



## **Medical Abortion Reference Guide**

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

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## Medical Abortion 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

Ipas works globally so that women and girls have improved sexual and reproductive health and rights through enhanced access to and use of safe abortion and contraceptive care. We believe in a world where every woman and girl has the right and ability to determine her own sexuality and reproductive health.

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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

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 medical abortion at or after 13 weeks gestation, sometimes called induction abortion or termination in the second trimester, using misoprostol-based regimens (mifepristone plus misoprostol or misoprostol only) 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 medical abortion are the primary audience for this guide.

We recognize that the terminology around gestational age is evolving and moving away from the use of the “trimester” lexicon. We have chosen, however, to utilize 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 both 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 and provider 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, dilatation and evacuation (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 alone 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 medical abortion 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 second-trimester medical abortion. This reference guide is a companion to the *Dilatation and Evacuation Reference Guide: Induced abortion and postabortion care at or after 13 weeks gestation ('second trimester')*, available at [www.ipas.org/2ndtriDE](http://www.ipas.org/2ndtriDE). 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 in 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* ([www.ipas.org/clinicalupdates](http://www.ipas.org/clinicalupdates)).

Local regulations may permit clinicians to provide care beyond 24 weeks gestation. We have included information on how to adapt the protocols for uterine size/gestations after 24 weeks. 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 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. Skills used in first-trimester abortion—such as providing information, counseling, the process of informed consent for medical abortion, 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).

Clinicians experienced in obstetrics may also perform second-trimester medical abortion, as the skills needed are similar to management of term labor induction. If obstetrical providers have never performed first-trimester abortion or postabortion care, they may need supplemental training in basic abortion care management prior to providing second-trimester services.

Before learning to provide second-trimester medical 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;

- Manage pain during a first-trimester abortion;
- 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 management 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 a requirement 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 and can also be found in Ipas's *Second-Trimester Abortion: A toolkit for service delivery* at [www.ipas.org/2ndtritookit](http://www.ipas.org/2ndtritookit)

## Chapter 2: Clinical care for women during medical abortion at or after 13 weeks gestation

This chapter will outline the clinical care of women undergoing second-trimester medical abortion. The chapter is presented in the order of the provision of a second-trimester medical abortion using mifepristone and misoprostol or misoprostol only.

The steps in providing second-trimester medical abortion are:

- Clinical assessment
- The process of informed consent
- Medical abortion regimen
- Inducing fetal demise (as needed)
- Pain management
- Managing pregnancy expulsion
- 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 medical abortion at or after 13 weeks gestation. 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 it 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, page 28. 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 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 second-trimester abortion**

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.
Bleeding disorder	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.
Prior hysterotomy	Please see “special considerations” on page 25.
Seizure disorder	The woman should take her usual dose of anti-seizure medication. She may receive the full range of pain control measures during her care. Because some anti-epileptic drugs interact with hormonal contraception, contraceptive options should be carefully reviewed for medical eligibility (see the World Health Organization’s Medical eligibility criteria for contraceptive use at <a href="http://www.who.int">www.who.int</a> ).

\*No universal standard exists for what is considered a low hematocrit/hemoglobin prior to medical abortion, but if a woman experienced a significant bleeding event with an initial hematocrit of 25%, a transfusion would likely be needed. See national standards and guidelines regarding blood transfusion.

## 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. The World Health Organization (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 second-trimester care unless the woman has a medical problem.

## ASSESSMENT AND CONFIRMATION OF GESTATIONAL AGE

Accurate assessment of gestational age is critically important in second-trimester abortion care. Gestational age can be estimated by a woman's last monthly period (LMP) and a physical exam which 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 36). 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 dating cannot determine whether the gestational age is within the range of eligibility for a medical abortion at the intended facility. **The medications to start the abortion process should not be given until the gestational age has been confirmed with a physical exam. Errors in dating can lead to unexpected transient survival (see box, page 13).** 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 13) 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 (see *Illustration 2*, below) can be used to confirm the gestational age estimated by the BPD, 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 30. If ultrasonography is utilized, the number of fetuses, fetal position, and placental location can be noted.

In a setting where ultrasound is not available and providers are new to gestational age dating, measuring the fetal foot following expulsion 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 can help providers decide about inducing fetal demise to avoid transient fetal survival (page 19), prepare women and staff for 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 in doubt about gestational age, assume the pregnancy is later rather than earlier.

Illustration 1.

### Biparietal diameter

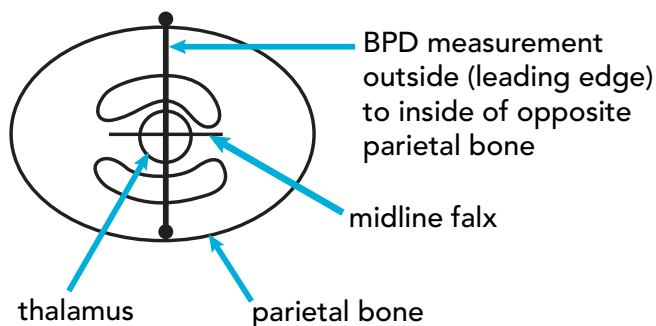
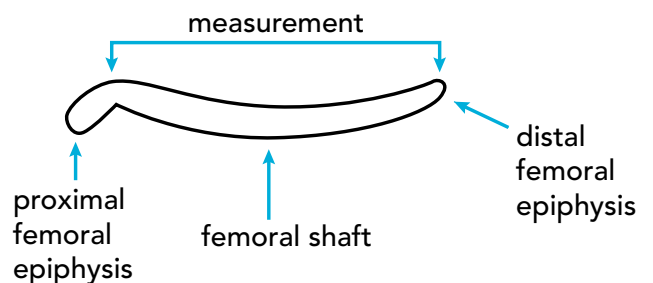


Illustration 2.

### Femur length



## WOMEN NEED TO KNOW...

### BEFORE THE PROCEDURE:

- What abortion methods exist and are available, their advantages/disadvantages;
- The risks inherent to the medical abortion process, including risk of failure, bleeding, hemorrhage, infection, unplanned surgical procedure, retained placenta, etc. (although rare, the most common of these risks is a retained placenta, which may require additional medication, uterine aspiration or removal from the cervix using forceps);
- Options for pain management;
- What part of the process can occur outside the facility and when she needs to return to the facility (for misoprostol administration or for any concerning symptoms);
- Approximately how long the process will last: for example, medical abortion with mifepristone/misoprostol usually takes six hours following initiation of misoprostol, but may take up to three days;
- What medications she will be given and how they will be administered;
- Who she can have with her during the process;
- What she should wear and/or bring with her from home to help make her comfortable;
- If desired, her options for postabortion contraception. Any contraceptive method can be initiated immediately postabortion.

### DURING THE PROCEDURE:

- What medications she will be given, how often, 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 abortion completion;
- 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 if she had 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 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.



## 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.

## Medical abortion regimens and efficacy

In general, the regimen recommendations are consistent with those in WHO's *Safe Abortion: Technical and policy guidance for health systems, second edition* and *Clinical Practice Handbook for Safe Abortion*. 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 that the following items have been completed:

- The clinical assessment (see page 36), 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.

### **MIFEPRISTONE + MISOPROSTOL (PREFERRED REGIMEN)**

Mifepristone 200mg by mouth, followed 1-2 days later by misoprostol 400mcg, administered vaginally, sublingually or buccally every three hours until fetal and placental expulsion.

### **MISOPROSTOL ONLY (WHERE MIFEPRISTONE IS NOT AVAILABLE)**

Misoprostol 400mcg, administered vaginally or sublingually every three hours until fetal and placental expulsion. Vaginal dosing is more effective than sublingual dosing for nulliparous women.

