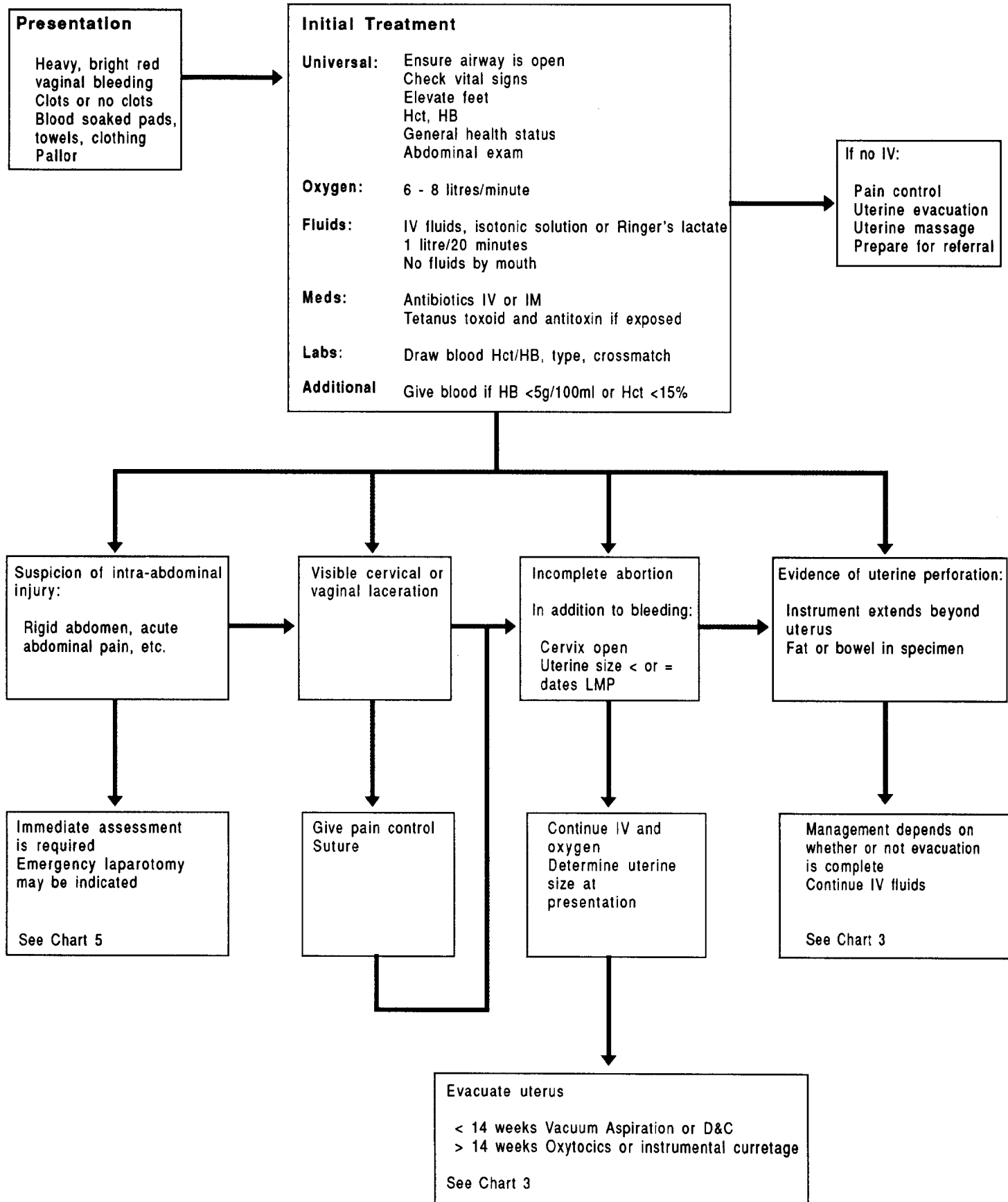


Chart 4. Severe Vaginal Bleeding



CHAPTER 4

MANAGEMENT OF SEVERE VAGINAL BLEEDING

4.1 INTRODUCTION

Prompt treatment of excessive blood loss is critical in the management of abortion care. Delays in stopping the bleeding and replacing fluid or blood volume can be fatal. Prolonged or excessive vaginal bleeding with signs of abortion is usually caused by retained products of conception or by trauma to the cervix or uterus, including perforation of the uterus. These injuries almost always indicate that the patient attempted to interrupt a pregnancy. Therefore, she may have an infection and needs antibiotics. Damage from caustic chemical agents used to cause an abortion can also cause severe bleeding. If not treated promptly, haemorrhage can result in shock and death. During assessment and treatment of severe vaginal bleeding, the blood pressure and heart rate should be watched closely, as shock may develop at any time.

Blood pressure, pulse rate, haematocrit or haemoglobin, and urine output are the primary measures of the amount of blood loss. Treatment includes control of bleeding, intravenous fluids (when available) to replace fluid volume, antibiotics to fight infection, stabilization, and uterine evacuation. Surgery, or referral to a facility with surgical capability, may be required to identify and repair the source of bleeding.

4.2 PRESENTATION

The following signs are seen with severe vaginal bleeding:

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

4.3 INITIAL TREATMENT

Universal Measures

Make sure that the airway is open. Check the vital signs. Raise the legs or, if possible, raise the foot of the bed. If initial clinical assessment showed that the woman is in poor health or anaemic, she may have less tolerance for blood loss, and she will need IV fluids and possibly a blood transfusion. If uterine evacuation and an IV are NOT available, then she should be promptly prepared for referral AFTER taking simple measures to control the bleeding (oxytocics, tamponing, uterine massage).

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. 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. It may take 1 to 3 litres of IV fluids, infused at this rate, to stabilize the patient who has lost a lot of blood or is in shock. It is important to monitor the total amount of fluids given, including blood. See Section 4.5 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 total amount of fluids given to a patient.

Blood transfusions may be life-saving, but they carry risk and may do harm rather than good in certain cases. Follow Chapter 7 guidelines and warnings for blood transfusion.

Medicines

IV preferred, IM acceptable. Do NOT give any medicines by mouth to a woman with an intra-abdominal injury, ectopic pregnancy, uterine perforation or shock, as she may require surgery and she can vomit and inhale the vomit.

Antibiotics. IV preferred, IM acceptable. 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. For the choice of antibiotics, see Chapter 7.

Tetanus Toxoid. IM. If there is a possibility that the woman was exposed to tetanus, and there is any uncertainty of her vaccination history, then give her tetanus toxoid and tetanus antitoxin. If the abortion was not performed with sterile instruments, 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. IV preferred, IM acceptable. Follow guidelines above and in Chapter 7.

Labs

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

Blood. Check haemoglobin or haematocrit to assess the amount of blood loss. It is important to bear in mind that the drop in haemoglobin and haematocrit measurements can often lag 6 to 8 hours behind the actual blood loss because of the time required for equilibration. Type and cross-match blood if necessary.

