CHAPTER 3

Care of the Pregnant Woman with Prenatal Variations

Midwives support women with pregnancy complications and variations through prompt identification and initiation of treatment for these concerns to ensure the best possible outcome for mother and baby. The ability to anticipate problems in pregnancy is an essential component of skilled midwifery practice. Midwives must be steadfast in their belief that pregnancy is a normal physiologic condition while retaining a healthy respect for problems and complications that can develop. During evaluation of potential or developing problems, the midwife actively engages the mother in decision making regarding the options for care of herself and her unborn baby.

Among the Hallmarks of Midwifery Care are advocacy for informed choice, shared decision making, and the right to self-determination (American College of Nurse–Midwives, 2007). Although the mother may have limited or no control over the development of problems during her pregnancy and may feel threatened when they arise, the midwife can enhance the mother's sense of control by presenting options in the areas where client choice is possible. Respect for each woman's needs is especially important when an unexpected problem develops.

Many women look to their midwife to present a balanced view of developing problems, the diagnostic evaluation process, and treatment options. Although many women choose to be active participants in all of their healthcare decisions, the expectation is that the midwife will clearly identify a recommended course of action. Recommendations are based on the midwife's judgment of what constitutes best care for the mother and the fetus in light of the presenting problem. Occasionally, the midwife's recommendations may run contrary to either the mother's preferences or standard hospital-based expectations for obstetric care. A clear, focused, and confidently presented midwifery plan of care, accompanied by a rationale backed by evidence-based resources, can be helpful in providing guidance to the client who hesitates at the indicated obstetric intervention, or in promoting understanding among providers in the medical setting where the midwife may feel pressured to intervene without a clear indication.

Midwifery care of problems during pregnancy forms a continuum from least intervention to most intervention. The skilled midwife can move along this continuum in either direction, understanding that appropriate medical or obstetric intervention in the presence of complication should always serve the mother's and baby's needs and is congruent with midwifery philosophy.

CARE OF THE PREGNANT WOMAN WITH ABDOMINAL PAIN

Key Clinical Information

Many women will experience self-limited periods of abdominal pain due to the normal physiologic changes during pregnancy. Normal etiologies of abdominal pain in pregnancy include round ligament pain, constipation, and heartburn. Medical complications such as appendicitis and cholecystitis can prove challenging to diagnose during pregnancy because symptoms of these conditions can mimic normal pregnancy discomforts. During pregnancy, the approximate incidences of appendicitis and cholecystitis are each 1 in 1000 women (Cunningham, Levano, Bloom, Hauth, Rouse, & Spong, 2010). Timing of abdominal pain in relation to gestational age provides key information to diagnose trimester-specific conditions such as ectopic pregnancy. A detailed history and exam are essential to narrow down the various differential diagnoses of abdominal pain in pregnancy. Abdominal pain associated with vaginal bleeding is addressed in a separate section later in this chapter.

Client History and Chart Review: Components of the History to Consider

- Age, GP TPAL
- Gestational age
- Review of prior ultrasound findings
- Location
  - Lower abdomen
  - Upper abdomen
  - Radiating to back: Cholecystitis
- Onset and duration
- Diet history
  - Timing of pain in relation to meals
  - Consider cholecystitis if pain occurs after fatty meals
- Characteristics
  - Sharp, dull
  - Constant, colicky
  - Severe, mild
- Associated symptoms
  - Nausea and vomiting
  - Constipation
  - Diarrhea
  - Syncope
  - Vaginal bleeding
  - Visual changes
  - Dysuria
  - Urinary urgency
  - Abdominal itching
  - Dark urine
  - Light-colored stools
  - Fatigue
- History of pica
- Bowel activity
- Relieving and exacerbating factors
- Recent trauma

Physical Examination: Components of the Physical Exam to Consider

- Vital signs, including pulse, temperature, and blood pressure (BP)
- Pain scale rating
- Diaphoresis
- Presence of jaundice
- Murphy's sign
  - Palpation of costal margin
  - RUQ pain with inhalation
  - Gasp or breath "catching": positive result
  - Indicative of gallbladder disease
- Abdominal exam
  - Presence of rigidity
  - Pain location
  - Assess rebound tenderness and muscle guarding
  - Bowel sounds

- McBurney's point assessment: Appendix moves progressively closer to gallbladder as gestation progresses
- Pelvic exam
  - Speculum exam
  - Look for products of conception in first trimester
- Suprapubic tenderness

Clinical Impression: Differential Diagnoses to Consider (ICD9Data.com, 2012)

- Abdominal pain
- Acute cholecystitis
- Cholecystitis: unspecified
- Cholelithiasis
- Appendicitis
- Peptic ulcer
- Acute cystitis
- Spontaneous abortion
- Ectopic pregnancy

Diagnostic Testing: Diagnostic Tests and Procedures to Consider

- Ultrasound
  - Uterus
  - Abdomen
  - Gallbladder
- Quantitative HCG
- Urinalysis and culture
- 24-hour urine collection if HELLP is suspected
- CBC: WBC elevation
- Liver enzyme panel
- Serum amylase and lipase
- Non-stress test (NST)
- Possible endoscopy or laparoscopy

Providing Treatment: Therapeutic Measures to Consider

- For pathologic diagnoses:
  - Analgesia
  - Intravenous fluids
  - Surgery
- See the following sections:
  - "Care of the Pregnant Woman with Vaginal Bleeding, First Trimester"
  - "Care of the Pregnant Woman with Vaginal Bleeding, Second and Third Trimesters"
  - "Care of the Pregnant Woman with Constipation"
  - "Care of the Pregnant Woman with Preterm Labor"
- For less severe or physiologically normal diagnoses, see the following sections:
  - "Care of the Pregnant Woman with Round Ligament Pain"
  - "Care of the Pregnant Woman with Heartburn"
  - "Care of the Pregnant Woman with Constipation"

Providing Treatment: Complementary and Alternative Measures to Consider

- According to diagnosis
- For mild cholelithiasis
  - Low-fat diet
  - Fiber-rich foods
  - Cleanse the gallbladder
    - Oatmeal, pears, beets, artichoke, dandelion greens, flax seed and meal
    - Milk thistle herb capsules
    - Olive oil and lemon juice flush

Providing Support: Education and Support Measures to Consider

- Reassurance of normalcy if physiologically normal diagnoses
- As required for normal diagnosis
- Supportive presence if surgical intervention is needed
  - Surgery may be delayed until after pregnancy, such as in mild cholelithiasis
  - Surgery may be done regardless of pregnancy, such as in appendicitis

Follow-up Care: Follow-up Measures to Consider

- Document
- As required for normal diagnoses

Multidisciplinary Practice: Consider Consultation, Collaboration, or Referral

- Medical consult for the following conditions:
  - Significantly elevated WBC
  - Suspected problem requiring surgical intervention
  - Emergent situation
  - Diagnostic uncertainty
- For diagnosis or treatment outside the midwife's scope of practice

CARE OF THE PREGNANT WOMAN WITH ANEMIA

Key Clinical Information

Iron-deficiency anemia due to dietary deficiencies is the most common form of anemia in pregnant women. In developed countries, 20% of pregnant women have iron-deficiency anemia, whereas in developing countries more than half of pregnant women have this disorder (Rioux & LeBlanc, 2007). Anemia affects the oxygenation of both mother and fetus and can result in diminished fetal growth, maternal exhaustion, increased susceptibility to infection, and related complications, such as prematurity (Centers for Disease Control and Prevention [CDC], 2011b). Prompt diagnosis, treatment, and follow-up of anemia, along with attention to the overall nutritional status of the mother, are critically important for ensuring fetal well-being and for optimizing maternal health before the onset of labor.

