PROVIDING MEDICAL ABORTION IN DEVELOPING COUNTRIES:
An Introductory Guidebook

RESULTS OF A TEAM RESIDENCY AT THE BELLAGIO STUDY AND CONFERENCE CENTER
Providing Medical Abortion in Developing Countries: An Introductory Guidebook

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Contributors:
Dr. Paul Blumenthal, Dr. Shelley Clark, Dr. Kurus J. Coyaji, Dr. Charlotte Ellertson, Dr. Christian Fiala, Ms. Thembi Mazibuko, Dr. Vu Quy Nhan, Dr. André Ulmann, Dr. Beverly Winikoff

Editors:
Katrina Abuabara and Jennifer Blum, Population Council

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# Table of Contents

1. Introduction ........................................................................................................... 1

2. Overview ............................................................................................................... 3
   A. What mifepristone is and how it works
   B. Efficacy
   C. Safety
   D. Acceptability

3. Who can use medical abortion ........................................................................ 8
   A. Exclusion criteria
   B. Gestational age dating for determining eligibility

4. Medical abortion protocols with mifepristone and a prostaglandin ............... 12
   A. Dose, timing, and route of administration
   B. Schedule of visits
   C. Managing side effects and complications
   D. Follow-up

5. Counseling and information provision .............................................................. 22
   A. Choosing a method
   B. Screening for suitability
   C. Preparing the woman for what to expect
   D. Contraception after the abortion

6. Basics for service delivery ............................................................................... 27
   A. Staff training
   B. Medications
   C. Emergency care facilities & referral services
   D. Desirable (but not required) facilities

7. Bringing mifepristone to new settings .............................................................. 30
   A. Disseminating information
   B. Medical abortion myths
   C. Adding medical abortion to existing services
   D. Training providers
   E. Confronting abortion stigma
8. Where there is no mifepristone........................................................................ 34
   A. Methotrexate and misoprostol
   B. Misoprostol alone

9. Looking forward.......................................................................................... 40

10. Appendices.................................................................................................. 42
    A. Efficacy of mifepristone and misoprostol for early medical abortion
    B. Counseling checklist
    C. Sample informed consent form
    D. Bellagio meeting participants

11. References.................................................................................................. 47
1. Introduction

The term medical abortion refers to pregnancy termination with abortion-inducing medications in lieu of primary surgical intervention. Although the idea of using medications to induce abortion has been around for centuries, evidence-based regimens for use in the first trimester of pregnancy only became a reality in the last 25 years. Mifepristone (commonly referred to as RU-486) was developed in France in the 1970s and 80s by researchers investigating glucocorticoid receptors. The first clinical study of the drug as an abortifacient began in Geneva in 1981. In 1985, investigators reported mifepristone in combination with a prostaglandin analog increased the efficacy of this abortion regimen. In 1988, France became the first country (outside of China) to license mifepristone for use in combination with a prostaglandin analog for early abortion. Since that time, the method has slowly spread around the globe and millions of women have used the method worldwide.

Medical abortion provides women with a new option for termination of pregnancy and should be offered in addition to surgical abortion methods whenever possible. Recent research shows that many women appear to prefer medical abortion over surgical options and when offered a choice, often choose the medical method. Women select the medical method because they say it offers greater privacy and autonomy, is less invasive, and seems more natural than surgical termination. Frequently mentioned drawbacks include pain, duration of bleeding, number of clinic visits, and waiting time until completion of the abortion process. Almost all women who have had a medical abortion say they are satisfied with the method, would recommend it to friends, and would use it again if they ever needed another abortion.

Medical abortion has the potential to increase access to safe abortion services because it can be offered by providers in settings where surgical abortion may not be widely available. In July 1998, a group of researchers, healthcare providers, women’s health advocates, donors, and representatives of ministries of health met in Bellagio, Italy, to discuss the potential of medical abortion in the international arena. After much debate, the group came to consensus that a regimen of mifepristone followed by a suitable prostaglandin can feasibly be delivered in a manner that is safe, effective, and acceptable for women in developing countries.
Harnessing the momentum gained from this initial meeting, a small group of medical abortion experts from around the world assembled in July 2000 to develop recommendations for use in low-resource settings. The goal of this meeting was to provide comprehensive, easy to understand guidelines for new providers and policymakers worldwide. This guidebook is a product of the second Bellagio conference.

**How To Use This Guidebook**

This guidebook is geared to providers and policymakers who are interested in learning about medical methods for safe termination of early pregnancy. The information in this guidebook is meant for readers with a basic knowledge of reproductive biology and women’s health services. It may also serve as an introduction to those with no prior knowledge about medical abortion. Topics mentioned more than once are cross-referenced.
2. Overview

Chapter themes:
- What mifepristone is and how it works
- Efficacy when used with a prostaglandin for early medical abortion
- Safety and acceptability of the method

A. What Mifepristone Is And How It Works

Mifepristone is an antiprogestin licensed for pregnancy termination in many countries around the world. Mifepristone is also licensed for cervical softening prior to first trimester abortions, cervical softening for therapeutic, second trimester abortion, and induction of labor following intra-uterine fetal death. It is currently under study for a number of other potential applications. When taken orally during pregnancy, mifepristone blocks progesterone receptors and the endometrium can no longer sustain the growing embryo. Mifepristone also triggers an increase in prostaglandin levels and dilates the cervix, facilitating abortion.

When used alone, mifepristone has been shown to be anywhere from 60 to 80% effective in inducing abortions in pregnancies of less than 49 days since the last menstrual period (LMP). Because the drug makes the uterus more sensitive to the uterine muscle contracting effects of prostaglandins, the combination of mifepristone with a prostaglandin analog increases the efficacy of the regimen. Initially, sulprostone (an injectable prostaglandin) and gemeprost (a vaginal suppository) were used with mifepristone in Europe. Sulprostone was associated with a number of cardiovascular incidents, including one fatal myocardial infarction, and its use was supplanted by misoprostol (an oral prostaglandin analog). Gemeprost is still used occasionally in the second trimester in the United Kingdom and Sweden (mostly at later gestations: 49-63 days LMP), but misoprostol is currently the favored prostaglandin for use with mifepristone because of its safety, low cost, wide availability, stability at room temperature, and easy oral administration.\(^5\)
B. Efficacy

A successful medical abortion is defined as complete termination of pregnancy without the need for a surgical procedure. Mifepristone-misoprostol medical abortion for early first trimester pregnancies has a high success rate, generally around 95% (see Appendix A for success rates reported in clinical trials). Failure, defined as recourse to a surgical procedure, may be the result of a continuing pregnancy, incomplete expulsion, heavy bleeding, judgment of the provider that the medical process should be terminated surgically, or the request of the woman. Fewer than 5% of women expel the products of conception after mifepristone but before taking misoprostol. The majority of women expel within 24 hours of misoprostol administration but the process may take up to 2 weeks to complete.

Factors that may affect efficacy:

> Visit schedule: Protocols that allow more time between drug administration and the follow-up visit and/or allow for multiple follow-up visits may have higher success rates since some women’s abortions are not complete for several days or even several weeks after use of the drugs. Many women want to know as soon as possible if the abortion is finished, so early follow-up consultations for these women may increase satisfaction levels. On the other hand, excessive follow up may lead to needless interventions, inflating the failure rate.

> Provider: Success rates for providers using the same regimen often vary considerably. A provider may decide to complete the abortion surgically for convenience when not medically necessary or may mistakenly believe the abortion was not complete and intervene surgically. Factors that may lead a provider to intervene unnecessarily include incorrect clinical judgment, provider hurry, and inexperience with the method. As providers become more comfortable with the method, they tend to achieve higher success rates because they are willing to wait longer for the medical abortion to complete. Additionally, as staff gain confidence and experience, they may be better able to provide support and counseling to women who otherwise might request surgical intervention despite an underlying wish to abort without surgery.