Urine. Little or no urine output (<30 cc/hour) 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 a measure of her response to intravenous fluids.

4.4 DEFINITIVE MANAGEMENT

Once the initial steps have been taken to stabilize the patient, prompt treatment of the underlying cause of bleeding is necessary. Closely monitor the patient's condition, refer if necessary, and adjust supportive treatment according to the guidelines below.

There may be one or more causes of bleeding that will need to be treated. The treatment should be done in the following order:

1. If, on physical exam there are indications of intra-abdominal injury or ectopic pregnancy, further assessment and treatment are needed immediately. See Section 4.4.1 and Chapter 5.
2. If, on vaginal exam there are any visible cervical or genital tract lacerations, they should be sutured. See Section 4.4.2.
3. Treat the incomplete abortion by uterine evacuation, according to the duration of pregnancy. See Section 4.4.3 and Chapter 3.
4. If a uterine perforation is discovered during uterine evacuation, follow the guidelines detailed in Sections 4.4.4 and 3.8.

4.4.1 Intra-Abdominal Injury

ANY of the signs listed below WITH ANY of the indicated symptoms indicates that the woman is probably suffering from an intra-abdominal injury, ectopic pregnancy or acute appendicitis.

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

Immediate attention is required. See Chapter 5.

4.4.2 Cervical or Genital Tract Laceration

Suture any visible cervical or genital tract lacerations BEFORE uterine evacuation.

4.4.3 Incomplete Abortion

Assess the duration of the pregnancy by the size of the uterus and history of amenorrhoea. The treatment depends on the duration of pregnancy.

If uterine size is 12-14 weeks size or smaller, evacuate the uterus with vacuum aspiration or D&C according to guidelines in Chapter 3. Uterine evacuation at sizes greater than 12 weeks requires a very experienced provider. Refer the patient if staff skilled in uterine evacuation is not available.

If uterine size is larger than 14 weeks, evacuate the uterus, using oxytocin (200 units/500 cc IV fluid over 4 hours) and/or instrumental evacuation or curettage. Instrumental evacuation of a second-trimester pregnancy requires skilled, experienced staff. Significant bleeding can occur, and there is a higher risk of uterine perforation than with smaller uterine sizes. Therefore, if a specially trained operator is not available, use oxytocin and uterine curettage rather than instrumental evacuation. After evacuation or expulsion of the products of conception, examine the woman for post-expulsion completeness and to make certain the cervix is not lacerated. If bleeding remains heavy, continue therapy with bimanual uterine massage and ergometrine (0.2 to 0.5 mg IM). If IV oxytocin, uterine evacuation and skilled staff are NOT available, begin pain control (Chapter 7), and give ergometrine (0.2-0.5 mg IM). Massage the uterus (using two hands, brace the uterus with two fingers internally and massage the abdomen with the other hand until it becomes firm). Prepare the patient for referral. See Chapter 7.

4.4.4 Uterine Perforation

Uterine perforation may exist when the woman arrives for treatment or it may occur during instrumental uterine evacuation. In either case it is usually discovered during the uterine evacuation procedure. It must be addressed as soon as it is seen.

Either of the following signs indicate uterine perforation:

- an instrument (sound, curette, cannula) 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.

Treatment of uterine evacuation depends upon whether or not the uterine evacuation is complete when the perforation is discovered. See Section 3.8.

4.5 CONTINUING TREATMENT

Continue monitoring vital signs, urine output, and fluids, as the patient's condition could suddenly worsen. If she was stable initially, and later shows signs of shock, immediately begin stabilizing treatment with IV fluids and oxygen, following guidelines in Chapter 2.

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

IV Fluids. Once the woman has stabilized (systolic blood pressure of at least 100 mmHg, stabilizing heart rate (below 90), urine output of at least 100 ml per four

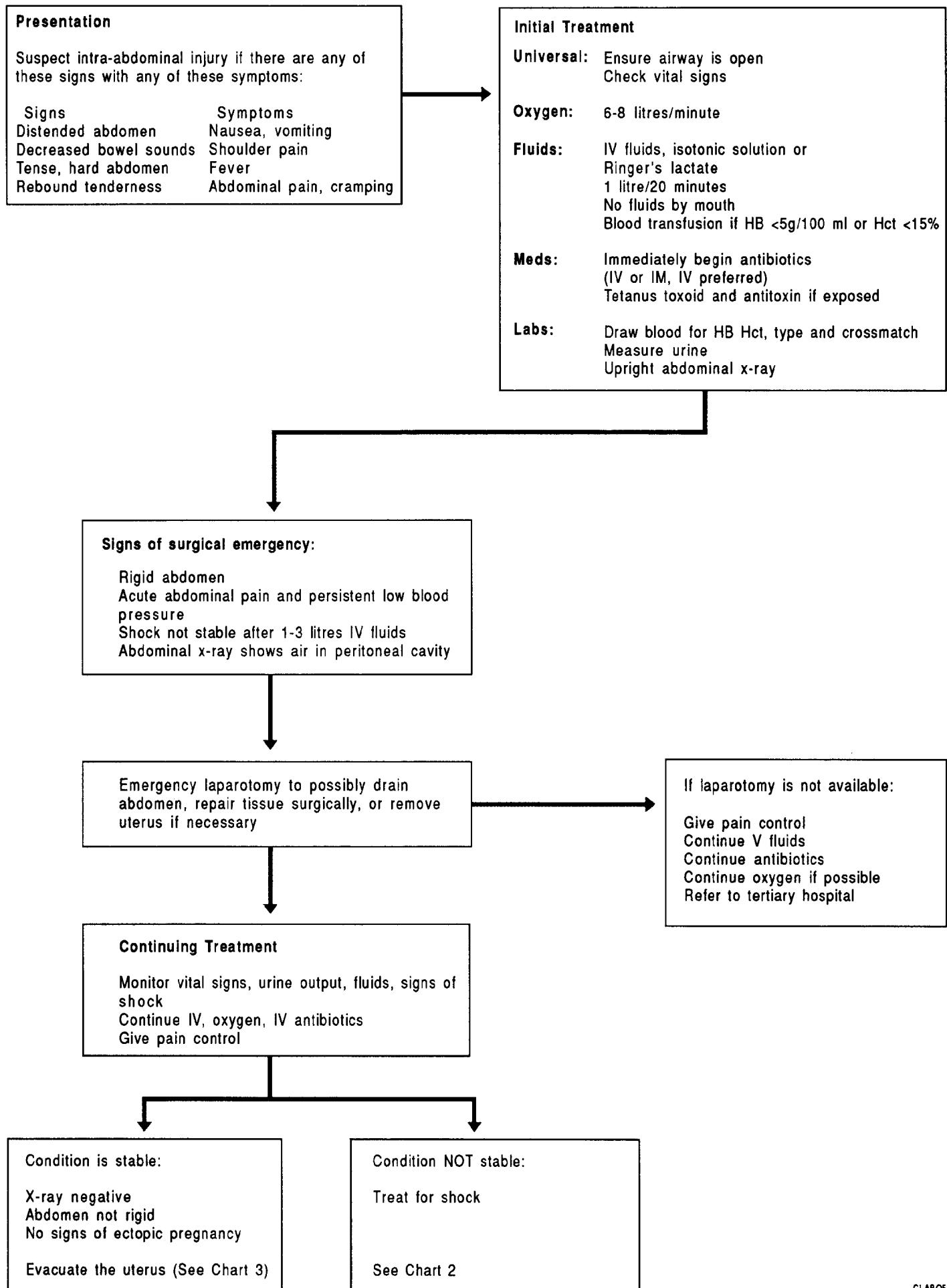
hours) and her low fluid volume has been corrected, adjust the rate of the IV fluids to 1 litre in 6-8 hours. See Chapter 7.

