication. Typically, misoprostol is given approximately three to four hours prior to D&E (see Table 2, page 22, for details regarding dose and timing).

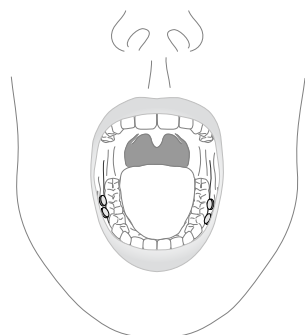
### Routes of administration

*For vaginal use*, misoprostol can be inserted by the woman or, if she prefers, by the clinician. She should wash her hands before inserting misoprostol into the vagina; clinicians should wear clean gloves. Place the pills between two fingers and insert them deep into the vagina (of note, they do not need to be placed as deep as the posterior fornix to work appropriately). The tablets need not be moistened prior to placement. After placement, the woman should remain supine for approximately 30 minutes and then may move around as she desires until the next dose.



VAGINAL USE

For buccal use, the woman places misoprostol between her cheek and gum and leaves it there for 30 minutes. After 30 minutes, she swallows any remaining pill fragments.



## BUCCAL USE

Buccal dosing tends to have more gastrointestinal side effects than vaginal dosing but women may find it more convenient and acceptable than vaginal dosing. Ensure that the woman no longer has any tablet fragments still present in her mouth immediately prior to the D&E to avoid possible aspiration during the procedure.

At the time of misoprostol administration, a non-steroidal anti-inflammatory drug (NSAID) should be given unless the woman has an allergy. Depending on the level of anesthesia being used for the D&E, a woman may or may not need to remain NPO (nil per os or nothing by mouth) and thus may need to receive IV or rectal pain control. The woman should have the option of being settled into a bed or cot in a private area, especially once she is experiencing any uncomfortable symptoms (e.g., cramping, bleeding, nausea/vomiting). Support staff should monitor pain and vital signs on a regular basis while a woman is waiting for her procedure. Pain medications should be given as needed.

Sometimes a woman will develop a fever from misoprostol. Unless there is already concern for infection or other signs of infection, the fever is likely due to the misoprostol and the woman should be treated with antipyretics: For a body temperature higher than 38 °C (100.4 °F), give acetaminophen, 650mg orally every four hours, as needed.

### *Osmotic dilator-only cervical preparation*

Osmotic dilators for cervical preparation can be used safely and effectively with no increase in infectious morbidity, regardless of gestational age [13, 17, 21, 22]. The two most commonly used osmotic dilators are laminaria japonica (dried, compressed seaweed) and a synthetic osmotic dilator, Dilapan-S®. Not enough evidence exists to recommend one dilator type over another [18] — the choice is typically based on provider preference, cost and availability.

## PLACING OSMOTIC DILATORS

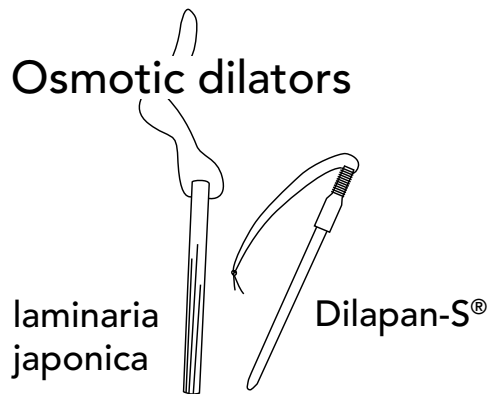
### SUPPLIES NEEDED:

- Povidone-iodine or similar antiseptic
- Gloves (clean)
- Bozeman or ring/forrester clamp
- Single-tooth tenaculum or atraumatic, angled tenaculum forceps
- 4x4 gauze or sterile cotton ball or scopette (16" large cotton swabs)
- Osmotic dilators
- Self-retaining speculum
- Paracervical block supplies

### PLACING DILATORS:

- Have the woman empty her bladder before entering the exam room, if needed
- Perform bimanual exam (may have already occurred as part of gestational age dating)
- Place speculum
- Cleanse cervix with antiseptic
- Practice no-touch technique (see page 25) regarding the end of the bozemen/forrester clamp and osmotic dilator
- Place tenaculum to stabilize the cervix
- A paracervical block is appropriate, especially if mechanical dilation to place dilators is necessary
- Place osmotic dilators from the external through to the internal os. Ensure they are through internal os. Place each additional dilator to the side of the one before and not end on end.
- Remove all instruments, ensure hemostasis
- Note in her chart the number of dilators placed in the cervix
- Discuss what she should expect following placement and warning signs

**Illustration 3.**



It is critical when placing osmotic dilators that the length of the dilator traverses the entire cervical canal including the internal cervical os (see box, page 23), otherwise maximal dilation cannot be achieved. Although dilators come in different sizes, many providers primarily use one size (e.g., 4mm) so they can more easily estimate the number of dilators needed to achieve the desired dilation.

Laminaria swell three or four times their dry weight over 24 hours with most of the expansion occurring in the first six hours. Many providers utilize laminaria as a cervical preparation regimen starting either the night before the procedure (e.g., approximately 12-24 hours before the D&E) or for higher gestations, with two sets of laminaria separated from each other by 12-24 hours and from the evacuation by a further 12-24 hours.

Synthetic osmotic dilators expand approximately twice their diameter in two hours and three times within four hours. The use of synthetic osmotic dilators alone can be utilized as same-day cervical preparation for gestations up to 18 weeks. Beyond 18 weeks, most providers wait at least 12 hours after placement of osmotic dilators before performing the D&E, depending on the amount of dilation needed.

### *Combination regimens*

Combining different agents for cervical preparation becomes necessary as gestational age increases. For gestations over 18 weeks the regimens include: mifepristone with misoprostol, misoprostol with osmotic dilators, mifepristone with osmotic dilators or a combination of all three (see Table 2, page 22).

**Table 2: Approaches to cervical preparation by gestational age**

GESTATIONAL AGE	METHOD	DOSING	NOTES
13-16 weeks	Mifepristone	200mg orally 24-48 hours prior to D&E	Few, if any, side effects [23]
13-18 weeks	Misoprostol	400mcg, buccal or vaginal, 3 hours prior to D&E	May repeat dose if necessary. If repeated, a full 3 hours may not be needed to achieve the desired dilation [20, 24-26]
13-20 weeks	Mifepristone and misoprostol	Mifepristone 200mg, orally, 24-48 hours prior to D&E followed by Misoprostol 400mcg, buccal or vaginal, 3 hours prior to D&E [27-19]	
13-24 weeks	Osmotic dilators	Laminaria japonica placed 12-24 hours prior to D&E Synthetic osmotic dilator placed 2-24 hours prior to D&E	For gestations 21 weeks and over, the cervix may need to be mechanically dilated to accommodate an adequate number/size of osmotic dilators <b>OR</b> 2 days of successive sets of dilators may be needed [13, 17, 18, 21, 22]
13-24 weeks	Osmotic dilators and misoprostol	Osmotic dilator (see timing, above) followed by 400mcg, buccal or vaginal, 3 hours prior to D&E	For gestations 20 weeks and over, the cervix may need to be mechanically dilated to accommodate an adequate number/size of osmotic dilators <b>OR</b> 2 days of successive sets of dilators may be needed [30-33]
19-24 weeks	Mifepristone and osmotic dilators	Mifepristone 200mg, orally, with concurrent placement of osmotic dilators the day prior to D&E [32, 34]	

The regimen used for cervical preparation and/or the acuity of the clinical situation will determine if a woman needs to be observed in the facility until her D&E is performed or if she can leave and return. In general, cervical preparation that uses mifepristone and/or osmotic dilators can be administered in an outpatient unit with the woman returning later (within hours or the next day) for her D&E.



Misoprostol may be given in an inpatient or an outpatient unit but once it has been ingested, the woman should remain under clinical observation until the D&E occurs (three to four hours after misoprostol). If a woman starts to experience heavy vaginal bleeding during this time, she likely has responded quickly to the misoprostol and her cervix is adequately prepared for uterine evacuation, even if the standard waiting time has not elapsed.

## INFORMATION FOR WOMEN REGARDING CERVICAL PREPARATION AGENTS

### WHAT TO EXPECT WITH CERVICAL PREPARATION

*Mifepristone:* Most women are asymptomatic following ingestion, with no bleeding or cramping.

*Osmotic dilators:* Women can experience mild to severe cramping/discomfort at the time of placement of osmotic dilators. Shortly following removal of the speculum (within 15 minutes), symptoms typically decrease. While the dilators are in place, women can expect mild to moderate cramping for which they should be provided options for pain management (see *Pain management*, page 27). Vaginal bleeding can occur after osmotic dilator placement; a range from no bleeding to menstrual-like bleeding is normal. Osmotic dilators may be expelled prior to the D&E. Although this is not concerning, the woman should report this to the clinician so that all dilators are accounted for during removal at time of the D&E procedure.

*Misoprostol:* Most women will experience mild to moderate cramping. Light to moderate vaginal bleeding may also occur. Other side effects of misoprostol include nausea, vomiting, diarrhea, fever and chills.

### WOMEN SHOULD NOTIFY A PROVIDER AND SEEK EMERGENCY CARE FOR:

- heavy bleeding (2 or more sanitary pads/hour)
- severe cramping/pain that is not managed with oral pain medication
- signs of infection (fever, chills, tenderness)
- leaking fluid; rupture of membranes rarely occurs between the cervical preparation and D&E.

