SAFE MOTHERHOOD

Clinical management of abortion complications: a practical guide

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Practical Guide

WHO/FHE/MSM/94.1
DISTR.: GENERAL

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Acknowledgements

These guidelines were compiled and edited by IPAS in Carrboro, NC, USA, under a contract from the World Health Organization. P. Blumenthal, J. Winkler, A. Leonard, and L. Yordy served as the primary writers and editors of this document.

An outstanding team of international health professionals participated in the working group that produced the final version of these guidelines: H. Akhter, J. Chirinos, K. McLaurin, S. Mehta, K.O. Rogo, N. Toubia, N. Younis, K. Yusof, M.A. Belsey, C. AbouZahr, J. Fortney, R.H. Johnson, G. Walker, L. Mehra, J. Kierski, R. Guidotti, A. Jacobs, P.F.A. Van Look, O. Meirik, H.M. Bathija, A.I. Mundigo, O.M. Frank, K.E. Ringheim, L. Phillip, and K. Janovsky-Weir.

In the preparation and reviewing of the text, the World Health Organization acknowledges the valuable contributions of: H. Akhter, A. Ariñez, P. Bhiwandiwala, D. Chikamata, J. Chirinos, G. Delano, J. Fortney, G. Huggins, O.A. Ladipo, K. Like, J.D. Ortiz Mariscal, S. Mehta, D. Minkler, M. Potts, A. Rizo, K.O. Rogo, J.M. Sotelo, N. Toubia, L.B. Tyrer, J. Tyson, D.A.A. Verkuyl, K. Yusof, and N.Younis.

Special thanks to J. Protiva, S. Johnson and V. Henderson for their valuable assistance in the production of this document.

This document was produced with a generous grant from the Andrew W. Mellon Foundation whose support is gratefully acknowledged.

PREFACE

This manual is intended to assist health workers in preventing death and serious injury from abortion complications. It outlines the full range of steps in addressing life-threatening complications. It is essential to know what the steps are and to take all possible actions. This document indicates only the general direction of treatment. The guidelines should be adapted on the basis of local conditions, availability of drugs, instruments, training, national standards and regulations (e.g. which category of health workers is authorized to start IV perfusion). This manual is based on WHO's *Complications of Abortion: Technical and Managerial Guidelines for Prevention and Treatment* (in press).

The information in this manual is organized according to the sequence of decisions that must be made when women present with symptoms of abortion. Information on the management of cases is presented in the form of decision trees with corresponding text that outlines the elements of care.

The manual is divided according to major complications of abortion in order to assist the clinician in identifying and treating the most urgent conditions first. Chapter 1 covers identification of each condition in a "triage" approach, stressing identification and treatment of complications which require immediate attention. It also gives guidance in performing a clinical assessment so that if a woman is suffering from several conditions at once they can all be identified in order to determine what to treat first.

Chapters 2-6 outline the steps in treatment of each of the conditions which may be identified in the assessment: shock, moderate to light vaginal bleeding, severe vaginal bleeding, intra-abdominal injury, and sepsis. For the sake of clarity, these conditions are discussed separately, even though it may be necessary to initiate treatment for more than one condition at the same time.

The text of each chapter is supported by a chart in decision tree form which illustrates the steps to assess and treat the patient. Each decision tree begins with the presenting condition and the initial steps for further assessment and initiation of treatment. The sequence of actions are linked on the chart by arrows which lead the clinician through the process of ruling out conditions until finally they lead to the definitive management or refer to another chart where management may be found.

Chapter 7 gives general considerations about specific elements of treatment that are part of the management of several or all of the complications of abortion.

The accompanying wall charts should be posted prominently for easy reference in the area where abortion complications are treated. The manual should be accessible in the same area where all staff who treat women for abortion complications can use them.

INTRODUCTION

Treatment of Abortion Complications

Abortion complications are responsible for around 14% of the approximately 500,000 maternal deaths that occur each year, 99% of them in the developing world. "The prevention of abortion-related maternal mortality is dependent on emergency abortion care being integrated throughout the health care system of every country, from the most basic rural health post to the most sophisticated tertiary level facility, 24 hours per day. Whether it is health information and education, stabilization and referral, uterine evacuation, or specialized care for the most severe complications, at least some components of emergency abortion care must be available at every service delivery site in the health care system" (WHO, *Complications of Abortion: Technical and Managerial Guidelines for Prevention and Treatment*, in press).

One of the most positive steps which can be taken is to provide life-saving care at the lowest possible level of the health system, in order to maximize the chances that the woman will reach that care before it is too late. Beginning emergency care at the primary care level is essential to achieving that goal. The first referral level must be able to build on the services provided at the primary level by providing life-saving surgical and medical procedures for all but the most serious complications.

Often care offered at the primary level can be improved dramatically with a relatively small number of changes. The primary level can work toward having staff trained and facilities available to assess the woman's status, stabilize her condition, initiate treatment and perform simple uterine evacuation. They also need to be able to prepare patients for referral and arrange prompt reliable transport. For a fuller description of the elements of care that can be provided at each level of the health system, see Table 1, and for the basic facility and equipment requirements at each level, see Annex 1.

First referral facilities will be faced with treatment of a broader range of complications and should be equipped and have trained staff who can diagnose and treat most abortion complications. Annex 1 outlines the facility and equipment requirements for each level of the health system as well as the specific treatment services that should be made available.

Referral protocols need to be defined on the level of health care systems with input and cooperation from managers at all levels within the system. It is important that managers determine locally which conditions can be treated in a given facilities and which must be referred. An effective referral and transport system is the link that allows facilities to work together in a continuous chain. If the system is to be effective, there must be good communication and cooperation throughout.

Annexes 2-12 at the end of the document provide additional information on various aspects of providing emergency treatment for abortion complications.

Table 1 provides a list of abortion care activities by level of health care facility and staff.

Table 1
Suggested Emergency Abortion Care Activities by Level of Health Care Facility and Staff

Level	Staff May Include	Abortion Care Provided
Community	Community residents with basic health training TBAs Traditional healers	Recognition of signs and symptoms of abortion and complications Timely referral to the formal health care system
Primary	Health workers Nurses Trained Midwives General practitioners	**All primary care facilities:** <u>All of the activities above, plus:</u> Simple physical and pelvic examination Diagnosis of the stages of abortion Resuscitation/Preparation for treatment or transfer Haematocrit/haemoglobin testing. Referral, if needed **If trained staff and appropriate equipment are available, the following additional activities can be performed at this level:** Initiation of essential treatments including antibiotic therapy, intravenous fluid replacement, and oxytocics Uterine evacuation during the first trimester Basic pain control (paracervical block, simple analgesia and sedation)
First Referral	Nurses Trained Midwives General Practitioners Specialists with training in Ob/Gyn	<u>All of the activities above, plus:</u> Emergency uterine evacuation through the second trimester Treatment of most abortion complications Blood cross-match and transfusion Local and general anaesthesia Laparotomy and indicated surgery (including ectopic pregnancy if skilled staff are available) Diagnosis and referral for severe complications such as septicaemia, peritonitis or renal failure
Secondary and Tertiary	Nurses Trained Midwives General Practitioners Ob/Gyn Specialists	<u>All of the activities above, plus:</u> Uterine evacuation as indicated for all emergency abortion Treatment of severe complications (including bowel injury, tetanus, renal failure, gas gangrene, severe sepsis) Treatment of coagulopathy

Source: WHO, *Complications of Abortion: Technical and Managerial Guidelines for Prevention and Treatment*

CHAPTER 1

INITIAL ASSESSMENT: DETERMINING THE WOMAN'S NEEDS FOR IMMEDIATE TREATMENT

1.1 INTRODUCTION

Health workers should consider the possibility of abortion for any woman of reproductive age who presents with the symptoms of abortion, whether or not she knows or suspects that she is pregnant, and no matter what her obstetric, menstrual, or contraceptive history.