Blood transfusion. Blood transfusions may be live-saving, but they carry risk and may do harm rather than good in certain cases. If transfusion is needed, and has not already been started, follow the guidelines in Section 4.3 and in Chapter 7.

Medicines

If antibiotics, pain control, and tetanus toxoid and tetanus antitoxin have NOT been given, reassess the need for treatment, according to the guidelines in Section 4.3 and in Chapter 7. If treatment has been started, continue according to the schedules for antibiotics and pain control in Chapter 7.

Chart 5. Intra-Abdominal Injury



CHAPTER 5

MANAGEMENT OF INTRA-ABDOMINAL INJURY

5.1 INTRODUCTION

Injury to the internal organs is a life-threatening complication as well as a cause of serious long-term poor health among abortion patients. The most common injury is uterine perforation; damage can also occur to the ovaries, fallopian tubes, omentum (folds of peritoneal tissue around the stomach and intestine), bowel, bladder, and rectum. These injuries indicate that attempts were made to interrupt the pregnancy, and the possibility of infection, including tetanus and peritonitis, is very high.

Any internal injury, if not quickly diagnosed and treated, can lead to serious complications including bleeding, infection, and death. Severe bleeding inside the abdomen (intra-abdominal haemorrhage) can occur with little or no visible vaginal bleeding. Therefore, whenever a woman is treated for abortion complications, she should be checked for signs of an intra-abdominal injury. During assessment and treatment of an intra-abdominal injury, the patient's blood pressure and heart rate should be watched closely, as shock may develop at any time.

A ruptured ectopic pregnancy or ruptured ovarian cyst can also cause intra-abdominal haemorrhage, and the symptoms will be similar to intra-abdominal injury. The possibility of ectopic pregnancy is greater if the patient has a history of any of the following: previous ectopic pregnancy, pelvic infection, or IUD use. If ectopic pregnancy is suspected, delay in treatment is particularly dangerous, and 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.)

Treatment of abdominal injury ranges from replacement of blood loss and antibiotic therapy to uterine evacuation under direct vision (laparotomy) and repair or resection of injured tissue. It is important to recognize the signs that may indicate injury, stabilize the woman's condition if possible, and if abdominal surgery is NOT available, refer the woman quickly.

5.2 PRESENTATION

ANY of the signs listed below WITH ANY of the indicated symptoms indicates that the woman is probably suffering from an intra-abdominal injury, ectopic pregnancy or acute appendicitis.

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

5.3 INITIAL TREATMENT

Universal measures

Make sure that the airway is open. Check the patient's vital signs. Do NOT give fluids by mouth, as surgery may be necessary. If laparotomy is NOT available, promptly prepare the woman for referral after initiating treatment as outlined below.

Assess the amount of blood loss by the woman's general condition, the vital signs, urine output, haemoglobin and haematocrit, and the complete blood count (CBC). If initial clinical assessment showed that the woman is in poor health or anaemic, she may have less tolerance for blood loss, and therefore will need intravenous fluids and possibly blood transfusion.

Oxygen

Make sure that the airway is open. If oxygen is available, start oxygen at a rate of 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. It may take 1 to 3 litres of IV fluids, infused at this rate, to stabilize the patient who has lost a lot of blood or is in shock. It is important to monitor the total amount of fluids given, including blood. See Section 5.5 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.

Blood transfusions may be life-saving, but they carry risk and may do harm rather than good in certain cases. Follow Chapter 7 guidelines and warnings for blood transfusion. Remember to include the volume of blood given when monitoring and recording the total amount of fluids given to a patient.

Medicines

IV preferred, IM acceptable. Do NOT give any medicines by mouth to a woman with an intra-abdominal injury, ectopic pregnancy, uterine perforation or shock, as she may require surgery.

Antibiotics. IV preferred, IM acceptable. IMMEDIATELY give broad spectrum antibiotics which are effective against Gram-negative, Gram-positive, anaerobic organisms and chlamydia. For the choice of antibiotics, see Chapter 7.

Tetanus Toxoid. IM. If there is a possibility that the woman was exposed to tetanus, and there is any uncertainty of her vaccination history, then give her tetanus toxoid and tetanus antitoxin. If the abortion was not performed with sterile instruments, 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. IV preferred, IM acceptable. Follow guidelines above and in Chapter 7.

Labs

While lab work is helpful, treatment of an intra-abdominal injury or ectopic pregnancy should begin without delay even where lab work is not possible.

Blood. Check haemoglobin or haematocrit to assess the amount of blood loss. It is important to bear in mind that the drop in haemoglobin and haematocrit measurements can often lag 6 to 8 hours behind the actual blood loss because of the time required for equilibration. Type and cross-match blood if necessary.

Urine. Little or no urine output (<30 cc/hour) 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 a measure of her response to intravenous fluids.

Abdominal X-ray. If intra-abdominal injury is suspected, an upright x-ray will help determine if there is gas in the peritoneal cavity, a sign of uterine or bowel perforation. If the patient is uncomfortable sitting up or standing, she should be x-rayed lying down (taking lateral views).

5.4 DEFINITIVE MANAGEMENT

Any of the following conditions is a surgical emergency, requiring immediate laparotomy:

- a rigid abdomen
- a patient with acute abdominal pain *and* with persistent low blood pressure or shock that fails to stabilize after infusion of up to 3 litres of normal saline (sodium chloride) or a compound solution of sodium lactate
- an abdominal x-ray showing air or gas in the peritoneal cavity.

In these cases, laparotomy is necessary to find and repair the injury. Peritonitis, uterine perforation, bowel injury, intra-abdominal bleeding, and a ruptured ectopic pregnancy must be considered. It may be necessary to drain the abdomen. Repair or resection of

injured tissue may also be required. In extreme cases, removal of the uterus may also be required.

Once the intra-abdominal injury is treated, or if intra-abdominal injury is suspected but the woman is stable, the x-ray is negative, her abdomen is not rigid, and there are no signs of an ectopic pregnancy, then evacuate the uterus according to the guidelines in Chapter 3. If intra-abdominal injury is discovered during the uterine evacuation procedure, a laparotomy is required to find and repair the injury.