## EVACUATION (D&E PROCEDURE)

### Materials

Speculum

Tenaculum

Cannulae

Dilator

Forceps

Sponges

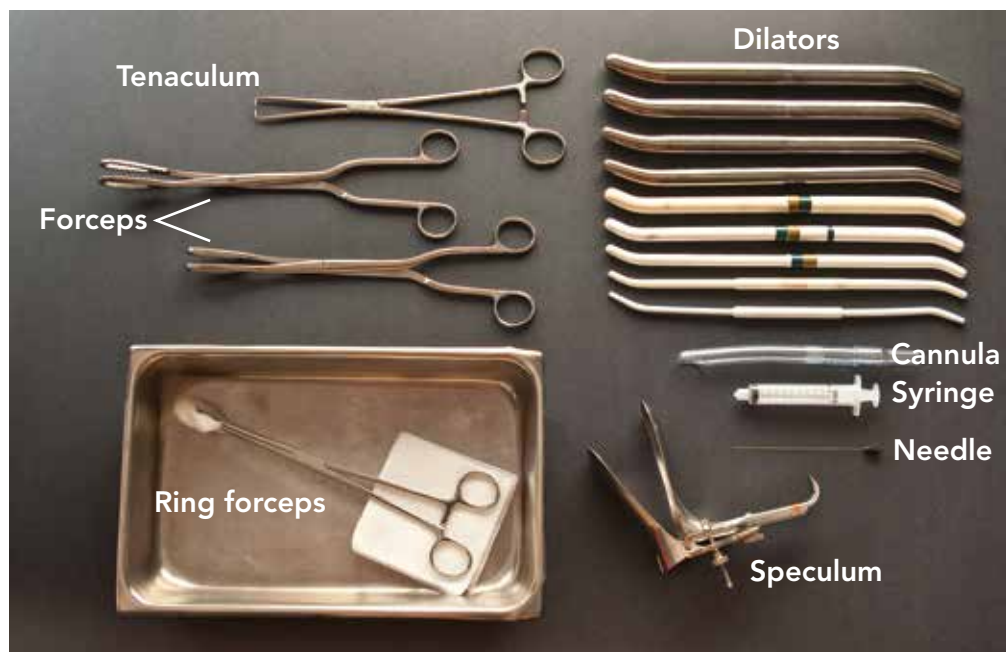
PCB

- local anesthetic
- needle
- syringe

MVA

Antiseptic

(For a list of materials and suppliers, please see Appendix 4, page 41.)



Confirm that all the instruments and supplies needed are in place (see image, page 24). A surgical/examination table that allows for lithotomy positioning is necessary for the procedure, with a drain bin or tray under the table end to capture fluid, blood and tissue.

The clinician performing the procedure should wash their hands and put on gloves and personal protective equipment. Clean or sterile gloves can be used but clean **no-touch technique (no instrument entering the uterus comes in contact with any non-sterile surfaces before inserted through the cervix)** must be maintained, no matter the glove type used. The clinical team should communicate with the woman continually during the evacuation, telling her what to expect and periodically reassuring and supporting her.

The D&E procedure should not be performed if the cervix is inadequately prepared. Dilation should be sufficient to easily insert instruments and to extract the tissue without substantial resistance. As gestational age increases, the amount of dilation needed also increases. The effect of the cervical preparation needs to be assessed before starting the procedure. If the cervix is not sufficiently prepared, administer an additional dose of misoprostol or place another set of dilators. If adequate cervical dilation cannot be achieved in a timeframe to perform a D&E, a medical abortion procedure may be undertaken. See *Medical Abortion Reference Guide: Induced abortion and postabortion care at or after 13 weeks gestation ('second trimester)*, available at [www.ipas.org/2ndtriMA](http://www.ipas.org/2ndtriMA).

## PROCEDURE STEP BY STEP

- Perform safety and equipment check.
- Have the woman empty her bladder before entering the procedure room.
- Initiate any intravenous pain and/or antianxiolytics. Any oral medications should be given in advance of the procedure in order to perform the D&E at the time of their maximal effect.
- Perform bimanual exam to check uterine size and position as well as adequacy of cervical dilation. Remove and account for all osmotic dilators previously placed. If the cervix is not adequately prepared, give an additional dose of misoprostol and/or place another set of dilators.
- Place speculum.
- Clean cervix with an antiseptic solution, such as providone-iodine (Betadine).
- Perform paracervical block (see *Pain management*, page 27) and place tenaculum.



Beier forceps



Sopher forceps

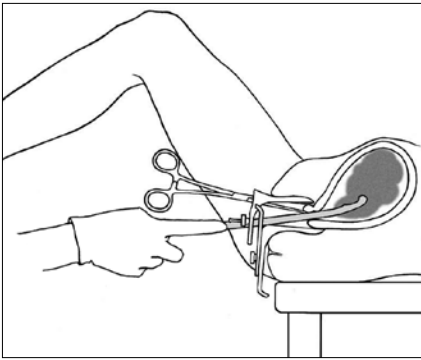


Figure 4. Aspirate the amniotic fluid.

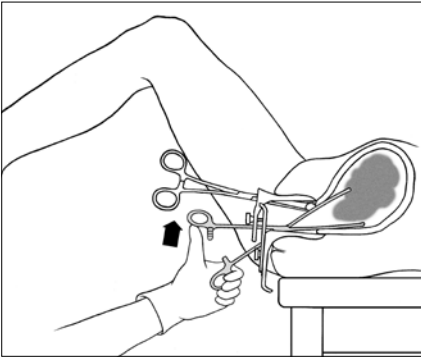


Figure 5. Open the forceps.

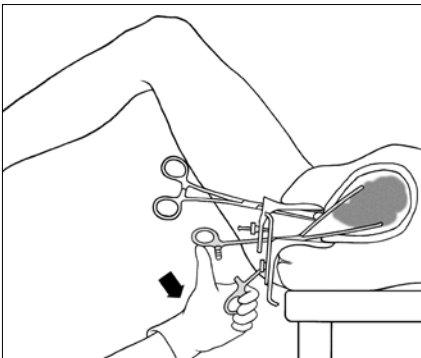


Figure 6. Pull the forceps handle down so graspers are in the anterior lower-uterine segment.

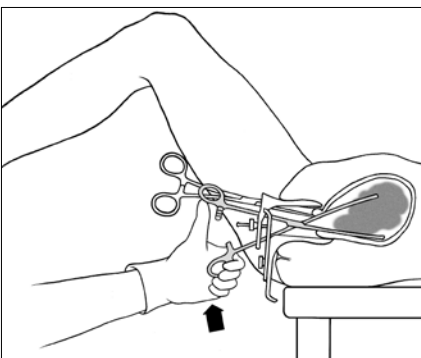


Figure 7. Evacuate from the lowest section of the uterine cavity.

- Place traction on the tenaculum to bring cervix down the vagina.
  - Ring/Forrester/sponge-holding/vulsellum forceps can be used in place of a tenaculum for later gestations, if desired.
- Recheck adequacy of dilation by attempting to pass the largest diameter dilator without using force.
- Mechanically dilate cervix, as needed, to achieve desired/necessary amount.
  - Dilators need to reach the internal os, without going higher into the uterus. Touching the fundus with the dilator is painful for the woman and increases the risk of perforation.
- Perform uterine aspiration with largest cannula available (12-16-mm) and aspirate the amniotic fluid (see Figure 4). Either electric or manual vacuum aspiration can be used.
  - Perform the suction as is done during a first-trimester aspiration abortion, rotating the cannula during suction. If using MVA, empty the aspirator when it is full and repeat as necessary. When nothing more can be suctioned, remove cannula from uterus.
  - For gestations up to 15 weeks, it may be possible to complete the abortion using aspiration only.
- Maintaining gentle traction on the tenaculum to straighten the cervical canal, pass the closed forceps through the cervix in a vertical direction (the jaw of the Bierer or Sopher forceps should open in an up-down direction, not horizontally) (see Figure 5).
- As soon as the forceps pass through the internal os, gently open it as wide as possible. While opening the forceps, drop your hand and forceps in the direction of the floor to angle the jaws of the forceps into the anterior lower-uterine segment (see Figure 6).
  - A mid-trimester gravid uterus is usually positioned anteriorly, toward the anterior abdominal wall.
- To evacuate the tissue, close the forceps around the fetal tissue and rotate it 90 degrees to assist with disarticulation before withdrawing.
  - Be careful not to grasp the myometrium with the forceps.
  - Keep forceps within the lower to mid-uterine segment. There is usually no need to use the forceps near the fundus, which increases the risk of perforation (see Figure 7).
- Repeat until fetal removal is completed as is the majority or all of the placenta.

- Attempt to remove tissue with each pass of the forceps.
  - ~ If you cannot locate and move the fetus/fetal parts within 5-7 minutes, consider using ultrasound (see Appendix 2, page 38) to visualize and direct the movement of the forceps.
  - ~ If the tissue has moved upwards to the fundus from the lower segment of the uterus, use suction to bring the tissue down within grasp of the forceps or consider removing the speculum and tenaculum and massaging the uterus. If dilated sufficiently to allow passage of part of the provider's hand, the pregnancy can be repositioned internally. In the unlikely event that these maneuvers do not bring the tissue within reach of the forceps, administer misoprostol 400mcg (buccal) or high-dose oxytocin (200 units in 500mL normal saline or lactated ringers and run at 50mL/hour IV). The D&E procedure should be re-attempted in 30 minutes to 3 hours. The woman should be observed during this time.
- When all fetal tissue is removed, perform suction aspiration to ensure no tissue is remaining.
- Examine the fetal tissue to ensure that evacuation is complete:
  - Identify fetal parts (thorax, spine, calvarium, all 4 extremities and placenta, for all procedures 14 weeks and greater).
  - If it is unclear whether the evacuation is complete, an ultrasound or a digital exam of the uterine cavity may be used for confirmation.

## Pain management

All women should be offered pain management and provided medications without delay [10]. The purpose of pain management is to decrease discomfort, pain and anxiety with the lowest possible risk to a woman's health. A staff member should be designated to be responsible for monitoring and attending to the woman's needs, including her need for pain medications.