Client History and Chart Review: Components of the History to Consider

- Age, GP TPAL
- Gestational age
- Interconceptional spacing
- Current hematocrit and hemoglobin
- Potential causes of anemia
  - Tobacco use
  - History of closely spaced pregnancies
  - Blood loss, heavy menses
  - Chronic illness
  - Malabsorption syndromes
    - Hookworms
    - Bariatric surgery
  - Living in higher altitudes
  - Malignancy
  - Higher risk for thalassemia or sickle cell
    - African descent
    - Mediterranean descent
    - Asian descent
- Presence of anemia-related symptoms
  - Fatigue
  - Dizziness
  - Headache
  - Sore tongue
  - Pica (eating nonfood items such as starch or clay, or chewing ice)
  - Dyspnea
  - Palpitations or tachycardia
- Usual dietary patterns
  - General nutrition
  - Dietary iron sources
    - Prenatal vitamin use
    - Most have 30 mg elemental iron
    - Iron supplement use
- Use of over-the-counter (OTC) medications
  - Antacids and calcium supplements reduce iron absorption in the gut

Physical Examination: Components of the Physical Exam to Consider

- Vital signs, including pulse and blood pressure (BP)
- Affect and energy level
- Glossitis
- Pallor of skin and mucous membranes
  - Inspect oral mucosa
  - Inspect conjunctival mucosa
- Brittle nails
- Examination for potential causes of anemia
  - Bruising
  - Bleeding

Clinical Impression: Differential Diagnoses to Consider (ICD9Data.com, 2012)

- Physiologic anemia of pregnancy
- Iron-deficiency anemia
- Other anemia
  - Pernicious
  - Hemolytic
  - Sickle cell
  - Thalassemia

Diagnostic Testing: Diagnostic Tests and Procedures to Consider

- Complete blood count (CBC) with indices in simple iron-deficiency anemia:
  - Microcytic
  - Hypochromic
  - Serum ferritin: decreased
  - Total iron binding capacity: increased
- Stool for occult blood, ova, and parasites
- See Table 3-1 for criteria for diagnosing anemia in pregnancy.

Providing Treatment: Therapeutic Measures to Consider

- Iron replacement therapy for hemoglobin less than 11 g/dL or low serum ferritin (King & Brucker, 2011; Rioux & LeBlanc, 2007; University of Maryland Medical Center, 2007)
  - 60–120 mg elemental iron daily
  - Iron salts:
    - Ferrous sulfate (Feosol, Slow Fe)
      - 65 mg elemental iron
      - 1 PO TID
    - Ferrous gluconate (Fergon, Fertinic)
      - 27 mg elemental iron
      - 2 PO BID
    - Ferrous fumarate (Feostat, Chromagen)
      - 35 mg elemental iron in 325-mg tablet
      - 300–600 mg/day in divided doses
    - Polysaccharide iron complex (Niferex 150)
      - 150 mg elemental iron
      - 1–2 capsules PO daily
- Floradix iron liquid
  - 2 tsp BID
  - Vegetarian liquid formula
  - Causes less GI upset than iron salts
- Continue supplementation through 3 months postpartum
- IM or IV Imferon for severe or recalcitrant anemia
  - May cause anaphylactic reaction
  - Use with caution and following consult
- Increase high-iron food sources (see "A Nutritional Primer")

Providing Treatment: Complementary and Alternative Measures to Consider

(Romm, 2010; University of Maryland Medical Center, 2007)

- Chlorophyll: Liquid or capsule
  - May stimulate RBC production
  - Increases in hemoglobin and hematocrit are often seen in 2 weeks

Table 3-1 Criteria for Diagnosing Anemia in Pregnancy

PREGNANT WOMEN	HEMOGLOBIN	HEMATOCRIT
First trimester	< 11.0 g/dL	< 33.0%
Second trimester	< 10.5 g/dL	< 32.0%
Third trimester	< 11.0 g/dL	< 33.0%

Source: CDC, 2011b.

- Blackstrap molasses
  - 1 Tbs daily
  - A good source of iron, B vitamins, and minerals, and a gentle bowel stimulant
- Spirulina (blue-green algae)
  - 1 tsp daily
- Gentian
  - Add 1 tsp powder to 3 cups water
  - Take 1 Tbs 30 minutes prior to meals
- Dried nettle leaf infusion
  - May stimulate RBC production
- Yellow dock and dandelion root syrup
  - May stimulate RBC production
  - ½ oz of each herb in 4 cups water simmered down to 1 cup, add ½ cup blackstrap molasses
  - 1–2 Tbs 1–2 times daily
- Alfalfa: Capsule or liquid
- Cast-iron cookware
  - Nonenamel surface
  - Adds elemental iron

Providing Support: Education and Support Measures to Consider

- Physiologic nature of anemia in pregnancy
- Pica decreases iron absorption
- Iron supplementation recommendations
  - Dosages
  - Separate supplement from the following sources:
    - Meals
    - Calcium intake
    - Fiber cereals and supplements
    - Other supplements (e.g., prenatal vitamins)
  - ⚠ Keep iron supplements away from children
- For best absorption, take the following steps:
  - Take with vitamin C or water
  - Take at bedtime
  - Avoid caffeine and black teas
- Common side effects
  - Gastrointestinal upset, constipation, or diarrhea
  - Nausea
  - Heartburn
  - Black stools
  - GI symptoms occur in 10–20% of those taking iron supplements (King & Brucker, 2011)
- Management of common side effects: Increase fluids, daily dietary fiber, and activity

Follow-up Care: Follow-up Measures to Consider

- Document
- List parameters for consultation
- Return for care
  - Repeat hematocrit and hemoglobin 4–6 weeks after initiating therapy
  - Add indices for persistent anemia if no improvement occurs

Multidisciplinary Practice: Consider Consultation, Collaboration, or Referral

- Nutritional consult
- Social services
  - WIC
  - Food stamps
  - Local food pantry
  - Smoking cessation programs
- Medical consult
  - For abnormal indices or elevated serum ferritin
  - For anemia resistant to conventional therapy
  - For concern regarding cause of anemia
- For diagnosis or treatment outside the midwife's scope of practice

CARE OF THE PREGNANT WOMAN EXPOSED TO CYTOMEGALOVIRUS

Key Clinical Information

Cytomegalovirus (CMV) is a herpes virus with the ability to remain dormant within the body for life, similar to Epstein-Barr virus and varicella zoster virus. Approximately 80% of adults in the United States have had CMV infection. CMV is the most common viral infection in newborns in the United States, with approximately 30,000 new cases occurring each year.

Most women who contract CMV during pregnancy do not transmit the infection to the fetus. While most newborns with prenatally acquired infection will not be affected by the disease, long-term effects such as hearing loss or mental and physical developmental disabilities occur in approximately 20% of infants born with congenital infection. Most women have had an asymptomatic CMV infection prior to childbearing; however, 4 in 10 childbearing women will not have had a CMV infection before becoming pregnant. Maternal immunity does not prevent reoccurrence, and maternal antibodies do not prevent fetal infection (Cunningham et al., 2010). The risk of CMV-related complications in infants born to women infected 6 months or more before conception is very low (CDC, 2010a). Approximately 50% to 80% of childbearing-age women have experienced a CMV infection prior to pregnancy (CDC, 2010a).

Primary transmission of CMV occurs through person-to-person contact such as kissing, or through mucosal absorption of CMV-infected urine or saliva, or through contact with fomites handled by infected individuals. Because infected infants and children can shed the virus in body fluids, CMV is more commonly found in daycare settings, where diaper changes and handling of children's toys can facilitate the pathogen's transmission.

Universal laboratory screening of pregnant women for CVM infection is not currently recommended. Instructing pregnant women on avoiding CMV infection by thorough hand washing techniques and avoiding potential contact is prudent. Although CMV can be passed through breastmilk, infections contracted through breastfeeding usually result in no clinical illness. Pregnant women with symptoms of mononucleosis should be evaluated for CMV infection.