> Gestational age of pregnancy: Although it appears that most regimens work equally well at gestational ages less than eight weeks, there is some evidence that efficacy may decline at later gestational ages especially when using oral misoprostol and only one dose of a prostaglandin (see Appendix A).
Regimen: Regimens for mifepristone-misoprostol medical abortion vary in terms of mifepristone or misoprostol dose, timing of the doses, and misoprostol route of administration. Although the efficacy of regimens does not appear to vary widely at gestational ages less than eight weeks there is some evidence that regimen variations may have an effect on efficacy in gestations greater than eight weeks LMP (see Chapter 4, part A).

C. Safety

Early medical abortion with mifepristone and misoprostol in controlled settings is extremely safe. There is less risk associated with properly used modern methods of abortion, including medical abortion, than with the continuation of pregnancy. 

Millions of women worldwide have safely and successfully used mifepristone for early medical abortion. Neither drug has been associated with long term effects on women’s health.

Frequently cited safety concerns:

> Excessive bleeding: Bleeding can best be managed if women are counseled on what to expect and when to seek treatment if bleeding becomes very heavy or persists for a long time (see Chapter 4, part C). Bleeding excessive enough to warrant a transfusion is extremely rare; less than 0.1-0.2% of women experience it.

> Ectopic pregnancy: Medical abortion with mifepristone does not harm but neither does it end an ectopic pregnancy. Careful evaluation before treatment and careful monitoring for symptoms after treatment can help to identify women with ectopic pregnancies so that they may be referred for appropriate treatment.

> Teratogenic effects: A very small percentage of pregnancies may continue after administration of medical abortion drugs. In such cases, if a woman changes her mind about her abortion, or in the rare instance that the clinician fails to diagnose an ongoing pregnancy at a follow-up visit, the pregnancy may continue to term. Although it is possible that either drug could have teratogenic effects on the fetus, there is no evidence that mifepristone causes deformities. Limb defects and Mobius syndrome have been reported with misoprostol use but prospective data show no association with birth defects. Overall, data on misoprostol suggest an association between birth defects and in utero exposure to misoprostol. While the relative risk of malformations appears real,
epidemiological studies indicate that the absolute risk is low (less than 10 malformations per 1,000 live births exposed to misoprostol in utero). During counseling, it is important to emphasize to the woman the need for follow-up and completion of the abortion if the pregnancy is ongoing. All women should be informed of the possibility of birth defects if they elect to continue a pregnancy to term after exposure to misoprostol.

> **Fertility:** Medical abortion with mifepristone and misoprostol has no effect on a woman’s fertility.

**D. Acceptability**

Overall, studies have shown that medical abortion is very acceptable to both women and providers worldwide. For instance, studies in China, Cuba, India, Vietnam, and Tunisia found that over 90% of women were “satisfied” or “very

<table>
<thead>
<tr>
<th><strong>Table 2.1</strong> Advantages and disadvantages of early abortion methods as cited by women and providers.19</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Medical Abortion</strong></td>
</tr>
<tr>
<td>&gt; Avoids surgery, anesthesia</td>
</tr>
<tr>
<td>&gt; More natural, like menses</td>
</tr>
<tr>
<td>&gt; Less painful to some women</td>
</tr>
<tr>
<td>&gt; Easier emotionally for some women</td>
</tr>
<tr>
<td>&gt; Can be provided by mid-level staff</td>
</tr>
<tr>
<td>&gt; Woman can be more in control, involved</td>
</tr>
<tr>
<td>&gt; Woman can be less involved</td>
</tr>
<tr>
<td><strong>Disadvantages</strong></td>
</tr>
<tr>
<td>&gt; Bleeding, cramping, nausea (actual or feared)</td>
</tr>
<tr>
<td>&gt; Waiting, uncertainty</td>
</tr>
<tr>
<td>&gt; Depending on protocol, more or longer clinic visits</td>
</tr>
<tr>
<td>&gt; Cost</td>
</tr>
</tbody>
</table>
satisfied” with their medical abortion. Research from France, Scotland, and Sweden indicates that 60-70% of eligible women opt for medical methods of abortion if given a choice. In one study that queried women who had experienced both medical and surgical abortion, the majority preferred medical abortion to surgical abortion. It is important to note that a woman’s view of her abortion experience is often linked to the context in which the abortion is provided.

**Summary points:**

> The success rate of mifepristone and misoprostol medical abortions early in the first trimester is high, generally around 95%.

> Mifepristone has been used safely, effectively, and with high acceptability by millions of women around the world since 1988.
3. **Who Can Use Medical Abortion**

**Chapter themes:**
- Exclusion criteria
- Dating gestational age

**A. Exclusion Criteria**

According to the labeling instructions in most European countries and in the United States, women with the following conditions should not take mifepristone or misoprostol.

**Mifepristone contraindications:**
- Suspected ectopic pregnancy or undiagnosed adnexal mass
- IUD in place (must be removed before medication is administered)
- Chronic adrenal failure
- Concurrent long-term corticosteroid therapy
- History of allergy to mifepristone
- Hemorrhagic disorders or concurrent anticoagulant therapy (i.e. blood thinning medications)
- Inherited porphyrias (rare genetic blood diseases)

**Misoprostol contraindications:**
- History of allergy to prostaglandins, including misoprostol

Previously, medical abortion with mifepristone and misoprostol was contraindicated for women over 35 who also smoked more than 10 cigarettes per day. These exclusion criteria were later determined to be unnecessary after
misoprostol replaced sulprostone as the prostaglandin component of the regimen. Despite the existence of contraindications for use of some prostaglandins in women with asthma, medical abortion with mifepristone and misoprostol can be provided to these women. In fact, unlike some prostaglandins, misoprostol relaxes the smooth muscles of the tracheo-bronchial tree, and so should have no adverse effects on asthmatic symptoms.

Other conditions to consider:

> **Severe anemia:** Although women using medical abortion experience more prolonged bleeding than women having a surgical abortion, the total amount of blood loss and decrease in hemoglobin levels is typically modest for both methods. Anemia is not a contraindication for the method, but all women with severe anemia should initiate treatment for such anemia as soon as it is diagnosed.

> **Breastfeeding:** There is no evidence that mifepristone or the prostaglandins used for medical abortion are harmful to infants. Given that the doses are few and fairly rapidly metabolized, it is unlikely these drugs would be found in large quantities in breast milk. However, most drugs in women’s blood do get into breast milk in small amounts. For this reason, women are sometimes advised to discard the breast milk produced for the few hours after ingestion of each dose of medication.

> **Return for follow-up visits:** Medical abortion requires one or more follow-up visits to confirm that the abortion is complete according to current practices. Women who wish to have a medical abortion must be willing and able to return to the clinic for these visits.

> **Access to emergency back-up care:** Although severe complications following medical abortion requiring emergency treatment or blood transfusions are rare, women should have adequate access to emergency back-up facilities during the abortion process.
B. Gestational Age Dating For Determining Eligibility

As with methods for confirming completion of medical abortion (see Chapter 4, part D), the following tools can be used to calculate the gestational duration of a woman’s pregnancy.20,21

> Last menstrual period: Studies have shown that almost all women are able to date their pregnancy reliably (i.e. within +/- 2 weeks of provider assessment using ultrasound) by calculating from the first day of their last menstrual period.22

> Physical Exam: Experienced providers can assess gestational age by conducting a physical exam to estimate the size of the woman’s uterus. Special care should be taken with obese women because it may be difficult to conduct an accurate exam.

> Ultrasonography: Ultrasound is a useful tool to date a woman’s pregnancy. If ultrasound equipment is not available or if the use of this technology renders the method too expensive, other methods of dating pregnancies are acceptable. If a provider suspects an ectopic or multiple pregnancy, ultrasound may help to confirm the diagnosis.

> Serum β-hCG testing: The serum concentration of β-hCG rises exponentially during the first six weeks of pregnancy, with reported doubling times of approximately 1.3 to 2 days.23 Although mean serum levels have been shown to be highly correlated with gestational age during early pregnancy, a wide range of values is compatible with normal progression of pregnancy at early gestational ages. Hence, only readings outside this range indicate a problem, as do serial readings that do not change appropriately. Precise dating of pregnancy is not needed for medical abortion. The estimate has to rule out pregnancies beyond 9 weeks, and even after 9 weeks, the method still has a high probability of success.