The same medications used for first-trimester medical abortion are used in the second trimester but with different dosing. Unlike medical abortion occurring before 10 weeks gestation, where a woman may take misoprostol at home, after 10 weeks, the misoprostol is administered in the facility and the woman is observed until the pregnancy is expelled.

Mifepristone reduces the length of time from when misoprostol is started to the expulsion of the fetus (known as the time to expulsion or time to abortion) and increases the likelihood of a successful abortion; therefore, the

combination of mifepristone and misoprostol is the preferred regimen [10]. When the appropriate regimen and timing of mifepristone and misoprostol is followed, over 95% of women have complete expulsion in 48 hours and the median time to expulsion is around six to nine hours [11, 12]. If mifepristone is not available, a misoprostol-only regimen may be used with expulsion rates of over 70% in 48 hours and a median time to expulsion of around 12 to 18 hours [12, 13].

## SUCCESS RATES AND TIME TO EXPULSION

### *Medical abortion success*

With the combined regimen, complete expulsion of the fetus and placenta occurs for around 90% of women at 24 hours. If misoprostol dosing is continued for those who have not expelled at 24 hours, almost all women will have expelled the pregnancy by 48 hours. Based on new evidence and increasing experience with misoprostol, misoprostol can be repeated for as many doses as needed, which increases the success rates [11, 12, 14].

Success is lower with misoprostol-only regimens, with complete expulsion reported in the literature of over 50% at 24 hours and up to 90% at 48 hours [12, 13, 15, 16].

Rarely, with either regimen, a woman will fail to expel in 48 hours and may need more doses of misoprostol to successfully complete the abortion.

### *Time to expulsion*

With the combined regimen, the median times to fetal expulsion reported in the literature are between six and nine hours [11, 12]. A range of expulsion times are possible, with some women experiencing significantly longer time, even multiple days, to complete the abortion. **Longer times to expulsion are associated with increasing gestational age and nulliparity.**

For misoprostol-only regimens, the median times to fetal expulsion reported in the literature are between 12 and 18 hours, but there is a wide range of times reported. Parous women have shorter times to expulsion than nulliparous women [12, 13].

## ADMINISTERING MEDICATIONS

### *Mifepristone administration*

Mifepristone is given to the woman to take orally as an outpatient. Mifepristone generally has no side effects and most women remain asymptomatic without bleeding or cramping. Twenty-four to forty-eight hours after taking mifepristone, the woman should return to the facility to start misoprostol. The interval between medicines should be respected whenever possible as the time to complete expulsion is shortest when mifepristone is taken 1-2 days before misoprostol, which means women spend less time cramping and less time in the facility [17]. If necessary, however, the time between mifepristone and misoprostol can be shortened or eliminated as even when mifepristone is taken at the same time as misoprostol, the combined regimen is still more effective than a misoprostol-

only regimen [17-19].

If induced fetal demise is indicated, it can be performed at the same time as the mifepristone (see page 19).

### *Misoprostol administration*

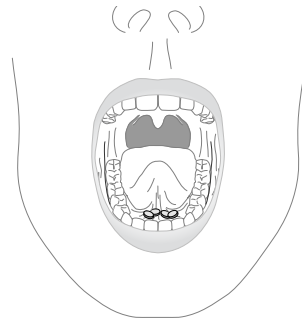
For both the combined and the misoprostol-only regimen, the woman receives misoprostol in the facility every three hours until fetal and placental expulsion. Misoprostol may be given in any facility which is staffed all-hours and can manage emergencies. When the combined mifepristone and misoprostol regimen is used, the woman may be able to complete the abortion process and go home the same day. Misoprostol-only abortion is a longer process and most women will need more time. With either regimen, some proportion of women will need to stay overnight or longer, so a facility must be prepared to care for women around-the-clock until the abortion process is complete.

The key to minimizing the time to complete abortion is using mifepristone and ensuring misoprostol is administered every three hours until expulsion. There is no limit to the number of doses of misoprostol a woman may receive. **Even if a woman is cramping or experiencing pain, she should continue to receive misoprostol until she expels the fetus and placenta.** Unlike term induction of labor, misoprostol dosing should not be limited by the strength or frequency of contractions. Formal monitoring of uterine contractions during medical abortion is not necessary or recommended.



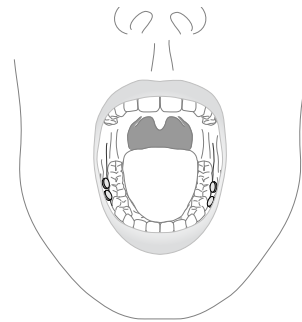
#### VAGINAL USE

*For vaginal use*, misoprostol is 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 do not need to 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.



### SUBLINGUAL USE

For *sublingual use*, the woman puts misoprostol under her tongue and after 30 minutes, she swallows any remaining pill fragments.



### BUCCAL USE

For *buccal use*, the woman places misoprostol between her cheek and gum and after 30 minutes, she swallows any remaining pill fragments.

Sublingual and buccal dosing tend to have more gastrointestinal side effects than vaginal dosing but some women find these routes more convenient and acceptable. In a misoprostol-only regimen, vaginal dosing is more effective than sublingual dosing for nulliparous women.

At the time of misoprostol dosing, the woman should be settled into a bed or cot in a private area, separate from women experiencing labor. During the abortion process, a woman will usually experience cramping pain and bleeding that peaks at the time of expulsion. Occasionally women will have nausea and vomiting, and less frequently, fever. 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.

A non-steroidal anti-inflammatory drug (NSAID) should be given at the initiation of misoprostol dosing unless the woman has an allergy. Support staff should monitor pain continually. Vital signs should be monitored every three hours starting with the first dose of misoprostol. Monitoring should be increased to every one to two hours when the woman experiences stronger cramping pain. Pain medications should be given as needed (see *Pain management*, page 19). A sample monitoring form to use during misoprostol dosing is in Appendix 4, page 33. Fetal heart monitoring and uterine contraction monitoring (tocometry) should not be used during the abortion process.

## 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 to her need for pain medications.

### WHAT TO EXPECT REGARDING THE SEVERITY AND DURATION OF PAIN

Most women require pain medication during second-trimester abortion [11, 20]. Nulliparity, advanced gestational age, greater number of misoprostol doses and induction-to-abortion interval are associated with increased pain during second-trimester medical abortion [20-22]. Pain rarely starts after taking mifepristone. It will become pronounced after the misoprostol is started and peaks at the time of fetal expulsion.

### PAIN MANAGEMENT OPTIONS

The optimal regimen for pain management in second trimester abortion has not been established [23]. Ipas recommends combining pharmacologic and non-pharmacologic methods [24] for example:

- Start NSAIDs at the time of the first dose of misoprostol and then provide every 6-8 hours, as needed.
- Add oral and/or parenteral narcotics, as needed, for break-through pain.
- Acetaminophen/paracetamol may be used for fever but is not effective for abortion-related pain management. If combined acetaminophen analgesics are used, be careful not to exceed the maximum recommended 24-hour dose of acetaminophen.
- Provide non-pharmacologic approaches such as a hot-water bottle, a relaxed environment and support from trained personnel, family members or friends. Verbal support provided to the woman throughout the abortion can help decrease pain and anxiety. Verbal support does not replace pain medicines. Women may move around or walk if it helps relieve discomfort.
- If the personnel, equipment and monitoring are available, women undergoing second-trimester abortion can benefit from the same types of pain management used for women experiencing labor at term, such as epidural anesthesia or patient-controlled analgesia [25].