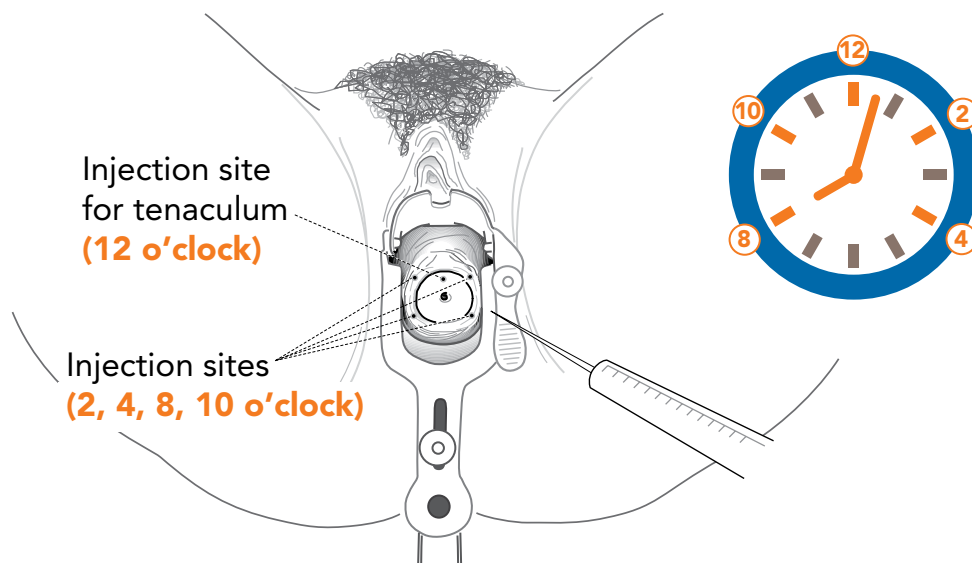
D&E is more painful for women than first-trimester vacuum aspiration; D&E requires more cervical dilation, longer procedure times and more uterine manipulation.

## PAIN MANAGEMENT OPTIONS

The optimal regimen for pain management in second-trimester abortion has not been established. Most international consensus statements focus on the minimum amount of anesthesia at which a D&E can be performed to ensure availability at lower-level facilities rather than optimizing control of pain [10, 15].

Ipas recommends a combination of local anesthesia (paracervical block, see next page) with NSAIDs and narcotic analgesics with or without anxiolytics [35]. Medications may be given orally or parenterally [20].

## PARACERVICAL BLOCK TECHNIQUE



- 1 Prepare lidocaine syringe.**
  - Use 20mL of 1% lidocaine OR 10mL of 2% lidocaine.
  - Do not exceed the lidocaine maximum dose of 4.5mg/kg or 200mg total.
- 2 Attach needle to the syringe.**
  - A needle 3cm (1in) in length is recommended to facilitate deep injection.
- 3 Place the speculum and perform cervical antiseptic prep.**
- 4 Inject small amount of lidocaine superficially into the anterior lip of the cervix at the site where the tenaculum will be placed (12 o'clock).**
  - Inject 2mL if using 20mL of 1% lidocaine.
  - Inject 1mL if using 10mL of 2% lidocaine.
- 5 Grasp cervix with the tenaculum at 12 o'clock.**
- 6 Inject remaining lidocaine in equal amounts at the cervicovaginal junction, at 2, 4, 8 and 10 o'clock.**
  - Injections should be 3cm (1in) deep.
  - Aspirate before injecting to prevent intravascular injection.

### PRACTICE TIPS

- Deep injection of lidocaine (3cm or 1in) provides more effective pain relief than superficial (1.5cm) injection.
- Possible side effects seen with intravascular injection include peri-oral tingling, tinnitus, metallic taste, dizziness or irregular/slow pulse.
- Midlevel providers trained to provide paracervical block demonstrate similar safety and efficacy rates as physicians.
- Serious adverse events related to paracervical block are rare.

For more information, visit [www.ipas.org/clinicalupdates](http://www.ipas.org/clinicalupdates).

Some women may need deeper sedation. Intravenous sedation may be offered in facilities where there is a trained provider with adequate equipment for patient monitoring. General anesthesia increases the risks associated with abortion and is not recommended for routine procedures [10, 36]. If general anesthesia is necessary, the addition of a paracervical block does not decrease postoperative pain [37]. Medication choice and sedation level depend on the woman's preference, the level of provider training, supplies and monitoring equipment in the facility. The need for a woman to be NPO varies depending on the sedation level chosen.

## Inducing fetal demise

In some settings, providers choose to induce fetal demise starting around 20 weeks gestation to avoid transient fetal survival [10]. Inducing fetal demise does not increase the safety of the abortion and may increase side effects [38, 39], but there may be legal, ethical and/or psychological reasons to consider it. Where induced fetal demise is not available, women should still have access to safe abortion services.

Fetal demise can be induced by either of the following methods:

- Digoxin injected into the fetus or amniotic fluid
- Potassium chloride injected directly into the fetal heart (not routinely recommended)

Fetal demise may also be induced during the D&E procedure by transection of the fetal umbilical cord.

## TECHNIQUE

### *Digoxin instillation*

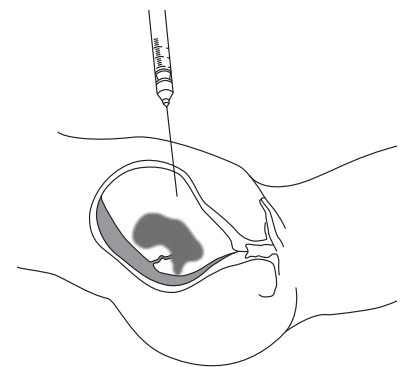
Digoxin has a low complication rate and is easy to inject into the amniotic fluid with or without ultrasound guidance [40, 41]. The technique is similar to amniocentesis for genetic or lung maturity testing. Intra-amniotic or intra-fetal injection of digoxin, 1.0 to 1.5mg, causes fetal demise in almost 90% of cases when performed the day before the abortion [42].

Intra-amniotic or intra-fetal digoxin has limited maternal systemic absorption and no significant maternal cardiac or thrombotic effects [40]. Although neither route offers a benefit in terms of efficacy or facility of administration, some clinicians prefer one over the other.

Contraindications to digoxin instillation include:

- Maternal cardiac arrhythmia
- Maternal renal failure
- Allergy to digoxin

**Illustration 4.**



Supplies needed:

- Alcohol or povidone-iodine
- Gloves (sterile or clean). If clean, non-sterile gloves are used, the provider must practice a no-touch technique.
- Two 5mL syringes
- 22-gauge spinal needle
- Digoxin 1.0-1.5mg
- 4x4 gauze
- Small dressing or Band-Aid (optional)

Prepare the medication and place the equivalent of 1.0 to 1.5mg of digoxin into a syringe. Palpate the uterus and find an area towards its center that avoids important maternal structures such as the bladder, bowel and epigastric vasculature. Mark the location. Clean the site with alcohol or povidone-iodine and let dry. Place the needle into the uterus at this location; withdraw a small amount of amniotic fluid before injecting the digoxin to ensure that the needle is in the amniotic sac. If the needle has a stylet, leave it in the needle to aid in traversing the myometrium and remove it once through the uterine wall. It also may be helpful to have two syringes – one to draw up the amniotic fluid and then discard, and the other, containing digoxin. Attach the syringe containing digoxin, inject it and withdraw the needle.

Placing the needle into the placenta or a vessel should be avoided, so if on withdrawing a small amount of amniotic fluid it is bloody, empty the syringe, move the needle slightly and test again. Do not inject the digoxin until the fluid withdrawn is clear, indicating the needle is within a pocket of amniotic fluid.

*If using abdominal ultrasound guidance*, find an area towards the center of the uterus that is clear of the placenta and is either fluid-filled or contains both fetus and fluid. Mark the location. Clean the site with alcohol or povidone-iodine and let dry. Place the needle into the uterus at this location. If planning an intra-amniotic injection, withdraw a small amount of amniotic fluid before injecting the digoxin to ensure that the needle is in the amniotic sac. Inject the digoxin and withdraw the syringe. If planning an intra-fetal injection, track the needle with the ultrasound and insert into the fetus; inject the digoxin and withdraw the syringe. If the needle cannot be clearly seen, withdraw a small amount of amniotic fluid to ensure intra-amniotic placement before injection. Providers may find that an assistant is helpful when using ultrasound guidance; the assistant can hold the ultrasound probe to visualize the path of the needle while the provider performs the injection.

The woman may feel a sharp contraction as the needle enters the uterus, which resolves rapidly once the needle is removed. Local anesthesia is usually not needed. The injection site can be covered by a small dressing



or Band-Aid. Rarely, a woman may notice a small amount of clear fluid from the site. If the woman feels fine otherwise, this is not concerning. Typically, the woman takes oral mifepristone and/or osmotic dilators are placed at the time of digoxin injection; she may then return home with clear instructions regarding when to return. She should feel normal the rest of the day. Very few women have contractions or bleeding following digoxin injection [38].

### *Potassium chloride*

Centers with advanced sonographic and obstetrical capabilities may offer fetal intra-cardiac potassium chloride injection. Although this method causes immediate fetal demise, it carries the rare but serious risk of maternal cardiac arrest [43, 44]. **Because of the skill required for intra-cardiac injection as well as the risk of serious side effects, we do not recommend fetal intra-cardiac potassium chloride injection for routine care.**

### *Transecting the fetal cord*

Following rupture of membranes or amniotomy, the cord can be grasped with forceps and brought to the level of the external os and transected. Fetal asystole occurs shortly after cord transection [45].