Life-threatening or serious conditions, primarily shock, severe bleeding, intra-abdominal injury, and sepsis, may be present. Even without complications, incomplete abortion can become life-threatening if treatment is delayed. Therefore, an accurate initial assessment as well as prompt action to stabilize the patient and begin treatment is essential.

This chapter outlines the steps to assess the urgency of the woman's presenting condition. Life-threatening conditions which require immediate action are briefly described, with a reference to the chapter that covers management of each condition. More than one of these conditions may be present at any given time. The health worker must assess the relative urgency of each condition, and treat accordingly.

1.2 INITIAL ASSESSMENT

1.2.1 Identification of Abortion Patients

Any woman of reproductive age experiencing at least two out of three of the following symptoms should be considered as a possible abortion patient:

- vaginal bleeding
- cramping and/or lower abdominal pain
- a possible history of amenorrhoea (no menses for over one month).

If NONE of the above symptoms is present, consider another diagnosis. If abortion is a possibility, assess immediately for the critical conditions described below. Interference with a pregnancy through unsafe means is a major cause of serious complications; however, the woman may not provide this information as a part of medical history for various legal and social reasons. Therefore, the possibility should always be kept in mind while assessing physical signs and symptoms.

1.2.2 Shock

Quickly assess the patient for the following signs of shock:

- fast, weak pulse (rate 110 per minute or greater)
- low blood pressure (hypotension); systolic less than 90 mmHg.
- pallor [inner eyelid (conjunctival), around the mouth, or palms]
- sweaty
- fast breathing (respirations 30 per minute or greater)
- anxious, confused, or unconscious (diminished mental state).

If shock is suspected, IMMEDIATELY begin treatment. See Chapter 2.

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

1.3 COMPLETE CLINICAL ASSESSMENT

Several life-threatening conditions requiring immediate treatment may be present at the same time. A complete clinical assessment is necessary to determine all conditions that are present in order to decide the order in which to treat them.

Table 2
Complete Clinical Assessment

History	Ask about and record the following information: Amenorrhoea [how long ago did she have her last menstrual period (LMP[1])] Bleeding (duration and amount) Cramping (duration and severity) Abdominal or shoulder pain Drug allergies
General Physical Exam	Check and record vital signs (temperature, pulse, respirations, blood pressure) Note general health of woman (malnourished, anaemic, general poor health) Examine lungs, heart, abdomen, extremities. [In examining the abdomen first check bowel sounds, then check to see if the abdomen is distended or rigid (tense and hard), if there is rebound tenderness,[2] abdominal masses, and presence, location, and severity of pain] *If a patient's Rh status is routinely assessed in pregnancy, it should be done during the clinical assessment in cases of abortion as well. If the patient is Rh(-), give a dose of anti-D globulin within 48 hours of uterine evacuation or of complete abortion.*
Pelvic Exam	Remove any visible products of conception from the vaginal canal or cervical os Note if there is a foul-smelling discharge Note the amount of bleeding and whether the cervix is open or closed (to determine the stage of abortion, see Section 3.5.1) Check for cervical lacerations Perform a bimanual exam: estimate the size of the uterus[3], check for any pelvic masses and pelvic pain [note severity, location, and what causes the pain (at rest, with touch and pressure, movement of the cervix)]

---

1 LMP is the date of the first day of the last menstrual period.

2 To check for *rebound tenderness*, press the abdomen with a hand. Then quickly remove your hand, rapidly releasing the pressure. If removal of the hand causes or worsens pain, there is rebound tenderness. Rebound tenderness is a sign of peritoneal inflammation.

3 In this document uterine size is measured by weeks since LMP (uterine size equivalent to a pregnant uterus of a given number of weeks since the last menstrual period) rather than in gestational weeks.

1.4 DIAGNOSIS AND TREATMENT

Compare the woman's presenting condition, and findings from the history and examination with the signs and symptoms for each of the life-threatening conditions outlined below. Diagnose and begin treatment according to the recommended guidelines. Decide which condition is most urgent and must be treated first. Keep in mind that choosing the order of treatment does NOT mean that other conditions can be ignored while taking care of the most severe condition. Attention must be given to any or all life-threatening conditions. If definitive treatment is not possible, prepare the patient for referral after initial stabilizing steps have been done.

1.4.1 Moderate to Light Vaginal Bleeding

Many women who present with an incomplete abortion have moderate to light vaginal bleeding and no sign of life-threatening conditions. Treatment should not be delayed, however, because the condition may get worse. The following signs indicate moderate to light bleeding. See Chapter 3 for treatment guidelines.

- clean pad not soaked after 5 minutes
- fresh blood, no clots
- blood mixed with mucus.

1.4.2 Severe Vaginal Bleeding

If the patient has any of the following signs, she has severe vaginal bleeding. Begin treatment immediately to replace lost fluid and control bleeding and see Chapter 4:

- heavy, bright red vaginal bleeding with or without clots
- blood-soaked pads, towels, or clothing
- pallor [inner eyelid (conjunctival), around the mouth, or palms].

1.4.3 Intra-Abdominal Injury

If the patient has ANY of the signs in the chart below WITH ANY of the symptoms listed there, she is probably suffering from an intra-abdominal injury (or an ectopic pregnancy). The differential diagnosis should also include acute appendicitis. See Chapter 5 and begin treatment.