5.5 CONTINUING TREATMENT

Universal Measures

Continue monitoring the woman's vital signs, urine output, and fluids, as she could suddenly worsen and go into shock. Continue and adjust supportive treatment (oxygen, fluids, medicine) according to the guidelines below, and begin definitive treatment.

Oxygen

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

Fluids

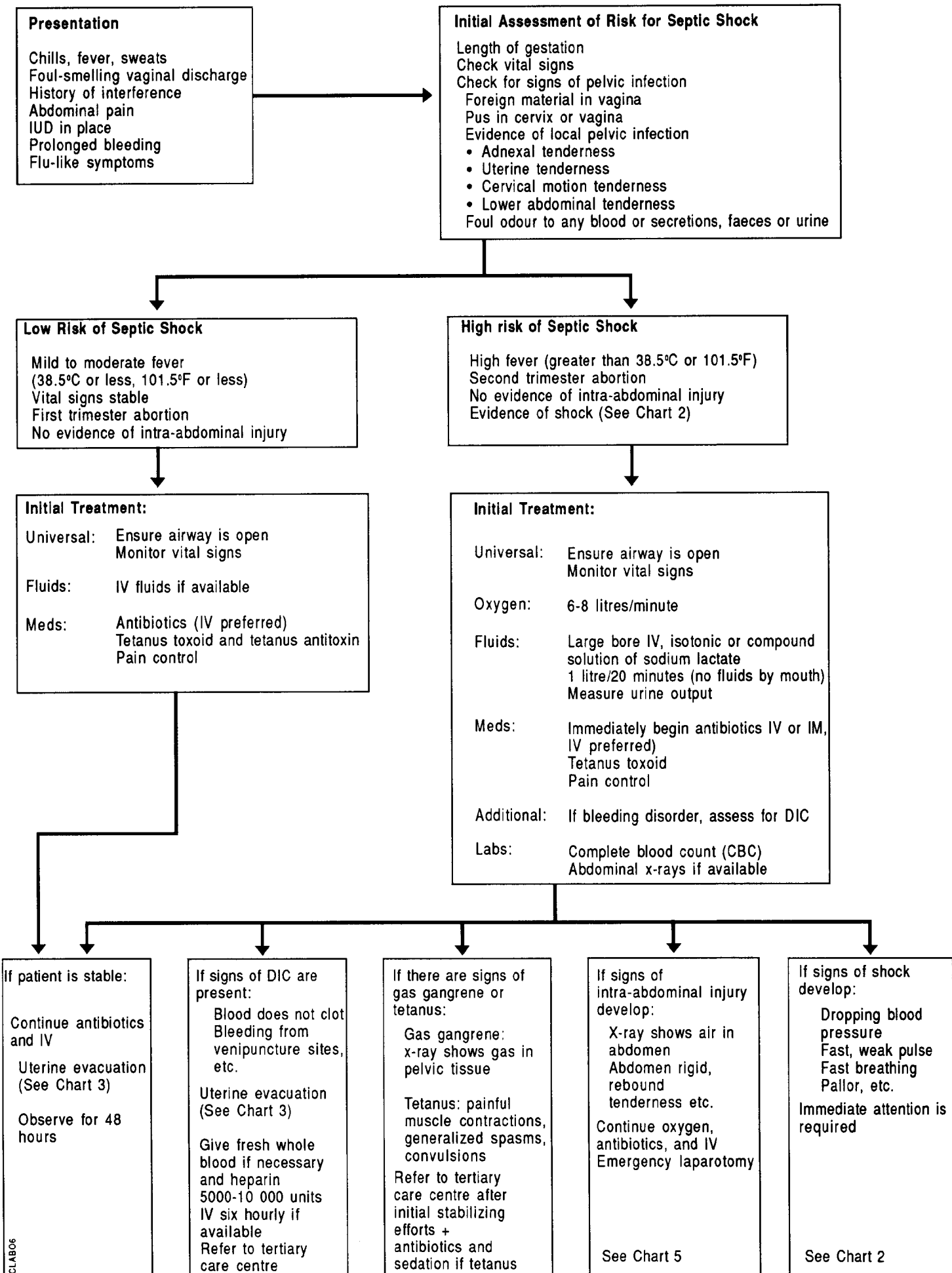
IV Fluids. If possible, continue during transfer of unstable patients. Once the woman has stabilized and her low fluid volume has been corrected, as indicated by systolic blood pressure of at least 100 mmHg, stabilizing heart rate (under 90), urine output of at least 100 ml per 4 hours, then adjust the rate of the IV fluids to 1 litre in 6-8 hours. See Chapter 7.

Blood transfusion. Blood transfusions may be life-saving, but they carry risk and may do harm rather than good in certain cases. If transfusion is needed, and has not already been started, follow the guidelines in Section 5.3 and in Chapter 7.

Medicines

Antibiotic therapy should already be started for ANY women with an intra-abdominal injury. If not, start antibiotics IMMEDIATELY. If pain control or tetanus toxoid and tetanus antitoxin have NOT been given, reassess the need. Follow treatment guidelines in Section 5.3 and in Chapter 7. If treatment has been started, continue according to the schedules for antibiotics and pain control in Chapter 7.

Chart 6. Sepsis



CHAPTER 6

MANAGEMENT OF SEPSIS

6.1 INTRODUCTION

Unsafe abortion has a high risk of complications from infection, both from introducing pathogens (micro-organisms) into the uterus and from retained products of conception which make it easy for infection to grow. Localized infection from induced or spontaneous abortion can quickly lead to more generalized sepsis and septic shock, which can be fatal. Therefore, prompt action to stabilize the patient, and remove and treat the source of the infection is needed to save the woman's life. Delay in treatment can be fatal.

Antibiotics and uterine evacuation are often the definitive treatment, but surgical repair of perforated organs and surgical removal of dead tissue and abscesses may also be necessary. Sometimes hysterectomy is the easiest and most suitable solution of the problem. Minor infection can be treated and first trimester uterine evacuation done wherever trained staff and drugs are available. In more complicated cases, antibiotics and fluid replacement must be started IMMEDIATELY. Surgery may be required. Without immediate initiation of treatment and prompt definitive treatment, the patient may die. In cases of renal failure, tetanus, gas gangrene, or where the required care is beyond the capabilities of the facility, referral to a tertiary care centre is imperative.

If uterine evacuation is NOT possible, or if surgery is necessary and is NOT possible, then she should be referred once initial stabilizing steps have been taken.

6.2 PRESENTATION

Consider the possible presence of infection with every woman who has complications of abortion. The following signs and symptoms indicate that either local or generalized infection (septicaemia) is very likely:

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
slightly low blood pressure (mild hypotension)	(malaise)

6.3 ASSESSMENT OF SEVERITY OF INFECTION AND SEPSIS

When a patient has signs and symptoms of infection, quickly assess the severity of the infection and the risk for septic shock. The following may be seen with pelvic infection:

- foreign material in the vagina

- pus coming from cervix or mixed with blood in the vagina
- signs of local pelvic infection: uterine tenderness, tenderness when the cervix is moved, lower abdominal tenderness, or adnexal tenderness (near ovaries and tubes)
- foul odour to any blood or secretions
- uterine subinvolution.