## **After the D&E procedure**

Cover the blood and tissue to keep it out of view of the woman and others who may be present. Disposal of the fetus and placenta should be in accordance with local management of human tissues or with a woman's requests for burial (see Appendix 8, page 59, on proper disposal of fetal and placental tissue).

If a woman desires a postabortion intrauterine device and there is no infection, perforation or other serious complications, and bleeding is minimal/as expected, it can be placed immediately after procedure completion.

Put all instruments into a soaking solution and dispose of needles in an appropriate container. Discard gloves, or remove gloves and put them into soaking solution and wash hands. The woman should be helped into the recovery room.

## **Recovery**

### **OBSERVATION**

There is no mandatory amount of time a woman needs to stay at the facility following an uncomplicated D&E. Typically, an hour is sufficient to demonstrate stable vital signs, good pain control and minimal vaginal bleeding. The woman should be able to lie down or recline in a position that is comfortable for her during her recovery. A health-care professional trained in management of recovery care who can provide basic cardiopulmonary resuscitation and related emergency care must monitor the woman during this time.

## WHAT EVERY WOMAN SHOULD KNOW PRIOR TO GOING HOME

### WHAT IS NORMAL

- **Bleeding:** She will experience some vaginal bleeding, which may come and go, for days to several weeks. Bleeding may be as heavy as a period for the first week. Menses should return within six weeks.
- **Cramping:** She may have some cramping which is usually improved with pain medications such as NSAIDs.
- **Breast engorgement/lactation:** Breast milk production sometimes happens for a short time. A woman should avoid expressing the milk or stimulating the breasts. A supportive bra, applying ice packs to breasts and using NSAIDs can decrease discomfort.
- She can become pregnant again as soon as within two weeks. All methods of contraception can be initiated immediately after an uncomplicated D&E.
- She should not have sexual intercourse until any complications are resolved and/or her chosen contraceptive method becomes effective.
- She can return to her regular activities as soon as she feels ready to do so.

### WARNING SIGNS

The woman should understand for what reasons and how to contact medical staff and when to return to the hospital or clinic:

- heavy bleeding (two or more large or “maxi” sanitary pads/hour)
- severe cramping/pain that is not managed with oral pain medication
- signs of infection (e.g., fever, pain, foul-smelling discharge)
- any other significant concerns (e.g., shortness of breath, chest pain)

During the recovery period, women can be given information about warning signs and expectations post-recovery. They can also receive information about contraception and, if desired, receive a method before going home.

### CONTRACEPTIVE COUNSELING AND SERVICES

Inform the woman that fertility returns soon after abortion and that she can become pregnant again. Ovulation following first-trimester abortion may occur as early as 10 days postabortion [46]. Ideally, all forms of contraception should be available at the facility so that a woman can start her method of choice prior to going home. If the methods or a woman’s preferred methods are not available, information should be provided, along with a referral and, if desired, an alternative interim method. All methods of contraception can safely be initiated immediately following an uncomplicated D&E [47]. If a woman has signs and symptoms of uterine infection, IUD placement or sterilization should be delayed until the infection is resolved.

## EMOTIONAL CONCERNS

Most women adjust well after abortion [48-50], especially if they have been given accurate and complete information about what to expect during and after the procedure. Some women may need social or emotional support after an abortion and should be followed-up or referred for appropriate services, as needed.

## FOLLOW-UP APPOINTMENTS

Routine follow-up is not necessary following a D&E unless a woman experienced a complication, had a medical or fetal indication for the abortion, wants a follow-up visit, or needs contraception. Prior to going home, she should receive information regarding her postabortion care, contraception (if desired), and warning signs for which she should seek help. Women who ended a pregnancy due to maternal health or fetal anomalies need follow-up with their obstetrical provider to discuss the pregnancy outcome and its impact on future pregnancies or the woman's health.

## Special considerations

### YOUNG WOMEN

Young women are more likely than older women to present in the second trimester because they are more likely to not recognize pregnancy or have significant social, financial and logistical barriers to seeking care [51-55]. They may need more emotional support and pain management. The D&E procedure, however, is the same as for older women.

### WOMEN WITH MATERNAL OR FETAL INDICATIONS

Women ending a desired pregnancy for maternal or fetal indications deserve sensitive care. Women may use different language or terms from care providers to describe their pregnancy and abortion process. For instance, instead of using terms like pregnancy or fetus, women may refer to a baby or child, or will have a name they want used. Staff should ask about and use the language that the woman prefers in talking to her about the abortion. The woman and her family might want to see and hold the fetus after delivery, take home memories such as a handprint, footprint, or certificate of delivery, or want other family members and support people to be with her during or after the abortion process. Typically, if a woman desires to see and/or hold the fetus, a second-trimester medical abortion is the best method. See *Medical Abortion Reference Guide: Induced or postabortion care at or after 13 weeks gestation ('second trimester')*, available at [www.ipas.org/2ndtriMA](http://www.ipas.org/2ndtriMA). Offer choices to the woman about her preferences before beginning the abortion and let her guide your care.

### PRIOR HYSTEROTOMY

**No changes in cervical preparation or the D&E are necessary for women with a uterine scar.** A uterine scar has not been associated with an increased risk of uterine rupture peri-procedure [56, 57]. Women with a uterine scar and placenta previa are at elevated risk for placenta accreta [58] (see next section). Providers may want to consider documenting placental

location by ultrasound in women with a previous uterine surgery to rule out placenta previa.

## PLACENTA PREVIA

Placenta previa (where the placenta is partially or completely covering the internal os of the cervix) is present in about 5% of second-trimester pregnancies [59]. Women with placenta previa may be offered either medical abortion or D&E. Women with a placenta previa who have had a previous cesarean delivery have an elevated risk of placenta accreta [58]. Placenta accreta occurs when the placenta abnormally attaches to the uterine wall and separation of the placenta from the uterus can result in hemorrhage. For women with these risk factors, providing care in settings that can manage severe hemorrhage or obstetric emergencies is recommended.

## UTERINE SIZE/GESTATIONS OVER 24 WEEKS

Many clinicians experienced in D&E will consider alternative management options for women with gestations beyond 24 weeks, such as medical abortion. The scientific evidence is limited in this gestational age range and clinicians must use their clinical judgment and experience to care for these women.

## MENTAL HEALTH

The best scientific evidence has found no increased risk of mental health problems such as depression and anxiety in women who experience an unplanned pregnancy that ends in abortion as compared to a live birth [60-63]. Women denied access to an abortion because their pregnancy was too advanced have been found to experience more negative emotions (regret and anger) and less relief and happiness as compared to women who received an abortion [64]. Most women who obtained the abortion felt it to be the right decision even for those who expressed regret.

## RISK TO SUBSEQUENT PREGNANCY

The quality of evidence regarding whether second-trimester D&E increases risk to a subsequent pregnancy is highly variable and much of it suffers from significant limitations. However, a cohort study of women who underwent D&E demonstrated no increased risks to the subsequent pregnancy, compared with a control group with no previous D&E [65].

## Clinical care appendices

Appendix 1: Client evaluation form

Appendix 2: Assessment of gestational age (measurement by ultrasound)

Appendix 3: Fetal foot measurement

Appendix 4: D&E equipment list

## Appendix 1: Client evaluation form

Name \_\_\_\_\_ Date of birth \_\_\_\_\_ Age \_\_\_\_\_ Date \_\_\_\_\_

Abortion indication:

Obstetrical history: G P T P A L\*

# Vaginal deliveries: \_\_\_\_\_ # Cesarean sections: \_\_\_\_\_

Prior pregnancy-related complications (e.g., hemorrhage, fetal demise):

Current pregnancy-related complications:

Allergies:

Current medications:

Medical history:

SYSTEM	YES	NO	COMMENT
Cardiovascular (e.g., hypertension, valvular heart disease)			
Endocrine (e.g., thyroid disease, diabetes)			
Gynecologic/ Urologic (including uterine surgeries)			
Hepatic/ Gastrointestinal			
Psychiatric			
Respiratory (e.g., asthma)			
Surgical history			
Other			

\*GTPAL = gravida, parity, term, preterm, abortions, living

**PHYSICAL EXAM:**

HEIGHT		WEIGHT	
BLOOD PRESSURE		TEMPERATURE	
HEART			
LUNGS			
ABDOMEN (include fundal height if uterus is palpable)			
PELVIC EXAM			
BIMANUAL EXAM (uterine size)			

**LABS (AS INDICATED):**

Hb/Hct		
Rh		If Rh- Rhogam (Anti-D) given? Yes/no Lot number: Date:
OTHER		

**PREGNANCY DATING:**

LMP \_\_\_\_\_

If performed, date of positive pregnancy test: \_\_\_\_\_

Uterine size on exam: \_\_\_\_\_

If ultrasound performed:

Date of first ultrasound: \_\_\_\_\_

Gestational age at first ultrasound: \_\_\_\_\_

Today's estimated gestational age:

\_\_\_\_\_ weeks and \_\_\_\_\_ days based on \_\_\_\_\_ (exam/ultrasound/LMP)

**Cervical preparation** (include medication/osmotic dilator, dosing/route/timing/number)

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NOTES:

## Appendix 2: Assessment of gestational age (measurements by ultrasound)

Table 1: Gestational age predicted by biparietal diameter measurements (BPD) [66]. The precision of ultrasound decreases as gestational age increases.