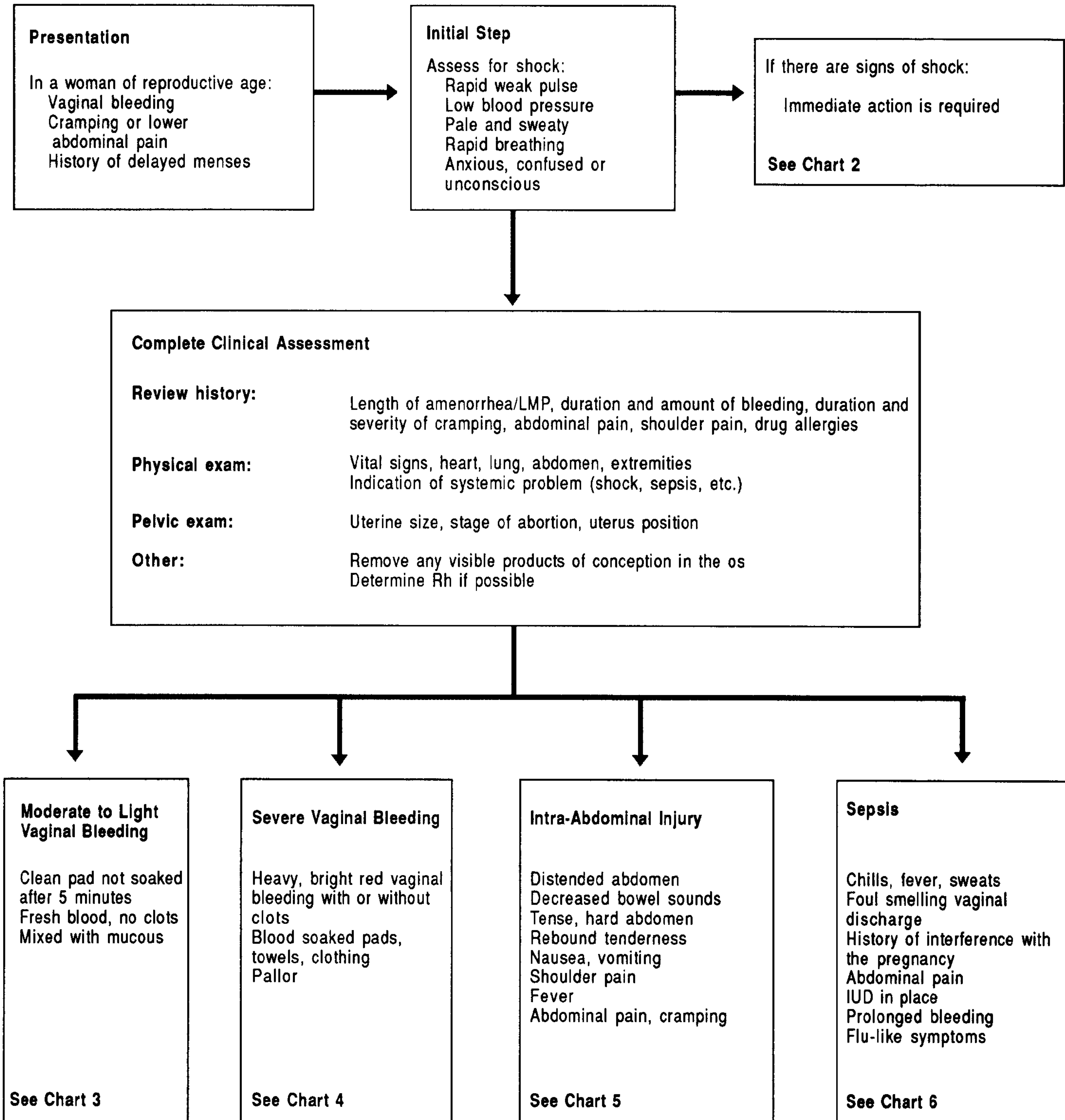
SIGNS	SYMPTOMS
distended abdomen decreased bowel sounds abdomen tense and hard rebound tenderness	nausea/vomiting shoulder pain fever abdominal pain, cramping

1.4.4 Sepsis

If the patient has ANY of the signs in the chart below WITH ANY of the symptoms listed there, she probably has local or generalized infection (septicaemia). See Chapter 6 and begin treatment immediately.

SIGNS	SYMPTOMS
chills or sweats (rigors)	history of interference with the pregnancy
fever	abdominal pain
foul-smelling vaginal discharge	IUD in place
distended abdomen	prolonged bleeding
rebound tenderness	general discomfort; flu-like symptoms (malaise)
slightly low blood pressure (mild hypotension)	

Chart 1. Initial Assessment



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CHAPTER 2

MANAGEMENT OF SHOCK

2.1 INTRODUCTION

Shock is a life-threatening condition and requires immediate and intensive treatment to save the patient's life. With shock the oxygen supply and blood flow to the tissues is interrupted due to general, severe failure of the circulatory system. In the case of abortion, shock is usually caused by:

- haemorrhage (haemorrhagic, hypovolaemic shock)
- sepsis (septic shock)

When a patient is in shock, the relative volume of blood circulating is reduced in one of two ways, either through loss of blood (haemorrhage) or through dilation of the blood vessels (vasodilation) from sepsis. In both cases, the amount of blood and fluids circulating must be increased. Shock can progress from early, "mild" to late, "severe" and, if not treated, the patient may die.

Patients suffering from shock must be treated vigorously and watched closely as their condition can get worse quickly. The primary goal in treating shock is to stabilize the patient; that is, to restore volume and efficiency of the circulatory system. Life-saving care must begin immediately, with intravenous fluid for volume replacement. Antibiotics must be given immediately if sepsis or an intra-abdominal injury is also present. First referral-level hospitals should be able to manage most cases of shock. In facilities where shock cannot be treated, initial measures of care should be given (see Universal Measures page 13) and prompt referral is required.

While treating shock itself is essential to save the woman's life, the underlying cause must also be treated immediately in order to keep the patient from getting even worse. In cases of renal failure or where the woman's condition does not stabilize, rapid transport to a tertiary care facility is essential.

2.2 PRESENTATION

When a patient is first seen with complications of abortion, she should be assessed immediately for signs of shock. If haemorrhage, trauma, or sepsis are immediately apparent the possibility of shock should also be considered.

Signs of shock are:

- fast, weak pulse (rate 110 per minute or greater)
- low blood pressure (hypotension); systolic less than 90 mmHg.
- pallor [inner eyelid (conjunctival), around the mouth, or palms]
- sweaty
- fast breathing (respirations 30 per minute or greater)
- anxious, confused, or unconscious (diminished mental state).

2.3 ASSESSMENT

When shock is suspected, assess its stage and severity immediately. Early shock is reversible and may respond well to treatment generally available at the primary care level. If early shock is not recognized and not treated, it will progress to late shock. Late shock is more difficult to treat with the facilities typically available at the primary level and requires referral for more intensive care once emergency care has been started. Table 3 below compares the signs of early and late shock.