Assess the woman's risk for developing septic shock using the following guidelines:

Table 7 Risk for Septic Shock	
LOW RISK	HIGH RISK
first trimester abortion	second trimester abortion
mild to moderate fever (36.5-38.5°C or 99.5-101.5°F)	high fever (38.5°C or 101.5°F and greater) or subnormal temperature
no evidence of intra-abdominal injury	ANY evidence of intra-abdominal injury: distended abdomen, decreased bowel sounds, rigid abdomen, rebound tenderness, nausea and vomiting
stable vital signs	ANY evidence of shock: low blood pressure (systolic less than 90 mmHg), anxiety, confusion, unconsciousness pallor (inner eyelids, around the mouth, palms), rapid, weak pulse (rate 110 per minute or more), rapid breathing (respirations 30 per minute or greater)

6.4 INITIAL TREATMENT

Immediate treatment with antibiotics is a life-saving measure for ANY woman with a pelvic infection and at ANY risk for sepsis.

Universal Measures

Make sure the airway is open. Closely monitor the woman's vital signs and general condition, keeping in mind that her condition could suddenly change. Adjust treatment if she becomes unstable, following the guidelines for the treatment of shock. Do NOT give fluids by mouth to a woman in shock, at high risk for shock, or with an intra-abdominal injury, as she can vomit and inhale the vomit or she may require surgery.

- If the woman is at high risk for shock, IMMEDIATELY begin IV antibiotics, and follow the treatment guidelines in Chapter 2.
- If the woman is at low risk for shock, immediately begin antibiotics and follow the treatment guidelines below.

Oxygen

Make sure that the airway is open. Oxygen is NOT necessary if the woman is stable and is at low risk for shock. If she becomes unstable and oxygen is available, then start oxygen at 6-8 litres a minute by mask or nasal cannulae.

Fluids

If available, start an IV for every woman with ANY risk for sepsis, and start IV antibiotics immediately. Intravenous administration is the quickest and best way of treating an infection and may well save the woman's life. If the woman becomes or is unstable, follow the fluid guidelines for the treatment of shock in Chapter 2.

Medicines¹⁰

For women at high risk or in shock: IV or IM ONLY (IV preferred). Do NOT give any medicines by mouth to a woman in shock.

For women at low risk for septic shock: IV preferred. If IV not available, IM or oral acceptable.

Antibiotics. IV preferred. Start antibiotics immediately. Give broad spectrum antibiotics which are effective against Gram-negative, Gram-positive, anaerobic organisms and chlamydia. For the choice of antibiotics, see Chapter 7.

Tetanus Toxoid. IM. If there is a possibility that the woman was exposed to tetanus, and there is any uncertainty of her vaccination history, then give her tetanus toxoid and tetanus antitoxin. If the abortion was not performed with sterile instruments, 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 as needed, follow guidelines above and in Chapter 7.

Labs

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

Blood. If the woman has lost a lot of blood or appears anaemic, check haemoglobin or haematocrit and collect blood for type and cross-match. If available, a complete blood count (CBC) can also serve as a measure of infection (high number of white

¹⁰

Corticosteroids: The use of high-dose corticosteroids as adjunctive therapy is contra-indicated.

Inotropic drugs: Inotropic drugs such as digoxin should be used in shock only when hypovolaemia has been excluded confidently.

blood cells) and a measure of the bleeding disorder DIC that may be seen with severe cases of sepsis. If DIC is present, there will be a low number of platelets.

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 a measure of her response to intravenous fluids.

Abdominal X-Rays. Flat-plate and upright films may be taken. See discussion on x-rays below.

Additional Measures

X-Rays. For women at high risk, x-ray the abdomen (if possible) to assess the extent and severity of the infection. Flat-plate abdominal x-ray films are taken to identify air or fluid levels in the bowel. In the case of clostridial infection, gas may be seen in the tissues. The presence of an IUD may also be confirmed. Upright abdominal x-ray films will show air under the diaphragm from uterine or bowel perforation.

6.5 DEFINITIVE MANAGEMENT

With sepsis, prompt definitive treatment of the source of infection can be life-saving. Retained products of conception is most often the source of infection. The infection may have spread, and there may be more than one source of infection. Consider the possibility of intra-abdominal injury, pelvic abscess, peritonitis, gas gangrene, or tetanus. ALL sources of infection must be treated. In addition, if the woman has an IUD in place, it should be removed.

Retained products of conception is often a source of infection. Uterine evacuation is an essential treatment for ALL women who are at risk for septic shock who also have an incomplete abortion. See Chapter 3. If evacuation is NOT possible, then refer the woman once initial stabilizing steps have been taken. Intra-abdominal injury, pelvic abscess, and peritonitis MUST be treated promptly, and surgery is often required. For treatment of an intra-abdominal injury, see Chapter 5.

If the woman is bleeding from several sites and the bleeding is not easily stopped, quickly assess the patient for disseminated intravascular coagulation (DIC), a bleeding disorder (coagulopathy) that can be seen with severe cases of sepsis. Signs of DIC include:

- bleeding from oral mucosa (inside the mouth), bladder, injection site, or venipuncture site
- blood in the urine
- failure of patient's blood to clot (in the laboratory tube or on floor)
- decreased platelet count
- fragmented red blood cells under microscopic exam.

If DIC is suspected, immediately treat the sources of infection; evacuate the uterus without delay. Transfusion of fresh whole blood or plasma will help. If DIC becomes apparent or persists after uterine evacuation, antibiotics, and fluid resuscitation, continue IV fluids and give heparin 5,000-10,000 units IV every six hours if available. Refer the patient to a tertiary care centre.

Suspect gas gangrene if x-ray shows gas in the pelvic tissue. Suspect tetanus if the woman has painful muscle contractions, generalized spasms and convulsions. After initial stabilizing efforts, antibiotics, tetanus antitoxin and sedation (to control convulsions in the case of tetanus) have been started, promptly refer to a tertiary care centre. If the woman goes into shock, it should be treated as outlined in Chapter 2.

6.6 CONTINUING TREATMENT

Universal Measures

Continue monitoring the woman's vital signs, urine output, and fluids, as she could suddenly worsen and go into shock. Continue and adjust supportive treatment (oxygen, fluids, medicine) according to the above guidelines.

Oxygen

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

Fluids

IV Fluids. For stable women who are receiving intravenous fluids ONLY for the purpose of giving antibiotics, use the rate and volume recommended for the antibiotics. See Chapter 7.

For initially unstable women who are receiving intravenous fluids to correct low blood volume and to give IV antibiotics, adjust the IV fluid rate once she improves and her low fluid volume has been corrected (systolic blood pressure of at least 100 mmHg, stabilizing heart rate (under 90), urine output of at least 100 ml per 4 hours). The adjusted rate is 1 litre in 6-8 hours. See 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. Follow Chapter 7 guidelines and warnings for blood transfusion. Remember to include the volume of blood given when monitoring and recording the total amount of fluids given to a patient.

