Puerperal Sepsis

Module 13

Sepsis

Session Objectives:

By the end of the session, participants will be able to:

- Define chorioamnionitis and puerperal sepsis
- Describe risk factors for and natural barriers to maternal infection
- Identify the presenting symptoms and determine the differential diagnoses associated with fever
- Identify ways of preventing postpartum infection
- Use simple management protocols for the management of puerperal sepsis

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Types of Sepsis/Infection

Chorioamnionitis:

Infection in the amniotic sac, fetal membranes, or amniotic fluid during pregnancy or labor

Puerperal sepsis (metritis):

Infection in the genital tract or uterus during the postpartum period

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What Is Chorioamnionitis?

A bacterial infection in the amniotic sac, fetal membranes, or amniotic fluid

- Develops during labor, when cervical or vaginal microorganisms migrate through the cervical canal during prolonged labor, or after a woman's membranes have ruptured
- Can lead to severe infection in the uterus
- If left untreated can be fatal for both mother and newborn
- Is associated with preterm labor and delivery

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Signs and Symptoms of Chorioamnionitis

- Fever/chills
- Maternal tachycardia (> 100 bpm)
- Fetal tachycardia (> 160 bpm)
- Uterine tenderness
- Foul-smelling vaginal discharge

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Predisposing Factors for Chorioamnionitis

- Premature rupture of the membranes (PROM)—either spontaneous or artificial—at more than 18 hours before birth
- Prolonged labor of more than 24 hours
- More than three vaginal exams during labor
- Any unclean vaginal exam during labor
- Cesarean deliveries or assisted vaginal births with forceps or vacuum extractor

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Treatment of Chorioamnionitis

Start treatment immediately if chorioamnionitis is suspected

- Give a combination of antibiotics until delivery:
  - Ampicillin 2 g IV every six hours
  - PLUS gentamicin 5 mg/kg body weight IV every 24 hours
- If the **woman delivers vaginally**, discontinue antibiotics postpartum.
- If the **woman has a cesarean section**, continue antibiotics PLUS metronidazole 500 mg IV every eight hours until the woman is fever-free for 48 hours.
- If the cervix is favorable, induce labor.
- If the cervix is unfavorable, induce labor OR refer for cesarean section.

A prophylactic antibiotic can be given for prolonged rupture of membranes > 18 hours.

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What Is Puerperal Sepsis?

- Puerperal sepsis is any bacterial infection of the genital tract that occurs after the birth of a baby. Signs and symptoms usually appear more than 24 hours after delivery.
- If the woman has had chorioamnionitis due to prolonged rupture of membranes or prolonged labor without prophylactic antibiotics, then the disease may become evident earlier.

Puerperal sepsis can lead to life-threatening complications such as septicemia and septic shock.

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Maternal Mortality Due to Puerperal Sepsis

- Puerperal sepsis is among the **major killers of mothers and newborns.**
- Puerperal sepsis occurs in **up to 10% of women delivering in developing countries.**
- **Half of the women who experience puerperal sepsis die.**
- The health of the mother and the health of the baby are inextricably linked; thus, **maternal sepsis is linked to newborn sepsis** in a potentially fatal connection.