Table 3
Signs of Shock

Early Shock	Late Shock
Awake, aware, anxious	Confused or unconscious
Slightly fast pulse (110 per minute or greater)	Very fast and weak pulse
Slightly fast breathing (30 respirations per minute or greater)	Extremely fast and shallow breathing
Pale	Pale and cold
Mild low blood pressure (systolic less than 90 mmHg)	Very low blood pressure
Lungs clear	Heart failure, pulmonary oedema[4]
Haematocrit of 26% or greater	Haematocrit less than 26%
Haemoglobin of 8 g/100 ml or greater	Haemoglobin less than 8 g/100 ml
Urine output of 30 cc per hour or greater	Urine output less than 30 cc per hour

2.4 INITIAL TREATMENT

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

Universal Measures

These measures can be taken even at peripheral levels of care and should be given before or during transfer to the next level of care. Make sure that the airway is open. Check vital signs. Do NOT give fluids by mouth as the woman may vomit and inhale (aspirate) the vomit. Turn the woman's head and body to the side so that if she vomits, she is less likely to aspirate. Keep her warm because hypothermia is a danger

4 Assessment of heart failure, pulmonary oedema: severe difficulty breathing when lying down may indicate heart failure. Listen to the heart and lungs to assess cardiac and pulmonary status. Clinical evidence of an enlarged heart or fluid in the lungs (rales, severe difficulty breathing when lying down, pink frothy sputum, distended neck veins, swelling of hands and feet) indicates heart failure and pulmonary oedema. This can be confirmed with a chest x-ray and by the measurement of central venous pressure.

(it can worsen the shock). Blankets are useful, but do NOT apply any external sources of heat (heating pad, hot water bottle) as a person in shock may be easily burned. Raise the legs to help the blood return to the heart and if possible, raise the foot of the bed.

If lying down causes severe difficulty breathing, there may be heart failure and pulmonary oedema. In this case, lower the legs and raise the head to relieve fluid pressure on the lungs.

Oxygen

Make sure that the airway is open. If oxygen is available, start oxygen at 6-8 litres per minute by mask or nasal cannulae.

Fluids

IV Fluids. Do NOT give fluids by mouth. To restore fluid volume, start intravenous fluids immediately. Use a large-bore needle (16 to 18 gauge recommended), and collect the necessary blood samples. Infuse a compound solution of sodium lactate or normal saline (sodium chloride) at the rate of 1 litre in 15-20 minutes. Normally it takes 1 to 3 litres of IV fluids, infused at this rate, to stabilize the patient in shock. It is important to monitor the amount of fluids given, including blood. See Section 2.5 and Chapter 7.

Blood transfusion. A haemoglobin of 5 g/100 ml or less, or a haematocrit of 15% or less is life threatening and will require blood transfusion. Always include the volume of blood given when monitoring and recording the amount of fluids given.

Blood transfusions may be live-saving, but they carry risk and may do harm rather than good in certain cases. Therefore, the decision to transfuse should be made very carefully. See guidelines and warnings on blood transfusions in Chapter 7.

Medicines[5]

IV or IM ONLY (IV preferred). Do NOT give any medicines by mouth to a woman in shock.

Antibiotics. If there are any indications that infection may be present, including fever, chills or pus, give broad spectrum antibiotics effective against Gram-negative, Gram-positive, anaerobic organisms and chlamydia. See section on choice of antibiotics in Chapter 7.

Labs

While lab work is helpful, treatment of shock should begin without delay even where lab work is not possible.

Blood. Check haemoglobin or haematocrit, and collect blood for a complete blood count (CBC), including platelets, if possible. Collect blood for type and cross-match.

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[5] Inotropic drugs such as digoxin should be used in shock only when hypovolaemia has been completely excluded.

If the facilities are available, assess electrolytes and renal status indicators, such as blood urea or creatinine, and blood pH. Acidosis is best left uncorrected unless very severe (pH<7.0) as an aggressive therapy with bicarbonates may worsen tissue oxygenation and other metabolic and electrolyte problems.

Urine. Little or no urine output is a sign of low blood volume seen with shock, haemorrhage, and dehydration, and can be a sign of kidney failure. Measure urine output, preferably by insertion of a Foley catheter. If catheterization is not possible, collect and measure urine output. If it is not possible to collect the urine, note if the urine is concentrated (dark colour) or if the output is decreased (no urination). If output is first low and then begins to increase, this is a sign that the woman's general condition is improving and is a measure of her response to intravenous fluids.

Additional Measures

If a vaginal exam has not already been performed, check for and remove any products of conception present in the vagina.

2.5 CONTINUING TREATMENT

Once the initial steps have been taken to stabilize the patient, prompt treatment of the underlying cause of shock is necessary, while continuing to closely monitor the patient's condition. Retained products of conception is often the underlying cause of shock. Removal through uterine evacuation is therefore an essential part of definitive management, and should be done as soon as possible, once stabilizing steps have been taken and management of any other severe conditions has been started. If the underlying cause of shock cannot be treated at the site, adjust supportive treatment according to the guidelines below and refer the woman to a facility where treatment is available.

Universal Measures

Assess the woman's response to the fluids within 20 to 30 minutes to see if her condition is stabilizing. Signs of stabilization/improvement include:

- increasing blood pressure. Aim for a systolic blood pressure of 100 mmHg.
- stabilizing heart rate (under 90).
- improving mental status (less confusion or anxiety), and
- increasing urine output. Aim for a urine output of at least 100 ml per 4 hours.

Failure to stabilize. If, after 20 to 30 minutes the woman has not stabilized, continue efforts to stabilize her and assess her condition according to the following list:

- continue giving oxygen and IV fluids.
- monitor her condition closely.
- reassess the need for antibiotics.
- perform a complete clinical assessment; see Chapter 1.
- diagnose and promptly begin treatment of the underlying cause or causes of shock.
- if definitive management of the underlying cause (including IV fluids for volume replacement) is not available, refer the patient.

If, after 2 hours, the woman is not stabilizing, or if she is in renal failure, refer her to a secondary or specialist hospital, or tertiary care centre immediately.

Stabilization. If the woman shows signs of improvement, her condition is stabilizing but the underlying cause of shock must still be addressed as follows:

- adjust the rate of the IV fluids and oxygen as recommended below and in Chapter 7.
- perform a complete clinical assessment; see Chapter 1 to diagnose the cause of shock.
- begin treatment of the underlying cause or causes of shock. If definitive management (including uterine evacuation) is not available, refer the patient.

Oxygen

If available, continue as long as the patient is unstable. If possible, continue during transfer if the patient is unstable. As the woman stabilizes, the oxygen can be gradually shut off. However, if she begins to worsen with the oxygen turned down or off, turn the oxygen back on, at the initial rate of 6 to 8 litres per minute.

Fluids

Once the woman has stabilized and her low fluid volume has been corrected, IV fluids should be given at the rate of 1 litre in 6-8 hours. See Chapter 7.