Medicines

Antibiotic therapy should already be started for ALL women at risk for septic shock. If not, start antibiotics immediately. If pain control or tetanus toxoid have NOT been given, reassess the need. Follow treatment guidelines in the medicine section above. If treatment has been started, continue according to the schedules for antibiotics and pain control in Chapter 7.

CHAPTER 7

GENERAL PRINCIPLES OF EMERGENCY ABORTION CARE

7.1 INTRODUCTION

A number of issues must be considered in providing emergency abortion care. Treatment may include stabilization and referral, oxygen, intravenous (IV) fluid replacement, blood transfusion, medicines (antibiotics, pain control, and tetanus toxoid). These topics are discussed below.

7.2 STABILIZATION AND REFERRAL

Stabilization and appropriate and timely referral can be essential to help women reach life-saving care. Whether the woman is referred from the primary to the first referral level, or from first referral to tertiary care, the referring site must do what it can to stabilize and treat the woman. The ability of a referring site to get prompt transport for the patient to the referral centre can be life-saving. Standing arrangements for transport should exist at all health delivery centres. These may require coordination with community resources such as police, military, agricultural extension services, other health programmes, governmental institutions, churches, and so forth. If possible, the referring centre should alert the referral centre that the patient is coming.

The central elements in stabilizing the patient for referral are outlined in Table 8.

Table 8 ELEMENTS OF EMERGENCY RESUSCITATION/ PREPARATION FOR REFERRAL AND TRANSPORT	
•	Management of the airway and respiration
•	Control of bleeding
•	Intravenous fluid replacement
•	Control of pain
Adapted from WHO, <i>Complications of Abortion: Technical and Managerial Guidelines for Prevention and Treatment</i> , in press	

In general, in an emergency referral, the patient should be accompanied by trained staff to the referral centre. If she is accompanied, then IV therapy can be continued during transport, as well as oxygen if equipment is available. If the patient cannot be accompanied by trained staff, others can be taught how to manage the IV therapy during transport. Whether or not the woman is accompanied, she should be kept warm and her feet should be

elevated in cases of shock or haemorrhage. Do not use external sources of heat, as the skin could be easily burned, instead use blankets or a similar type of covering.

A summary of the case should be sent with the woman to the referral centre. This should include:

- immediate and past history of the presenting problem
- assessment made at the referring site of the patient's condition
- actions taken at the referring site (for instance, morphine 10 mg, IM at 1600 hours)
- other relevant information obtained by the referring site (for example, patient has a seizure disorder).

See Annex 2 for an example of a referral form.

7.3 INTRAVENOUS (IV) FLUID REPLACEMENT

In many instances of abortion complications, women will require some fluids for volume replacement. Generally, an isotonic solution (0.9% sodium chloride, also known as normal saline) or a compound solution of sodium lactate is preferred. Saline with or without glucose can be used, depending upon availability. Glucose solutions without saline do not provide the salt required to restore fluid balance.

A large bore needle, preferably 16-18 gauge, is desirable for starting IV fluids so that fluids may be given rapidly and so that blood can be given later, if needed. However, a 20 gauge is acceptable if a larger size is not available.

Any necessary blood samples for laboratory tests should be drawn when the IV needle is being inserted. Blood drawing at a later point could be more difficult as veins tend to collapse and are found deeper from the surface when shock or other life-threatening complications are present. In addition, this protects the woman's comfort and is a more efficient use of sterile supplies.

Rapid infusion of fluids can be life-saving in the case of shock from reduced blood/fluid volume. Fluids can be infused at 500 cc to 1 litre in 15-20 minutes while the woman's condition is being monitored. Normally it takes 1 to 3 litres of IV fluids, infused at this rate, to stabilize the patient in shock. Once the woman's low fluid volume has been corrected, fluids should be infused at a maintenance rate of 1 litre in 6-8 hours. See Table 9.

To infuse fluids at an appropriate rate consider:

- the amount of fluid to be given
- the time period over which the fluid is given
- the type of tubing and drop size. Each type of tubing has a slightly different drop size. For example, some tubing has 20 drops (gtt) per cc, while another type may have only 10 drops per cc.

Table 9 shows how many drops per minute must be given in order to give a certain amount of fluid over a fixed period of time. To use the table, you must know the number of drops per cc (that is, which type of tubing).

Table 9 IV Fluid Rates			
Amount of Fluid	Time Period	Drops per cc (Type of Tubing)	Drops per Minute
1 litre	20 minutes	10	Too fast to count
1 litre	20 minutes	20	Too fast to count
1 litre	4 hours	10	40
1 litre	4 hours	20	80
1 litre	6 hours	10	28
1 litre	6 hours	20	56
1 litre	8 hours	10	20
1 litre	8 hours	20	40
In general, the formula to figure out any IV infusion rate is as follows: $\frac{\text{Amount of fluid given (cc)}}{\text{Time for infusion to occur (minutes)}} \times \text{No. of drops per cc} = \text{No. of drops per minute}$ In order to convert the time period from hours to minutes, multiply the number of hours by 60. This will give the number of minutes over which the IV fluids are to be given.			

When the patient has recovered sufficiently to take fluids by mouth, the IV may be discontinued unless it is required for giving medicine. If the IV is ONLY being used to give medicines, a single litre should be infused over 10-12 hours.

It is important to monitor the amount of fluids given. As the patient recovers, take care not to overload her with fluid. Any evidence of swelling, shortness of breath, or puffiness may indicate fluid overload. If this happens, discontinue fluids. Diuretics may be necessary if fluid overload has caused pulmonary oedema.

7.4 BLOOD TRANSFUSION

Blood transfusions may be live-saving in cases of extreme blood loss and shock from abortion. Nevertheless, they carry risk and may do harm rather than good in certain cases. Therefore the decision to transfuse should be made very carefully. Facilities for blood replacement are essential at the first referral level and blood transfusions can be performed by any medical officer, medical assistant, clinical officer, professional midwife or laboratory worker with suitable training.

The serious risks associated with blood transfusion include the possibility of transmission of infectious agents [e.g., human immunodeficiency virus (HIV) and hepatitis viruses]; immune related problems (e.g., intravascular haemolysis); and circulatory overload.

Moreover, it is expensive and uses a scarce human resource. "The decision to transfuse blood or blood products must be based on a careful assessment which indicates that they are necessary for saving life or for preventing major morbidity. Responsibility for the decision to transfuse must rest ultimately with the attending physician, although this will often be made in consultation when specialist transfusion advice is available. Blood which has not been obtained from appropriately selected donors and/or which has not been appropriately screened for infectious agents should not be transfused, other than in the most exceptional life-threatening situations." (WHO, *Global Blood Safety Initiative: Guidelines for the Appropriate Use of Blood*, 1989).