Additional factors to consider when determining gestational age limits:

> Legal and programmatic restrictions as applicable

> Medical abortion regimen used and its predicted efficacy for later gestational ages

> Women’s desire to have a medical abortion and willingness to accept a higher failure rate and increased bleeding at later gestational ages
> Likelihood of return for follow-up
> Provider experience and comfort with the method

**Labeled gestational age limits, by country:**

> Women in most European Union countries, the United States, India and Vietnam are eligible up to seven weeks gestation (49 days LMP) though most protocols in United States clinics provide for use off-label to 56 or 63 days LMP.

> Women in South Africa and Tunisia are eligible for medical abortion up to eight weeks gestation (56 days LMP).

> Women in Sweden and the United Kingdom are eligible for medical abortion up to nine weeks gestation (63 days LMP).

**Summary points:**

> Most women can use mifepristone for early medical abortion.

> Early protocols were cautious; however more recent safety and efficacy results have enabled women at later gestational duration to use the method as well.

> There is no evidence to show that mifepristone stops working or becomes dangerous at a certain gestational age; it appears to be more effective for earlier pregnancies.

> The gestational age of most pregnancies can be assessed by menstrual history and physical exam.
4. Medical Abortion Protocols With Mifepristone and a Prostaglandin

Chapter themes:
> Dose, timing, and route of administration
> Schedule of visits
> Side effects and complications
> Follow-up

A. Dose, Timing, and Route of Administration

Although the registered regimen is similar in most countries, local standards of care have introduced variants into many medical systems. Each of these regimens appears to be highly effective. Variations of the dose, timing, and route of administration and the evidence for these are discussed below.

Dose

> Mifepristone dose: A low dose of mifepristone (200 mg) has proven to be as effective as the originally used 600 mg dose and can greatly reduce costs.24,25,26,27

> Misoprostol dose: Although higher doses of prostaglandin usually result in higher success rates and/or shorter mean time to expulsion, they are also linked to increased side effects. Some providers believe that repeat dosing of misoprostol for women who do not expel the products of conception in the first 24 hours or have incomplete abortions or heavy bleeding improves success rates. Studies in which participants repeat the misoprostol dose following mifepristone tend to have higher efficacy rates than do studies in which women were given a single dose of prostaglandin,28 but to date no well-designed studies have examined this issue.
Table 4.1 Commonly used mifepristone-misoprostol medical abortion regimens worldwide.

<table>
<thead>
<tr>
<th>Dose mifepristone</th>
<th>Dose and route of misoprostol</th>
<th>Where used</th>
</tr>
</thead>
<tbody>
<tr>
<td>600 mg orally</td>
<td>400 µg oral misoprostol</td>
<td>Labeled in India, the United States, South Africa, France and most other European countries</td>
</tr>
<tr>
<td>200 mg orally</td>
<td>400 µg oral misoprostol</td>
<td>Used in Tunisia and the United States</td>
</tr>
<tr>
<td>200 mg orally</td>
<td>800 µg vaginal misoprostol</td>
<td>Most used regimen in the United Kingdom and Sweden and used in the United States</td>
</tr>
<tr>
<td>150 mg orally</td>
<td>600 µg oral misoprostol</td>
<td>Most commonly used regimen in China</td>
</tr>
</tbody>
</table>

Timing

> **Gestational age**: Mifepristone-misoprostol medical abortion appears to be most effective in early pregnancy. As gestational age increases, efficacy tends to decrease.

> **Timing of misoprostol administration**: Misoprostol is typically administered about 48 hours after mifepristone. Research suggests that the timing of misoprostol administration can be more flexible and can be offered at 24, 36 or 48 hours after mifepristone. Expanding the range of time in which misoprostol may be taken could increase the flexibility of this regimen, making it more accommodating for women’s and clinic’s schedules.
Route of administration

> **Mifepristone:** Mifepristone is administered orally. There is no evidence to suggest that alternative routes of administration may be more effective or convenient.

> **Misoprostol:** Studies have examined both oral and vaginal administration of misoprostol. While there is no conclusive evidence to suggest that vaginal administration of misoprostol is more effective than oral administration for women with gestations less than 8 weeks LMP, available data indicate that vaginal administration may be more effective for later pregnancies. There may also be a difference in side effects by route of administration, but these findings may be complicated by the effect of different dosing schemes. Some women may prefer oral administration of misoprostol. New research is investigating the safety, effectiveness, and acceptability of rectal, buccal (in the cheek) and sublingual (under the tongue) administration of misoprostol. Each of these alternative routes appear to result in serum level profiles of misoprostol compatible with high efficacy.

**B. Schedule of Clinic Visits**

Depending on a number of factors, a woman undergoing medical abortion can expect to have two to four, or in rare instances, more, clinic visits (see Figure 4.1). For example, the approved regimen used in the United States requires a woman to make three clinic visits: one to swallow the mifepristone, a second (1-3 days after mifepristone ingestion) to swallow the misoprostol, and a third (approximately 2 weeks later) to confirm that the abortion is complete.

Several studies have tested the safety and efficacy of home administration of misoprostol (both orally and vaginally), thereby reducing the number of clinic visits. Most women find this option preferable, and providers may find it easier and more feasible for service delivery. Similarly, some researchers are exploring how the follow-up visit could be omitted, or handled in ways other than through a personal appearance at a clinic.
**Figure 4.1** Typical series of medical abortion clinic visits.

- **Clinic Visit**
  - Counseling: Decision to have abortion, abortion methods available
  - Medical evaluation

- **Clinic Visit**
  - Women with no contraindications and selecting medical abortion:
    - Receive counseling about what to expect during the medical abortion process
    - Administer mifepristone
    - Choose where to administer misoprostol

- **Clinic Visit**
  - Administer misoprostol at clinic
  - Administer misoprostol at home

- **Clinic Visit**
  - Determine if abortion is complete
  - If abortion is complete:
    - Contraceptive counseling
  - If abortion is NOT complete:
    - Schedule follow-up visit or surgical intervention

- **Additional Clinic Visits**
  - Woman may require more time before selecting abortion and/or method
  - Woman may require follow-up visit

- **Treatment Complete**
The following are potential scenarios in which the number of visits would increase:

> A woman presents at a clinic with an unwanted pregnancy and after being given information about surgical and medical abortion, requests additional time before selecting a method.

> A woman returns for her two-week follow-up visit and learns that, although her pregnancy is not ongoing, her abortion is not complete. The decision is made to administer additional doses of misoprostol or simply wait to see if the abortion completes without further intervention. In this case, an additional follow-up visit would be recommended.

C. Managing Side Effects And Complications

Most of the side effects associated with medical abortion are expected and easy to handle. In the clinic, the person attending the woman (such as counseling staff, nurse, midwife, or a trained support person) should be able to handle most problems. In rare instances, a physician may need to intervene to manage side effects.

Each woman should be counseled about possible side effects and how to handle them. Women can be given either pain medication tablets or a prescription for pain medication before leaving the clinic. They should also be instructed to seek additional care (either at the clinic or in another emergency facility) if they are bleeding excessively (see description below) or have a persistent fever. See table 4.2 below for a description of common side effects, complications, and suggestions for management of these problems.
Table 4.2 Treatment and management of side effects and complications.

The two most common effects are pain (associated with uterine cramping) and vaginal bleeding. Some providers do not consider these symptoms to be “side effects” but main effects of the abortion process.