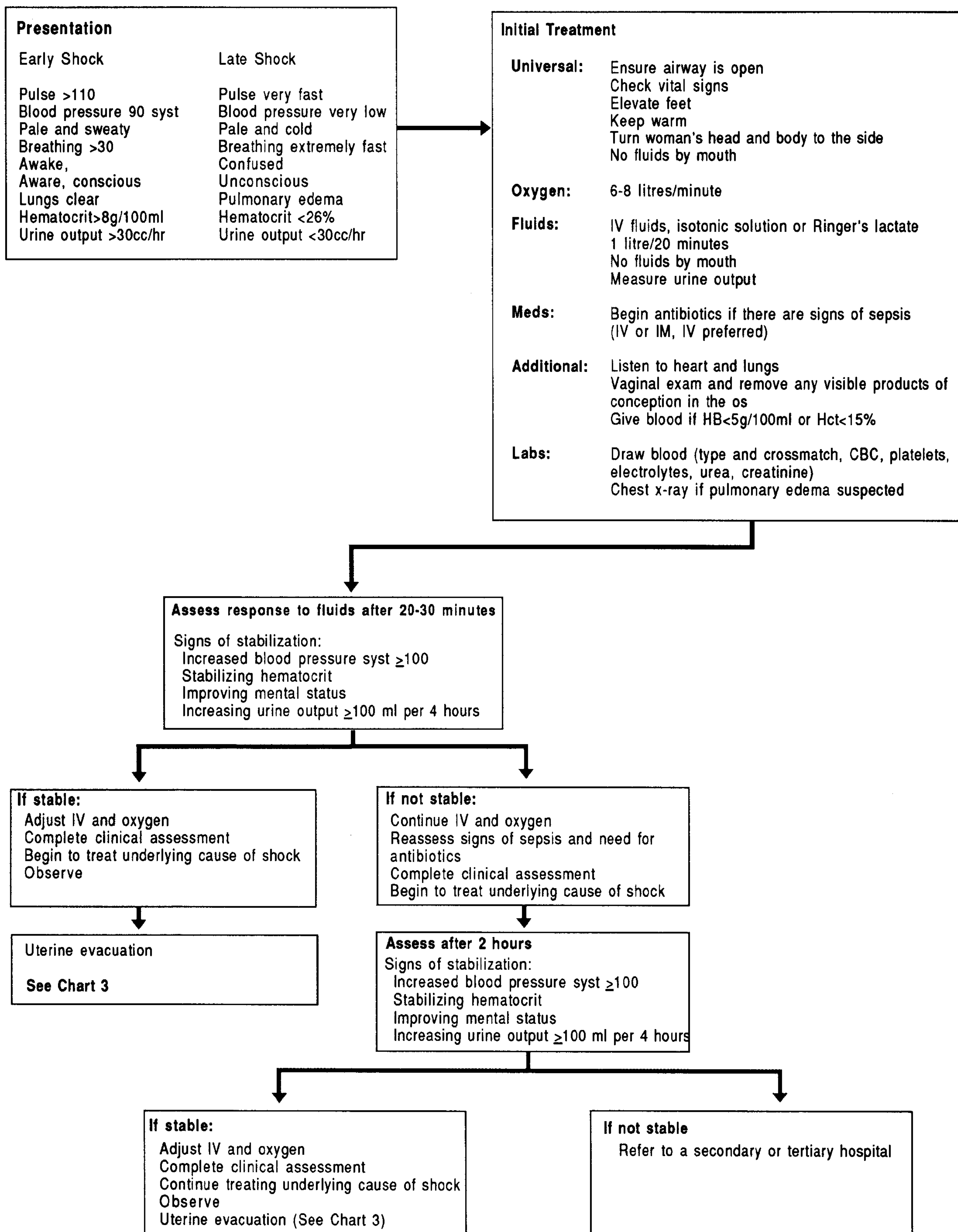
Medicines

Antibiotics. IV or IM only (IV preferred). If antibiotics have not already been started, and there are any signs of infection (fever, chills, pus), begin broad spectrum antibiotics according to the recommendations in Chapter 7. If antibiotics have already been started, continue treatment.

Labs

Chest X-ray. ONLY to confirm suspected heart failure and pulmonary oedema. A chest x-ray is helpful in this case but should not interfere with efforts to stabilize the woman in shock.

Chart 2. Shock



CHAPTER 3

MANAGEMENT OF MODERATE TO LIGHT VAGINAL BLEEDING

3.1 INTRODUCTION

Uterine evacuation, complete removal of the products of conception, is the key element of treatment of incomplete abortion. In addition, retained products of conception is often the cause of severe vaginal bleeding, sepsis or shock seen with abortion and thus uterine evacuation is required for definitive management of these conditions.

First trimester incomplete abortion can be treated safely wherever trained staff and essential equipment are available, including some primary care facilities. To reduce complications from blood loss and infection, uterine evacuation should be done without delay after initial assessment and treatment of life-threatening conditions. Referral is necessary if trained staff and equipment for uterine evacuation are not available.

Second trimester uterine evacuation requires special skills and equipment that are not typically available at primary level facilities and may therefore require referral. Uterine evacuation for incomplete abortion at all gestational ages is an essential obstetric function for the first referral level.

3.2 PRESENTATION

The following are signs of an incomplete abortion:

- clean pad not soaked after 5 minutes.
- fresh blood, no clots.
- blood mixed with mucous.

3.3 INITIAL ASSESSMENT

A complete clinical assessment, history, physical and pelvic exam are necessary to assess the patient's general condition, the stage of abortion, uterine size, and the presence of complications in order to manage incomplete abortion.

Guidelines for a complete clinical assessment are given in Chapter 1 and repeated here, for convenience. If the examination suggests shock, sepsis, severe bleeding, or intra-abdominal injury, assess further and begin treatment according to the appropriate chapter(s). When these steps are taken, attention can be turned to management of the incomplete abortion.

Table 4 **Complete Clinical Assessment**	
History	Ask about and record the following information: Amenorrhoea [how long ago did she have her last menstrual period (LMP[6])] Bleeding (duration and amount) Cramping (duration and severity) Abdominal or shoulder pain Drug allergies
General Physical Exam	Check and record vital signs (temperature, pulse, respirations, blood pressure) Note general health of woman (malnourished, anaemic, general poor health) Examine lungs, heart, abdomen, extremities. [In examining the abdomen first check bowel sounds, then if the abdomen is distended or rigid (tense and hard), if there is rebound tenderness,[7] abdominal masses, and presence, location, and severity of pain] *If a patient's Rh status is a routinely assessed in pregnancy, it should be done during the clinical assessment in cases of abortion as well. If the patient is Rh(-), give a dose of anti-D globulin within 48 hours of uterine evacuation or complete abortion.*
Pelvic Exam	Remove any visible products of conception from the vaginal canal or cervical os Note if there is a foul-smelling discharge Note the amount of bleeding and whether the cervix is open or closed (to determine the stage of abortion, see Section 3.5.1) Check for cervical lacerations Perform a bimanual exam: estimate the size of the uterus[8], check for any pelvic masses and pelvic pain [note severity, location, and what causes the pain (at rest, with touch and pressure, movement of the cervix)]

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6 LMP is date of the first day of the last menstrual period.

7 To check for *rebound tenderness*, press the abdomen with a hand. Then suddenly remove your hand, rapidly releasing the pressure. If removal of the hand causes or worsens pain, there is rebound tenderness. Rebound tenderness is a sign of peritoneal inflammation.