## Inducing fetal demise

In some settings, providers choose to induce fetal demise starting around 20 weeks gestation or greater to avoid transient fetal survival after expulsion [10]. Inducing fetal demise does not increase the safety of the abortion and may increase side effects, but there may be legal, ethical and/or

psychological reasons to consider it [26]. Where induced fetal demise is not available, women should still have access to safe abortion services.

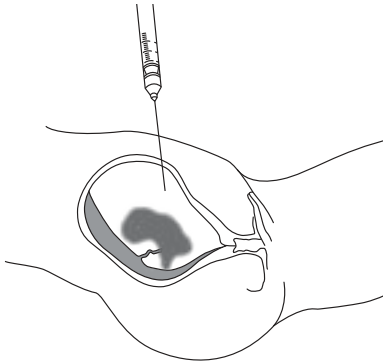
Fetal demise can be induced by either of the following methods:

- 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 abortion process or during expulsion by transection of the fetal umbilical cord.

## TECHNIQUE

**Illustration 3.**



### *Digoxin injection*

Digoxin has a low complication rate and is easy to inject (see *Illustration 3*, at left) into the amniotic fluid with or without ultrasound guidance [27, 28]. 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 [29].

Intra-amniotic or intra-fetal digoxin has limited maternal systemic absorption and no significant maternal cardiac or thrombotic effects [27]. 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

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 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 toward 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 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 injecting the digoxin. 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 at the time of digoxin injection and is sent home with clear instructions to return one day later to start misoprostol. She should feel normal the rest of the day. Very few women have contractions or bleeding following digoxin injection [26].

### *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 [30, 31]. **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. This method is easier to do during D&E but has been described by clinicians during medical abortion. Fetal asystole occurs shortly after cord transection [32].

### **Managing pregnancy expulsion**

As the cervix dilates, a bulging bag of membranes may be palpable in the vagina. The woman may experience discomfort from the resulting pressure. Rupturing the membrane with a gloved hand or clamp can decrease this discomfort, and often fetal expulsion will occur shortly (within a couple hours) thereafter.

If fetal parts are palpable in the vagina, the woman can try pushing, but this effort will probably be useful only late in the second trimester. Unlike term labor, the cervix may not become fully dilated. A nurse, midwife or physician should be present to support the woman through the active period of expulsion.

Place a drape over the woman's legs, and provide verbal support. If the pregnancy is nonvertex (breech or transverse), typically the pregnancy will expel without difficulty. If the calvarium becomes entrapped, it will generally expel with time. If no progress is made, experts suggest facilitating expulsion by placing a hand in the vagina and manually stretching the cervix.

Often the fetus and placenta deliver together; if only the fetus expels then the maternal side of the cord should be clamped. Depending on the woman's wishes, the fetus can be wrapped for her to hold, or wrapped, kept out of sight and removed. As the fetus is not viable, the fetal side of the cord does not need to be clamped. Occasionally the fetus may exhibit spontaneous movements. Some women or their families may want to hold the fetus, while others may want to wait until these movements stop. Others may not want to see or hold the fetus at all. Anecdotally, the request to see/hold the fetus is more likely for those ending the pregnancy due to maternal and/or fetal indications.

If the fetus and placenta expel simultaneously, monitor the woman's bleeding and vital signs. If bleeding is minimal, no additional uterotonics are necessary.

### **NO FETAL EXPULSION AFTER 24 HOURS**

With mifepristone and misoprostol, approximately 10% of women will not expel within 24 hours and will require more doses of misoprostol. If using a misoprostol-only regimen, fewer women expel within 24 hours.

If fetal expulsion does not occur within 24 hours of the initial misoprostol dose, examine the woman to rule out rare events like uterine rupture, abdominal pregnancy or false diagnosis of pregnancy (pelvic mass). These should be considered when the cervix remains closed despite prolonged



uterine contractions, extreme abdominal pain or if acute hemodynamic changes occur at any time during the abortion process.

If expulsion has not occurred after 24 hours and alternative diagnoses have been ruled out, continue misoprostol every three hours until expulsion. Alternatively, if the woman's cervix is dilated sufficiently, she may be offered a D&E if an experienced skilled provider with the appropriate equipment is available.

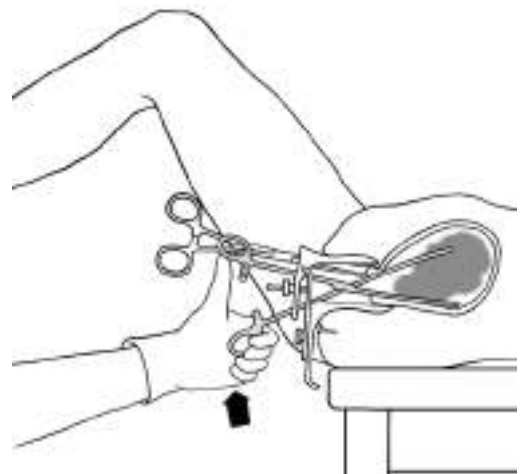
## FETUS HAS EXPELLED BUT PLACENTA HAS NOT

If a woman's vital signs are stable and her bleeding is minimal, the placenta should expel spontaneously within four hours [33]. Continue misoprostol dosing until the placenta expels. Be careful about placing traction on the cord, as it can be quite fragile and can break.

If the placenta has not expelled spontaneously and four hours have passed, the woman is hemodynamically unstable or desiring discharge, there are a few options for placental management:

- Give uterotonics. If the next dose of misoprostol is due, then the dose should be given. If one to two hours have passed since the last misoprostol dose, give an additional dose of sublingual, buccal or oral misoprostol, 400-800mcg. Vaginal dosing is less effective in the presence of vaginal bleeding, so buccal or sublingual dosing are advised.
- Use sponge forceps or, if available, Sopher forceps, to gently remove the placenta (see *Illustration 4*, at right.) Place a speculum in the vagina so the cord comes out the middle of the speculum. Use two ring forceps to follow the cord, gently placing traction on the placenta. Avoid tearing the cord.
- Manual or electric vacuum aspiration can be performed to evacuate the placenta, similar to the treatment for retained placenta in the postpartum. If available, use a 12 or 14mm cannula. Sharp curettage is never recommended as it is considered an obsolete technology by WHO.

**Illustration 4.**



## AFTER COMPLETE EXPULSION

After expulsion of the fetus and placenta, check the perineum for lacerations. A more extensive vaginal exam may be necessary with more advanced gestational ages and/or if the woman is experiencing heavy bleeding. Examine the fetus and placenta to confirm that expulsion was complete; often the placenta is membranous in appearance, but if the volume of the expelled placenta is consistent with the gestational age and the woman's bleeding is minimal, the provider can feel reassured that expulsion is complete. If complete, there is no additional benefit to performing a uterine cavity check with either sharp curettage or vacuum. If a woman desires an intrauterine device after an uncomplicated abortion, it can be placed immediately following expulsion of the placenta or prior to her return home.

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 53).

## Recovery

### OBSERVATION

There is no mandatory amount of time a woman needs to stay at the facility following an uncomplicated second-trimester medical abortion. 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.

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.

## 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 early as within two weeks. All methods of contraception can be initiated immediately after an uncomplicated second-trimester medical abortion.
- 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)

## 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 [34]. 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 a woman's preferred method is 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 second-trimester medical abortion [35]. 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 [36-38], 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 second-trimester medical abortion 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 to have significant social, financial and logistical barriers to seeking care [39-43]. They may need more emotional support and pain management. The medical regimens used for treatment and other clinical care 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 mementos 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. Offer choices to the woman about her preferences before beginning the abortion and let her guide your care.

## PRIOR HYSTEROTOMY

Uterine rupture has been reported during second-trimester medical abortion in women both with and without a uterine scar. The risk of uterine rupture for any woman undergoing a second-trimester medical abortion is very rare, with an occurrence in the range of less than 1/1,000 women [44]. For women with a prior hysterotomy, the risk of uterine rupture is about 3/1000.