<table>
<thead>
<tr>
<th>Description</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reports of pain and perceived need for analgesia vary greatly from culture</td>
<td>&gt; Attention by or conversation with the counseling personnel (verbal anesthesia)</td>
</tr>
<tr>
<td>to culture, clinic to clinic, and person to person. For instance, in places</td>
<td>&gt; Hot water bottle or heating pad</td>
</tr>
<tr>
<td>where surgical terminations are performed with no anesthesia, medical</td>
<td>&gt; Sitting or lying comfortably</td>
</tr>
<tr>
<td>abortion is often rated as almost painless. Most women report at least</td>
<td>&gt; Support of friends/family</td>
</tr>
<tr>
<td>some pain, however, and roughly half perceive a need for analgesia. Pain</td>
<td>&gt; Soothing music, television, tea (where available)</td>
</tr>
<tr>
<td>rarely indicates the need for a surgical intervention and tends to</td>
<td>&gt; Paracetamol/acetaminophen</td>
</tr>
<tr>
<td>improve rapidly once the expulsion takes place.</td>
<td>&gt; Non-steroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen</td>
</tr>
<tr>
<td></td>
<td>&gt; Weak opioids such as codeine (and one of the above)</td>
</tr>
<tr>
<td>All women who experience a successful medical abortion will experience</td>
<td>&gt; Set reasonable expectations about bleeding during pre-abortion counseling</td>
</tr>
<tr>
<td>vaginal bleeding. Bleeding is likely to be more abundant and prolonged than</td>
<td>&gt; Give clear instructions about how to decide if bleeding is excessive and where to go for additional</td>
</tr>
<tr>
<td>normal menstruation but typically does not adversely affect hemoglobin</td>
<td>care</td>
</tr>
<tr>
<td>levels. The total amount of blood loss is related to gestational age.**</td>
<td></td>
</tr>
<tr>
<td>Bleeding</td>
<td></td>
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</table>

** Bleeding is often heaviest three to six hours after the prostaglandin administration and usually lasts about a week.
<table>
<thead>
<tr>
<th>Description</th>
<th>Management</th>
</tr>
</thead>
</table>
| Heavy or prolonged bleeding causing a clinically significant change in hemoglobin concentration is uncommon. Approximately 1% of women will require uterine evacuation for hemostatic control. The need for transfusion is even rarer (0.1% to 0.2%). There are no reports in the medical literature of hysterectomy for hemostasis after medical abortion. While it is important to explain to the woman that most medical abortions take place without incident, it is equally important to encourage the woman to call her provider if she experiences excessively heavy bleeding. Establishing a sanitary pad count (or local equivalent) will help make bleeding measurement concrete. In the United States, for instance, women are told that if they soak more than two super-size sanitary pads per hour for two consecutive hours they should call a provider. | > If there is evidence of hemodynamic compromise, intravenous fluids should be administered  
> If bleeding is particularly profuse or prolonged, surgical intervention may be required  
> Transfusion should be provided only if clearly medically required |
| Misoprostol can sometimes cause temperature elevations. These temperature elevations usually do not last more than one or two hours. Although uterine/pelvic infections are rare in medical abortion, a prolonged fever, or fever that persists over several days could signal an infection. | > Provide anti-pyretics and reassurance  
> If fever persists for more than four hours or develops more than a day after misoprostol administration, the woman should be instructed to contact the clinic |
| Nausea has been documented in approximately half of all women undergoing medical abortion and vomiting may occur in fewer than a third. These symptoms are usually related to pregnancy and administration of the medical abortifacients. They may appear or increase in intensity after mifepristone administration and usually decline hours after misoprostol intake. | > Reassure women that nausea and vomiting are commonly associated with pregnancy and are also a possible side effect of the medication  
> Provide women with anti-nausea or anti-emetic medication for severe symptoms if the drugs are available |
### D. Follow-up

The following tools can be used to evaluate whether or not the abortion was a success.47

> **Physical exam:** Women’s report of symptoms of abortion (see Chapter 4, part C for information on pain/bleeding patterns) with physical examination demonstrating return of uterus to pre-pregnant size.

> **Serum β-hCG testing:** A decline in serum human chorionic gonadatropic (hCG) levels can indicate that the pregnancy has ended. To document a change in hCG, a comparison of sequential serum samples is necessary (see the box below for

<table>
<thead>
<tr>
<th>Description</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transient diarrhea appears in fewer than a quarter of all women after misoprostol administration. Since the diarrhea is almost always short-lived, treatment is rarely necessary.</td>
<td>&gt; Reassure the woman that diarrhea is sometimes associated with misoprostol and usually passes rapidly</td>
</tr>
<tr>
<td>These symptoms have been documented in fewer than a quarter of all women. They are usually self-limited, resolve spontaneously, and are best managed symptomatically.</td>
<td>&gt; Provide reassurance and analgesia as needed</td>
</tr>
</tbody>
</table>
| Documented endometrial and/or pelvic infection is very rare. In a literature review of medical abortion studies with over 34,000 women the reported infection rate was less than 1%. The most common type of infection reported in the literature is presumed endometritis, usually easily treated with oral antibiotics. | > If infection is suspected (see fever) the woman should be evaluated  
> If there is evidence of endometritis and the abortion is incomplete, a surgical abortion should be performed and oral antibiotics provided  
> Any severe infection could require hospitalization and parenteral antibiotics |
typical rates of hCG decline following medical abortion); however, in some countries use of hCG testing may be too costly or burdensome and in such places, other methods can be used.

> Ultrasonography: Ultrasound examination can be a useful tool for evaluation of success if the provider has expertise in the technique. It is important to differentiate between blood clots/debris, true incomplete abortion and an ongoing pregnancy.48 Evacuation of the uterus in a clinically well woman is not indicated if some debris can be seen on ultrasound exam (see box below). As with spontaneous abortion, expectant management is often sufficient for all but ongoing pregnancies.

Persistent gestational sac

Even after fetal demise, a non-viable gestational sac may be retained in the uterus. If the woman has no symptoms of infection, no worrisome bleeding, and wishes to wait for expulsion, she may do so. Additional doses of misoprostol may induce uterine activity to expel the pregnancy tissue.

Management:

> Consider administration of additional doses of misoprostol.

> Provide reassurance to the woman: If there are no signs of clinical danger (e.g. fever, heavy bleeding) it is safe to wait for expulsion or to take another course of misoprostol. Studies to determine the optimal dose and timing of additional misoprostol courses are underway.
Serum β-hCG decline after medical abortion

> Increase of hCG levels can indicate ongoing pregnancy. If hCG levels have declined 50% in 24 hours, the pregnancy is likely to have ended.\textsuperscript{49,50}

> In women with complete medical abortion, hCG serum concentration should be below 1,000 IU/L two weeks after mifepristone administration.\textsuperscript{51}

> Time to reach very low levels (below 50 IU/L) is directly related to the initial hCG level.\textsuperscript{52}

Summary points:

> Many mifepristone-misoprostol regimens work well for early first trimester pregnancy termination.

> The number of visits a woman makes to her health care provider can range from two (one for medical evaluation and counseling and one for follow-up) to four or more, depending on individual circumstances and the protocol followed.

> Most side effects are expected (i.e. pain and bleeding) and easy to handle.

> It is important to confirm that each medical abortion is complete.
5. Counseling and Information Provision

Chapter themes:

> Choosing the method
> Screening for suitability
> Preparing the woman for what to expect
> Contraception after the abortion

Counseling is a crucial component of medical abortion.\textsuperscript{51-54} Counseling provides the opportunity to inform women about what to expect and to ensure that women know the warning signs of the need for additional help. Clinical experience has shown that medical abortion counseling may be closely related to the efficacy and acceptability of the method. If women are properly counseled about what to expect after taking the drugs, they are better prepared for their experience, and less likely to request a medically unnecessary surgical termination to end the process. In addition, women who are more confident about and comfortable with the method may find it more satisfactory.

If providers and women are less familiar with medical abortion methods, counseling may take longer than typical counseling prior to surgical abortions. As providers gain more experience, the amount of time required for counseling tends to decrease. For a detailed counseling checklist, please see Appendix B.

A. Choosing A Method

If both medical and surgical abortion methods are available, a brief description of both of these options should be given to the women. For example:

Medical abortion is a method of abortion that uses pills to end a pregnancy. Two different medications are used in a medical abortion. To use this method, women take the first kind of pill,
called mifepristone, to start the abortion. Two days later, they take a second set of pills, called misoprostol, to complete the treatment. Women may choose to take the second set of pills at home. Following the second set of pills, women may experience cramping, bleeding, nausea, vomiting, and diarrhea. Most of these side effects generally go away after a few hours, but bleeding similar to a heavy period can continue for a week or longer. Studies have found this regimen effective about 95% of the time and acceptable to most women.

It is important to provide complete, accurate and unbiased information to enable each woman to select the most appropriate method for herself. Women should not be coerced into selecting one of the two methods. Providers should take time to inform the woman that if the medical abortion fails, she may need to have a surgical intervention to complete the procedure. Issues such as religious beliefs, language, privacy preferences and social context should be considered.