8 In this document uterine size is measured by weeks LMP (uterine size equivalent to a pregnant uterus of a given number of weeks since the last menstrual period) rather than in gestational weeks.

3.4 INITIAL TREATMENT

Universal Measures

Monitor the woman's vital signs and general condition. When complications exist, it is important to continue stabilizing steps and to achieve some stabilization before treating the incomplete abortion. If the patient suddenly worsens, reassess for shock or other complications and treat as appropriate. See Chapter 2.

Oxygen

If the woman is stable and there are no life-threatening complications (i.e. NOT in shock and vital signs normal), oxygen is NOT required. If she is being given oxygen because of a complicating condition, continue oxygen as directed in the relevant chapter(s).

Fluids

If the woman is stable and there are no complications (i.e. NOT in shock and vital signs normal), IV fluids are NOT required. If she requires IV fluids because of a complicating condition, continue the treatment according to the relevant chapter(s).

Medicines

Oral medicines may be given if the woman is stable and there are no life-threatening complications.
IV or IM route of administration is the ONLY acceptable route for medicines if the woman is in shock. If the woman is also being treated for a life-threatening condition, follow the treatment guidelines for that condition.

Antibiotics. IV preferred. If there is any sign of infection, abdominal injury, ectopic pregnancy, or cervical or uterine perforation, give broad spectrum antibiotics effective against Gram-negative, Gram-positive, anaerobic organisms and chlamydia. See Chapter 7. If an evacuation is needed, antibiotics should be started before the evacuation is carried out.

Tetanus Toxoid. IM. If there is a possibility that the woman was exposed to tetanus, and there is any uncertainty of her vaccination history, give her tetanus toxoid and tetanus antitoxin. (If the abortion was not performed with sterile instruments, and/or if there was any contamination of the instruments or wound with dirt, there is a chance of exposure to tetanus.) See Chapter 7.

Pain control. Give medications as needed, according to the guidelines above and in Chapter 7.
Most women with first trimester abortions can be managed with pethidine and diazepam for pain control.

Labs

Blood. If there is suspicion of anaemia or concern that the woman may have lost a lot of blood, then check the haematocrit or haemoglobin. If needed, type and cross-match.

Additional Measures

If a patient's Rh status is routinely assessed in pregnancy, it should be done in cases of abortion as well. If the patient is Rh(-), give a dose of anti-D globulin within 48 hours of uterine evacuation.

3.5 DEFINITIVE MANAGEMENT

The choice of definitive treatment for incomplete abortion depends on the stage of abortion, uterine size and length of gestation.

3.5.1 Stage of Abortion

Compare the findings from the pelvic exam with Table 5 in this chapter to determine the stage and follow the guidelines below.

Table 5
Diagnosis of Abortion

DIAGNOSIS	BLEEDING	CERVIX	UTERINE SIZE	OTHER SIGNS
Threatened Abortion	Slight to moderate	Not dilated	Equal to dates	Positive pregnancy test Cramping Uterus soft
Inevitable Abortion	Moderate to heavy	Dilated	Less than or equal to dates	Cramping Uterus tender/firm
Incomplete Abortion	Slight to heavy	Dilated	Less than or equal to dates	Partial expulsion of products of conception Uterus tender/firm
Complete Abortion	Slight to moderate	Dilated or closed	Less than dates	Complete expulsion of products of conception
Missed Abortion	Little or none	Closed	Less than or equal to dates	Fetus dead with delayed expulsion Decrease in pregnancy signs and symptoms

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

In the case of inevitable, incomplete, possible complete, or missed abortion, uterine evacuation is required for complete removal of the products of conception. Examination of the products of conception after uterine evacuation is necessary to ensure complete removal.

3.5.2 Uterine Size

Determine uterine size according to the pelvic exam. The appropriate technique of uterine evacuation is determined according to uterine size. The availability of supplies and skilled staff also affect the methods that may be offered in each setting.

3.6 UTERINE EVACUATION TECHNIQUES

The technique chosen to evacuate the uterus will depend on the duration of gestation and availability of supplies and skilled staff. If skilled staff and supplies are not available, the woman should be referred. A description of the techniques follows. See Annexes 11 and 12 for the specific details of the procedures. If sepsis is present, carry out evacuation only after IV antibiotics have been started.

3.6.1 First Trimester Uterine Evacuation Techniques

The techniques of uterine evacuation typically used in the first trimester of pregnancy are *vacuum aspiration (VA)* and *dilation and curettage (D&C).*

Vacuum Aspiration. This technique has a low complication rate and involves very little trauma. Cannulae used for vacuum aspiration are made of flexible plastic, rigid plastic, or metal. Gentle exploration of the uterus with a curette to confirm complete removal of uterine contents afterwards may be done, but is not necessary or recommended. A vacuum of at least 26 inches (or 66 cm) mercury (Hg) is required to evacuate the uterus fully and quickly. Two types of vacuum aspiration are available:

- Electric Vacuum Aspiration. This procedure uses an electric pump and cannulae for uterine evacuation in the first trimester.

- Manual Vacuum Aspiration (MVA). This technique uses a hand-held vacuum syringe and flexible plastic cannulae. Foot-operated pumps are also available in some areas. Where staff are trained in the technique and equipment is available, MVA can be used to treat abortions through 12 weeks uterine size.

Dilation and Curettage (D&C). This technique, also called Instrumental Uterine Curettage or Sharp Curettage, uses metal surgical instruments to empty the uterus, usually under general or regional anaesthesia, or heavy sedation. The use of D&C requires operating theatre facilities and staff trained in surgical techniques and general anaesthesia. Vacuum Aspiration is generally preferred to D&C due to the lower complications rate and reduced need for surgical facilities.

3.6.2 Second Trimester Uterine Evacuation Techniques

Uterotonics and/or *instrumental evacuation* are the techniques used for second trimester uterine evacuation. In the second trimester the risk of complications is higher (heavy blood loss, uterine perforation, injury to organs, sepsis). Treatment of incomplete abortion in the middle to late second trimester MUST be done by an experienced health worker. In addition, IV fluids, blood transfusion, special equipment, and the facilities to perform abdominal surgery must be available to manage possible complications of second trimester evacuations.