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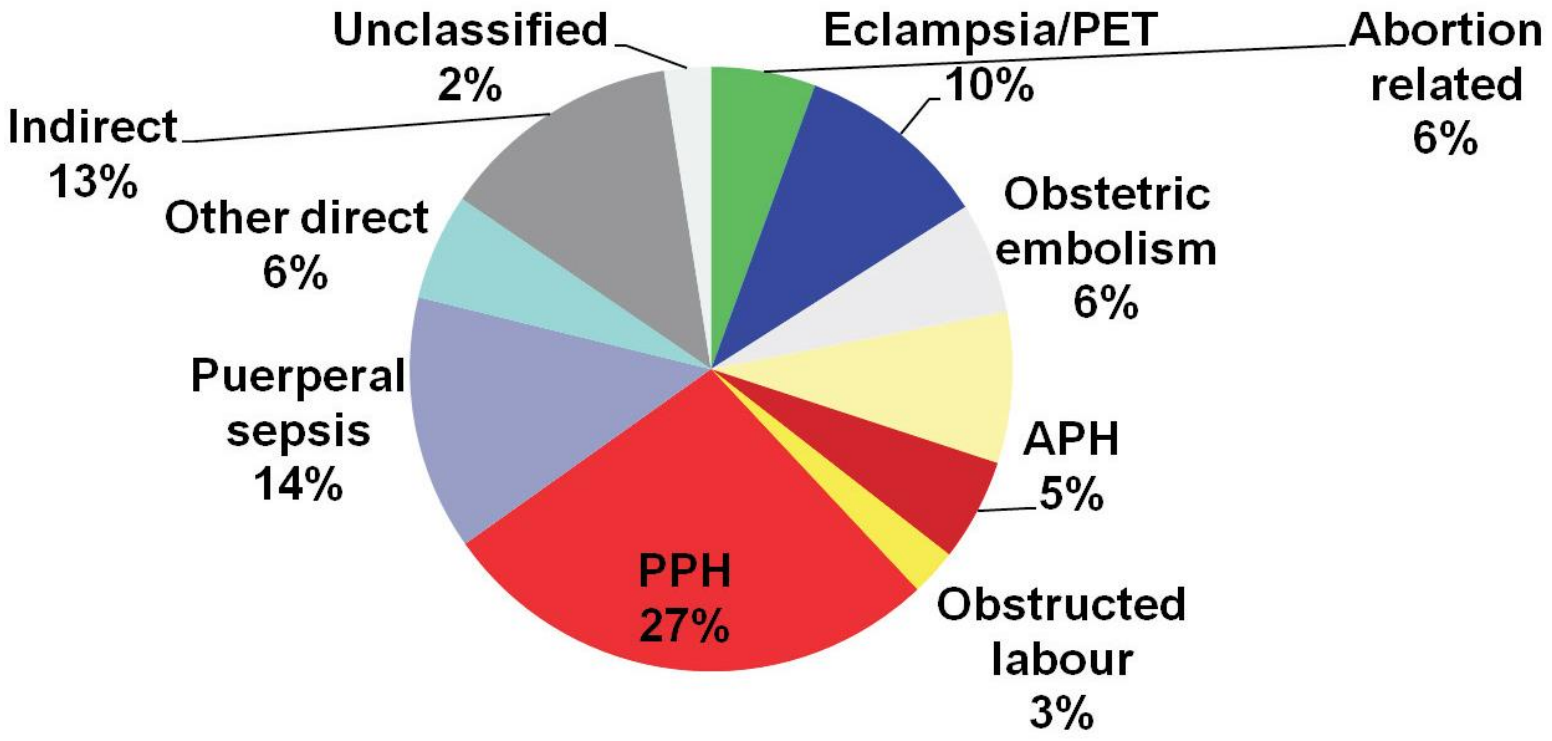
Maternal Deaths in Pakistan



Source : PDHS 2006-2007

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Maternal Morbidity Due to Puerperal Sepsis (cont'd)

Infections during the postpartum period can lead to:

- Pelvic inflammatory disease
- Chronic pelvic pain
- Dyspareunia
- Dysmenorrhea
- Menorrhagia
- Infertility

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Symptoms of Puerperal Sepsis

- Fever/chills
- Lower abdominal pain
- Purulent or foul-smelling lochia
- Tender uterus, light vaginal bleeding
- Septic shock

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Organisms That Commonly Cause Puerperal Sepsis

Endogenous Bacteria

- These are bacteria that normally live in the vagina and rectum without causing harm (e.g., some types of streptococci and staphylococci, Klebsiella, E. coli, Clostridium welchii).
- Endogenous bacteria can be introduced by frequent vaginal examination, tissue damage due to prolonged and obstructed labor, or prolonged rupture of membranes.