**B. Screening For Suitability**

Each woman should be screened to assess her eligibility for medical abortion. From the medical standpoint, it is important to determine whether or not the method is appropriate for the woman. For example, it is important to determine if a pregnancy is less than 8 - 9 weeks LMP and if the woman has any known contraindications to either drug in the regimen. In addition, it is useful for the provider to discuss the various options available so the woman can see if medical termination fits well with her needs and expectations. For example, each user needs to be comfortable with the waiting time to completion. The following list highlights areas that should be incorporated into standard screening for medical abortion:

> Medical history (see Chapter 3, part A)
> Personal characteristics and preferences
> Social circumstances: family/partner support, job and household responsibilities
> Access to adequate back-up facilities
> Ability to return to clinic for a follow-up visit, where needed
C. Preparing The Woman For What To Expect

Counseling allows the provider to help women develop realistic expectations about the abortion. To assist with this process, the following issues should be discussed:

> **Mifepristone and misoprostol:** Explain what they are, how they work, and how they should be taken. Women should be advised that misoprostol may harm a fetus.

> **Success rate:** Explain that between 2 - 8% of women will require a surgical intervention. If the drugs fail, the woman should be prepared to complete the abortion surgically.

> **Understanding of the method:** Rumors or misconceptions about the method should be dispelled, and all of the woman’s questions or concerns should be thoroughly reviewed.

> **Expectations about side effects:** Discuss the amount of pain, bleeding and other side effects that are commonly experienced.

> **Products of conception:** Women should be informed that it is possible, though not likely, that they will see the products of conception. Some clinics find it useful to show women pictures of expelled products of conception at different gestational ages to enable women to have a realistic idea of what they might see.

> **Possible complications:** Women should be given a detailed description of possible complications and explained how they can be managed (see Chapter 4, part C). In addition, if feasible within the local context, providers may want to give women a telephone number to call if they have any questions or concerns.

> **Follow-up care:** Although the woman may believe that her abortion is complete (i.e. if she believes she has seen the expulsion or bleeding has ceased), best current clinical advice is that each woman should return to the clinic to confirm that her abortion is complete. Future protocols may develop mechanisms by which a woman can assess her abortion status on her own, without having to make an additional clinic visit for this purpose.

> **Cost:** In places where abortion services must be covered by the woman, the costs of each abortion method should be discussed.

> **Informed consent:** Depending on local regulations and practices, women may be
required to sign a consent form. Informed consent should include an explanation of the process, a statement indicating that risks, benefits, complications and potential side effects have been fully explained and that the woman has had the opportunity to ask questions and received satisfactory answers. The consent form should also indicate that the woman has received detailed information about the procedures for emergency care, if needed. A sample informed consent form is included as Appendix C.

Table 5.1 Best and worst features of medical abortion as reported by women participating in Population Council studies.

<table>
<thead>
<tr>
<th>Best Features</th>
<th>Worst Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; No surgery and/or injections and/or anesthesia</td>
<td>&gt; Pain, cramping (feared or actual)</td>
</tr>
<tr>
<td>&gt; Non-invasive</td>
<td>&gt; Waiting, uncertainty, fear of unknown</td>
</tr>
<tr>
<td>&gt; Fear of surgery</td>
<td>&gt; Nausea, vomiting, diarrhea (feared or experienced)</td>
</tr>
<tr>
<td>&gt; Natural, like menses or miscarriage</td>
<td>&gt; Amount of bleeding</td>
</tr>
<tr>
<td>&gt; Less pain, cramping</td>
<td>&gt; Fear of failure, true failure</td>
</tr>
<tr>
<td>&gt; Easier emotionally, less frightening or traumatic</td>
<td>&gt; Takes too long</td>
</tr>
</tbody>
</table>

D. Contraceptive Counseling

Contraception should be discussed with every woman. All women should be reminded that fertility returns quickly following early first trimester abortion. For this reason it is critical that women understand the subsequent risk of pregnancy. Information about contraception can be provided during any of the clinic visits. Women having medical abortions can begin using oral contraceptives, condoms, contraceptive jellies and foams, the cervical cap, the diaphragm, injectables and implants immediately after taking mifepristone and misoprostol. It is best for
women requesting intrauterine devices to wait until their abortion is complete before having them inserted. An appropriate contraceptive method will depend on local availability and the needs and preferences of each woman.

**Summary points:**

> Providing women with complete information is critical to ensure success, safety, and acceptability.

> Most contraceptive methods can be used immediately after medical abortion.
6. Basics For Service Delivery

Chapter themes:
> Staff training
> Medications
> Emergency care facilities/referral system
> Additional facilities

The basic requirements for medical abortion service delivery include trained staff and the required medications (mifepristone and misoprostol). Staff should include skilled counselors who are able to determine eligibility, confirm success, refer and/or provide women for emergency back-up care.

A. Staff Training

Staff at facilities offering medical abortion should be trained in each of the following:

> Protocols for medical abortion: Staff should be knowledgeable about mifepristone and misoprostol and the protocol(s) being used at the clinic.

> Counseling: Staff should receive comprehensive training on counseling for medical abortion (see Chapter 5).

> Dating gestational age: Staff should be able to assess gestational duration by review of pertinent history, symptoms, and physical exam (see Chapter 3, part B). Since the effectiveness of medical abortion does not decrease dramatically with each day of increasing gestational length, it may not be necessary to precisely date gestational age. Lab tests to detect hormone levels and ultrasonography may aid in determining gestational age, but are not requirements for service provision.
> **Identifying rare pregnancy abnormalities:** Staff should be knowledgeable about warning signs for rare pregnancy abnormalities such as ectopic pregnancies and hydatidiform mole. Since women presenting for medical abortion usually come early in their pregnancies, providers have an opportunity to diagnose rare conditions early. Mifepristone and misoprostol have no effect on ectopic and molar pregnancies.

> **Determining success:** Abortion status can be assessed at follow-up by clinical history and exam (see Chapter 4, part D). For example, if the clinician is able to detect an increase in uterine size compatible with additional weeks of fetal growth or if the woman is having prolonged bleeding problems, additional intervention is likely needed.

> **Values clarification:** Discussion with staff about values may be useful, especially in instances where some of the staff are ambivalent about providing abortion services.

**B. Medications**

> **Mifepristone and misoprostol:** Both drugs can be administered either at home or in the clinic. Regardless of where the drugs are administered, women should be carefully counseled on how and when to take each drug and on potential complications, probable side effects, and management of these occurrences.

**C. Emergency Care Facilities/Referral Services**

> **Surgical termination:** Since the method is not 100% effective, medical abortion providers should be able to perform or refer women for surgical completion, when needed.

> **Emergency care:** Women need to know where to go for emergency care. Most back-up care is similar to that needed by women following spontaneous abortion, and many communities have a health care facility already in place to provide such care.
D. Desirable (But Not Required) Facilities

> Waiting area: If misoprostol is taken at the clinic, it is convenient to have an area where women can wait after taking the medication. A sufficient number of toilets should be nearby. Beds are rarely necessary, but comfortable chairs can be useful. Ideally, clinics provide space for a woman’s companion to stay with her during the abortion process.

> Ultrasonography: As explained above, ultrasonography can be useful in determining gestational age, identifying pregnancy complications, and confirming abortion completion.

> Pain medications/anti-emetics: These products can be given to women in advance to be used as needed to help to ease side effects (see Chapter 4, part C).

> Anti-D globulin: While most researchers recommend using anti-D globulin for Rh negative women with gestations of more than seven weeks, its use under seven weeks’ gestation is debated. It is possible that at this very early stage of pregnancy there is little, if any, opportunity for an exchange of blood between the woman and the fetus. More research is needed to determine exactly when such precautions are necessary. If the local standard of care indicates anti-D globulin for women undergoing surgical or spontaneous abortion who are Rh negative, this care should be provided with medical abortion until further evidence becomes available.