BIPARIETAL DIAMETER (cm)	GESTATIONAL AGE (weeks)	BIPARIETAL DIAMETER (cm)	GESTATIONAL AGE (weeks)
2.6	13.9	4.8	20.5
2.7	14.2	4.9	20.8
2.8	14.5	5.0	21.2
2.9	14.7	5.1	21.5
3.0	15.0	5.2	21.8
3.1	15.3	5.3	22.2
3.2	15.6	5.4	22.5
3.3	15.9	5.5	22.8
3.4	16.2	5.6	23.2
3.5	16.5	5.7	23.5
3.6	16.8	5.8	23.9
3.7	17.1	5.9	24.2
3.8	17.4	6.0	24.6
3.9	17.7	6.1	25.0
4.0	18.0	6.2	25.3
4.1	18.3	6.4	26.1
4.2	18.6	6.5	26.4
4.3	18.9	6.6	26.8
4.4	19.2	6.7	27.2
4.5	19.5	6.8	27.6
4.6	19.9	6.9	28.0
4.7	20.2	7.0	28.3



**Table 2: Gestational age predicted by femur length measurements [66]. The precision of ultrasound decreases as gestational age increases.**

FEMUR LENGTH (cm)	GESTATIONAL AGE (weeks)	FEMUR LENGTH (cm)	GESTATIONAL AGE (weeks)
1.0	12.8	3.1	19.2
1.1	13.1	3.2	19.6
1.2	13.4	3.3	19.9
1.3	13.6	3.4	20.3
1.4	13.9	3.5	20.7
1.5	14.2	3.6	21.0
1.6	14.5	3.7	21.4
1.7	14.8	3.8	21.8
1.8	15.1	3.9	22.1
1.9	15.4	4.0	22.5
2.0	15.7	4.1	22.9
2.1	16.0	4.2	23.3
2.2	16.3	4.3	23.7
2.3	16.6	4.4	24.1
2.4	16.9	4.5	24.5
2.5	17.2	4.6	24.9
2.6	17.6	4.7	25.3
2.7	17.9	4.8	25.7
2.8	18.2	4.9	26.1
2.9	18.6	5.0	26.5
3.0	18.9	5.1	27.0
		5.2	27.4
		5.3	27.8

\*Of note, gestational age represented in numeric form utilizing a decimal point does not equally convert to a gestational age in weeks and days. For example 19.2 weeks does not equal 19 weeks and 2 days but 19 weeks and less than 1 day.

## Appendix 3: Fetal foot measurements

Table 1: Estimates of gestational age by foot length [67].

GESTATIONAL AGE (weeks)	FOOT LENGTH AT MIDPOINT OF WEEK (mm)	FOOT LENGTH RANGE (mm)
12 to <13	10	8-11
13 to <14	13	12-14
14 to <15	16	15-17
15 to <16	20	18-21
16 to <17	23	21-24
17 to <18	26	24-27
18 to <19	29	27-30
19 to <20	32	31-33
20 to <21	35	34-37
21 to <22	39	37-40
22 to < 23	42	40-43
23 to <24	45	43-46
24 to <25	48	47-49

## Appendix 4

### PRE-TRAINING/ASSESSMENT

## D&E Equipment List

Name	Distributor number (MedGyn, Cheshire, Ipas)	Number ordered	**Maximum number necessary per clinic	Comment
Non-perforated instrument tray stainless steel 19 1/2" x 12 5/8" x 3/4"	Cheshire #CM21-519			Depending on site resources this may not need to be ordered
Vaginal Speculum-Klopher	Cheshire #CM24-136			<p>Depending on site resources these may not need to be ordered.</p> <p>Klopher speculum is preferred but several different types of speculums can be used - they just must be able to open vertically. Typically these are Klopher, Collins, or Graves [order codes: Collins: MedGyn #40-340 Graves: Cheshire #CM24-102 ("Economy") OR Cheshire #CM124-102 ("German") OR Medgyn #40-110P (Economy) OR Medgyn #40-110P (German)</p> <p>Usually more of the medium size are needed and only 1-2 of the larger sizes should be available for an entire clinic but this may be country dependent (multiparity/prolapsed prevalence, obesity rates). Extra large/long speculums are also available and order numbers can be made available upon request. Large speculum order numbers: Collins: MedGyn #40-341 Graves: Cheshire #CM24-104 ("Economy") OR Cheshire #CM124-104 ("German") OR Medgyn #40-120P (Economy) OR Medgyn #40-120P (German)</p>
Ipas MVA Plus®	Ipas: <a href="http://www.womancareglobal.com/aspirators.html">http://www.womancareglobal.com/aspirators.html</a> (no order #)			
Stainless-steel instrument tray without cover 12 1/4" x 7 3/4" x 2 1/4"	Cheshire #CM21-230			Can be used for gauze/cotton balls to clean cervix and then afterwards for fetal parts/placenta

From Ipas's *Second-Trimester Abortion: A Toolkit for Service Delivery*

Name	Distributor number (MedGyn, Chesire, Ipas)	Number ordered	**Maximum number necessary per clinic	Comment
<b>FORCEPS</b>				
Sponge holding forceps (Forester; 9 1/2", straight, serrated jaw)	Cheshire #CM14-404 MedGyn #30-705			Depending on site resources these may not need to be ordered
"Atraumatic angled tenaculum forceps, 9 1/2"	Cheshire #CM24-603			A single-tooth (traumatic) tenaculum forceps can be substituted
Bierer forceps with non-racheted 13" size- Large slightly curved, jaws 19 mm wide	Cheshire #CM25-632 MedGyn #30-765		1	
Bierer forceps with non racheted Size13" -Small slightly curved, jaws 16 mm wide	Cheshire #CM25-630 MedGyn #30-764			
Sopher uterine-evacuation forceps 11" Size -Small slightly curved- Size of jaws 12mm wide	Cheshire # CM25-616 MedGyn #30-750			
Sopher uterine-evacuation forceps 11" Size- large slightly curved- Size of jaws 14 mm wide	Cheshire # CM25-614 MedGyn #30-755			
Sopher ovum forceps with 9 mm wide jaws, 10.5" length	MedGyn #30-749		optional	This forceps is optional
<b>DILATORS</b>				
Ipas Denniston Dilators (a set of 5, sizes 5/6 to 13/14)	DKT: www.dktinternational.org			Depending on site resources these may not need to be ordered Typically a whole set is not needed for second trimester and you would only need the 9/10, 11/12, 13/14 dilators
Pratt Dilators, Sizes 13/15 to 41/43, set of 8	Cheshire #CM24-486 (economy) or CM124-486 (german) MedGyn #30-560P			

From Ipas's *Second-Trimester Abortion: A Toolkit for Service Delivery*

Name	Distributor number (MedGyn, Chesire, Ipas)	Number ordered	**Maximum number necessary per clinic	Comment
Pratt Dilators extra large set, sizes 45/47 to 77/79, set of	MedGyn #30-565			Cheshire medical does not have an extra large set for sale but individual dilators can be ordered (usually only need 45/47 to 53/55, order #CM24-476, #CM24-478, #CM24-480)
<b>CANNULAE</b>				
Cheshire Medical Vacuum Curette Straight, 14 mm. OR Medgyn Disposable Rigid Curette, 14 mm curved, with a small/ tapered neck/base	Cheshire #CM30-164 MedGyn #022145			
<b>EMERGENCY EQUIPMENT</b>				
Long needle holder (Mayo-Hegar) 20cm	MedGyn #60-405-8		1	
60cc foley catheter				Not available through Cheshire medical or MedGyn

\*\*If there is a number located in this column then only a very limited supply of this instrument is needed for each clinic and you do not need to order this instrument for every full tray of instruments. This number may change depending on clinic volume, gestational age distribution, or rates of prolapse/obesity. Ipas can help assist with decisions regarding numbers.

**Note:** order numbers are given for both instrument distributors when available

## Chapter 3: Postabortion care with uterine size at or above 13 weeks

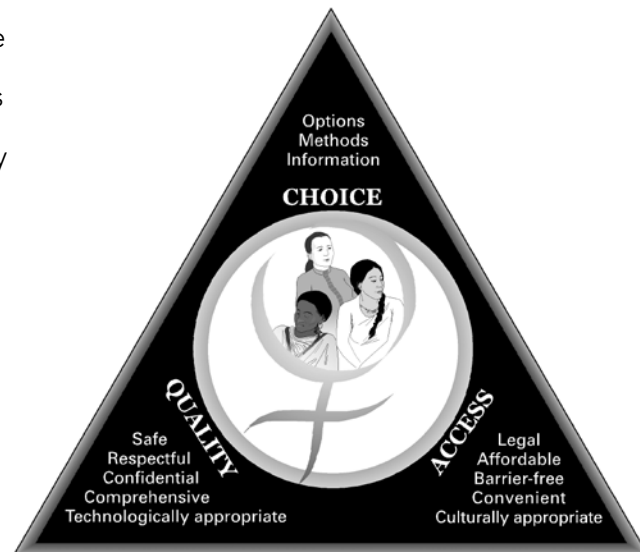
### Background

Postabortion care is a series of management interventions for women presenting with or without complications of an incomplete or missed abortion or following unsafe care. Where unsafe abortion is common, as many as 40% of women needing postabortion care present in the second trimester [68]. The majority of postabortion care research and programs, however, focus on women in the first trimester [69]; here we offer an evidence-based approach for postabortion care in the second trimester.

The likelihood of complications during treatment may be higher in women undergoing postabortion care compared to induced abortion, especially for women who have a fetal demise [70]. Where skilled providers and supportive facilities exist, D&E may be offered in addition to medical methods of uterine evacuation. (See Ipas's *Medical Abortion Reference Guide: Induced abortion and postabortion care at or after 13 weeks gestation* ['second trimester'], available at [www.ipas.org](http://www.ipas.org).)