Client History and Chart Review: Components of the History to Consider

- Current gestational age
- Employment history
- History of recent outbreak with close contact
  - Preschool teachers
  - Pediatric care workers
  - Woman with infants or preschool-age children in day care
- Presence of symptoms
  - Fever and chills
  - Malaise
  - Headache
- Most infected people are asymptomatic

Physical Examination: Components of the Physical Exam to Consider

- Vital signs, including temperature
- Routine prenatal surveillance
- Evaluate for the following:
  - Hepatosplenomegaly
  - Lymphadenopathy
  - Arthralgia

Clinical Impression: Differential Diagnoses to Consider (ICD9Data.com, 2012)

- Cytomeglovirus
- Other human herpes virus
- Other viral diseases complicating pregnancy

Diagnostic Testing: Diagnostic Tests and Procedures to Consider

- Viral culture or polymerase chain reaction (PCR) testing
  - Urine, saliva, or throat swab specimens
  - Testing is expensive and not widely used
- Serologic testing
  - IgM and IgG antibody linked to CMV (ELISA)
  - IgG avidity assay tests antibody maturity and provides for better detection of primary CMV infection
  - Compare acute-phase and convalescent-phase serum samples for diagnosis
  - Seroconversion of CMV-specific IgG is diagnostic for primary infection

Providing Treatment: Therapeutic Measures to Consider

- No treatment available for CMV infection is currently available.

Providing Treatment: Complementary and Alternative Measures to Consider

For possible exposure, consider the following measures:

- Herbs for immune system support
- Symptomatic treatment
- Stress reduction techniques: breathing techniques, yoga, guided imagery, journaling

Providing Support: Education and Support Measures to Consider

- Reassurance:
  - Few maternal infections result in fetal infection
  - Later-gestation infection typically does not result in any fetal problems
- Explanation of lab testing and diagnosis
- Potential for fetal compromise with infection
  - May have no effect
  - Possible developmental deficits

Follow-up Care: Follow-up Measures to Consider

- Document client discussions and testing plan
- Amniotic fluid testing offered to women positive for primary CMV infection
  - Negative testing does not always exclude fetal infection
- Ultrasound for fetal effects such as microcephaly, ascites, and oligohydramnios
- Other fetal surveillance done as clinically indicated
- Pediatric evaluation and follow-up after birth

Multidisciplinary Practice: Consider Consultation, Collaboration, or Referral

- OB/GYN services
  - Maternal infection with CMV
  - Fetus with evidence of fetal growth restriction or anomaly
- For diagnosis or treatment outside the midwife's scope of practice

CARE OF THE PREGNANT WOMAN WITH FEMALE GENITAL CUTTING

Key Clinical Information

Female genital cutting (FGC) is "the partial or total removal of the female external genitalia or other injury to the female genital organs for cultural or other nontherapeutic reasons" (World Health Organization, 2010). Conservative estimates state that FGC affects more than 200,000 women in the United States. Most of these women are refugees or immigrants from African nations where the practice of FGC is widespread. Women with FGC are more likely to have birth related complications than those who do not have FGC. There is a positive correlation between the more extensive FGC type and more adverse perinatal complications, including obstructed labor, fetal distress, perineal tears and wound infections, and postpartum hemorrhage and sepsis. Nonobstetric complications include urinary tract infections, dyspareunia, and dysmenorrhea.

FGC is typically performed on girls ranging in age from infancy to 13 years. Reasons given for the practice of FGC include ensuring virginity/monogamy, cleanliness (removal of unclean genitalia) and beauty, marriage eligibility, creating a shared experience, and religious associations, although FGC is not mandated by any known religious practice. In caring for a patient with FGC, it is very important that the midwife consider a woman's attitude toward her own body and the impact of her family and culture on her decision making regarding her FGC. Careful attention toward adequate open and sensitive communication regarding gynecologic and obstetric care and choices for the woman with FGC is essential.

Client History and Chart Review: Components of the History to Consider

- Age
-  FGC history
  - Country of origin
  - Age at time of FGC
  - Perception/memory of personal FGC
  - Description of FGC (typing)

- Reproductive history
  - GP TPAL
  - Menstrual status
- Vaginal birth or cesarean delivery
  - Pelvic exam/Pap smear history
  - Prior history of defibulation
- Current sexual practices
  - Number of lifetime partners
  - Patient perception of sexual satisfaction
  - Acceptability of discussing sexuality
- History of the following conditions:
  - Urinary tract infections
  - Dysmenorrhea
  - Dyspareunia
  - Perinatal complications
- Cultural status
  - Personal attitude toward FGC and its effects on her body, life, and labor
  - Family and partner attitudes toward FGC
- Special considerations for the infibulated woman
  - Pregnancy/childbearing plans
  - Attitudes toward defibulation
  - Thoughts about re-infibulation

Physical Examination: Components of the Physical Exam to Consider (American Academy of Pediatrics, 1998)

It is important that the healthcare provider maintain a nonjudgmental attitude during the physical examination. The following factors should be taken into account while doing the pelvic examination:

- The appearance of FGC is widely variable.
- FGC is generally categorized by the types shown in Figure 3-1.
- Note the following:
  - Diameter of the vaginal introitus
  - Size of vaginal introitus
  - Character and degree of vulvar scar tissue
  - Perineal tissue elasticity

Clinical Impression: Differential Diagnoses to Consider (ICD9Data.com, 2012)

Female genital cutting status

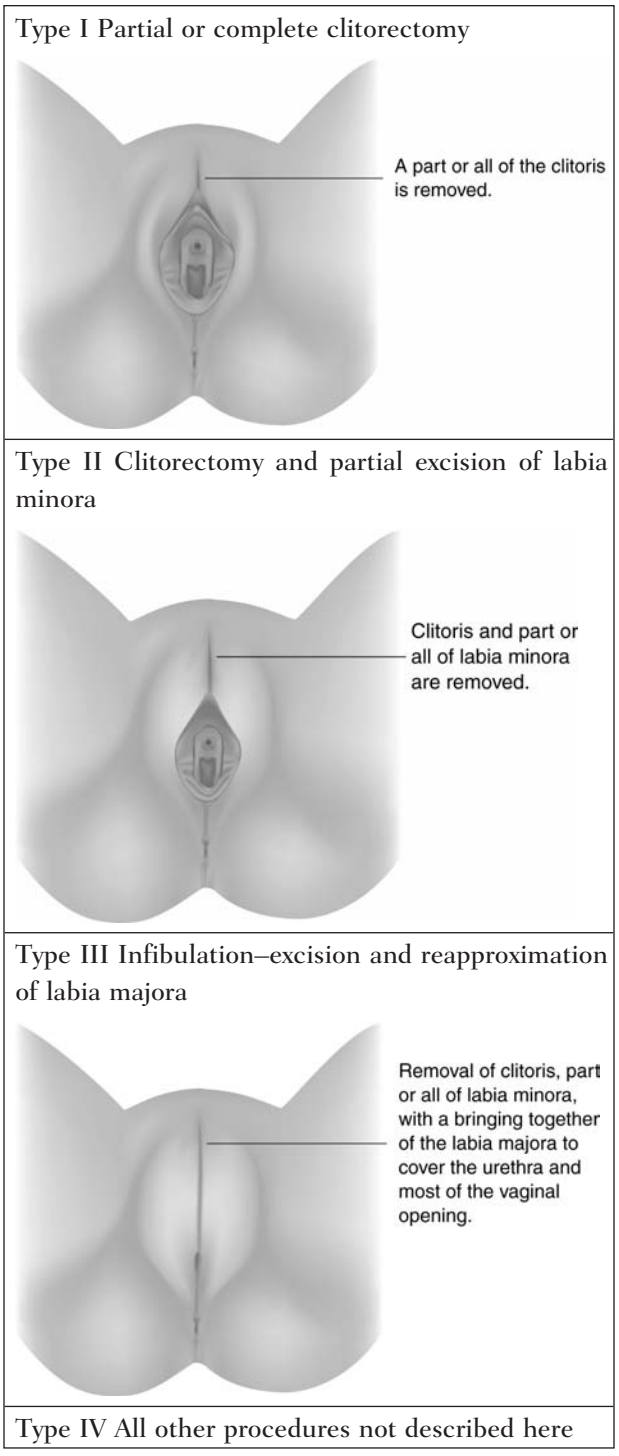

Figure 3-1 Types of Female Genital Cutting
Source: Toubia, 1994.