**Because uterine rupture is a rare event for all women, we recommend no change in the medical abortion regimen for women whose uterine size is less than 22-24 gestational weeks and who have only one previous uterine surgery.** In women with a uterine size greater than 22-24 weeks or in women with more than one previous uterine surgery, we recommend using lower misoprostol doses; however, there is insufficient evidence to demonstrate the amount to which it mitigates the rare event of uterine rupture.

## 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 [45]. 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 [46]. 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

There are few studies to guide clinicians in providing medical abortion over 24 weeks, but misoprostol-based regimens remain effective for women needing abortion or postabortion care. The evidence is limited regarding the dose, route and timing of administration. Generally, the doses of misoprostol are lower and the dosing interval longer than below 24 weeks. Based on recommendations by the International Federation of Gynecology and Obstetrics and the Society for Family Planning, the regimen for medical abortion between 24 and 28 weeks is misoprostol 200mcg vaginally every four hours until pregnancy expulsion. Mifepristone 200mg, orally, given 24 to 48 hours before misoprostol decreases the time to expulsion [47-49]. If a woman is at or after 28 weeks without a uterine scar, local protocols for term induction of labor should be used [50]. If a woman has a uterine scar and is at or after 28 weeks, misoprostol should not be used. If transient fetal survival is a concern, fetal demise may be induced before starting misoprostol (see *Inducing fetal demise*, page 19).

## 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 delivery [51-54]. 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 [55]. Most women who obtained the abortion felt it to be the right decision even if they expressed regret.

### Clinical care appendices

Appendix 1: Client evaluation form

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

Appendix 3: Fetal foot measurement

Appendix 4: Sample patient monitoring form

Appendix 5: Job aid (medical abortion)

Appendix 6: Complications flowchart/job aid (medical abortion only)

## 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
Respiratory (e.g., asthma)			
Cardiovascular (e.g., hypertension, valvular heart disease)			
Hepatic/ Gastrointestinal			
Endocrine (e.g., thy- roid disease, diabetes)			
Gynecologic/ Urologic (including uterine surgeries)			
Psychiatric			
Surgical history			
Other			

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

**PHYSICAL EXAM:**

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

**LABS (AS INDICATED):**

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

**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, days based on (exam/US/dates) \_\_\_\_\_

**NOTES:**

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

Table 1: Gestational age predicted by biparietal diameter measurements [56]. 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 [56]. 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 [57].

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: Patient monitoring form (example)

Name: \_\_\_\_\_ Mifepristone date and time: \_\_\_\_\_

DATE	TIME	BP	PULSE	TEMP	PAIN SCALE	MISO DOSE, ROUTE	NEXT DOSE	PAIN MEDICATIONS	EXAM	NOTES
20 Oct	10:30	120/55	88	36.4	1/10	400mcg buccal	13:30	Ibuprofen, 800mg po	deferred	Admitted to begin misoprostol Discussed contraception-wants implant
	13:30	135/60	88	36.6	4/10	400mcg buccal	16:30	Tramadol 50mg po	1cm	Contractions stronger, minimal vaginal bleeding

## Appendix 5

### TRAINING

### Job Aid (MA Only)

#### EVALUATION

- Obtain medical history
- Examine and determine gestational age
- Counsel and consent for medical abortion
- *If requested or required:* induce fetal demise with intraamniotic digoxin injection 1.0-1.5mg (contraindications: maternal cardiac or renal disease or allergy to digoxin)
- **Pain control:** Provide nonsteroidal anti-inflammatory at the time of misoprostol dosing, repeat as needed at appropriate intervals. Provide additional pain medication as needed (e.g. narcotics and/or anxiolytics).

#### ABORTION REGIMENS\*

Mifepristone and Misoprostol  
(preferred regimen):

Misoprostol-alone:

#### OTHER CONSIDERATIONS

##### Miscellaneous

- If misoprostol related fever: give paracetamol
- If prior uterine scar:\*

##### No fetal expulsion within 24 hrs

- Perform an exam (check for uterine rupture), then:
- Repeat original regimen OR
- Consider rupturing the membranes & continue misoprostol OR
- High dose oxytocin 200u/500mL at 50mL/h for 24h; stop infusion for 1h every 4h to avoid water intoxication

- PGE2 20mg vaginally every 4h for 24h

##### No placental expulsion within 2 hrs of fetal expulsion

- Perform an exam, then:
- Apply gentle cord traction OR
- Give misoprostol 400-800 mcg OR
- High dose oxytocin for 2h OR
- Perform MVA

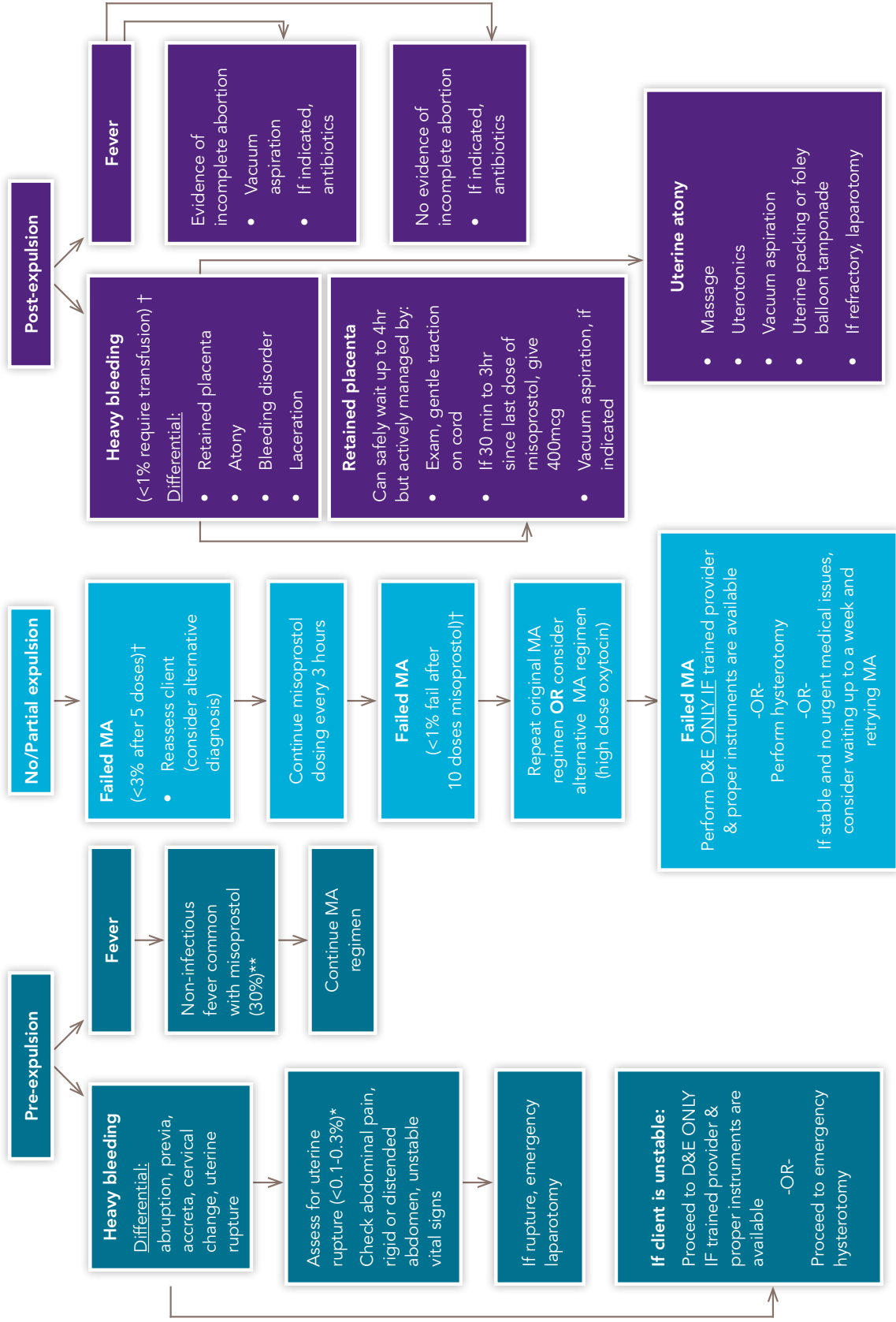
From Ipas's *Second-Trimester Abortion: A Toolkit for Service Delivery*

\* Refer to Ipas's Clinical Updates in Reproductive Health for the most up-to-date evidence on regimens and prior uterine scar.