Woman-centered postabortion care includes a range of medical and related services and is comprised of three aims:

- Choice
- Access
- Quality



### Clinical assessment

Especially in restrictive settings where unsafe abortion care is common, providers should maintain a high level of suspicion for an occult injury or severe complication. Women's presenting symptoms are variable, including:

- Light to moderate to severe vaginal bleeding
- Fluid leaking from vagina (ruptured membranes)

- Cessation of fetal movements (fetal demise)
- Partial passage of products of conception (incomplete abortion)
- Ongoing symptoms of pregnancy (incomplete abortion)
- Ongoing or increasing pain (retained products, pelvic infection, intra-abdominal injury)
- Fever (endometritis, sepsis, pelvic abscess)
- Shock (hemorrhagic, septic)

Women who present for postabortion care need a rapid initial assessment for shock. **Women who are unstable** due to hemorrhage or sepsis need stabilization and treatment started immediately, possibly including uterine evacuation. Depending on the acuity of the situation, a more complete clinical assessment may be possible including the timing and method of her abortion (induced, spontaneous, self-induced and degree of safety), whether there are complications or injuries that need attention, and the plan for uterine evacuation.

A thorough examination including bimanual and pelvic examination is necessary as postabortion care treatment **depends on uterine size rather than LMP dating**. Uterine size may be smaller than dates, as fetal demise or passage of some products of conception may have occurred. If there is doubt about the diagnosis, an ultrasound examination can be used for confirmation.

### Managing uterine evacuation with aspiration or D&E

If the woman is unstable, immediate uterine evacuation is necessary. Vacuum aspiration may be used for uterine size under 13 weeks or even up to 15 weeks if 14- or 16-mm cannulae and large diameter suction tubing are available. If over 13 weeks, a standard D&E utilizing a combination of forceps and aspiration will likely be needed. The prerequisites for performing a D&E are the same as for induced abortion:

- A trained, skilled provider is available
- Specialized equipment for D&E is available
- Adequate cervical dilation is present or can be obtained in a timely manner and waiting for dilation to occur would not be detrimental to a woman's health
- Uterine size is less than 24 weeks

In an emergency, providers may give misoprostol, as expulsion may occur rapidly. If the woman is stable or can be stabilized and treatment is not available at the facility, she may be transferred to another facility for uterine evacuation. If the woman cannot be stabilized and uterine evacuation by medical abortion and/or D&E cannot be performed, a hysterotomy can be considered.

Clinical care for a woman undergoing postabortion care treatment with D&E is not different from a woman undergoing a D&E for induced abortion; protocols for pain management, recovery care and contraception may be used without modification (see prior chapters). Cervical preparation may not be necessary if the cervical os is sufficiently open but if it is not, then standard cervical preparation recommendations should be followed (see page 17). A shorter cervical preparation regimen may be preferable depending on the woman's presentation.

The risk of complications, including infection, hemorrhage and disseminated intravascular coagulation (DIC), is elevated in certain patients, like those with a prolonged fetal demise. Providers should be aware of and monitor women presenting for postabortion care for the development of potential complications. For management of specific complications, see Chapter 4. For concern of uterine perforation or rupture, uterine evacuation may be done under direct abdominal visualization via laparotomy or laparoscopy.

## Recovery

Unless otherwise specified, recovery care is no different for a woman receiving postabortion care than following an induced abortion (see page 31).

## Chapter 4: Managing complications

The rate of major complications—such as hemorrhage requiring transfusion, need for emergency surgery, or severe infection resulting from a second-trimester D&E— is less than 1% [71].

Complications can occur during the abortion procedure, while the woman is recovering or after she has returned home. Complications are more likely as gestational age increases and in women who have a fetal demise or need postabortion care. Serious complications can usually be treated effectively with prompt emergency medical, obstetrical or surgical care provided by a trained clinician. If emergency surgical facilities are needed but not available on-site, complications can be managed through timely transfer to a higher-level facility.

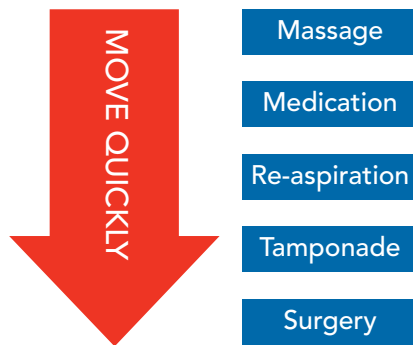
## Hemorrhage

Hemorrhage occurs in about 1-10 per 1,000 cases of women undergoing second-trimester abortion [72]. Causes of heavy bleeding include placenta previa or accreta, uterine atony, retained products of conception, cervical or vaginal laceration and uterine rupture. When hemorrhage occurs, providers need to quickly initiate resuscitative measures (see *Shock*, page 49) and then perform rapid sequential diagnosis and management of the possible causes of hemorrhage (see Figure 1, page 47). Women bleeding heavily should be kept in lithotomy or repositioned quickly in an area with good lighting so that diagnosis can be concurrent with management. For example, once bimanual uterine massage is performed and blood, clot or products of



conception are removed, a speculum can be placed to inspect for cervical or vaginal lacerations and repair performed.

**Figure 1: Steps in diagnosing and managing postabortion hemorrhage**



Providers should move quickly through the treatment steps if bleeding is not controlled. If all measures fail, laparotomy with uterine artery ligation or hysterectomy may be required. Uterotonic medications and equipment for uterine tamponade should be kept in stock where abortion at or after 13 weeks is performed, in addition to preparing staff to efficiently and effectively manage a serious complication. The recommended doses for uterotonic medications are found in Figure 2 below.

**Figure 2: Therapies for postabortion hemorrhage [72-74] (extrapolated from the postpartum hemorrhage literature)**

TREATMENT	DOSE
Methylergonovine (ergot)	0.2mg intramuscularly
Misoprostol	800mcg sublingually or rectally
Oxytocin	10 IU intramuscularly
Tamponade	Balloon catheter, condom catheter, sterile packing [75]

DIC occasionally occurs after an abortion at or after 13 weeks and should be considered if bleeding cannot be controlled, particularly in women with an intrauterine fetal demise. Blood products will need to be administered to stop bleeding resulting from DIC.

### Retained products of conception

Women who present after abortion with increased pain, moderate to heavy bleeding, and/or signs of infection may have retained products of conception (POC). Following a second-trimester abortion, the retained products are typically placental tissue, and assessment and treatment are similar to following first-trimester abortion. Treatment with either misoprostol or vacuum aspiration is appropriate for women with no signs or symptoms

of infection. If infection is present, antibiotics should be started and aspiration done without delay by an experienced clinician, as perforation risk is increased (see *Infection and sepsis* below). Sharp curettage is never recommended as it is considered an obsolete technology by WHO.

Either misoprostol or vacuum aspiration are appropriate treatment for retained POCs when no infection is present, vital signs are stable, the uterus is under 13 weeks size and bleeding is not heavy (see box below).

### INCOMPLETE ABORTION WITH UTERINE SIZE UNDER 13 WEEKS:

Misoprostol, 600mcg orally **OR** 400mcg sublingually **OR** vaginally\* in a single dose (\*in absence of vaginal bleeding)

## Infection and sepsis

A woman can present with infection or endometritis at any time from several days to several weeks after an abortion. Infection can occur with or without the presence of retained POCs. Infection may be localized to the uterus or become more generalized, e.g., sepsis. In all cases, immediate treatment is required. Signs and symptoms of infection or sepsis include:

- Chills, fever and sweats (influenza-like symptoms)
- Foul-smelling vaginal discharge
- Abdominal/uterine pain or cramps
- Distended abdomen
- Guarding/rebound tenderness
- Low blood pressure
- Prolonged bleeding
- General malaise

## TREATMENT OF INFECTION

A course of broad-spectrum antibiotics should be administered. If retained POCs are suspected, uterine evacuation should occur immediately. An infected uterus may be more easily perforated, so evacuation should be performed with caution by a skilled clinician.

For women with sepsis, initial treatment is determined by risk category. If risk of shock is low:

- Ensure airway is open
- Monitor vital signs
- Give intravenous fluid

- Give intravenous antibiotics

If risk of shock is high, give oxygen in addition to the steps above.

Whatever the level of risk, the underlying cause of infection must be treated while the clinician monitors for any signs of the following:

- Shock
- Disseminated intravascular coagulation (DIC)

## Shock

Shock may occur following hemorrhage or sepsis. Shock management requires initial treatment to increase blood pressure and circulatory volume to stabilize the woman, followed by treatment of the underlying etiology. As is the case for anyone in shock, immediate treatment is needed to save the patient's life.

Signs of shock include:

- Rapid, weak pulse ( $\geq 110$  beats/min)
- Low blood pressure (diastolic  $< 60$  mm hg, systolic  $< 90$  mm hg)
- Pallor (especially of inner eyelid, around mouth or of palms)
- Rapid breathing ( $\geq 30$  breaths/min)
- Anxious, confused or unconscious mental state
- Profuse sweating or perspiration

Initial treatment for shock involves these steps:

- Ensure the airway is open
- Administer oxygen (through a mask or nasal cannula) at 6-8 L/min
- Administer 1 L of intravenous fluids (Ringer's lactate or isotonic solution) over 15-20 minutes through a large-bore needle (16-18 gauge)
- Start transfusing blood if:
  - There is clinical evidence of severe blood loss, such as tachycardia or hypotension when sitting or standing, or estimated blood loss  $> 500$  cc;
  - Hematocrit  $\leq 15\%$ ;
  - Hemoglobin  $\leq 5\text{g}/100\text{ml}$  (for example, if the patient is bleeding heavily, has an elevated pulse rate ( $\geq 120$  beats/min) or has a decreasing blood pressure, she will soon need transfusion).
- Monitor the amount of fluid and blood given
- Monitor urine output using a foley catheter for accurate volume assessment

After initial treatment, careful monitoring of the woman for signs of improvement is essential. Additional treatment measures may include intravenous antibiotics (for sepsis) or blood transfusion. If shock is a result of hemorrhage from retained products of conception, vacuum aspiration to evacuate the uterus is required. Signs of improvement and stabilization include an increase in blood pressure, reduction and normalization of heart rate and decrease in the level of confusion or anxiety.