Even when a clean technique is used for delivery, infection from endogenous bacteria can still occur.

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Organisms That Commonly Cause Puerperal Sepsis (cont'd)

Exogenous Bacteria

- These are bacteria that are introduced into the vagina from the outside (streptococci, staphylococci, clostridium tetani, etc.).
- Exogenous bacteria can be introduced into the vagina by:
  - Unclean hands or unsterile instruments
  - Droplet infection (e.g., a health provider sneezing or coughing onto his or her own hands immediately before performing an examination)
  - Foreign substances that are inserted into the vagina (e.g., herbs, oil, cloth)
  - Sexual activity

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Community Risk Factors for Puerperal Sepsis

- Lack of transportation/ resources to take the woman to a referral facility
- Long distance between a woman's home and a health facility
- Low socioeconomic status; inability to pay for treatment
- Poor level of general education and awareness
- Cultural norms/factors that lead to delay in seeking medical care or not seeking care at all
- Lack of knowledge about signs and symptoms of puerperal sepsis
- Lack of health education about danger signs
- Lack of birth and emergency preparation plan

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Health Service Risk Factors

- Inaccessibility of appropriate health facilities
- Poor standards of cleanliness in the health facility, especially in toilets
- Delays in providing care at facility
- Lack of necessary resources such as staff, equipment, and drugs (most effective antibiotics)
- Poor basic training of staff
- Poor infection prevention practices in labor and in the early postnatal period
- Failure to recognize the onset of infection
- Lack of lab for investigations
- Inappropriate/incorrect use of antibiotics
- Lack of safe blood for transfusion

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Fever after Childbirth: Differential Diagnosis

Pelvic morbidities

- Pelvic abscess
- Metritis

Breast morbidities

- Breast engorgement
- Mastitis
- Breast abscess

Wound morbidities

- Wound abscess
- Wound hematoma
- Wound cellulitis

Other conditions

- Cystitis/acute pyelonephritis
- Deep vein thrombosis
- Pneumonia
- Malaria
- Typhoid
- Hepatitis
- Peritonitis

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Question:

- What are some natural protective barriers to maternal infection?

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Natural Barriers to Maternal Infection

- **Placental membranes** at the uterine level
- **Mucus plug** (progesterone-induced) at the cervical level
- **Lochia** (postpartum discharge)--a natural effluent that keeps pathogens flowing outward
- **Increased pelvic blood flow** at the systemic level