Recommendations for use of blood transfusions in cases of haemorrhage and shock are outlined in *Essential Elements of Obstetric Care at First Referral Level* (WHO, 1991). Particularly relevant information from that reference includes:

Blood transfusion is often indicated for volume replacement in the treatment of haemorrhage and shock. Whether or not blood transfusion is required for this purpose depends not only on the volume of blood lost, but also on the speed of the loss and the physical condition of the woman. Women in good physical condition can tolerate blood loss to a greater degree than women in poor health. For example, a loss of one litre may be tolerated quite well by a healthy woman, whereas a loss of as little as 200 ml of blood may easily be fatal to an anaemic woman.

Replacement by blood transfusion is not necessary in every case of blood loss; plasma volume expanders, solutions of dried plasma and even physiological saline are useful alternatives. However, blood loss leads to depletion of iron stores, which are best replenished by total dose iron infusion within the first three days after such loss, and certainly before the patient leaves hospital."

Clinical guidelines specific to the use of blood transfusions and alternatives to their use in the treatment of haemorrhage are described in *Global Blood Safety Initiative: Guidelines for the Appropriate Use of Blood*. Regarding alternatives to blood use, that reference states:

Blood transfusion should not be the first consideration during the management of patients with acute haemorrhage, because blood volume replacement is initially more urgent than red cell replacement. Accurate diagnosis, adequate oxygenation and volume replacement with plasma substitutes (crystalloids and colloids), and prompt and meticulous surgical care, may obviate the need for blood transfusion.

The amount of blood lost and the patient's clinical condition, assessed by measuring the blood pressure, pulse rate, central venous pressure and urine flow, will determine the need for and urgency of blood volume replacement. Generally, a previously healthy adult can tolerate a loss of up to 20% of the circulating blood volume without transfusion. Volume replacement with plasma substitutes will be necessary for a loss of between 20% and 30%. Blood transfusion will be required, in addition, when the loss exceeds 30%, particularly in patients with massive haemorrhage (more than 50% of blood lost in less than three hours).

Initial volume replacement (50 ml/kg or three times the estimated blood loss) should be with isotonic crystalloid solutions such as physiological saline (0.156 mol/L or 9 g/L). Dextrose solutions are not recommended.

Synthetic colloids may be necessary for the management of continuing haemorrhage, particularly if there are signs of hypotensive shock. Gelatins may be used in doses up to 50 ml/kg, or hydroxyethyl starch or dextran 70 in doses up to

20 ml/kg, during the first 24 hours. Albumin or plasma protein fraction may also be used, but are more expensive.

Plasma is not the first choice for volume replacement because of the risk of transmitting infection. Red cells are not indicated for volume replacement, but (as red cell concentrate or in whole blood) solely for improving oxygen delivery capacity.

Blood components may be required for restoration of haemostasis in patients who have massive haemorrhage.

For fuller information on use of blood transfusions see the following references:

- World Health Organization, *Global Blood Safety Initiative: Guidelines for the Appropriate Use of Blood*, 1989;
- World Health Organization, *Essential Elements of Obstetric Care at First Referral Level*, 1991.

7.5 ADMINISTRATION OF MEDICINES

Safety, need, and route of administration are important issues to consider when deciding when, what, and how to use medicines to treat a patient.

Before giving medicine it is important to always ask if the patient has ever had an allergic reaction to that medicine and choose a different medicine less likely to cause an allergic reaction if there has been an allergic reaction. It is important to NOT give oral medications to a patient in shock, as she may vomit and inhale the vomit.

The route of administration is an important decision for reasons of safety and for choosing the best possible way to treat the condition. The choice of routes -- IV (intravenous), IM (intramuscular) or oral (by mouth) -- must be made BEFORE choosing the specific medicines because not all medicines can be given by all 3 routes.

IV (INTRAVENOUS)

This route is preferred in the following situations: shock, any life-threatening complication that may urgently require surgery, any serious infection resulting from an incomplete abortion, including sepsis and septic shock.

IM (INTRAMUSCULAR)

This route is acceptable when IV is not available and if a required medicine can be given this way; some medicines are not effective when given IM.

ORAL (BY MOUTH)

Do NOT give any medicines by mouth to a woman in shock or if there is an intra-abdominal injury, uterine perforation, ectopic pregnancy, or other serious condition requiring immediate surgery. This route is acceptable ONLY in the following situations:

- if, in cases of referral, the transport will take several hours, AND if there are NO IV or IM medicines available to administer before transfer, then oral antibiotics and pain medicines can be given to a woman with an intra-abdominal injury, uterine perforation, ectopic pregnancy, or other serious condition requiring surgery, as long as she is NOT in shock. Give just enough water to swallow the medicine.
- if the patient is stable and able to take fluids by mouth.

7.6 ANTIBIOTICS

Antibiotics should be used whenever an infection is present. Antibiotics can be life-saving in cases of sepsis, septic shock, intra-abdominal injury and uterine perforation. When there are no complications, no signs of infection, and the woman is stable, antibiotics are not necessary.

It is very important to start antibiotics early whenever infection is suspected or present. Antibiotics should be started before surgery.

IV administration of antibiotics is preferred because it helps to speed delivery of the drug to the affected tissues. When IV fluids are not available, IM administration of the antibiotics is acceptable. Giving antibiotics by mouth is acceptable if IV or IM antibiotics are not available and the woman is not in shock, if the infection is minor, or to prevent an infection that has not yet developed.

In most cases, broad spectrum antibiotics effective against Gram-negative, Gram-positive, anaerobic organisms and chlamydia are preferable because identification of the particular pathogen is not usually possible and because multiple pathogens may be present. Antibiotics should be given in combination to achieve broadest coverage. The recommended antibiotics and their dosages are listed in Tables 10, 11, and 12 below. More than one choice of antibiotic combinations is listed, in order of preference. If a particular antibiotic is not available or the patient is allergic to it, then one of the other recommended combinations can be used.

Table 10
Antibiotic Therapy for Infected Abortion

Antibiotic	Dosage	Comments
Ampicillin	1 g IV every 4 hours or 500 mg oral every 6 hours	Good broad spectrum antibiotic, inexpensive
Benzylpenicillin	10 million units IV every 4 hours	Few serious side effects; effect limited to Gram (+) cocci and gonorrhoea (if not resistant)
Chloramphenicol	1g IV every 6 hours	Good aerobic and anaerobic coverage; effective against chlamydia. Serious side effects are associated with it: - anaemia and leucopenia (dose related) - aplastic anaemia (not dose related, rare); must be able to monitor blood count to watch for anaemia
Gentamicin	1.5 mg/Kg/dose IV or IM every 8 hours	Effective against Gram (-) organisms such as GI tract flora (e.g. E. coli)
Doxycycline or Tetracycline	100 mg IV every 12 hours	Adequate for both Gram (+) and Gram (-) organism most especially chlamydia; can replace or be used along with ampicillin; good in combination with metronidazole
Metronidazole	1g IV every 12 hours or 500 mg oral every 6 hours	Good Gram (-) and anaerobic coverage; can be used in combination with ampicillin, doxycycline, inexpensive, generally available; oral administration achieves serum levels equivalent to IV administration

Notes

1. Penicillin (or ampicillin), gentamicin, and metronidazole are most commonly used together as the broadest spectrum treatment of patients with severe infectious sepsis of a pelvic origin.
2. Chloramphenicol is quite often available when other drugs are not. It is effective in combination with penicillin or ampicillin.
3. Once started, intravenous therapy should be continued until the patient is afebrile at least 24 hours, preferable 48 hours. If there is no response in 48 hours, regimen should be changed.
4. When recovery is underway, intravenous therapy should be followed by oral medication. Generally tetracycline (500 mg by mouth 4 times daily) or doxycycline (100 mg by mouth 2 times daily) for 10-14 days is advisable. Allergic reactions to tetracycline are very rare. Some patients on tetracycline may develop a rash when their skin is exposed to the sun.