Summary point:

> It is simple and straightforward to train providers to offer medical abortion in almost any setting.
7. Bringing Mifepristone To New Settings

Chapter themes:

- Disseminating information
- Medical abortion myths
- Adding medical abortion to existing services
- Training providers
- Confronting abortion stigma

Since mifepristone is a relatively simple drug to use, it may increase access to safe abortion services in areas where there are few surgical providers.

A. Disseminating information

As with all new technologies, information dissemination is critical to building local and national support. International experience suggests that the following dissemination strategies have worked well:

- Promoting the method as a component of comprehensive reproductive health services.
- Increasing women’s awareness and understanding of medical abortion through media and women’s organizations or groups.
- Spreading information among providers via medical journals.
- Introducing medical abortion as part of the agenda in professional meetings (medical abortion can be introduced as a new reproductive technology at medical conferences).
- Educating health workers at all levels, including physicians, mid-level providers, reception personnel, counselors and telephone operators.
- Creating networks of service providers through which they can share their experiences.
B. Medical Abortion Myths

When disseminating information about medical abortion, it is important to respond to common myths regarding the method. The following are some common myths about medical abortion and factual evidence.

> Myth #1: Ultrasound exams are necessary for all medical abortion services

Many providers are concerned about offering medical abortion, especially in rural areas where ultrasound may not be available. While ultrasound is a useful tool both for gestational age dating and for identifying ectopic pregnancies, it is not irreplaceable. It is useful to identify a location where women can be referred for an ultrasound exam, if needed.

> Myth #2: Medical abortion is dangerous because it does not resolve ectopic pregnancies

Medical abortion is contraindicated for women with known ectopic pregnancies because mifepristone will not end an ectopic pregnancy. Early contact between pregnant women seeking medical abortion and health care providers creates an opportunity to diagnose the condition sooner than would have been possible if the woman had chosen to continue her pregnancy.

> Myth #3: Medical abortion is not appropriate for women in rural areas

If a health care facility offering medical abortion is not able to provide back-up care, such as surgical aspiration, the facility should be located in reasonable proximity to a referral center that can provide this care. For instance, rural hospitals and primary health care facilities can act as nodal points and provide back-up services to primary health care facilities in the geographic vicinity. This “hub and spoke” referral system is commonly used throughout much of the world for other types of health care delivery.

> Myth #4: Only physicians can administer medical abortion

Given the nature of medical abortion – women simply ingest two sets of pills – trained non-physician providers can be effective medical abortion providers. This
has the dual benefit of increasing the pool of medical abortion providers while also building on the skills of mid-level providers such as nurse-midwives. In some places, nurse-midwives, nurses, and other trained personnel are already providing safe medical abortion services.

C. Adding Medical Abortion To Existing Services

Providers who currently offer family planning, pre-natal care or other reproductive health services can add medical abortion to their current services. In particular, surgical abortion providers can also offer medical abortion services once they receive appropriate training.

D. Training Providers

Regardless of whether new providers are physicians or other health care providers, adequate medical abortion training will greatly improve their comfort and skill with the method. Recent studies have demonstrated that success and satisfaction with the method tends to increase as provider experience and skills increase.

A basic training course should include the following elements:

> Mifepristone and misoprostol: Pharmacology and mechanism of action
> Eligibility and contraindications
> Protocols for medical abortion
> Diagnosing complete abortion, incomplete abortion and ongoing pregnancy
> Managing side effects and adverse events
> Ultrasound: Its advantages and disadvantages in various settings
> Counseling
Experience has shown that case studies are quite helpful, especially when discussing management of side effects and diagnosis of abortion status. In addition, role plays and group activities have proven extremely effective means of training on eligibility and counseling.

E. Confronting Abortion Stigma

While many developing countries, particularly in Sub-Saharan Africa and Latin America, have strict abortion laws, there are almost always limited circumstances in which abortion is permitted. If abortion is legally permitted, women should ideally be able to choose either surgical or medical abortion.

Below are suggestions for promoting the method in areas where abortion is highly stigmatized:

> Emphasize that medical abortion is safe for women
> Introduce the idea that medical abortion is similar to miscarriage
> Some countries have had success launching medical abortion services by beginning to use misoprostol for completion of abortion

Summary points:

> It is essential to disseminate information to women and to health care providers at all levels.
> Many of the barriers mentioned in relation to development of medical abortion services are myths.
> Medical abortion can be safely offered by trained providers.
8. Where There Is No Mifepristone

Chapter themes:
> Methotrexate and misoprostol for medical abortion
> Misoprostol-alone abortions

Table 8.1 Advantages and disadvantages of medical methods used to induce abortion

<table>
<thead>
<tr>
<th>Regimen</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mifepristone + misoprostol</td>
<td>&gt; Over 95% effective&lt;br&gt; &gt; Acts rapidly</td>
<td>&gt; Medication can be costly&lt;br&gt; &gt; Not available worldwide</td>
</tr>
<tr>
<td>Methotrexate + misoprostol</td>
<td>&gt; Over 90% effective</td>
<td>&gt; Acts slowly&lt;br&gt; &gt; Potential to cause fetal malformations</td>
</tr>
<tr>
<td>Misoprostol alone</td>
<td>&gt; Over 85-90% effective&lt;br&gt; &gt; Least costly&lt;br&gt; &gt; Widely available</td>
<td>&gt; More side effects&lt;br&gt; &gt; May be associated with fetal malformations</td>
</tr>
</tbody>
</table>

A. Methotrexate And Misoprostol

Methotrexate is a folic acid antagonist that interferes with DNA synthesis. When used as an abortifacient both alone and in combination with a prostaglandin, methotrexate can successfully end early intra-uterine and ectopic pregnancies.55 Use of a complementary prostaglandin, such as misoprostol, induces uterine contractions, causing the abortion to take place more quickly.56,57
1. Regimens

Methotrexate and misoprostol have been used for medical abortion up to 63 days LMP. The most commonly used regimen is 50 mg methotrexate orally, followed on day 5-7 by 800 μg misoprostol vaginally. The misoprostol dose is usually repeated after 24 hours if the abortion has not occurred.

Methotrexate is currently available as both a solution and oral tablets. The solution can either be ingested orally or injected intramuscularly. Intramuscular methotrexate is most commonly administered in a dose relative to the woman’s body surface area. As with mifepristone-misoprostol regimens, researchers have explored the possibility of administering the misoprostol on day 4, 5, or 6 and have found that each of these regimens is effective.58

2. Safety

Methotrexate is used for a number of indications other than medical abortion. The drug is not known to have any effect on future fertility or to increase the risk of abnormalities in future pregnancies.59,60,61 Pharmacokinetic studies indicate that the typical 50 mg oral dose is safe, as blood serum levels do not reach sustained toxic levels.62

Contraindications for methotrexate/misoprostol

> Severe anemia
> Known coagulopathy
> Active liver or renal disease
> Uncontrolled seizure disorder
> Acute inflammatory bowel disease

It may be advisable for women who are taking folate-containing medications, including prenatal vitamins, to discontinue these medications for one week following methotrexate administration.
Some clinicians advise against eating foods high in folate such as dark green leafy vegetables, broccoli, beans, brewers’ yeast, whole grains, wheat germ, oranges, and organ meats for two weeks after methotrexate but there is no evidence that such precautions are necessary. Because methotrexate is excreted in breast milk, breastfeeding women who are able to provide adequate nutrition to their children should discard breast milk for 72 hours after taking methotrexate.

**Teratogenicity**

Women should be advised about the possible teratogenic effects of methotrexate and misoprostol and counseled regarding the importance of surgical completion if the drugs do not successfully end the pregnancy. Anecdotal reports of a pattern of anomalies among infants born to women treated with methotrexate during pregnancy indicate that methotrexate is potentially teratogenic. Most reports of teratogenicity associated with methotrexate involve high doses used for chemotherapy or doses exceeding normal ranges. See Chapter 8, part B for information on misoprostol and teratogenicity.

**3. Efficacy**

The overall success rate of methotrexate-misoprostol medical abortion reported in the clinical trial literature varies between 88% to 97%. Although these rates are similar to those achieved with mifepristone, medical abortion with methotrexate takes longer to complete.