Uterotonics. A number of uterotonics can be used to safely complete expulsion in second trimester incomplete abortion; of these, oxytocin is the most commonly available. Oxytocin, 200 units/500 cc IV over 4 hours may be used. Usually, the placenta or placental remains will be expelled during this time, or shortly thereafter. It is important to examine the products for completeness. If expulsion occurs and appears to be complete, observe the woman for bleeding or evidence of retained placental remnants. If, after observation, the woman is stable, she may be discharged. However, if after observation, she is NOT stable, instrumental curettage may be necessary. Often, when uterotonics are used, it is unclear whether the placenta has been completely expelled and uterine curettage is necessary to ensure an empty uterus. This is particularly true if there is an infection or if the incomplete abortion has been in process for several days. In such cases, the placenta may not be easily expelled with uterotonics alone. Uterine curettage should be performed with the largest curette available to maximize the surface covered with each stroke and minimize the risk of perforation.[9]

3.7 EXAMINATION OF THE PRODUCTS OF CONCEPTION

It is very important to completely evacuate the uterus and remove all products of conception. Therefore, with every uterine evacuation, examine the products of conception to check for completeness and to judge whether the amount of tissue is appropriate. Products of conception include villi, fetal membranes, or, after 9 weeks LMP, fetal parts. Absence of villi may suggest an ectopic pregnancy.

It is always important to examine the specimen, even in cases of incomplete abortion. In some cases, evidence of products of conception will be clearly visible. In other cases, however, no placental tissue will be seen, indicating incomplete abortion. To examine the tissue, strain and rinse the tissue to remove excess blood clots, then place the tissue in a clear container of water or weak acetic acid (vinegar) to examine visually. Samples of tissue may also be sent to the pathology lab as indicated. If no products of conception are found, consider the possible explanations, based on clinical judgement, and treat accordingly. Explanations for lack of tissue include:

- Early abortion -- further evacuation may not be necessary.
- Abortion already completed before evacuation -- further evacuation may not be necessary unless the clinical picture still suggests an incomplete abortion.

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[9] Dilation and Evacuation (D&E), surgical evacuation using suction in combination with special forceps for manual removal of retained products of conception, is an alternate technique that is possible when specially trained physicians are available. It is the procedure of choice for treatment of second trimester incomplete abortion. A skilled operator and well-equipped facility are essential.

- Ectopic pregnancy -- delay in treatment of an ectopic pregnancy is particularly dangerous. The possibility is greater if the patient has any of the following risk factors: history of previous ectopic pregnancy, history of pelvic infection, and/or history of IUD use. If ectopic pregnancy is suspected, check again for signs of an ectopic pregnancy as detailed in Chapter 5 and quickly prepare the woman for referral if laparotomy is not available. Rupture of the ectopic pregnancy is a real and life-threatening possibility and, if this happens, death can only be prevented by stopping the haemorrhage through the surgical removal of the ectopic pregnancy, stopping bleeding, and replacing blood loss. (See WHO, *Essential Elements of Obstetric Care at First Referral Level,* 1991.)

3.8 UTERINE PERFORATION

An existing uterine perforation complicates treatment of an incomplete abortion. The uterus may already be perforated when the woman presents for care but it may not be discovered until the uterine evacuation procedure. The uterus can also be perforated during the procedure. The following signs seen during uterine evacuation indicate a uterine perforation:

- an instrument (sound, curette, cannula) that extends beyond the expected limit of the uterus (based on the bimanual exam) OR

- fat or bowel is found in the tissue removed from the uterus.

<u>If a perforation is suspected and the evacuation is complete</u>:

- continue stabilizing steps according to patient's condition: monitor vital signs, give fluids or blood, oxygen if needed

- begin antibiotics

- give ergometrine (0.2-0.5 mg IM)

- observe for two hours
  - if the patient becomes stable and bleeding slows, give ergometrine (0.5 mg IM) and continue observation overnight

  - if the patient's condition gets worse, and the bleeding does not stop with an increased dose of either oxytocin or ergometrine, a laparotomy may be necessary to locate and repair the source of the bleeding. If laparotomy is not available, prepare for referral.

<u>If a perforation is suspected and the evacuation is NOT complete</u>:

- continue stabilizing steps according to patient's condition: monitor vital signs, give fluids or blood, oxygen if needed

- begin antibiotics

- complete the evacuation under direct visual control (laparotomy) to assess the damage to the uterus and cervix, or, if laparotomy is not available, refer

- repair the damage as necessary. (If the cervix is lacerated beyond repair or there is extensive uterine perforation, a hysterectomy may be necessary.)

- after surgery, give oxytocics (if uterus not removed), and observe for two hours

    - if the patient becomes stable and bleeding slows or stops, give ergometrine (0.2 to 0.5 mg IM -- if uterus not removed) and continue observation overnight

    - if the patient's condition gets worse, prepare the patient for transfer to tertiary care; see Chapter 7.

3.9 CONTRACEPTION

A woman's fertility returns almost immediately after an abortion. She must consider, therefore, whether or not she wants to become pregnant again soon. In the case of spontaneous abortion, she may wish to become pregnant again quickly and, unless there are any medical problems, there is no reason to discourage her from doing so.

For many women, however, their experience with abortion represents a desire not to be pregnant at this time. Thus, the woman, and her partner if she desires, should receive counselling and information about her return to fertility and available contraceptive methods. The health worker must remember that the time of treatment for abortion complications may be a difficult time for the woman and that it may not be the best time to make decisions which are permanent or long-lasting. Selection of all methods, but especially a provider-dependent method, must be done with full and informed consent.

Unless there are major complications from the abortion, most methods of contraception may be started at the time of treatment. Table 6 lists considerations for specific methods after an abortion.