## Severe pain

It is normal for a woman to feel discomfort following a D&E. Generally, women experience mild to moderate pain that can be relieved by NSAIDs. If a woman reports that her pain is worsening while in recovery or at home afterwards — especially if associated with fever, fundal tenderness or cervical motion tenderness — a provider should be concerned about unrecognized perforation/injury to uterus, hematometra, infection, retained products or a combination of the above.

If the woman's pain is within the range of normal and the woman is afebrile, observation should be continued and pain medications provided. In the rare event that the pain a woman is experiencing is more severe than normal and she has other symptoms of injury, the provider should consider imaging, laparotomy or laparoscopy for diagnosis and treatment.

Women experiencing an unrecognized perforation with a bowel injury may complain of severe pain, especially in conjunction with symptoms such as nausea, vomiting, dizziness, shoulder pain, tense abdomen, decreased bowel sounds, tachycardia and decreased blood pressure. Treatment will require a surgical procedure to repair such injuries.

Helping women to manage normal levels of pain and to describe any unusual, sudden or severe pain will assist in providing them with the best possible treatment both during and following pregnancy expulsion.

## Chapter 5: Service delivery

Ideally, the service delivery setting should provide the full range of abortion care and related reproductive health services in a coordinated fashion. For example, if a woman presents reporting an LMP of eight weeks ago but is found on exam to be 16 weeks pregnant, she should be provided with or referred for second-trimester abortion services immediately. Because the costs and health risks increase and availability of abortion services decrease with increasing gestational age, women need to be treated or referred quickly. Both referral processes and services should make efficient use of space, time and staff to address the woman's needs.

A checklist to assess whether a facility and its staff are prepared for a training to initiate D&E services can be found in Appendix 7, page 54. See Ipas's *Second-Trimester Abortion: A Service Delivery Toolkit* ([www.ipas.org/2ndtritr toolkit](http://www.ipas.org/2ndtritr toolkit)) for more information on key programming elements. This chapter discusses service delivery considerations specific to D&E.

## Managing services

### LOCATION OF SERVICES

Second-trimester D&E can be either an in- or outpatient service or a combination of both. For example, a woman can receive information, provide informed consent and start cervical preparation in the outpatient setting and return the following day to the in- or outpatient setting for her D&E. The location of the D&E procedure often depends on the selected method of anesthesia and the acuity of the situation. If misoprostol is used as part of the cervical preparation, women should be observed in a facility setting which will remain staffed to avoid an unintended expulsion prior to the procedure.

Ideally, second-trimester abortion care should have its own dedicated space within a facility to maintain privacy and confidentiality. If women undergoing second-trimester abortion need to share space with other patients, we recommend they be placed in a gynecology ward rather than the labor and delivery ward.

First- and second-trimester abortion and contraceptive services can take place in the same physical space. There should be adequate room for counseling, waiting and recovery, and staff available to manage a prolonged abortion process, complications or transfer to an inpatient unit. Toilet facilities should be on site. Equipment should be available to manage complications.

### STAFFING

Second-trimester abortion must be provided by experienced, trained staff who are compassionate and supportive of the woman. Each woman's reason for ending a pregnancy is different and staff should be empathetic toward a woman's situation and decision. Staff members who are supportive of first-trimester services may not feel comfortable providing second-trimester services without specific training or values clarification. Non-clinical staff who interact with a woman during the abortion process—including cleaners, students and assistants—will also need to behave confidentially and non-judgmentally. Information on preparing your staff with values clarification exercises can be found in Ipas's *Second-Trimester Abortion: A Service Delivery Toolkit* ([www.ipas.org/2ndtritolkit](http://www.ipas.org/2ndtritolkit)).

### COMPLICATION MANAGEMENT

Complications rarely occur with second-trimester abortions, but they do occur more often and more seriously than during earlier gestations. Conducting emergency drills on a regular basis will prepare staff to automatically know what to do in the event of a serious complication. Conduct a drill by presenting a case with a complication (for example, hemorrhage, narcotic overdose, shock) to the staff, and have staff explain and act out necessary steps to manage the complication. Acting out the emergency response will help the team work together and ensure that every team member knows his or her responsibilities. Drills teach staff how to find and use emergency medication and equipment.

A plan should be in place regarding how, when and where a woman should

be transferred to a higher-level facility to manage her care. Depending on the health system infrastructure, this may require an official agreement such as a memorandum of understanding between the facilities.

## ASSESSMENT OF SUPPLIES

Establish a routine review of supplies to ensure that instruments are sterile, drugs are not expired and equipment is available. D&E requires specialized equipment and larger cannula sizes than for first-trimester aspiration abortion. The cervical preparation for D&E uses mifepristone and misoprostol differently than what is provided in a first-trimester abortion combination pack. These drugs may need to be ordered separately. Misoprostol is sensitive to heat and humidity and must be stored correctly so that it remains active.

## Facilities, equipment and personnel

Second-trimester D&E can be safely provided in-facility in a variety of settings, especially if the woman is healthy with no medical concerns. Facilities must be prepared to manage serious complications; if emergency services are not available on site, a referral system should be established so that patients can be transferred quickly.

## FACILITIES AND EQUIPMENT

Use the *Facility and Clinician Assessment Form* to aid in the evaluation of equipment, space, and supplies/drugs (see Appendix 7, page 54). Women need a comfortable, private space to wait during their cervical preparation or preoperatively — typically a bed or cot, but a reclining chair can be used as well.

## SAFE DISPOSAL OF FETUS AND PLACENTA

Safe, secure and lawful disposal of the fetus and placenta requires more preparation with second-trimester services given the large volume of tissue and the presence of a recognizable fetus. See the box below and Appendix 8, page 59, for further details on the appropriate disposal of POCs.

### Safe disposal of fetus and placenta

Products of conception are considered pathologic waste, which is a category of health-care waste that includes human tissues, blood and bodily fluids. Pathologic waste is considered infectious because it is capable of spreading bloodborne diseases. Proper management of infectious waste is important to reduce health risks and environmental pollution. Products of conception should be handled with respect in accordance with prevailing religious, cultural and aesthetic norms.

Unless local funeral procedures are being observed, disposal should be in accordance with guidelines for infectious waste. For low-resource settings, burial in a properly built and maintained pit (placenta pit) is a recommended disposal method [76]. See Appendix 8, page 59: *Proper disposal of fetal and placental tissue*.

Accurate assessment of gestational age is a critical component of abortion care to ensure safety. Women may need an ultrasound examination to confirm gestational age, confirm placental location, and to assist difficult procedures. An ultrasound machine should be available at the facility.

## PERSONNEL

A team approach provides the safest and most supportive care to women and creates a positive work environment. There are no studies of non-physician providers performing D&E at or after 13 weeks gestation. D&E providers are typically physicians but we have seen successful integration of midlevel providers into the care of women undergoing D&E by performing the following tasks: medical evaluation, gestational age determination, counseling, process of informed consent, cervical preparation, surgical assistance, preparation and cleaning of instruments, support for the woman, provision of postabortion contraceptive counseling and care, postabortion monitoring and provision of discharge instructions. Ensuring that every person who has contact with the woman during her care is supportive is essential.

### Supporting the emotional well-being of staff

Providing second-trimester abortions is often rewarding but can be stressful. Managers and providers can support staff and ensure ongoing provision of services with the following strategies:

- Create safe opportunities for staff to talk about their feelings and concerns
- Provide flexibility by allowing staff to rotate responsibilities within the service or rotate to a different ward to diversify their work experience and integrate them into different aspects of care
- Encourage and support staff participation in professional conferences, networking events and training
- Promote an environment that is supportive and sensitive of the emotional needs of both staff and the women being served
- Create a supportive culture in which team members put the woman's needs at the forefront, and support each other to fulfill them
- Encourage learning from abortion-related complications or adverse events to reduce recurrence risk; monitor facility level data and include complications in maternal morbidity and mortality review.

Supporting staff demonstrates respect for personnel and increases the likelihood of providing high-quality care and continuation of services.

### Service delivery appendices

Appendix 7: Facility and clinician assessment form

Appendix 8: Proper disposal of fetal and placental tissue

## Appendix 7: Facility and clinician assessment form

Facility name:		City:		
Region:		Date:		
DRUGS, SUPPLIES, EQUIPMENT, SPACE				
		ON-SITE	NOT ON-SITE	COMMENTS
MEDICAL ABORTION PROCEDURE	Mifepristone			
	Misoprostol			
	Pain medications			
	Blood pressure apparatus/ Stethoscope			
	Infection prevention practices in place			
	Personal protective equipment (e.g., gloves, eye protection, mask, gown/apron)			
	Speculum			
	Gauze sponges			
	Ring forceps			
SPACE	Comfortable bed space for women to wait as they expel the pregnancy, ideally separate from labor and delivery. Please note number of available beds.			
	Private counseling areas for before and after medical abortion			
	Procedure room for examination and management of complications			
	Waste management facilities (e.g., incinerator, placenta pit) appropriate for fetal disposal			



SPACE	Patient toilets			
	Hand-washing stations			
	Laboratory facilities (if Rhogam standard of care, comment if available)			
TREATMENT OF COMPLICATIONS	Uterotonic medications			List available uterotonic agents:
	Antagonists for pain medications (reversal agents)			List available reversal agents:
	MVA equipment and supplies (aspirator, cannulae, MVA kit)			Larger cannulae are typically needed for second-trimester medical abortion/postabortion care (10,12 and if available 14mm); sponge and/or Kelly placental forceps can also be useful, especially for management of retained placenta
	IV fluids and lines			
	60cc Foley catheter or uterine packing			
	Antibiotics			
	Suture material (needle holder and scissors)			
	Access to emergency referral services (e.g., blood transfusion, emergency laparotomy)			If emergency services not available, comment on transfer arrangement, transportation and availability for transfer
	Oxygen and Ambu bag			
RECOVERY	Contraceptive methods			Circle those available at facility: condoms, pills, injectables, implants, IUCDs, female sterilization, male sterilization If methods are not immediately available, is there a referral process?
	Sanitary napkins or cotton wool			
	Printed or written instructions on post-procedure self-care and follow-up			

## CURRENT PRACTICE

Approximate number of first-trimester abortion/postabortion cases performed at site over the previous six months \_\_\_\_\_

What percentage of cases are medical abortion? \_\_\_\_\_

What percentage of cases are manual vacuum abortion? \_\_\_\_\_

Are any other techniques used to perform first-trimester abortion? \_\_\_\_\_

Approximate number of second-trimester abortion/postabortion cases performed at site over the previous six months \_\_\_\_\_

What has the gestational age range been in the cases managed at your site over the previous six months?