As described in Chapter 2, the efficacy of medical abortion is associated with the protocol used and provider experience; success rates increase when women wait longer to expel the products of conception before recourse to surgical evacuation. There is some evidence that methotrexate and misoprostol may be more effective at younger gestational ages, but the data are inconclusive and studies of abortion up to 63 days LMP report success rates above 90%.66

**4. Acceptability**

Between 83% and 89% of participants in methotrexate medical abortion studies stated that they would choose the same method again. A study that compared the acceptability of mifepristone and methotrexate regimens found that acceptance was higher for mifepristone with significant differences between the two drugs in the subcategories of pain and waiting time.69
5. Side effects/complications

The side effects of methotrexate-misoprostol medical abortion are similar to those experienced with mifepristone-misoprostol medical abortion. A study comparing the side effects of mifepristone and methotrexate medical abortion regimens found that headaches were significantly more common after mifepristone and that diarrhea, fever, chills, and "worst" pain score were significantly more common after methotrexate. Management of side effects is similar to that recommended with mifepristone (see Chapter 4, part C). Differences in recommendations regarding failed or incomplete abortion and ectopic pregnancy are discussed below.

Failed or incomplete abortion
In most protocols, ongoing viable pregnancy has been defined as the presence of gestational cardiac activity on transvaginal ultrasonography two weeks after methotrexate administration. Intervention for a nonviable pregnancy is not necessary and expulsion will occur with time, on average 22 to 29 days after methotrexate. Current recommendations in the United States for medical abortion with methotrexate regimens suggest waiting at least 29 to 45 days before completing a surgical evacuation, though some women do not want to wait this long and will request a surgical intervention.

Ectopic pregnancy
The use of methotrexate for early medical abortion will potentially treat an undiagnosed early ectopic pregnancy. In fact, the 50 mg/m² dose often used for medical abortion is the same as the recommended treatment for early ectopic pregnancy.

B. Misoprostol Alone

Misoprostol used alone for abortion is a promising alternative to mifepristone-misoprostol regimens. Studies have evaluated the efficacy of misoprostol used alone for both first and second trimester abortions. Given its wide availability, low price, and ease of use, women around the world have begun to use misoprostol without medical supervision as a means of abortion induction.
1. Regimen

Most studies have assessed the efficacy of an 800 µg dose of vaginal misoprostol repeated over several days until completion.

2. Safety

Millions of women have used misoprostol (both alone and in combination with mifepristone or methotrexate) for safe termination of pregnancy.

_Uterine rupture_

Misoprostol may increase the risk of uterine rupture, especially in later gestations and in women with a scarred uterus. The risk of uterine rupture with early medical abortion is unknown, but has not occurred in hundreds of thousands of recorded uses of mifepristone-misoprostol for early first trimester abortion. Anecdotal evidence exists of uterine rupture in women undergoing second trimester medical abortion using misoprostol (both alone⁷²,⁷³,⁷⁴ and with mifepristone⁷⁵).

_Teratogenicity_

Although some studies conclude that there is no clear evidence of teratogenicity⁷⁶,⁷⁷,⁷⁸ others have found a connection between attempted unsafe abortion with misoprostol and congenital defects.⁷⁹,⁸⁰,⁸¹,⁸² Doctors and women need to be aware that failed termination in early pregnancy after exposure to misoprostol may lead to an abnormal fetus. Surgical termination is recommended if a pregnancy is ongoing after exposure to misoprostol.

**The use of misoprostol in Brazil**

By 1991, misoprostol’s abortifacient properties were known throughout Brazil. Pharmacies, doctors, and women themselves spread information about the drug. Use of misoprostol to induce abortion in this way appears to have decreased abortion-related mortality and morbidity.
3. Efficacy

In areas where mifepristone is not available, use of misoprostol alone may be a good, safe alternative. Although an optimal regimen is still being investigated, most published studies report efficacy rates ranging from 50% to 95%.

4. Acceptability

Most studies do not explicitly investigate the acceptability of misoprostol alone, but available data suggest that acceptability is high.

5. Side effects

As with other forms of medical abortion, the most commonly reported side effects are uterine cramping and pain, bleeding, and nausea. Management of side effects is the same as for mifepristone medical abortion (see Chapter 4, part C).

6. Mode of administration

As with mifepristone-misoprostol medical abortion, the available evidence regarding comparative efficacy of different routes of administration is inconclusive (see Chapter 4, part A). Most providers now use the drug either orally or vaginally or both for abortion induction. Researchers are also studying the efficacy of sublingual and buccal misoprostol administration.83,84

Summary point:

> Where mifepristone is not yet available, methotrexate and misoprostol are good medical abortion options.
9. Looking Forward

This guidebook was made possible by the enormous progress in medical abortion technology over the last two decades. Finally, we have available a powerful tool that can be used widely to help solve a difficult and painful problem that is all too common in the lives of millions of women. The purpose of this guidebook is to show how the technology can be provided even where resources are scarce and medical services are not necessarily sophisticated.

The promise of medical abortion to ensure access to needed services, to increase the comfort and autonomy of women, and to improving health outcomes will not be fully realized until the technology is accessible in all places where women can choose to end unwanted pregnancies. Using the suggestions provided by this guidebook can help to advance the goal of making medical abortion a real choice for more women.

At the time the contraceptive pill was developed, it was almost unimaginable that we would also be able to address the problem of abortion with medicines and avoid surgery. But indeed, we are really there. The method has been used by tens of millions of women in dozens of countries, and it is incontrovertibly safe, effective, acceptable, and feasible to introduce into services.

Nonetheless, we are not at the end of the line in improving the technology – and especially in re-thinking and re-designing aspects of services. We now know, for example, that fewer visits to the clinic are completely compatible with safe and effective use of the method. The minimum visit mode of service delivery is also highly desirable to most women and to providers. One challenge, therefore, is to convince policymakers, regulatory agencies, health systems, and individual clinicians to provide medical abortion with the fewest possible visits.

At the moment, we have a lot of positive experience with services that allow women to take misoprostol at home and not return to the clinic for this purpose. Since it is the misoprostol, and not the mifepristone, that causes most of the uncomfortable side-effects of the method, it is logical to explore the idea of allowing women to take mifepristone at home as well. In the future, we can consider mechanisms of allowing a woman to buy mifepristone in the pharmacy (a situation that already exists in India) and even to have it on hand should she need it at a later date.
Since many women feel perfectly well and tend to avoid re-visits to clinics after an abortion, we need more research on ways to help eligible women safely skip return visits after completion of their medical abortions. We do know that women are very good at determining whether they might require additional care for medical complications, and with appropriate counseling, they should be able to self-refer back to facilities for this purpose. Documentation exists showing that women are unlikely to think that their abortion has succeeded when it is not yet complete and that they are more likely to believe that the pregnancy has not ended when it already has terminated. In the future, there can be a place for inexpensive low-sensitivity pregnancy tests to aid women in deciding when they may need care for a pregnancy that continues after medical abortion.

A great many services, in both more and less developed parts of the world, that provide medical abortion routinely have discovered on their own that the method is simple to provide and that it can be provided very well by non-physicians. This insight is critical to making the method more accessible in low-resource environments, and another challenge for the future is to ensure that the message is widely known and understood by those who design services and develop norms for health services.