# Appendix 6

TRAINING

## Complications Flowchart/Job Aid (MA only)



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

\*Goyal, Obstet Gynecol 2009 | \*\*Chai, Hum Repro 2009 | †Ashok et al., Contraception 2004; 1 cycle = 24 hours

## 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 [58]. The majority of postabortion care research and programs, however, focus on women in the first trimester [59]; 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 [60]. Where skilled providers and supportive facilities exist, dilatation and evacuation may be offered in addition to medical methods of uterine evacuation. (See Ipas's *Dilatation & Evacuation [D&E] Reference Guide: Induced abortion and postabortion care for at or after 13 weeks gestation ['second trimester']*, available at [www.ipas.org/2ndtriDE](http://www.ipas.org/2ndtriDE).)

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 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 a medical regimen

If the woman is unstable, immediate uterine evacuation is necessary. Vacuum aspiration may be used for uterine sizes under 13 weeks. If over 13 weeks, a D&E may be the recommended method if the following criteria are met:

- A trained and skilled provider is available
- Specialized equipment for D&E is available
- Adequate cervical dilatation is present or can be obtained in a timely manner, and waiting for dilatation 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.

**If a woman is stable with minimal vaginal bleeding and without signs of infection or sepsis, with an open cervical os, and uterine size is less than 13 weeks by bimanual exam, the first-trimester regimen to manage incomplete abortion may be used: misoprostol orally 600mcg in a single dose or vaginally in a single dose. Vaginal dosing is only recommended if the woman is not having vaginal bleeding. For a missed abortion, the following regimen should be used: misoprostol 800mcg sublingually every three hours until pregnancy expulsion or a maximum of three doses. [61] [62].** The woman may take misoprostol in the facility or at home, according to her preference. For more information on postabortion care for women in the first trimester, please see *Woman-Centered Postabortion Care Reference Manual, Second edition*, at [www.ipas.org/pac-reference](http://www.ipas.org/pac-reference).

**If a woman is stable with minimal bleeding without signs of infection or sepsis and with uterine size over 13 weeks, medical management may also be used.** Evidence is limited to suggest the best regimen for second-trimester postabortion treatment, but a review of the literature suggests misoprostol in a dose of at least 200mcg vaginally, sublingually or buccally, given every six hours, is an effective regimen [47]. Pretreatment with mifepristone 200mg, orally, 24-48 hours before the misoprostol reduces the time to abortion and is recommended for women who are stable [63]. If the woman's condition precludes waiting 24 hours, giving mifepristone and misoprostol simultaneously may still decrease time to abortion [17]. **To simplify the medical abortion regimens for both postabortion care and induced abortion, evidence suggests that the induced abortion regimen may be used in both circumstances (see box page 15).**

#### REGIMENS FOR MEDICAL MANAGEMENT OF POSTABORTION CARE

- Misoprostol in a dose of at least 200mcg vaginally, sublingually or buccally may be given every six hours.
- Pretreatment with mifepristone 200mg orally 1-2 days before misoprostol may decrease the time from induction to expulsion.
- The misoprostol-only or mifepristone-misoprostol regimen for induced abortion at or after 13 weeks gestation can be used.

### Managing pregnancy expulsion

Clinical care for women undergoing second-trimester postabortion care with medication is the same as for induced medical abortion, and protocols for pain management, recovery care and contraception may be used without modification. Providers, however, should be aware that the risk of complications, including infection, hemorrhage and disseminated intravascular coagulation (DIC), is increased. For management of specific complications, see Chapter 4.



## Recovery

Unless otherwise specified, recovery care is no different for a woman receiving postabortion care than following an induced abortion (page 24).

## Chapter 4: Managing complications

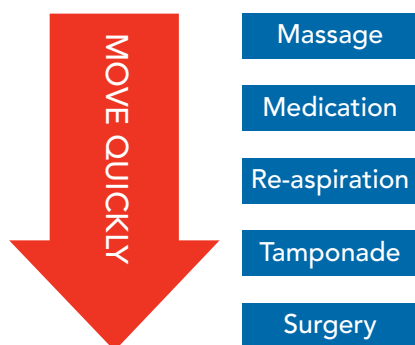
The rate of major complications—such as hemorrhage requiring transfusion, need for emergency surgery or severe infection resulting from second-trimester medical abortion—is less than 1% [64]. Minor complications, such as retained placenta requiring vacuum aspiration for removal, occur more frequently with medical abortion than with a D&E. Rarely, a woman will fail to expel after 48 hours.

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 [65]. 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 41) and then perform rapid sequential diagnosis and management of the possible causes of hemorrhage (see *Figure 1*). Women bleeding heavily should be quickly positioned in lithotomy 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 second-trimester abortion 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*.

**Figure 2: Therapies for postabortion hemorrhage [65], [66], [67] (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 [68]

DIC occasionally occurs after a second-trimester abortion 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 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 medical 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* page 41). Sharp curettage is never recommended as it is considered an obsolete technology by WHO.

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

#### MISOPROSTOL FOR RETAINED PRODUCTS OF CONCEPTION (POSTABORTION CARE) WITH UTERINE SIZE UNDER 13 WEEKS:

Misoprostol, 600mcg orally **OR** 400mcg sublingually **OR** vaginally in a single dose. Vaginal dosing in absence of vaginal bleeding only.

## 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

## 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 6-8L/min;
- Administer 1L 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  $> 500$  ml;
  - hematocrit  $\leq 15\%$ ;
  - hemoglobin  $\leq 5$ g/100mL (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 an abortion. 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 both.

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 uterine rupture during the abortion process generally 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 the uterus.

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 medical abortion services at or after 13 weeks can be found in Appendix 1, page 28. See Ipas's *Second-Trimester Abortion: A service delivery toolkit* (available at [www.ipas.org/2ndtritookit](http://www.ipas.org/2ndtritookit)) for more information on key programming elements. This chapter discusses service delivery considerations specific to second-trimester medical abortion.

### Managing services

#### LOCATION OF SERVICES

Unlike abortion at less than 10 weeks gestation, women with later gestations should receive all misoprostol doses in the facility under observation until the abortion is complete. Second-trimester medical abortion can be either an in- or outpatient service or a combination of both. For example, a woman can receive information and provide informed consent, as well as receive the mifepristone and digoxin amnioinjection (if indicated) in the outpatient setting and return the following day for misoprostol and monitoring until

expulsion. Misoprostol and monitoring during the abortion process should occur in a facility that is continuously staffed until pregnancy expulsion is complete.

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.