Choose all that apply

13–15 weeks

16–18 weeks

19–21 weeks

22–24 weeks

Above 24 weeks

Are logbooks routinely being used for abortion cases? Yes No

Describe the current process for reviewing quality of care and serious adverse events in obstetrical and abortion care:

If second-trimester medical abortion/postabortion care is being performed, describe the current methods/techniques being utilized. Any problems/concerns with these methods? How is a retained placenta removed?

## ADMINISTRATION INFORMATION

Hospital administrator name:

Head of OB/GYN services name:

Assessment team met with key leaders?

Yes (If yes, comment regarding concerns/issues and if they are supportive.)

No (If no, when will this occur?)

Did team discuss the need for tracking data and monitoring outcomes and adverse events?

Yes No

## CLINICIAN INFORMATION

How many potential second-trimester providers or support clinicians are at this site?

Obstetrician/Gynecologists:

General practice doctors:

House officers:

Midwives:

Nurses:

Others:

List the names of the providers who will provide second-trimester care and answer the following information. If providers are available and training is needed, refer to Ipas's *Second-Trimester Abortion: A service delivery toolkit* (see *Other resources*, page 66).

Name:	Yes	No
Willing to undergo ongoing quality assurance/monitoring	<input type="checkbox"/>	<input type="checkbox"/>
Willing to share caselogs and SAE info	<input type="checkbox"/>	<input type="checkbox"/>
Undergone a prior training with exposure to MVA and woman-centered care	<input type="checkbox"/>	<input type="checkbox"/>
Currently practice obstetrical care	<input type="checkbox"/>	<input type="checkbox"/>
Currently provides second-trimester abortion care	<input type="checkbox"/>	<input type="checkbox"/>
Estimated number of MVAs personally performed per month:		

Name:	Yes	No
Willing to undergo ongoing quality assurance/monitoring	<input type="checkbox"/>	<input type="checkbox"/>
Willing to share caselogs and SAE info	<input type="checkbox"/>	<input type="checkbox"/>
Undergone a prior training with exposure to MVA and woman-centered care	<input type="checkbox"/>	<input type="checkbox"/>
Currently practice obstetrical care	<input type="checkbox"/>	<input type="checkbox"/>
Currently provides second-trimester abortion care	<input type="checkbox"/>	<input type="checkbox"/>
Estimated number of MVAs personally performed per month:		

Name:	Yes	No
Willing to undergo ongoing quality assurance/monitoring	<input type="checkbox"/>	<input type="checkbox"/>
Willing to share caselogs and SAE info	<input type="checkbox"/>	<input type="checkbox"/>
Undergone a prior training with exposure to MVA and woman-centered care	<input type="checkbox"/>	<input type="checkbox"/>
Currently practice obstetrical care	<input type="checkbox"/>	<input type="checkbox"/>
Currently provides second-trimester abortion care	<input type="checkbox"/>	<input type="checkbox"/>
Estimated number of MVAs personally performed per month:		

Name:	Yes	No
Willing to undergo ongoing quality assurance/monitoring	<input type="checkbox"/>	<input type="checkbox"/>
Willing to share caselogs and SAE info	<input type="checkbox"/>	<input type="checkbox"/>
Undergone a prior training with exposure to MVA and woman-centered care	<input type="checkbox"/>	<input type="checkbox"/>
Currently practice obstetrical care	<input type="checkbox"/>	<input type="checkbox"/>
Currently provides second-trimester abortion care	<input type="checkbox"/>	<input type="checkbox"/>
Estimated number of MVAs personally performed per month:		

## GENERAL ASSESSMENT

What barriers/concerns/problems do the clinicians identify in regard to second-trimester services?

What topics/issues do the clinicians want to make sure the training covers?

Is there adequate management support for services?    Yes    No

If not, state why:

Do any clinicians need additional support, coaching or training (if so, state in what areas)?

Yes    No

Have there been any personal safety/security concerns for staff?

*The assessment team should not only focus on these specific items, but should also perform a facility “walk through,” which is to walk through the facility in the same manner that a woman undergoing care would. This may help the team identify issues from a patient-care perspective.*

*Additional comments:*

## Appendix 8: Proper disposal of fetal and placental tissue

### Recommendation

Follow standards and guidelines from your setting for disposal of products of conception. Where onsite disposal is necessary, incineration or burial in a properly built and maintained pit are recommended methods [76].

### Background

Products of conception are pathologic waste, a category of health-care waste that includes human tissues, blood and bodily fluids. Pathologic waste is considered infectious because it is capable of spreading bloodborne diseases. Proper management of pathologic waste is important to reduce health risks and environmental pollution.

Recommendations for first- and second-trimester products of conception are the same. Products of conception should be handled lawfully and in accordance with prevailing religious, cultural and aesthetic norms. Unless local funeral procedures are being observed, disposal should be in accordance with guidelines for pathologic waste.

### Pathologic waste handling, sorting, storage and transport

#### HANDLING

Personnel who handle pathologic waste should wear appropriate protective clothing (heavy-duty gloves, industrial apron, overalls/coveralls, leg protectors and/or industrial boots, face mask). Staff should handle pathological waste as little as possible before disposal.

#### SORTING

Pathologic waste should be separated from other health-care waste, placed in a leak-proof plastic bag or sealed container, and clearly marked with a biohazard symbol.

#### INTERIM STORAGE

Interim storage should ideally be short-term. Usually waste should be stored for only a few hours before disposal. If the pathologic waste must be stored, the storage area should be secure, contained and marked by a biohazard sign. The storage area should be sealed or tiled to allow easy disinfection. The time from generation of the waste to treatment should not exceed the following:

TEMPERATE CLIMATE	WARM CLIMATE
72 hours in winter	48 hours during the cool season
48 hours in summer	24 hours during the hot season

#### TRANSPORT

Some health facilities will dispose of pathologic waste off-site. Since the transport staff will be handling the waste, they must be educated about the infectious nature of the waste as well as the sensitivity surrounding the disposal of products of conception.

## On-site pathologic waste disposal

### BURIAL

Burial of pathologic waste in a properly built and maintained pit (“placenta pit”) to allow for natural biodegradation is suitable for low-resource settings. The type of pit and dimensions should be built according to the amount of pathologic waste the facility produces.

Guidelines for pit construction can be found in the World Health Organization (WHO), Medecins Sans Frontieres and JHPIEGO manuals (see *Other resources*, page 66). Some basic rules to follow include:

- Restrict access to authorized personnel only, and fence in the area to keep out animals, scavengers and children.
- Line the pit with a material of low permeability (clay, dung, river silt); a cement bottom should be used if available.
- The bottom of the pit should be at least 1.5 to 2 meters above the groundwater level and at least 50 meters from crops or water sources. The pit should be located away from areas that flood.
- Only infectious/pathologic waste should be buried.
- Each waste layer should be covered by a 10cm layer of soil (ash or charcoal can also be used to reduce odor and speed up decomposition).
- The pit should be closed when the waste is 50cm below the ground surface.

### INCINERATION

The benefit of incineration is a reduction in waste volume and weight and the elimination of microorganisms and recognizable material. Incinerators can range from large, sophisticated, permanent, high-temperature industrial models to very basic small ones (such as drum or brick units) that operate at much lower temperatures. Burning in an industrial incinerator is preferred, but if one is not available, a drum or brick incinerator can be used. Incinerators, particularly simple units, may release toxic chemicals into the air and do not run efficiently when burning pathologic waste with high moisture content; for these reasons small incinerators should be viewed as a transitional means of disposal for health-care waste.

If small incinerators are the only option, best practices include:

- Effective waste reduction and segregation, ensuring only the smallest amount of combustible waste is incinerated;
- Using a design engineered to reach sufficient temperatures to allow complete combustion;
- Placing incinerators away and downwind from health-care buildings and residential areas or where crops are grown;
- Using a clearly described method of operation;
- Periodic maintenance;
- Not incinerating certain waste, which includes pressurized gas containers (aerosol cans), reactive chemical waste, silver salts and photographic/radiographic wastes, polyvinyl chloride (PVC) plastics, or waste with high mercury or cadmium content.

Construction guidelines for incinerators can be found in the WHO, Medecins Sans Frontieres and Jhpeigo manuals (see *Other resources*, page 66).

## **POURING INTO A SAFE SEWAGE SYSTEM**

Liquid pathologic waste may be poured directly into a sink or drain connected to an adequately treated sewer or pit latrine. Rinse the sink, drain or toilet thoroughly and clean with disinfectant cleaning solution daily or more frequently if heavily used or soiled.

## **OPEN-AIR BURNING**

Open-air burning is not recommended. If it is the only option available, it should be done in a confined area (in a dugout pit and covered with soil when finished).

## **OPEN DUMPING**

Open dumping is never an acceptable option due to the infectious nature of pathologic waste.

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