As for the science of the technology itself, we look forward to a way to make the process of medical abortion even more comfortable for women, reducing what are now thought of as the inevitable consequences of use of the method: bleeding and pain. For this goal, we will need to engage with basic scientists to begin to explore alternative molecules and formulations. But why not? The past has been instructive and productive: the technology is here, and it works. The promise for the future is enormous, with dividends in the health and productivity of women all over the world. We look forward to being part of this exciting prospect.
## 10. Appendices

### Appendix A: Efficacy of mifepristone and misoprostol for early medical abortion

<table>
<thead>
<tr>
<th>Reference</th>
<th>N</th>
<th>Gestational Age</th>
<th>Dose Mifepristone (mg)</th>
<th>First Dose Misoprostol (µg)</th>
<th>Additional Doses Misoprostol (µg)</th>
<th>Success (%)</th>
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<tr>
<td>Aubeny E, et al.66</td>
<td>1108</td>
<td>≤ 63 days</td>
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<td>400 oral on day 3</td>
<td>200 oral 3 hours later</td>
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<td>600 oral on day 3</td>
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<td>El-Refaey H, et al.89</td>
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<td>600</td>
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<td></td>
<td>500</td>
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<td>400 oral on day 3</td>
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<td>548</td>
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<td>200</td>
<td>400 oral on day 2</td>
<td>400 oral 2 hours later, if necessary</td>
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<tr>
<td></td>
<td>596</td>
<td>≤ 63 days</td>
<td>200</td>
<td>800 vaginal on day 2</td>
<td>800 vaginal on day 3, if necessary</td>
<td>99</td>
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<td>220</td>
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<td>800 vaginal on day 4-8, if necessary</td>
<td>91</td>
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<td></td>
<td>269</td>
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<td>200</td>
<td>800 oral on day 3</td>
<td>800 vaginal on day 4-8, if necessary</td>
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<td>800 vaginal on day 4-8, if necessary</td>
<td>98</td>
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<td>Spitz I, et al.99</td>
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<td>Tang OS, et al.100</td>
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<td>800 vaginal on day 3</td>
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<td>94</td>
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<td>741</td>
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<td>800 vaginal on day 3</td>
<td>400 oral twice daily on days 4-10</td>
<td>95</td>
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<td></td>
<td>738</td>
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<td>200</td>
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<td>94</td>
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<td>1373</td>
<td>≤ 56 days</td>
<td>600</td>
<td>400 oral on day 3</td>
<td></td>
<td>84-95**</td>
</tr>
</tbody>
</table>

* Women randomized to either take the misoprostol in a single dose of 800 µg or in two doses of 400 µg administered sequentially 2 hours apart.

** More than one site. Combined results not reported.
APPENDIX B: COUNSELING CHECKLIST FOR MEDICAL ABORTION

1. Discuss the differences between medical and surgical abortion.

<table>
<thead>
<tr>
<th>Medical Abortion</th>
<th>Surgical Abortion</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; High success rate</td>
<td>&gt; High success rate</td>
</tr>
<tr>
<td>&gt; Surgical intervention required in a small percentage of all cases</td>
<td>&gt; A very small percentage may require re-evacuation</td>
</tr>
<tr>
<td>&gt; Avoids invasive procedures</td>
<td>&gt; Instruments inserted into the uterus</td>
</tr>
<tr>
<td>&gt; Avoids anesthesia</td>
<td>&gt; Typically includes sedation with or without anesthesia</td>
</tr>
<tr>
<td>&gt; Severe complications are rare</td>
<td>&gt; Complications are rare and may include heavy bleeding, infection from surgical instrumentation and injury to the genital track</td>
</tr>
<tr>
<td>&gt; Requires 2 or more visits</td>
<td>&gt; Requires 2 or more visits</td>
</tr>
<tr>
<td>&gt; Time to completion ranges from days to weeks</td>
<td>&gt; Time to completion is predictable</td>
</tr>
<tr>
<td>&gt; Involves a multiple-step process</td>
<td>&gt; Involves a single-step</td>
</tr>
<tr>
<td>&gt; Woman has greater control</td>
<td>&gt; Provider has greater control</td>
</tr>
</tbody>
</table>

2. Ask the woman to choose the method that she would like.

3. If medical abortion is selected, confirm that the woman is eligible for this method.

4. Be sure that all women are:
   > Certain about abortion decision
   > At appropriate gestational age
   > Able to follow treatment protocol
   > Willing to attend follow-up appointment, if needed
   > Willing to have surgical completion, if needed
   > Able to access emergency care

5. Explain the regimen.
   > Instruct how and when to administer misoprostol (if home-use is chosen)
   > Explain what she should expect during the expulsion process
   > Discuss the passage of products of conception
6. Describe commonly experienced side effects.
   > Vaginal bleeding comparable to or heavier than a normal heavy period
   > Cramping
   > Nausea, vomiting, and/or diarrhea
   > Fatigue
   > With the exception of heavy bleeding, each of these symptoms is normal
     and should not last a very long time
   > Stock up on sanitary pads (or local equivalent)

7. Describe how to manage side effects.
   > Analgesics

8. Explain when to contact the clinic.
   > Severe pain not relieved by analgesics
   > Soaking at least 2 large “maxi” sanitary pads (or local equivalent) per hour
     for 2 consecutive hours
   > Fever lasting 6 hours or more

9. Provide emergency contact information for the clinic.

10. Offer contraceptive information.

11. Be sure that the woman leaves the clinic with the following:
    > Misoprostol tablets (if home-use regimen is chosen)
    > Analgesia or a prescription for analgesia
    > Instruction sheet that includes:
      - Details on how and when to administer misoprostol (if home-use
        regimen is chosen)
      - Description of side effects and how to manage them
      - Instructions for when to call the clinic
      - Date and time of follow-up visit
I have been fully explained about medical abortion, a way of terminating a pregnancy using oral pills. I understand that I will be given mifepristone to take by mouth in the clinic and that I will need to take misoprostol orally (or insert locally used prostaglandin regimen) from one to three days later. I understand that I will need to return to the clinic for a follow-up visit approximately two weeks after my first visit. I can also come to the clinic at any other time as well if I have any concerns or questions. I realize that I can request and receive a surgical abortion at any point in time.

I understand that many women experience some side effects with medical abortion. I may feel some nausea and may vomit or have diarrhea. I realize that I will probably have abdominal pain or cramping, and bleeding. The bleeding may be heavier than I usually experience with my menses. I understand that all of these side effects are temporary.

I also understand that the medical abortion regimen may fail to terminate my pregnancy. I have been told that this occurs in approximately five out of every one hundred cases.

There are several reports of harm to the fetus from women who have taken the combined regimen of mifepristone-misoprostol and then continued their pregnancies to term. Therefore, if the treatment fails, I realize that it is strongly recommended that I should have a surgical abortion.

If I have a medical emergency, or any concerns about my medical abortion, I may call _________________ at telephone number: _________________.

I, __________________________________ (print name), would like to terminate my pregnancy with a medical abortion regimen. I have read and understand this informed consent form. All of my questions have been answered, and I have received the name and telephone number to call in case of emergency.

Signed: ________________________________ Date: __________________
Appendix D: Bellagio Meeting Participants

Dr. Paul Blumenthal  
Department of Gynecology and Obstetrics  
Johns Hopkins University  
Room A 125 C  
4940 Eastern Avenue  
Baltimore, MD, U.S.A. 21224  
Email: pblumen@jhmi.edu

Dr. Shelley Clark  
University of Chicago  
Harris School of Public Policy  
1155 East 60th Street  
Chicago, IL, U.S.A. 60637  
Email: sclark1@uchicago.edu

Dr. Kurus J. Coyaji  
K.E.M. Hospital  
Rasta Peth  
Pune, India 411011  
Email: kurus@vsnl.com

Dr. Charlotte Ellertson*  
c/o Ibis Reproductive Health  
2 Brattle Square  
Cambridge, MA, U.S.A. 02138-3742

Dr. Christian Fiala  
Gynmed Ambulatorium  
Mariahilfer Gürtel 37  
A-1150 Vienna, Austria  
Email: christian.fiala@aon.at

Ms. Thembi Mazibuko  
Permanent Building  
Woodley Street Entrance  
Office Suite M6  
Kimberley, South Africa 8300

Dr. Vu Quy Nhan  
Population Council  
2 Dang Dung Street  
Ba Dinh District  
Hanoi, Vietnam  
Email: nhanvq@popcouncil.org.vn

Dr. André Ulmann  
HRA – PHARMA  
19, rue Frederick LeMaitre  
75020 Paris, France  
Email: a.ulmann@hra-pharma.com

Dr. Beverly Winikoff  
Gynuity Health Projects  
15 East 26th St, 16th Floor  
New York, N.Y., U.S.A. 10010  
Email: bwinikoff@gynuity.org

* deceased
11. References


62 Creinin, MD; Korhn MA. Methotrexate pharmacokentics and effects in women receiving methotrexate 50 mg and 60 mg per square meter for early abortion. American Journal of Obstetrics & Gynecology 1997;177:1444-1449.


69  Ibid.

70  Ibid.