Table 11
Inpatient Antibiotic Combination Regimens
(in order of preference)

Penicillin or Ampicillin	with	Gentamicin	with	Metronidazole
Doxycycline	with	Metronidazole		
Penicillin	with	Chloramphenicol		

Table 12
Outpatient Antibiotic Therapy

Antibiotic	Oral Dose	Comments
Ampicillin or Procaine Penicillin	3.5 g oral plus 1g Probenecid 4.8 million units IM plus 1g oral Probenecid	Coverage for gonorrhoea & general broad spectrum coverage Coverage for gonorrhoea and gram (+) cocci
PLUS one of these:		
Doxycycline or Tetracycline or Cotrimoxazole	100 mg oral twice daily for 10-14 days 500 mg oral 4 times daily for 10-14 days 2 tablets oral twice daily for 10 days	Good chlamydia coverage Good chlamydia coverage Good broad spectrum coverage available, inexpensive

7.7 PAIN CONTROL

Many women having abortion complications suffer pain and need prompt and effective medication for their pain. To select appropriate pain control, one must consider the conditions present, the timing and the route of administration, and the precautions for each type of pain control.

Assess the woman's condition before choosing and giving analgesics. These medications given before the examination can hide symptoms (pain, fever) that are essential to an accurate diagnosis. A patient in shock or requiring surgery should only receive IV or IM medicines.

Avoid over-sedation because it can cause the patient to be unable to answer questions well. In addition, over-sedation can hide symptoms that are essential to diagnosis. Any narcotic can depress breathing, which can be fatal, therefore, patients receiving narcotics must be under reasonably close observation so that slow or interrupted breathing will be noticed. This is particularly true of patients who are already sick and may be in early shock. It is essential to consider the transit time and transfer conditions for referral patients. Avoid the use of narcotics if the transfer will be without adequate medical supervision and ability to respond to respiratory depression. The dose should be selected to provide adequate pain control during transfer, yet not interfere with the woman being able to answer questions and be accurately diagnosed upon arrival at the referral centre.

Non-steroidal anti-inflammatory drugs and aspirin are often used to treat pain. Avoid using acetylsalicylic acid (aspirin) and the non-steroidal anti-inflammatory drugs until a diagnosis is certain because these drugs interfere with blood clotting ability. It is also important to consider the precautions on oral administration of medicines, and to measure and record the woman's temperature before giving these medicines. In uncomplicated cases that only require uterine evacuation, these medications may be used to relieve the pain of uterine cramping, without making the bleeding worse.

Pain medication is often accompanied by the use of a tranquillizer such as diazepam. While such combinations provide both sedation and analgesia (pain relief), they also may increase the risk of respiratory depression. Therefore, such combinations should be used carefully, especially if the patient will be transferred.

Recommended analgesics are:

- morphine 10-15 mg IM or 1-5 mg IV
- pethidine 50-100 mg IM
- paracetamol with codeine 30 mg PO (by mouth)
- paracetamol 500 mg PO (by mouth).

Staff should be trained in the use of analgesics and tranquilizers given IV and in resuscitation.

7.8 TETANUS

Women who present with complications of abortion may be at risk of developing tetanus. Few women are fully immunized against tetanus; in 1986 only 16% of the pregnant women in the developing world were adequately protected (WHO, *Prevention of Neonatal Tetanus Through Immunization*, 1986).

Any evidence that the woman has trauma to the genital tract which may have been contaminated with dirt or faeces or has received an abortion in which dirty instruments were used, requires careful attention to the issue of tetanus. The woman's report of interference with the pregnancy is important although she may not disclose such attempts.

A first step in preventing the onset of tetanus is careful cleansing of the wound, drainage of pus and meticulous removal of foreign material and dead or damaged tissue. This reduces the likelihood that *C. Tetani* will be able to proliferate (Mandell, G.L., et al., eds. *Principles and Practice of Infectious Diseases*, 1990). Starting antibiotics is also essential to reduce the toxin load; either penicillin or metronidazole can be used.

Specific immunoprophylaxis recommendations depend upon the patient's history of immunizations and the severity of the wound. The following are general guidelines:

- If the patient has received a full immunization series within the last 5-10 years and has a clean, minor wound, no specific immunoprophylaxis is needed. If the wound is tetanus-prone (i.e. contaminated with dirt or faeces, puncture wounds or burns), a tetanus vaccine booster should be given.
- If the patient has not received a full immunization series in the last 5-10 years or is unsure of her immunization status, tetanus vaccine and tetanus antitoxin should be given. When vaccine and antitoxin are given at the same time, it is important to use separate syringes and separate sites of administration.

7.9 DIURETICS

Give diuretics such as furosemide ONLY if there is evidence of heart failure and pulmonary oedema, ONLY if administered by an experienced provider, and ONLY with very careful monitoring of the patient's condition. The patient must have a catheter in place, hourly urine output must be measured and recorded, and care must be taken to balance the use of diuretics with continued administration of IV fluids. The diagnosis can be confirmed with a chest x-ray, and progress can be confirmed with a further chest x-rays.

ANNEX 1
EQUIPMENT AND FACILITIES FOR ABORTION CARE
PART A: COMMUNITY LEVEL

Staff May Include	Activities	Facilities	Equipment/Drug
Community health workers with basic health training including: • Traditional birth attendants (TBAs) • Traditional healers • Community residents	Recognition of abortion and complications Timely referral to the formal health care system Health education regarding unsafe abortion Family planning information, education and services	There are usually no formal health care facilities at this level.	No drugs or equipment are required for these activities. A few drugs (e.g. antimalarials) may be available. Good communication channels with the primary health care level are essential. Health education materials (handouts, charts, etc.) are helpful. Counselling materials (leaflets, posters, etc.) are helpful. Some contraceptives (e.g., condoms, oral contraceptives, spermicides) can be provided.
Remarks: The level of responsibility varies from country to country dependent on the primary health care programme. Good communication between the community health worker and the primary level is essential.			