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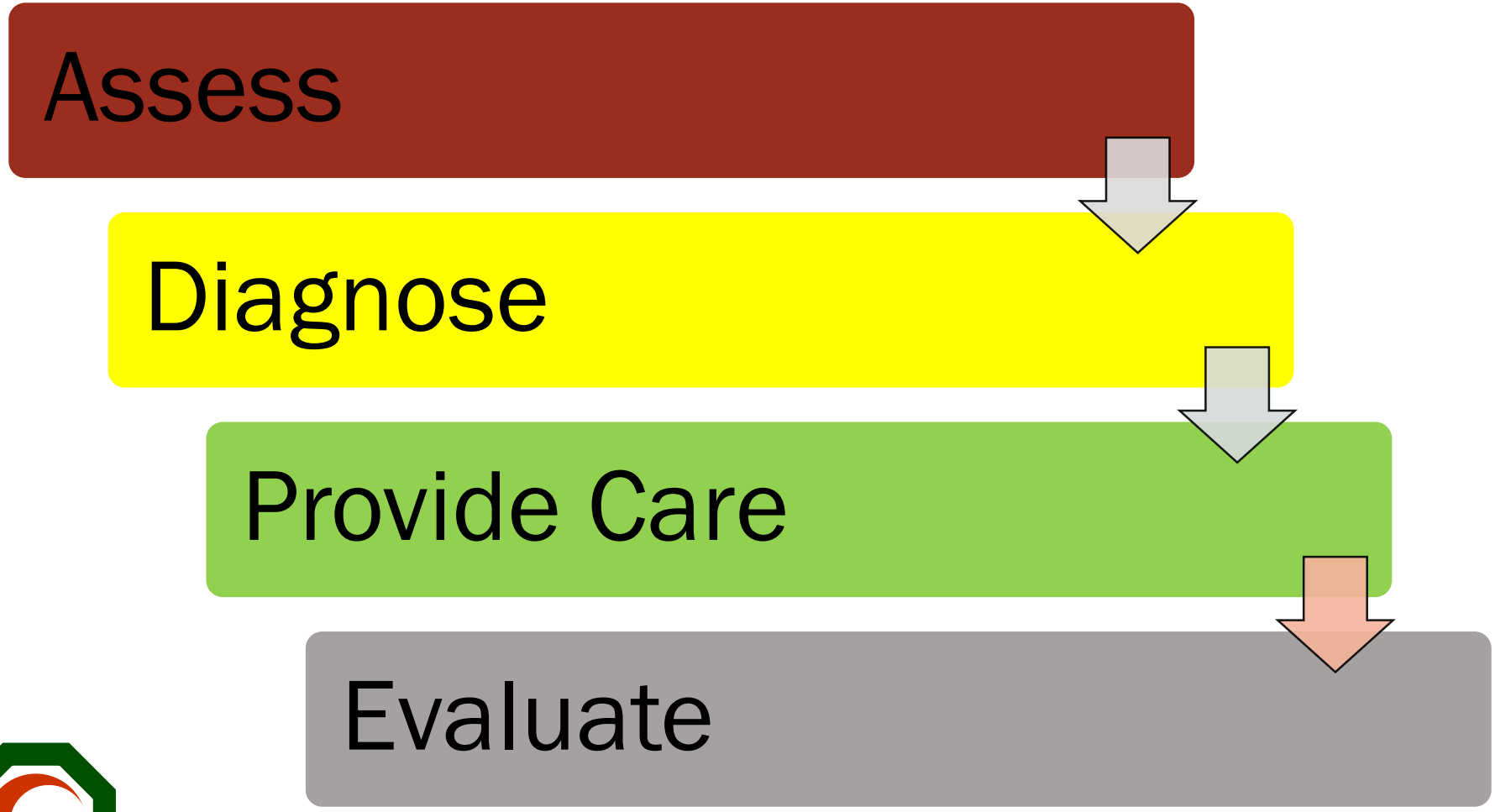
Management of Septic Patient



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General Management of Septic Patients

Women diagnosed with puerperal sepsis need special care.

- Identify any life-threatening condition.
- Admit and isolate the woman in a separate room, if possible, or at the corner of the ward.
- Strictly follow all infection prevention practices when handling the patient.
- Give her plenty of fluids.