## SCHEDULING

A woman may be sent home after receiving mifepristone and return to the facility 1-2 days later to receive misoprostol. If mifepristone was given 1-2 days before misoprostol, pregnancy expulsion occurs a median time of 6-9 hours after starting misoprostol. Without mifepristone, the expulsion takes a median time of 12 hours. Regardless of the regimen, some women will take far longer to expel—in rare cases, up to three days.

## Regimen timing

**The medical abortion regimen timing can be modified to suit women's needs.** If a woman needs to travel long distances, has a worsening medical condition or another issue with timing, a provider can reduce the interval between the mifepristone and misoprostol or admit her to wait during the interval. Reducing the waiting time between mifepristone and misoprostol results in a longer time to expulsion of the pregnancy, and in more time the woman will experience painful cramping and bleeding. However, even if mifepristone and the first dose of misoprostol are given simultaneously, there is still some benefit in shortening the time to abortion over misoprostol alone [17-19]. Ideally, the 24-to-48 hour interval between mifepristone and misoprostol is respected, thereby minimizing her time in the facility receiving misoprostol, decreasing the length of time she is experiencing pain, and decreasing the total amount of misoprostol needed to complete the process. If a woman lives near the facility or can arrange lodging, she can take mifepristone and return to the facility 1-2 days later in the early morning; most women will expel the pregnancy within 6-9 hours and can return home the same day.

## STAFFING

Second-trimester abortion should 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 towards 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, translators, students and assistants—will also need to behave confidentially and non-judgmentally. Information on preparing staff with values clarification exercises can be found in Ipas's *Second-Trimester Abortion: A service delivery toolkit* (available at [www.ipas.org/2ndtritrustoolkit](http://www.ipas.org/2ndtritrustoolkit)).

## 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. Mifepristone and misoprostol are often provided in a combination pack that has correct doses for first-trimester medical abortion. A second-trimester medical abortion uses the same amount of mifepristone but more doses of misoprostol. Therefore, additional misoprostol needs 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 medical abortion can be safely provided in-facility in a variety of settings especially if the woman is healthy with no medical concerns. Women need a comfortable, private space to wait until expulsion occurs, with continuous staffing until the abortion is complete. Facilities must be prepared to manage serious complications; if emergency services are not available on site, a referral system needs to be established so that patients can be transferred quickly.

## FACILITIES AND EQUIPMENT

See the *Facility and Clinician Assessment Form* to aid in the evaluation of equipment, space, and supplies/drugs (Appendix 7, page 48). Women need a comfortable, private space to wait for expulsion of the pregnancy to occur—typically a bed or cot, but a reclining chair can be used as well. Although second-trimester medical abortion resembles term labor, women

undergoing second-trimester medical abortion should stay in separate spaces or units from those laboring and delivering term babies, if possible.

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 following box and Appendix 8, page 53, for further details on the appropriate disposal of POCs.

Accurate assessment of gestational age is a critical component of abortion care to ensure safety. In some cases, ultrasound examination may be needed for accurate gestational dating, but the ultrasound machine does not need to be on-site during the abortion process.

### **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 [69]. See Appendix 8, page 53: Proper disposal of fetal and placental tissue.

## **PERSONNEL**

A team approach provides the safest and most supportive care to women and creates a positive work environment. The direct provision of care is not limited to doctors. Second-trimester medical abortion care can be safely provided by trained and experienced midwives, clinical officers, nurse practitioners and other provider cadres who have a background in obstetrical care. Ensuring that each staff member 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 the woman's needs.
- 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 60).

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 local standards and guidelines for disposal of products of conception. Where onsite disposal is necessary, incineration or burial in a properly built and maintained pit are recommended disposal methods. [69].

### Background

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

Recommendations for disposal of first- and second-trimester products of conception are the same. Products of conception should be handled in accordance with local laws and prevailing religious, cultural and aesthetic norms. Unless following local funeral procedures, 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 and 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 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 understand 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), Médecins Sans Frontières and Jhpiego manuals (see *Other resources*, page 60).

Some basic rules 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 accelerate 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 preferable, but if 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, Médecins Sans Frontières and Jhpiego manuals (see *Other resources*, page 60).

## **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.

## References

1. Dragoman, M., et al. (2014). Overview of abortion cases with severe maternal outcomes in the WHO Multicountry Survey on Maternal and Newborn Health: a descriptive analysis. *BJOG: An International Journal of Obstetrics & Gynaecology*, 121, 25-31. doi:10.1111/1471-0528.12689
2. Gebreselassie, H., Gallo, M. F., Monyo, A., & Johnson, B. R. (2005). The magnitude of abortion complications in Kenya. *BJOG: An International Journal of Obstetrics & Gynaecology*, 112(9), 1229-1235. doi:10.1111/j.1471-0528.2004.00503.x
3. Zhirova, I. A., Frolova, O. G., Astakhova, T. M., & Ketting, E. (2004). Abortion-related maternal mortality in the Russian Federation. *Studies in family planning*, 35(3), 178-188.
4. Healy, J., Otsea, K., & Benson, J. (2006). Counting abortions so that abortion counts: Indicators for monitoring the availability and use of abortion care services. *International Journal of Gynecology & Obstetrics*, 95(2), 209-220. doi:10.1016/j.ijgo.2006.08.002
5. Harries, J., Orner, P., Gabriel, M., & Mitchell, E. (2007). Delays in seeking an abortion until the second trimester: a qualitative study in South Africa. *Reproductive Health*, 4, 7. doi:10.1186/1742-4755-4-7
6. Harris, L. H., & Grossman, D. (2011). Confronting the challenge of unsafe second-trimester abortion. *International Journal of Gynecology & Obstetrics*, 115(1), 77-79. doi:10.1016/j.ijgo.2011.05.018
7. World Health Organization. (2014). *Clinical practice handbook for safe abortion*. Geneva: World Health Organization.
8. Karanth, L., Jaafar, S. H., Kanagasabai, S., Nair, N. S., & Barua, A. (2013). Anti-D administration after spontaneous miscarriage for preventing Rhesus alloimmunisation. *Cochrane Database of Systematic Reviews*,(3), Cd009617. doi:10.1002/14651858.CD009617.pub2
9. Goldstein, S. R., & Reeves, M. F. (2009). Clinical assessment and ultrasound in early pregnancy. In P. Maureen, et al. (Eds.), *Management of unintended and abnormal pregnancy: Comprehensive abortion care* (2nd ed., pp. 63-77). West Sussex, UK: Wiley-Blackwell.
10. World Health Organization. (2012). *Safe Abortion: Technical and Policy Guidance for Health Systems*. Geneva: World Health Organization.
11. Ashok, P. W., Templeton, A., Wagaarachchi, P. T., & Flett, G. M. (2004). Midtrimester medical termination of pregnancy: a review of 1002 consecutive cases. *Contraception*, 69(1), 51-58.
12. Dabash, R., et al. (2015). A double-blind randomized controlled trial of mifepristone or placebo before buccal misoprostol for abortion at 14-21 weeks of pregnancy. *International Journal of Gynaecology and Obstetrics*, 130(1), 40-44. doi:10.1016/j.ijgo.2015.02.023
13. von Hertzen, H., et al. (2009). Comparison of vaginal and sublingual misoprostol for second trimester abortion: randomized controlled equivalence trial. *Human Reproduction*, 24(1), 106-112. doi:10.1093/humrep/den328
14. Ngoc, N. T., et al. (2011). Mifepristone and misoprostol compared with misoprostol alone for second-trimester abortion: A randomized controlled trial. *Obstetrics and Gynecology*, 118(3), 601-608.
15. Pongsatha, S., & Tongsong, T. (2014). Randomized controlled trial comparing efficacy between a vaginal misoprostol loading and non-loading dose regimen for second-

trimester pregnancy termination. *Journal of Obstetrics and Gynaecology Research*, 40(1), 155-160. doi:10.1111/jog.12147