Diagnostic Testing: Diagnostic Tests and Procedures to Consider

- Urinalysis to screen for asymptomatic UTI
- Limited vaginal exams in labor for descent of presenting part

Providing Treatment: Therapeutic Measures to Consider

- Care of the perineum of a pregnant/laboring woman with Type I or Type II FGC
  - Similar for women without FGC
  - Special consideration given to minimizing invasive exams
- Care of the perineum of a pregnant/laboring woman with Type III FGC
  - Offer defibulation in the second trimester of pregnancy
  - Consider an anterior episiotomy at the time of birth
  - Laceration or anterior episiotomy are repaired under local or epidural anesthesia

Anterior Episiotomy

A midline upward incision is made immediately prior to the birth of the baby to open the scar tissue, thereby allowing the birth to occur. The repair focuses on hemostasis of scar tissue and allowing for physiologic passage of urine and menstrual flow. If an anterior episiotomy is indicated, it is critical to engage in discussion with the woman about her anatomical and cultural goals of repair. For cultural reasons, some women prefer to have a portion of the incision re-infibulated.

Providing Treatment: Complementary and Alternative Measures to Consider

- Perineal massage (prenatal or intrapartum)
- Warm compresses
- Expectant "hands-off" management of second stage

Providing Support: Education and Support Measures to Consider

Provide information about the following issues:

- Defibulation prior to intercourse, pregnancy, or labor
- Management of FGC before and after birth
- Legal issues surrounding FGC in the United States

Follow-up Care: Follow-up Measures to Consider

- Document the type of FGC in the client's chart
- Document the client's preference for management of her FGC
- Note referrals for deinfibulation

Multidisciplinary Practice: Consider Consultation, Collaboration, or Referral

- OB/GYN services
  - For deinfibulation under anesthesia prior to pregnancy or in second trimester
  - For complex laceration repair
- Culturally appropriate mental health services or support groups for clients experiencing emotional repercussions of FGC
- For diagnosis or treatment outside the midwife's scope of practice

CARE OF THE PREGNANT WOMAN WITH FETAL DEMISE

Key Clinical Information

Early pregnancy loss before 20 weeks' gestation is considered a spontaneous or missed abortion, or miscarriage, whereas after 20 weeks' gestation it is considered a fetal death or stillbirth. In a majority of cases, the cause of fetal demise is unable to be determined (American College of Obstetricians and Gynecologists [ACOG], 2009). Some fetal or placental conditions are clearly incompatible with life, whereas other fetal loss may be related to maternal illness, heredity, medical conditions such as diabetes, and hypertension, or to unknown factors. Genetic investigation and counseling may be useful for exploring potential causes of fetal demise, particularly for the woman with a history of recurrent losses.

Fetal demise can occur at any stage of pregnancy. No matter when it occurs, a common response is for the mother to wonder what she did wrong. Emotional support and grief counseling are important components of care to parents.

Client History and Chart Review: Components of the History to Consider

- Gestational age
- Regression of signs of pregnancy
  - Absence of fetal activity
  - Absence of fetal heart tones
  - Other associated signs and symptoms such as decreased or absent breast tenderness
- Vaginal bleeding or discharge
- Back pain or cramping
- Previous human chorionic gonadotropin (HCG) results
- Precipitating event(s), if any
  - Idiopathic
  - Trauma/physical abuse
  - Substance abuse
- Medication and herb use
- Risk factors for stillbirth
  - Infection
  - Exposure to environmental toxins
  - Maternal age extremes
  - Multiple gestation
  - Body mass index (BMI) > 30
  - Race: African Americans' risk of stillbirth is twice that of Caucasian women
  - Maternal disorders, such as diabetes, hypertension, renal disease, and lupus
- Current emotions of self, partner, and significant others
- Current coping mechanisms
- Review birth and surgical history

Physical Examination: Components of the Physical Exam to Consider

- Maternal vital signs
- Abdominal exam
  - Fundal height for gestational age
  - Uterine tenderness
  - Absence of fetal heart tones
- Pelvic examination
  - Boggy feeling to uterus
  - Palpation of buckled fetal skull
  - Cervical status/Bishop's score

Clinical Impression: Differential Diagnoses to Consider (ICD9Data.com, 2012)

- Intrauterine fetal demise
  - Early, before 20 weeks' gestation
  - Late, after 20 weeks' gestation
- Missed abortion
- Ectopic pregnancy
- Blighted ovum
- Pseudocyesis
- Hydatidiform mole

Diagnostic Testing: Diagnostic Tests and Procedures to Consider

- Maternal blood work
  - CBC
  - Kleihauer-Betke test
  - Hemoglobin A_{1c}
  - Rapid plasma reagin/Venereal Disease Research Laboratory test
  - Serum/urine toxicology screen
- Weekly testing in expectant management
  - Prothrombin time (PT), partial thromboplastin time (PTT)
  - Fibrinogen, fibrin degradation products
  - Platelets
- Ultrasound
  - Absent fetal heart beat (verified by two examiners)
  - Overlapping of fetal cranial bones: Spalding's sign
  - Presence of gas in fetal abdomen: Robert's sign
- Fetal evaluation (ACOG, 2009)
  - Cord blood
  - Placenta to pathology for gross and microscopic examination
  - Placental cultures
  - Fetal x-rays and autopsy with consent of parents

- Genetic testing with consent and if indicated
  - Anomalies
  - Family history
  - Recurrent fetal losses

Providing Treatment: Therapeutic Measures to Consider

(Belkin & Wilder, 2007)

- Expectant management
  - May be emotionally difficult
  - Increased risk of disseminated intravascular coagulation (DIC) after 3 weeks
  - Observe for onset of the following conditions:
    - Fever
    - DIC
    - Rupture of membranes (ROM) or labor
- Surgical dilatation and evacuation (D & E) in early pregnancy
- Induction of labor
  - Laminaria or Foley catheter
  - Prostin E_2 suppositories
  - Misoprostol 50–100 mg per vagina or PO if no uterine scar
  - Oxytocin induction after 32 weeks' gestation

Providing Treatment: Complementary and Alternative Measures to Consider

Natural remedies may be used to stimulate labor:

- May not be effective before 32 weeks' gestation
- Blue/black cohosh infusion or tincture
- Castor oil
- Acupressure points spleen 6 or gallbladder 21

Providing Support: Education and Support Measures to Consider

(Belkin & Wilder, 2007)

- Discuss cause of death if known
- Options for birth
  - Discussion regarding labor initiation
    - Maternal preferences
    - Parameters for consultation
    - Therapeutic measures to initiate labor
  - Location for birth
  - Anticipated course of events
- Care of the body
  - May vary with gestational age
  - Family time
  - Autopsy or testing
  - Burial, cremation, or hospital disposal
- Funeral or memorial service
- Postpartum period
  - Lochia
  - Lactation suppression
  - RhIG if indicated
  - Rubella if non-immune
- Grief
  - Support groups and community resources
  - Review stages of grief