Chart 3. Moderate to Light Vaginal Bleeding

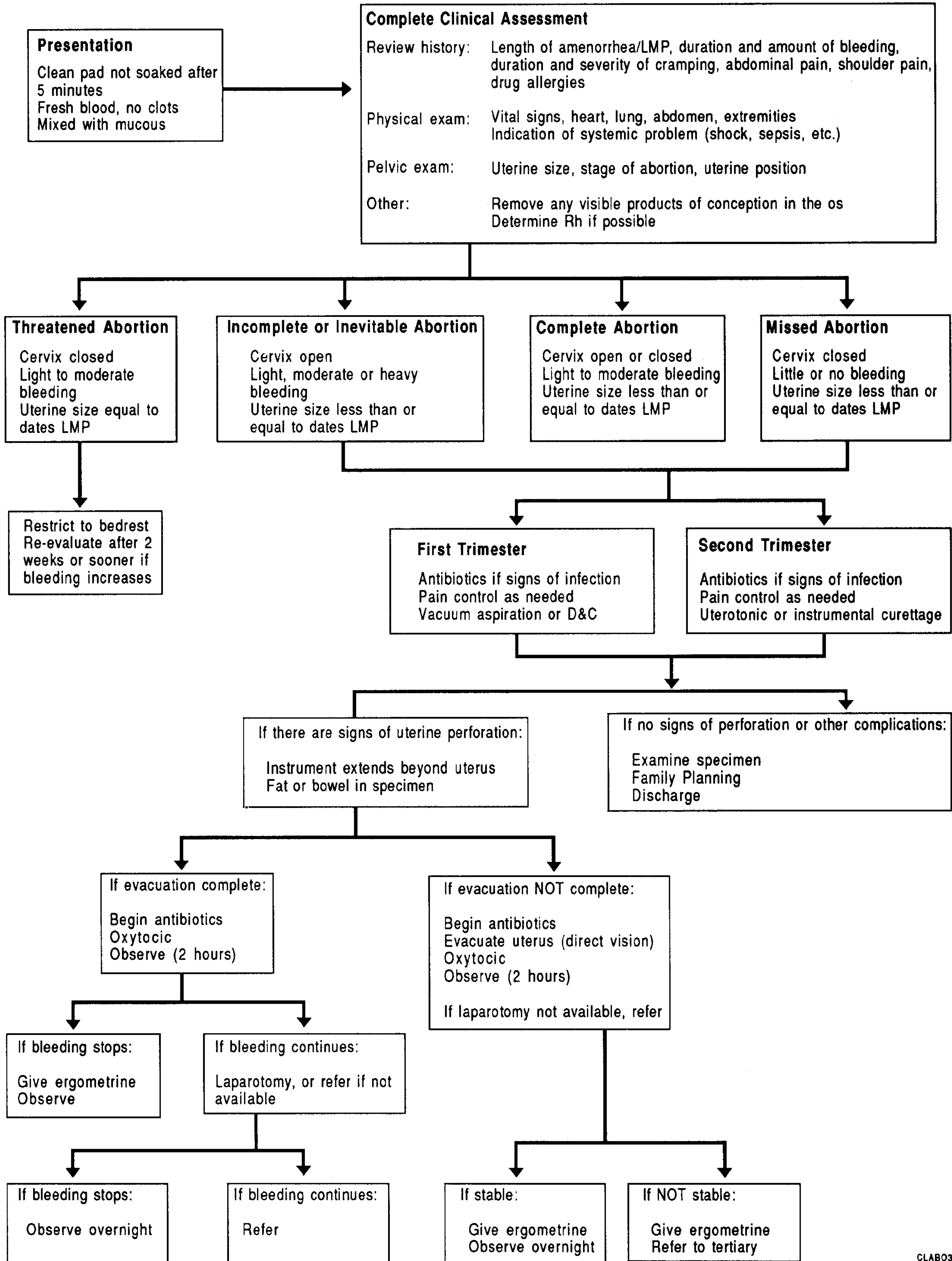

Table 6: Contraceptive Methods

Method	Timing After Abortion
Non-Fitted Barriers and Spermicides **(condom, sponge, suppositories, foam tablets, jelly, foam)**	Begin use as soon as intercourse is resumed.
Fitted Barriers Used With Spermicides **(diaphragm or cervical cap with foam or jelly)**	Diaphragm can be fitted immediately after first-trimester abortion; after second-trimester abortion, fitting should be delayed until involution is complete. Delay fitting cervical cap until bleeding has stopped and involution is complete.
Oral Contraceptives	Begin pill use immediately, preferably on the day of the abortion. Mechanisms to ensure adequate counselling and informed decision-making must be in place.
Injectables (DMPA, NET-EN)	First injection can take place immediately after abortion in the first or second trimester. Mechanisms to ensure adequate counselling and informed decision-making must be in place.
Implants (Norplant®)	Insertion can take place immediately after abortion. If adequate counselling and informed decision-making cannot be guaranteed, it may be best to delay insertion and provide an interim temporary method.
IUD	IUDs can be inserted immediately after first-trimester spontaneous or induced abortion, if the uterus is not infected. If adequate counselling and informed decision-making cannot be guaranteed, it may be best to delay insertion and provide an interim temporary method. In the second trimester, expulsion rates are lowest if insertion is delayed for six weeks; this consideration must be balanced against the chance that an unwanted pregnancy may occur during the delay. An interim method should be used. If infection is evident or suspected, delay insertion until the infection has been resolved and use an interim method.
Female Sterilization	It is **imperative** that adequate counselling and informed consent precede sterilization procedures, and this is unlikely in the emergency context. Technically, sterilization procedures can be performed immediately after first-trimester spontaneous or elective abortion, and after treatment of abortion complications unless infection or severe blood loss is present. Infection or the potential for infection as in complications of unsafe abortion indicate the need to delay the tubal occlusion. Sterilization after a first-trimester abortion is similar to an interval procedures; after a second-trimester abortion it is similar to a post-partum procedure.
Male Sterilization	Timing is not related to abortion.
Periodic Abstinence	Not recommended for immediate post-abortion use. The first ovulation after an abortion will be difficult for the woman to predict and the method is unreliable until after the first post-abortion menses.

Source: Benson, J. et al. Meeting Women's Needs for Post-Abortion Family Planning: Framing the Questions. Issues in Abortion Care 2, 1992. (Adapted from

for Post-Abortion Use

Advantages	Remarks
Useful as interim methods if initiation of another chosen method must be postponed. No medical supervision is required. Provide some protection against STDs. Easily discontinued when pregnancy is desired.	Less effective than IUD or hormonal methods. Requires continued motivation and regular use. Resupply must be available. Use related to intercourse.
Useful as interim methods if initiation of another chosen method must be postponed. Provide some protection against STDs. Easily discontinued when pregnancy is desired.	Less effective than IUD or hormonal methods. Requires continued motivation and regular use. Resupply must be available. Not related to intercourse.
Highly effective. Can be started immediately even if infection is present. Can be provided by non-physicians. Not related to intercourse.	Requires continued motivation and regular use Resupply must be available. Effectiveness may be lowered when certain medications are used (for example, tetracycline, penicillin).
Highly effective. Easily administered by non-physicians. Not related to intercourse.	May cause irregular bleeding; excessive bleeding may occur in rare instances. Possible delayed return to fertility. Resupply must be accessible. Convenient access to clinic important as regular return visits are required.
Highly effective. Can be administered by trained non-physicians. Long-tem protection. Immediate return to normal fertility following removal. Not related to intercourse.	May cause irregular bleeding or no bleeding; excessive bleeding may occur in rare instances. Less effective in heavier women. Trained provider required to discontinue use. Cost effectiveness depends on long-term use. Implants must be removed after 5 years to prevent a decrease in effectiveness and an increased risk of ectopic pregnancy.
Highly effective. Can be inserted by trained non-physicians. Long-term protection. Immediate return to normal fertility following removal. Not related to intercourse.	Uterine perforation can occur during insertion. may increase risk of PID and subsequent infertility for women at risk for STDs. Removal by trained provider recommended. May increase menstrual bleeding and cramping.
Permanent method. Most effective female method. Once completed, no further action required.	Permanence of the method increases the importance of adequate counselling and fully informed consent; this is not likely to be possible at the time of emergency care. Slight possibility of surgical complications.
Permanent method. Most effective male method. Once completed, no further action required.	Permanence of the method increases the importance of adequate counselling and fully informed consent. Slight possibility of surgical complications.
No cost associated with method	Unreliable immediately after abortion. Alternative methods are recommended until resumption of normal cycle. Women and their partners must be motivated and have a thorough understanding of how to use the method.

Complications of Abortion: Technical and Managerial Guidelines for Prevention and Treatment, in press)