16. Wong, K. S., Ngai, C. S., Yeo, E. L., Tang, L. C., & Ho, P. C. (2000). A comparison of two regimens of intravaginal misoprostol for termination of second trimester pregnancy: a randomized comparative trial. *Human Reproduction*, 15(3), 709-712.
17. Chai, J., et al. (2009). A randomized trial to compare two dosing intervals of misoprostol following mifepristone administration in second trimester medical abortion. *Human Reproduction*, 24(2), 320-324. doi:10.1093/humrep/den425
18. Shaw, K. A., Topp, N. J., Shaw, J. G., & Blumenthal, P. D. (2013). Mifepristone-misoprostol dosing interval and effect on induction abortion times: a systematic review. *Obstetrics and Gynecology*, 121(6), 1335-1347. doi:10.1097/AOG.0b013e3182932f37
19. Abbas, D. F., et al. (2016). Simultaneous Administration Compared With a 24-Hour Mifepristone-Misoprostol Interval in Second-Trimester Abortion: A Randomized Controlled Trial. *Obstetrics and Gynecology*, 128(5), 1077-1083. doi:10.1097/AOG.0000000000001688
20. Hamoda, H., Ashok, P., Flett, G., & Templeton, A. (2004). Analgesia requirements and predictors of analgesia use for women undergoing medical abortion up to 22 weeks of gestation. *BJOG: An International Journal of Obstetrics and Gynaecology*, 111(9), 996-1000.
21. Rose, S. B., Shand, C., & Simmons, A. (2006). Mifepristone- and misoprostol-induced mid-trimester termination of pregnancy: A review of 272 cases. *Australian and New Zealand Journal of Obstetrics and Gynaecology*, 46(6), 479-485. doi:10.1111/j.1479-828X.2006.00646.x
22. Goh, S. E., & Thong, K. J. (2006). Induction of second trimester abortion (12-20 weeks) with mifepristone and misoprostol: a review of 386 consecutive cases. *Contraception*, 73(5), 516-519. doi:10.1016/j.contraception.2005.12.004
23. Jackson, E., & Kapp, N. (2011). Pain control in first-trimester and second-trimester medical termination of pregnancy: a systematic review. *Contraception*, 83(2), 116-126. doi:10.1016/j.contraception.2010.07.014
24. Baird, T. L., Castleman, L. D., Hyman, A. G., Gringle, R. E., & Blumenthal, P. D. (2007). *Clinician's guide for second-trimester abortion* (2nd ed.). Chapel Hill, North Carolina: Ipas.
25. Smith, R. L., et al. (2016). Analgesia for Medically Induced Second Trimester Termination of Pregnancy: A Randomized Trial. *Journal of Obstetrics and Gynaecology Canada. Journal d'Obstétrique et Gynécologie du Canada*, 38(2), 147-153. doi:10.1016/j.jogc.2015.12.015
26. Jackson, R. A., Teplin, V. L., Drey, E. A., Thomas, L. J., & Darney, P. D. (2001). Digoxin to facilitate late second-trimester abortion: a randomized, masked, placebo-controlled trial. *Obstetrics and Gynecology*, 97(3), 471-476.
27. Drey, E. A., Thomas, L. J., Benowitz, N. L., Goldschlager, N., & Darney, P. D. (2000). Safety of intra-amniotic digoxin administration before late second-trimester abortion by dilation and evacuation. *American Journal of Obstetrics and Gynecology*, 182(5), 1063-1066.
28. Steward, R., Melamed, A., Kim, R., Nucatola, D., & Gatter, M. (2012). Infection and extramural delivery with use of digoxin as a fetocidal agent. *Contraception*, 85(2), 150-154. doi:10.1016/j.contraception.2011.01.005
29. Nucatola, D., Roth, N., & Gatter, M. (2010). A randomized pilot study on the effectiveness and side-effect profiles of two doses of digoxin as fetocide when administered intraamniotically or intrafetally prior to second-trimester surgical

- abortion. *Contraception*, 81(1), 67-74. doi:10.1016/j.contraception.2009.08.014
30. Borgatta, L., & Kapp, N. (2011). Clinical guidelines. Labor induction abortion in the second trimester. *Contraception*, 84(1), 4-18. doi:10.1016/j.contraception.2011.02.005
  31. Coke, G. A., Baschat, A. A., Mighty, H. E., & Malinow, A. M. (2004). Maternal cardiac arrest associated with attempted fetal injection of potassium chloride. *International Journal of Obstetric Anesthesia*, 13(4), 287-290. doi:10.1016/j.ijoa.2004.04.009
  32. Tocce, K., Leach, K. K., & Teal, S. B. (2014). Umbilical cord transection to induce fetal demise prior to second-trimester D&E abortion: in reply. *Contraception*, 89(5), 473-474.
  33. Green, J., et al. (2007). Intervention rates for placental removal following induction abortion with misoprostol. *Contraception*, 76(4), 310-313. doi:10.1016/j.contraception.2007.06.010
  34. Boyd, E. F., Jr., & Holmstrom, E. G. (1972). Ovulation following therapeutic abortion. *American Journal of Obstetrics and Gynecology*, 113(4), 469-473.
  35. World Health Organization. (2015). *Medical eligibility criteria for contraceptive use* (5th ed.). Geneva, Switzerland: World Health Organization.
  36. Biggs, M. A., Upadhyay, U. D., McCulloch, C. E., & Foster, D. G. (2017). Women's Mental Health and Well-being 5 Years After Receiving or Being Denied an Abortion: A Prospective, Longitudinal Cohort Study. *JAMA Psychiatry*, 74(2), 169-178. doi:10.1001/jamapsychiatry.2016.3478
  37. Biggs, M. A., Rowland, B., McCulloch, C. E., & Foster, D. G. (2016). Does abortion increase women's risk for post-traumatic stress? Findings from a prospective longitudinal cohort study. *BMJ Open*, 6(2), e009698. doi:10.1136/bmjopen-2015-009698
  38. Steinberg, J. R., & Rubin, L. R. (2014). Psychological Aspects of Contraception, Unintended Pregnancy, and Abortion. *Policy Insights from the Behavioral and Brain Sciences*, 1(1), 239-247. doi:10.1177/2372732214549328
  39. Pazol, K., Creanga, A. A., Jamieson, D. J., & Centers for Disease Control and Prevention. (2015). Abortion Surveillance - United States, 2012. *MMWR: Surveillance Summaries*, 64(10), 1-40. doi:10.15585/ss6410a1
  40. Bonnen, K. I., Tuijje, D. N., & Rasch, V. (2014). Determinants of first and second trimester induced abortion - results from a cross-sectional study taken place 7 years after abortion law revisions in Ethiopia. *BMC Pregnancy and Childbirth*, 14, 416. doi:10.1186/s12884-014-0416-9
  41. Foster, D. G., & Kimport, K. (2013). Who seeks abortions at or after 20 weeks? *Perspectives on Sexual and Reproductive Health*, 45(4), 210-218. doi:10.1363/4521013
  42. Lim, L., Wong, H., Yong, E., & Singh, K. (2012). Profiles of women presenting for abortions in Singapore: focus on teenage abortions and late abortions. *European Journal of Obstetrics, Gynecology, and Reproductive Biology*, 160(2), 219-222. doi:10.1016/j.ejogrb.2011.11.017
  43. Sowmini C V. (2013). Delay in termination of pregnancy among unmarried adolescents and young women attending a tertiary hospital abortion clinic in Trivandrum, Kerala, India. *Reproductive Health Matters*, 21(41), 243-250. doi:10.1016/S0968-8080(13)41700-7
  44. Goyal, V. (2009). Uterine rupture in second-trimester misoprostol-induced abortion after cesarean delivery: a systematic review. *Obstetrics and Gynecology*, 113(5), 1117-1123. doi:10.1097/AOG.0b013e31819dbfe2