Follow-up Care: Follow-up Measures to Consider

- Document
  - Maternal response
  - Course of labor and birth
  - Anomalies, if any
  - Examination and testing of fetal remains
  - Care and arrangements for the fetus
  - Placental disposition
  - Planned follow-up
- Follow-up care
  - Weeks 1–6
    - Phone, home, or office visit
    - Results of any testing
    - Evaluation of emotional status
  - Weeks 2–6
    - Postpartum check
    - Initiation of birth control as needed
    - Support and referrals as needed

Multidisciplinary Practice: Consider Consultation, Collaboration, or Referral

- For social support
  - Grief counseling
  - Support groups
- Medical/obstetric care
  - Maternal preference

  - Evidence of DIC or molar pregnancy
  - Mother who prefers surgical D & E in early pregnancy
  - Induction of labor as indicated by the following:
    - Midwifery practice parameters
    - Maternal preference or condition
- For diagnosis or treatment outside the midwife's scope of practice

CARE OF THE PREGNANT WOMAN WITH GESTATIONAL DIABETES

Key Clinical Information

Gestational diabetes mellitus (GDM) occurs in 4% to 10% of all pregnant women in the United States (U.S. Preventive Services Task Force [USPSTF], 2008). This condition is defined as carbohydrate intolerance and increased insulin resistance first recognized in pregnancy. Women with diabetes found at the first prenatal visit should receive a diagnosis of overt diabetes, not gestational diabetes (American Diabetes Association [ADA], 2011a). The carbohydrate intolerance of GDM presents on a continuum ranging from mild to severe, with maternal and fetal effects increasing with the degree of carbohydrate intolerance. Potential problems that may be seen in GDM are primarily related to the fetus/infant and include fetal macrosomia, secondary to elevated levels of circulating glucose resulting in increased fetal insulin and fat deposition, low blood sugar, and jaundice after birth.

There is no consensus among field experts on screening timing, methods, and populations; diagnostic criteria; and management, although some common practices are used. Some providers may screen, diagnose, or manage GDM outside these common practices yet still remain within the boundaries of evidence-based care.

Most women diagnosed with GDM can maintain euglycemia with appropriate diet therapy and moderate exercise. Other women may require oral hypoglycemics or insulin therapy. Daily attention to diet is imperative, with a variety of food sources providing excellent nutrition and a balance of proteins, fats, and complex carbohydrates. Keeping a food and blood glucose diary can be very helpful in making dietary recommendations that are culturally and financially reasonable. Exercise increases glucose uptake and insulin sensitivity and has been found to be as effective as insulin for some women, making exercise an important component of GDM management (Mottola, 2008).

Client History and Chart Review: Components of the History to Consider

- Age, GP TPAL
- Gestational age
- Risk factors for gestational diabetes
  - Maternal age > 25 years
  - BMI > 28 kg/m^2
  - Previous fasting blood sugar (FBS) in the range of 110–125 mg/dL
  - Suspected or documented previous gestational diabetes
  - Previous infant weighing > 4100 g
  - Previous unexplained fetal demise
  - Polyhydramnios
  - Previous birth of a child with a congenital anomaly
  - Polycystic ovarian syndrome
- Family history of diabetes in a first-degree relative
- Ethnicity-related risk factors for type 2 diabetes (ADA, 2011b)
  - African American
  - Alaskan Native
  - Hispanic American
  - Native American
  - South or East Asian
  - Pacific Islander
- Symptoms of gestational diabetes
  - Glycosuria
  - Size larger than appropriate for dates
  - Polyuria
  - Polydipsia
  - Loss of energy

Physical Examination: Components of the Physical Exam to Consider

- Vital signs, including weight
- BMI
- Weight gain
- Serial fundal height
- Estimated fetal weight in third trimester

Clinical Impression: Differential Diagnoses to Consider (ICD9Data.com, 2012)

- Gestational diabetes
- Diabetes mellitus
- Fetal macrosomia secondary to the following:
  - Gestational diabetes
  - Constitutionally large fetus
- Polyhydramnios

Diagnostic Testing: Diagnostic Tests and Procedures to Consider

- Dip urinalysis for glucose
- First-visit or first-trimester serum screening for women at risk for type 2 diabetes/gestational diabetes
- Universal screening for gestational diabetes unless low risk: 24–28 weeks' gestation
- Serum screening may be omitted for low-risk women who meet all of the following criteria in Table 3-2 (Cunningham et al., 2010; Metzger et al., 2007)
  - One-hour glucose challenge test (50 mg glucose)
    - Value > 130–140 mg/dL is suspicious for gestational diabetes
    - Three-hour oral glucose tolerance test if 1-hour screen is elevated
    - Value > 200 mg/dL is diagnostic of gestational diabetes
  - One-step screening *and* diagnosis: Blood draws after fasting, as well as 1 hour and 2 hours after 75 mg oral glucose load
- Diagnosis: Two or more elevated blood levels in one-step testing (Table 3-3) or 3-hour glucose tolerance test (Table 3-4)
- Ongoing maternal laboratory assessment: Hemoglobin A_{1c}
  - Normal range: 4.0–8.2%
  - Less than 6% preferable in pregnancy
  - Self-monitored blood glucose
- Monitor for preeclampsia: Increased incidence in the presence of GDM
- Ultrasound for fetal anomalies and fetal growth

Table 3-2 Screening for Gestational Diabetes

LOW RISK: SERUM TESTING NOT REQUIRED	AVERAGE RISK: SCREEN AT 24–28 WEEKS' GESTATION	HIGH RISK: SCREEN AS SOON AS POSSIBLE
Member of ethnic group of low prevalence*	Those women who are not at low or high risk	Obese (BMI > 30)
No known diabetes mellitus (DM) in a first-degree relative		Prior history of GDM
Age < 25 years		Glycosuria
Normal BMI		First-degree family history of DM
No history of abnormal glucose metabolism		
No history of prior poor obstetrical outcome		

*High-prevalence groups: African Americans, Hispanic Americans, East Asians (India, Middle East), Pacific Islanders, and Native Americans.

Table 3-3 One-Step Testing Diagnostic Criteria for Gestational Diabetes: 75-mg Two-Hour Screen and Diagnosis

TIME OF SAMPLE	CRITICAL LEVEL
Fasting	95 mg/dL
1 hour	180 mg/dL
2 hours	140 mg/dL

If two or more values meet or exceed the target level, GDM is diagnosed.

This method is recommended by the American Diabetes Association, though it is not yet widely used in the United States.

Providing Treatment: Therapeutic Measures to Consider

- Regular exercise
- Dietary therapy
  - Caloric intake by weight, ranging from 1800 to 2400 kcal/day
    - Underweight (BMI < 18.5): 40 kcal/kg/day
    - Average weight (BMI = 18.5–24.9): 30 kcal/kg/day
    - Overweight (BMI = 25–29.9): 24 kcal/kg/day
    - Obese (BMI > 30): 12–15 kcal/kg/day
  - Six small meals daily (Moore, 2010)
    - Three meals and three snacks
    - Complex carbohydrates: 35–40% of diet
    - Fat: 30% or less of diet
- Self-monitored blood glucose (Metzger et al., 2007)
  - Fasting glucose < 95 mg/dL
  - 1 hour postprandial glucose
    - Postprandial monitoring superior to preprandial monitoring
    - Less than 140 mg/dL1 hour after start of meal
    - Less than 120 mg/dL 2 hours after start of meal
- Oral hypoglycemics (Dhulkotia, Bolarinde, Fraser, & Farrell, 2010)
  - Are more convenient for women and require less intensive use instruction
  - Reduce risk of hypoglycemia compared to insulin
  - Glyburide (Pregnancy Category B)
    - Use after organogenesis
    - Consult for use and dosage
  - Metformin (Pregnancy Category B)
    - Limited to clinical trials (Ardilouze, Mahdavian, & Baillargeon, 2010)
    - Consult for use and dosage
- Insulin therapy
  - Initiate when more than 20% of the 2-hour postprandial glucose values exceed 120 mg/dL (ACOG, 2001b)
  - Consult for use, recommended types of insulin, and dosages
  - Titrate to maintain glycemic control