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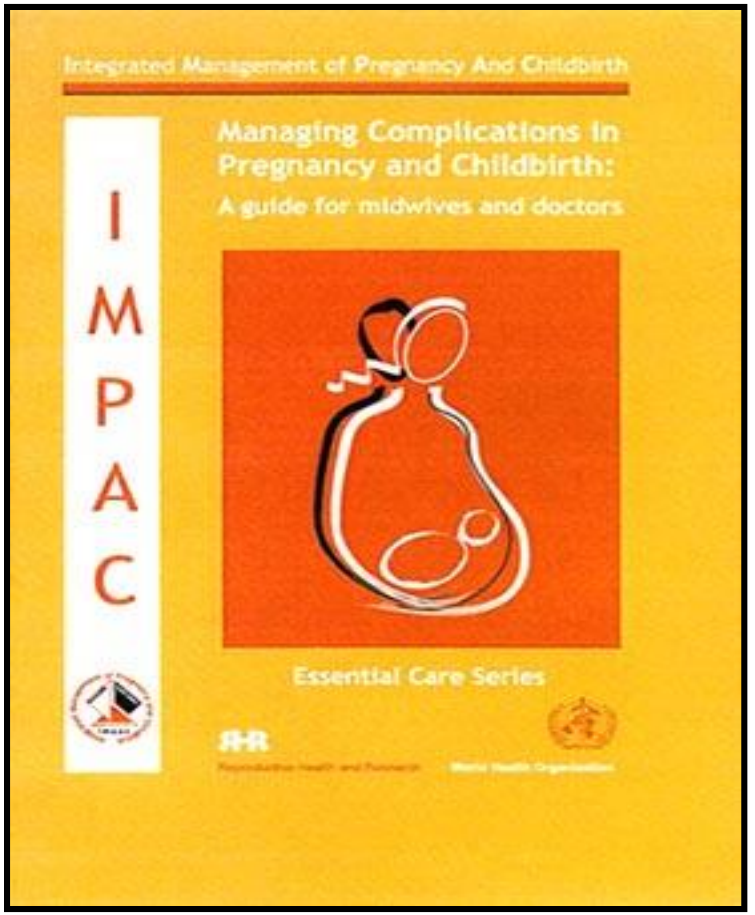
Management of Metritis

Suspect metritis if the woman has fever, foul-smelling vaginal discharge, and soft uterus

- Administer IV antibiotics (triple regimen):
  - Ampicillin 2 g every 6 hours
  - Gentamicin 5 mg/kg every 24 hours
  - Metronidazole 500 mg every 8 hours
- Continue until fever-free for 48 hours
- No oral antibiotics after treatment:
  - Not proven to add any benefit;

  only adds to expense



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Mastitis

Infection of the breast is called mastitis.

- Usually only one breast is affected.

Symptoms:

- Breast pain and tenderness
- Reddened, wedge-shaped area on breast
- Usually occurs 3–4 weeks after delivery
- Inflammation preceded by engorgement
- Can develop into abscess if untreated

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Management of Mastitis

- Give cloxacillin 500 mg by mouth 4 times/day for 10 days OR erythromycin 250 mg by mouth 3 times/day for 10 days.
- Encourage the woman to continue breastfeeding.
- Support the breasts with a binder or brassiere.
- Apply cold compresses to the breast between feedings to reduce swelling and pain.
- Give paracetamol 500 mg by mouth as needed.
- Follow up three days after initiating management.

If an abscess is present, arrange for transfer to a higher-level facility.

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How to Reduce Chances of Sepsis at Childbirth

To reduce chances of infection:

- Promptly diagnose and treat prolonged labor
- Use partograph
- Practice hand hygiene; high-level disinfect gloves
- The "six cleans"
- Minimize vaginal examinations
- Prevent and promptly diagnose and treat chorioamnionitis

Practices that promote infection and must be avoided:

- Routine vaginal examinations at shift change
- Multiple vaginal examinations
- Vaginal examinations after rupture of membranes
- Shaving of the genital area
- Enema

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How to Reduce Chances of Sepsis at Childbirth (cont'd)

- Ensure safe delivery practices
- Use good infection practices during delivery
- Minimum manipulation
- Avoid unnecessary procedures (e.g., episiotomy)
- Use of prophylactic antibiotics for PROM

The Six Cleans:

- Clean hands
- Clean perineum
- Clean birthing surface
- Nothing unclean inserted into vagina
- Clean cord-cutting blade
- Clean cord tie