45. Rizos, N., Doran, T. A., Miskin, M., Benzie, R. J., & Ford, J. A. (1979). Natural history of placenta previa ascertained by diagnostic ultrasound. *American Journal of Obstetrics and Gynecology*, 133(3), 287-291.
46. Silver, R. M. (2015). Abnormal Placentation: Placenta Previa, Vasa Previa, and Placenta Accreta. *Obstetrics and Gynecology*, 126(3), 654-668. doi:10.1097/aog.0000000000001005
47. Mark, A. G., Edelman, A., & Borgatta, L. (2015). Second-trimester postabortion care for ruptured membranes, fetal demise, and incomplete abortion. *International Journal of Gynecology and Obstetrics*, 129(2). doi:10.1016/j.ijgo.2014.11.011
48. Perritt, J. B., Burke, A., & Edelman, A. B. (2013). Interruption of nonviable pregnancies of 24–28 weeks' gestation using medical methods. *Contraception*, 88(3), 341-349.
49. Mentula, M., Suhonen, S., & Heikinheimo, O. (2011). One- and two-day dosing intervals between mifepristone and misoprostol in second trimester medical termination of pregnancy—a randomized trial. *Human Reproduction*, 26(10), 2690-2697. doi:10.1093/humrep/der218
50. World Health Organization. (2011). *WHO recommendations for induction of labour*: Geneva: World Health Organization.
51. American Psychological Association Task Force on Mental Health and Abortion. (2008). Report of the Task Force on Mental Health and Abortion. Washington, DC.
52. Charles, V. E., Polis, C. B., Sridhara, S. K., & Blum, R. W. (2008). Abortion and long-term mental health outcomes: a systematic review of the evidence. *Contraception*, 78(6), 436-450. doi:10.1016/j.contraception.2008.07.005
53. Guttmacher Institute. (2012). Study purporting to show link between abortion and mental health outcomes decisively debunked [Press release]. Retrieved from <http://www.guttmacher.org/media/nr/2012/03/05/>
54. National Collaborating Centre for Mental Health. (2011). Induced Abortion and Mental Health: A systematic review of the mental health outcomes of induced abortion, including their prevalence and associated factors. London: Academy of Medical Royal Colleges.
55. Rocca, C. H., Kimport, K., Gould, H., & Foster, D. G. (2013). Women's emotions one week after receiving or being denied an abortion in the United States. *Perspectives on Sexual and Reproductive Health*, 45(3), 122-131. doi:10.1363/4512213
56. Filly, R. A., & Hadlock, F. P. (2000). Sonographic determination of menstrual age. *Ultrasonography in Obstetrics and Gynecology*, 4, 150.
57. Drey, E. A., Kang, M. S., McFarland, W., & Darney, P. D. (2005). Improving the accuracy of fetal foot length to confirm gestational duration. *Obstetrics and Gynecology*, 105(4), 773-778. doi:10.1097/01.aog.0000154159.75022.11
58. Ziraba, A. K., et al. (2015). Unsafe abortion in Kenya: A cross-sectional study of abortion complication severity and associated factors. *BMC Pregnancy and Childbirth*(15), 34. doi:10.1186/s12884-015-0459-6
59. Herrick, J., Turner, K., McInerney, T., & Castleman, L. (2013). *Woman-centered postabortion care: Reference manual* (2nd ed.). K. Turner & A. Huber (Eds.). Chapel Hill, NC: Ipas.
60. Edlow, A. G., et al. (2011). Uterine evacuation for second-trimester fetal death and maternal morbidity. *Obstetrics and Gynecology*, 117(2 Pt 1), 307-316. doi:10.1097/AOG.0b013e3182051519
61. Kim, C., et al. (2017). Medical treatments for incomplete miscarriage. *Cochrane Database of Systematic Reviews*, 1, CD007223. doi:10.1002/14651858.CD007223.pub4

62. Morris, J. L., et al. (2017). FIGO's updated recommendations for misoprostol used alone in gynecology and obstetrics. *International Journal of Gynaecology and Obstetrics*, 138(3), 363-366. doi:10.1002/ijgo.12181
63. Stibbe, K. J., & de Weerd, S. (2012). Induction of delivery by mifepristone and misoprostol in termination of pregnancy and intrauterine fetal death: 2nd and 3rd trimester induction of labour. *Archives of Gynecology and Obstetrics*, 286(3), 795-796. doi:10.1007/s00404-012-2289-3
64. Autry, A. M., Hayes, E. C., Jacobson, G. F., & Kirby, R. S. (2002). A comparison of medical induction and dilation and evacuation for second-trimester abortion. *American Journal of Obstetrics and Gynecology*, 187(2), 393-397.
65. Kerns, J., & Steinauer, J. (2013). Society of Family Planning Clinical Guideline 20131: Management of postabortion hemorrhage. *Contraception*, 87(3), 331-342.
66. Prata, N., & Weidert, K. (2016). Efficacy of misoprostol for the treatment of postpartum hemorrhage: current knowledge and implications for health care planning. *International Journal of Women's Health*, 8, 341-349. doi:10.2147/IJWH.S89315
67. Mavrides, E., et al. (2016). Prevention and Management of Postpartum Haemorrhage. *BJOG: An International Journal of Obstetrics and Gynaecology*, 124, e106-e149.
68. Tindell, K., et al. (2013). Uterine balloon tamponade for the treatment of postpartum haemorrhage in resource-poor settings: a systematic review. *BJOG: An International Journal of Obstetrics and Gynaecology*, 120(1), 5-14. doi:10.1111/j.1471-0528.2012.03454.x
69. World Health Organization. (2013). *Safe management of wastes from health-care activities* (Second ed.). Y. Chartier, et al. (Eds.). Geneva: World Health Organization.

## Other resources

Ipas. (2014a). *Second-Trimester Abortion: A toolkit for service delivery* Retrieved from <http://www.ipas.org/en/Resources/Ipas%20Publications/Second-Trimester-Abortion-A-Toolkit-for-Service-Delivery.aspx>

Ipas. (2014b). *Woman-Centered, Comprehensive Abortion Care: Trainer's manual* K. L. Turner & A. Huber (Eds.), Retrieved from <http://www.ipas.org/en/Resources/Ipas%20Publications/WomanCentered-Comprehensive-Abortion-Care-Trainers-Manual-Second-Edition.aspx>

Ipas. (2018). *Clinical Updates in Reproductive Health* Ipas: Chapel Hill. Retrieved from <http://www.ipas.org/clinical-updates>

Médecins Sans Frontières. (2010). *Public Health Engineering in Precarious Situations* P. Maes & J. v. d. Noortgate (Eds.), Retrieved from [http://refbooks.msf.org/msf\\_docs/en/public\\_health\\_en.pdf](http://refbooks.msf.org/msf_docs/en/public_health_en.pdf)

Tietjen, L., Bossemeyer, D., & McIntosh, N. (2003). *Infection prevention: guidelines for healthcare facilities with limited resources*. Jhpiego. Retrieved from [https://pdf.usaid.gov/pdf\\_docs/PNACT433.pdf](https://pdf.usaid.gov/pdf_docs/PNACT433.pdf)

World Health Organization. (2013). *Safe management of wastes from health-care activities* (Y. Chartier, J. Emmanuel, U. Pieper, A. Prüss, P. Rushbrook, R. Stringer, W. Townend, S. Wilburn, & R. Zghondi Eds. Second ed.). Geneva: World Health Organization.