Table 3-4 Three-Hour Oral Glucose Tolerance Test (OGTT) Diagnostic Criteria for Gestational Diabetes

TIME OF SAMPLE	CRITICAL LEVEL
Fasting	105 mg/dL
1 hour	190 mg/dL
2 hours	165 mg/dL
3 hours	145 mg/dL

Providing Treatment: Complementary and Alternative Measures to Consider

- Cinnamon ¼ to ½ tsp daily (Hlebowicz, Darwiche, Bjorgell, & Almer, 2007)
- Herbs
  - Bilberry (Foster, 1996)
  - Chicory
  - Dandelion
  - Red raspberry tea

Providing Support: Education and Support Measures to Consider

(Metzger et al., 2007; Varney, Kriebs, & Gegor, 2004)

- Risks and benefits of options for care
- Diabetic education—the cornerstone of management

- Diabetic education
  - What GDM is
  - How GDM can affect pregnancy
  - Reassurance of likely normal pregnancy progression and outcome with stable euglycemia
  - Dietary control
    - Instruct in complex carbohydrate foods
    - Sample menus of three small meals and two to three snacks per day
    - Importance of not skipping meals
    - Dietary recommendations for glucose control
  - Physical activity recommendations
    - Benefits of aerobic exercise in blood glucose control
    - 30 minutes of walking, swimming, bike riding, or dancing on most days of the week
    - No exercise in fasting state
    - If exercising right after a meal, have a snack of one fruit serving after exercise
    - If exercising 2 hours or more after a meal, have a snack of one fruit serving before exercise
  - Medication instruction as needed
  - Daily home glucose monitoring
    - Ideal frequency not established
    - Glucometer with memory and log book to bring to each visit
    - Four to seven times per day until glycemic control is established
      - Fasting
      - 1 or 2 hours after start of meals
      - Bedtime
    - Daily self-monitoring may be reduced once glycemic control is established
    - Four times per day for 2 days per week—fasting and after meals
- Warning signs and symptoms
  - Call with pattern of abnormal blood glucose values
  - Decreased fetal movement
  - Signs and symptoms of hypoglycemia

Follow-up Care: Follow-up Measures to Consider

- Document
- Review psychological adjustment to diabetes diagnosis
- Prenatal follow-up
  - Maternal and fetal evaluation
  - Blood glucose follow-up
    - Evaluate results at each visit
    - Periodic laboratory testing for validation of the following:
      - Home monitoring results
      - Glycemic control
    - Medication use
- Fetal assessment (Moore, 2010)
  - Method and initiation timing depend on the individual woman and her level of glycemic control
  - Fetal kick counts beginning approximately 34 weeks' gestation
  - Ultrasound for estimated fetal weight (EFW) and growth discrepancies
    - Ultrasound to detect anomalies for women diagnosed with GDM in the first trimester
  - Non-stress test (NST)
  - Biophysical profile (BPP)
- Labor and birth plan
  - If well-controlled blood sugars and no other problems, can wait until 40 weeks' gestation to consider induction of labor (ACOG, 2001b)
  - Consider induction before 40 weeks' gestation for the following circumstances:
    - Client on insulin therapy
    - Fetal macrosomia
    - Poor or marginal control
    - Nonreassuring fetal status
  - Plan to have the birth at a facility with newborn special care available: Anticipate respiratory distress syndrome (RDS)
  - If EFW > 4500 g, cesarean delivery may decrease the likelihood of brachial plexus injury in the infant (ACOG, 2001b)
  - Plan for pediatric care at birth

- Postpartum follow-up
  - Most women return to euglycemia quickly after birth
  - Self-monitor FBS and 2-hour postprandial blood sugar for 7 days
    - Evaluate as soon as possible for diabetes mellitus in the presence of either of the following conditions:
      - FBS > 120 mg/dL
      - Two-hour postprandial blood sugar > 160 mg/dL
  - FBS at 6 weeks postpartum
    - FBS > 126 mg/dL is diagnostic of diabetes mellitus
  - Interconceptional risk reduction
    - Weight loss
    - Diet improvements
  - Blood glucose checked every 1 to 3 years

Multidisciplinary Practice: Consider Consultation, Collaboration, or Referral

- Nutrition education and counseling: Referral to certified diabetic educator or registered dietician
- Social services, as indicated
- Medical, obstetric, or pediatric services
  - Referral to diabetic clinic for pregnant women
  - Gestational diabetes not controlled by diet
    - Initiation of insulin or glyburide
    - Ongoing medication dosage requirements
  - Fetal macrosomia, fetal growth restriction (FGR), or anomalies
  - Newborn care at birth
- For diagnosis or treatment outside the midwife's scope of practice

CARE OF THE PREGNANT WOMAN WITH HEPATITIS

Key Clinical Information

Hepatitis includes a range of viral illnesses that may be transmitted via blood or body fluids. Vertical transmission of hepatitis B, C, E, and G may occur to the fetus during pregnancy. Without treatment shortly after birth, as many as 90% of infants born to hepatitis B–infected mothers will become infected (ACOG, 2007b). Infected infants may become chronic carriers or may develop significant illness. Infected women may present with acute illness, or they may be chronic carriers—that is, asymptomatic but able to transmit infection (CDC, 2011a).

Client History and Chart Review: Components of the History to Consider

- Gestational age
- Immunization status—hepatitis A and B
- Potential exposure to hepatitis
  - Healthcare professional
  - IV drug use, shared needles
  - Sexual contacts
  - HIV-positive women
  - Presence of tattoos
  - Ingestion of raw shellfish
  - Hemodialysis patients
  - Blood or organ recipient before 1992
  - International travelers
  - Daycare workers
  - Immigrants from the following regions:
    - Asia
    - Africa
    - Pacific Islands
    - Haiti
    - Middle East
    - Eastern Europe
- Presence, onset and duration, and severity of symptoms
  - Malaise and lethargy
  - Fever and chills
  - Right upper quadrant pain
  - Jaundice
  - Nausea and vomiting
  - No symptoms: At least half of all initial hepatitis B virus (HBV) infections are asymptomatic

Physical Examination: Components of the Physical Exam to Consider

- Vital signs, including weight
- Examine for evidence of jaundice
  - Skin
  - Mucous membranes
  - Sclera
- Palpate and percuss the following:
  - Liver margins
  - Splenomegaly
  - Right upper quadrant pain

Clinical Impression: Differential Diagnoses to Consider (ICD9Data.com, 2012)

- Hepatitis A
- Hepatitis B
- Hepatitis C
- Cholestasis of pregnancy
- Cholelithiasis
- Other liver disorders in pregnancy

Diagnostic Testing: Diagnostic Tests and Procedures to Consider

- Hepatitis B profile, multiple antigen/antibody screen
- Hepatitis A screen for those at risk
  - Recent immigrants from or travelers to high-risk countries: Central and South America, rural Mexico
- Hepatitis C screen for those at risk
  - HIV-positive women
  - Current or former IV drug users
- Liver function tests
  - Elevation occurs during acute phase (CDC, 2011a)

Providing Treatment: Therapeutic Measures to Consider

- Illness must run its course
- Supportive therapy for woman
- Consider immunization series
  - For at-risk noninfected women
  - May be used during pregnancy
  - Hepatitis B (Pregnancy Category C)
  - Hepatitis A (Pregnancy Category C)

Providing Treatment: Complementary and Alternative Measures to Consider

- Herbs for immune support
  - Milk thistle tea (Foster, 1996)
  - Dandelion tea, tincture or capsule
  - Turmeric
  - Green tea
  - Reishi mushroom extract
- Adequate rest