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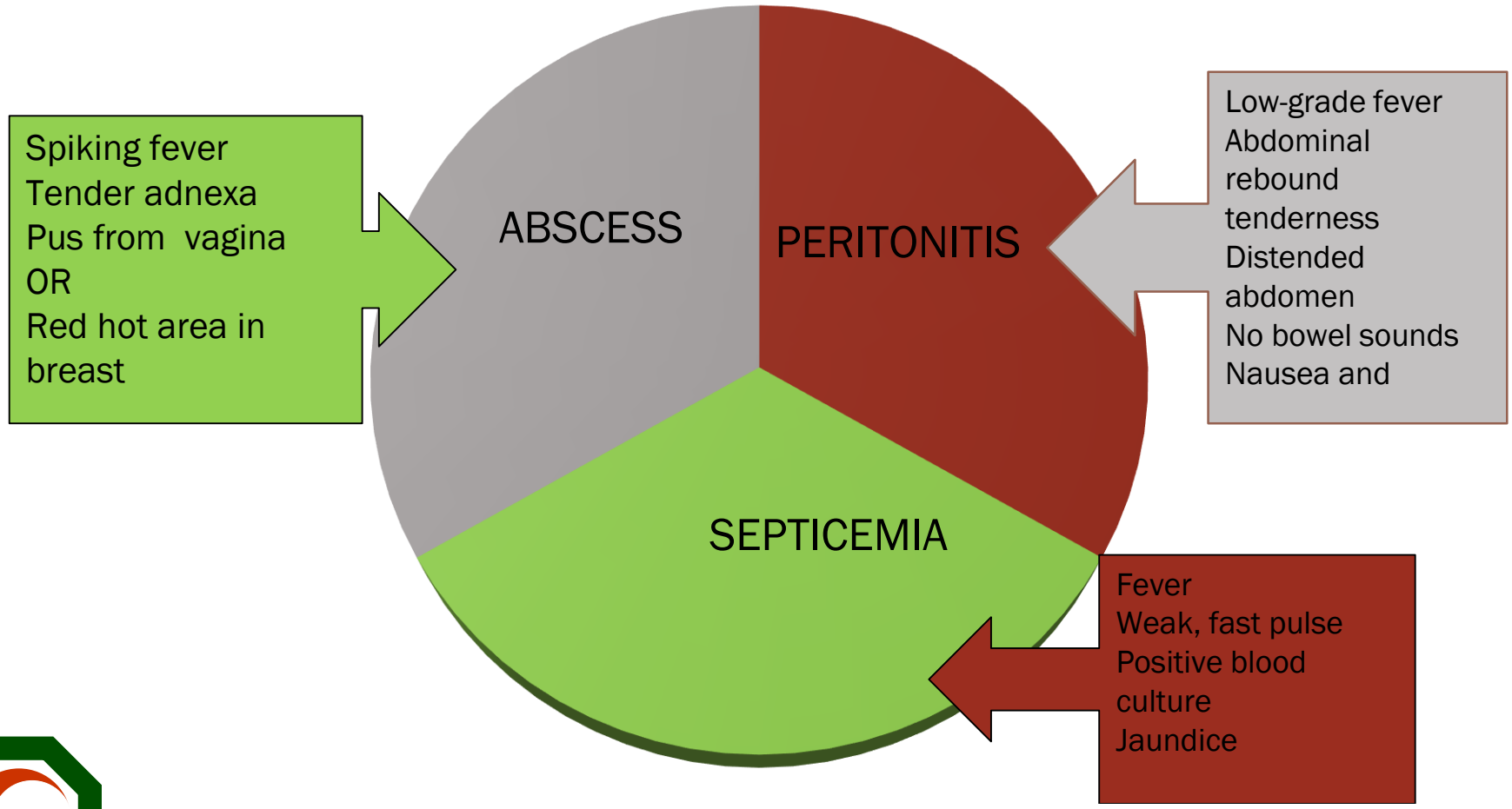
When to Refer?



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Postpartum Infections: Summary

- Postpartum infection/sepsis is an important cause of maternal morbidity and mortality.
- The three biggest risk factors are:
  - Prolonged labor
  - Prolonged rupture of membranes
  - Multiple vaginal exams
- The most common diagnosis associated with postpartum fever is metritis.
- Clean and safe practices during delivery are critical.

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Thank You!