Providing Support: Education and Support Measures to Consider

(CDC, 2011a)

- Provide information about hepatitis
  - Transmission, prevention, and self-care
    - Refrain from sharing household items such as toothbrushes and razors
    - Other family members should be tested for HBV
    - Cover cuts and skin lesions
    - Use condoms
    - Reaffirm no alcohol
    - Consult a healthcare provider before taking any OTC medications
    - Hepatitis B is *not* transmitted by kissing, hugging, coughing, food, water, or casual contact
  - Vaginal birth is recommended; cesarean delivery is recommended only for specific indications
  - Preterm birth risk is increased with acute HBV infection; education about warning signs should be given as needed
  - Medication recommendations for infant
    - Significant reduction in hepatitis B fetal transmission with immunoglobulin injection after birth
  - Breastfeeding: Not contraindicated for non-immunized infant

- Discussion regarding the following topics:
  - Options for care of self and infant
  - Location for birth
  - Parameters for referral

Follow-up Care: Follow-up Measures to Consider

- Document
- Return for care
  - Per routine for carrier
  - Weekly for acute phase of infection
    - Periodic liver function tests
    - Fetal evaluation with acute illness
- Administer to infant born to hepatitis B–positive mother
  - Hepatitis B immune globulin: 0.5 mL IM in anterior thigh within 12 hours of birth
  - Three-dose hepatitis B vaccine
    - Engerix-B 10 mg/0.5 mL
    - Recombivax HB 5 mg/0.5 mL
    - IM in anterior thigh shortly after birth
    - Repeat in 1 and 6 months

Multidisciplinary Practice: Consider Consultation, Collaboration, or Referral

- Epidemiologic support
- Medical services
  - Acute hepatitis, any type
  - Hepatitis C, to hepatitis specialist
- Pediatric care provider consultation
  - Before birth
  - Collaborative plan for newborn care
- For diagnosis or treatment outside the midwife's scope of practice

CARE OF THE PREGNANT WOMAN WITH HERPES SIMPLEX VIRUS

Key Clinical Information

The prevalence of herpes simplex virus (HSV) infection has risen in the last several decades, and this disease poses an important health problem in pregnancy. The risk of infection of the infant with HSV varies with the incidence of primary versus secondary infection in the mother (ACOG, 2007a). When primary genital HSV infection occurs during pregnancy, the perinatal transmission rate may be as high as 50%. This condition should be differentiated from a nonprimary genital infection with a first outbreak of lesions, which has a perinatal transmission rate of 33%. With secondary, or recurrent, genital HSV infection during pregnancy, the perinatal transmission rate diminishes to 0 to 3%.

Three categories of neonatal disease are distinguished: localized disease of the skin, eye, and mouth; central nervous system disease; and disseminated disease. The mother may be asymptomatic in as many as 80% of instances in which the infant is infected (ACOG, 2007a).

Client History and Chart Review: Components of the History to Consider

- Gestational age
- Sexual history
- Previous history
  - Genital or oral herpes
  - Other sexually transmitted infections (STIs)
- Duration and quality of present symptoms
  - Location and number of vesicular lesions
    - Oral
    - Genital
  - Symptoms
    - Pain
    - Tingling
    - Dysuria
- Primary infection associated with the following symptoms:
  - Fever
  - Headache and photophobia
  - Malaise
  - Aseptic meningitis

Physical Examination: Components of the Physical Exam to Consider

- Vital signs, including temperature
- Usual prenatal evaluation

- Physical evaluation with emphasis on the following:
  - Oral examination
  - Inguinal lymph nodes
    - Enlargement
    - Tenderness
  - External genitalia, buttocks, and pelvic region
  - Characteristic lesions
    - Vesicles
    - Shallow ulcers
- Speculum examination, as needed
  - Presence of other STI symptoms
  - Cervical discharge
  - Cervical or uterine motion tenderness

Clinical Impression: Differential Diagnoses to Consider (ICD9Data.com, 2012)

- HSV infection
- Other STIs
- Genital trauma

Diagnostic Testing: Diagnostic Tests and Procedures to Consider

(CDC, 2010b)

- Cell culture and polymerase chain reaction (PCR) for HSV
  - Negative culture or PCR does not indicate absence of HSV infection
- Type-specific serum testing for HSV antibody titer
  - Documents primary versus nonprimary first episode versus recurrent infection
  - Useful if the woman is asymptomatic and her sexual partner has a history of HSV
  - Repeat in 7–10 days
- Other STI testing
  - With symptoms
  - As indicated by history

Providing Treatment: Therapeutic Measures to Consider

(ACOG, 2007a)

- Valtrex (valacyclovir hydrochloride)
  - Pregnancy Category B
  - Pregnancy registry: 800-722-9292, extension 39437
  - Dose: 500 mg BID for 5 days
  - Begin medication within 24 hours of first symptoms
  - For suppressive therapy at 36 weeks' gestation until birth: 500 mg PO daily (for clients with more than 9 recurrences/year)
- Famvir (Famciclovir)
  - Pregnancy Category B
  - Dose: 125 mg BID for 5 days
  - Begin medication within 6 hours of first symptoms
  - For suppressive therapy at 36 weeks' gestation until birth: 250 mg PO BID
- Zovirax (Acyclovir)
  - Pregnancy Category C
  - Pregnancy registry: 800-722-9292, extension 58465
  - Topical ointment 5%
    - Apply three times per day for 7 days
  - Initial outbreak
    - 200 mg PO five times a day for 10 days
  - Recurrent outbreak
    - 200 mg PO five times per day for 7 days
    - Repeat treatment as needed
  - Suppression or severe recurrent outbreaks: 400 mg PO BID for 6–12 months
  - For suppressive therapy at 36 weeks' gestation until birth: 400 mg PO daily
- Acetaminophen (Tylenol) for pain relief

Providing Treatment: Complementary and Alternative Measures to Consider

(Romm, 2010)

- Lysine
  - 1000 mg PO BID for 3 months
  - Combine with vitamin C 500 mg
  - Begin with first sign of an outbreak
- Dietary recommendations
  - Include foods high in lysine
    - Chicken, turkey
    - Milk, yogurt, cheese

        - Fish
        - Cooked beans
        - Eggs
        - Soybeans
    - Avoid foods high in arginine
        - Chocolate, coffee, cola
        - Peanuts, cashews, pecans, almonds
        - Sunflower and sesame seeds
        - Oatmeal
        - Coconut
        - Gelatin
- Lemon balm and echinacea root tea, two to four cups daily
- Echinacea
    - Use to prevent outbreaks
    - Tincture up to 30 drops daily
    - Tablets/capsules 250–100 mg daily for 2 weeks
- Lemon balm cream: Reduces lesion pain
- Tea tree essential oil: *Topically only*

Providing Support: Education and Support Measures to Consider

- Information about HSV infection
    - CDC STI Hotline: 800-232-4636
    - Potential effects of infection on the following:
        - Pregnancy
        - Anticipated location for birth
        - Newborn
        - Labor and birth plans
        - Potential for cesarean delivery with prodromal symptoms or visible lesions in labor
- Discussion of the following topics:
    - Treatment options
    - Labor and birth options
    - Maternal preferences
    - Partner safety (CDC, 2010b)
        - Abstain from sexual activity when prodromal symptoms or lesions are present
        - HSV-2 transmission is reduced with daily valacyclovir
        - Transmission can occur in the absence of prodromal symptoms or lesions
        - Male latex condoms may reduce genital herpes transmission
- Rest and comfort measures
    - With initial outbreak
    - To enhance immune response

Follow-up Care: Follow-up Measures to Consider

- Document
- Return for care
    - Per routine with history of herpes
    - For culture with active lesion
    - Primary herpes
        - If symptoms persist for more than 10 days
        - If symptoms worsen
            - Stiff neck
            - Unremitting fever
            - Inability to urinate
- Labor care
    - Vaginal birth if the mother does not have any active lesions or prodromal symptoms of vulvar pain or burning
        - Active lesion remote from genital region: Occlusive dressing applied
        - Limit cervical exams
        - Limit use of scalp electrode or intrauterine pressure catheter (IUPC)
    - Cesarean birth is recommended if the mother has active genital lesions or prodromal symptoms of vulvar pain or burning
        - Before ROM
        - As soon as possible with prelabor rupture of membranes (PROM)
        - May delay with preterm premature rupture of membranes (PPROM) for steroid therapy
- Breastfeeding is encouraged unless active lesions are present on the breast

Multidisciplinary Practice: Consider Consultation, Collaboration, or Referral

- ⚠ For symptoms of herpes meningitis
- For multidisciplinary labor plan
    - Presence of active lesions
    - Potential for cesarean delivery

- For pediatric follow-up after HSV exposure
- For diagnosis or treatment outside the midwife's scope of practice

CARE OF THE PREGNANT WOMAN WITH HUMAN IMMUNODEFICIENCY VIRUS

Key Clinical Information

Universal screening of pregnant women for human immunodeficiency virus (HIV) infection is recommended as early as possible during pregnancy. Some women may feel threatened by the thought of HIV testing; all women should be notified that HIV testing is included in the standard prenatal testing profile, and the woman's decision should be documented if she declines HIV testing (opt-out testing). Many states require HIV-specific pretest counseling and documentation of informed consent prior to screening. Early screening allows for prompt confirmation of the HIV diagnosis through follow-up testing and administration of antiretroviral medication, which can decrease the incidence of perinatal transmission of the infection from 13–25% to less than 2% (CDC, 2010b). Vertical transmission may be reduced in infants who reach term, are appropriate weight for the stage of gestation, and are born by elective cesarean section close to term. Women who test negative yet are at risk for HIV infection should be retested in the third trimester. Breastfeeding is contraindicated where access to safe breastmilk substitutes and clean water is assured (CDC, 2010b). Optimal care of the HIV-infected pregnant woman requires coordinated care between HIV specialists, maternity care providers, and supportive services (National Institutes of Health [NIH], 2010).

Client History and Chart Review: Components of the History to Consider

- Gestational age
- Gynecologic and sexual history
  - Previous HIV testing
  - Number of sexual partners
  - Self and/or partner(s)
    - Sexual practices
    - STIs
    - Substance abuse
      - IV drug use
      - Other substance use
    - Blood transfusions
  - Abnormal Pap smears
- History of opportunistic infections: Presence of current symptoms
  - Malaise
  - Fever
  - Cough
  - Skin lesions
- History of HIV infection
  - Prior medical care and medication regimens
  - Stability of disease
  - Presence of current symptoms

Physical Examination: Components of the Physical Exam to Consider

- Vital signs, including temperature
- Head, eyes, ears, nose, and throat (HEENT)
  - Fundoscopic exam
  - Oral examination for thrush or lesions
- Skin lesions
- Respiratory system
  - Cough
  - Adventitious breath sounds
  - Shortness of breath
  - Night sweats
- Liver margins
- Lymph nodes
  - Characteristics of enlarged nodes
  - Location(s) of enlarged nodes
- Pelvic examination
  - Internal or external lesions
  - Symptoms of STIs

Clinical Impression: Differential Diagnoses to Consider (ICD9Data.com, 2012)

- HIV disease/acquired immunodeficiency syndrome

- Asymptomatic HIV infection status
- Other STIs

Diagnostic Testing: Diagnostic Tests and Procedures to Consider

(NIH, 2010)

- Rapid HIV test
- HIV enzyme-linked immunosorbent assay (ELISA) test
- HIV Western blot test

Providing Treatment: Therapeutic Measures to Consider

(U.S. Public Health Service Task Force [USPHSTF], 2010)

- New-onset antiretroviral therapy
  - Consider delay of therapy onset until after first trimester unless needed for maternal health
    - Diminishes drug-related teratogenicity
    - Improves adherence once early nausea has passed
  - Use current facility guidelines for medication regimen
  - Management of side effects is important to maximize adherence
- Established antiretroviral therapy: Do not discontinue antiretroviral therapy upon pregnancy diagnosis
- Modified antiretroviral treatment for perinatal prophylaxis: Intrapartum therapy
- Initiation of other therapies based on diagnosis
- CD4 cell count and viral load every trimester or as noted in facility protocol
- First-trimester ultrasound to confirm gestational age: Scheduled operative birth at 38 weeks' gestation recommended
- Second-trimester ultrasound anatomy scan: Limited data are available on the effects of combined therapy on the fetus
- Screen for other STIs
- Scheduled cesarean section at 38 weeks' gestation for women with the following conditions:
  - HIV RNA copies > 1000/mL near time of delivery
  - Unknown HIV RNA copies near time of delivery

Providing Treatment: Complementary and Alternative Measures to Consider

- Supportive measures
- Most immune-stimulating herbs are not recommended
- Cautious use of herbals/homeopathic remedies for the following indications:
  - Appetite stimulation
  - Skin integrity
  - Emotional and spiritual balance

Providing Support: Education and Support Measures to Consider

- Provide information, listening, and discussion on the following topics:
  - HIV and acquired immunodeficiency syndrome (AIDS)
  - Prevention and transmission
  - Benefits of testing
  - Viral load evaluation and significance
    - Perinatal transmission
    - Potential effects on the baby
  - Medication and treatment options
    - Antiretroviral medication (for self and/or baby)
      - Benefits
      - Risks
      - Side effects
      - Alternatives
    - Scheduling operative birth near term
- Lifestyle issues
  - Encourage use of the following measures:
    - Abstinence or consistent condom use
    - No sharing of needles
  - Breastfeeding is contraindicated where safe breastmilk substitutes are available

Follow-up Care: Follow-up Measures to Consider

- Document
  - Informed consent for testing
  - Laboratory results
  - Maternal response to
    - Diagnosis
    - Treatment recommendations
- Discussions
  - Client preferences
  - Consultations and referrals
  - Anticipated location for birth
- Follow-up care
  - Review psychological adjustment to HIV diagnosis
  - Coordinate testing with primary care provider/site
  - Pediatric consult for newborn care and follow-up
  - Register with the CDC Antiretroviral Pregnancy Registry: 800-258-4263 or http://www.apregistry.com
  - Observe for side effects of medications
    - May cause hepatic toxicity
    - May mimic HELLP syndrome
  - Antiviral drug-resistance testing (NIH, 2010)
- Return visits
  - As indicated by prenatal course and gestation
  - For support

Multidisciplinary Practice: Consider Consultation, Collaboration, or Referral

- Social support services
  - Support groups
  - Mental health referrals
  - Victim advocacy groups
  - Clean needle programs
  - Substance abuse treatment options
- OB/GYN and medical services
  - For all newly diagnosed HIV-positive women
  - For coordination of antiretroviral regimen
  - For HIV-positive women with the following conditions:
    - Onset of infection
    - Decrease in CD4 cell counts
    - Significant medication side effects
- For diagnosis or treatment outside the midwife's scope of practice

CARE OF THE WOMAN WITH HYPERTENSIVE DISORDERS IN PREGNANCY

Key Clinical Information

In the United States, hypertensive disorders are the most common causes of medical complications in pregnancy, affecting 2% to 10% of all pregnancies (Cunningham et al., 2010). Hypertension in pregnancy can be chronic (occurring before 20 weeks' gestation and persisting beyond 42 days, postpartum), can arise during pregnancy (gestational hypertension or preeclampsia), or can represent preeclampsia superimposed on chronic hypertension. Of the various hypertensive disorders, preeclampsia—either alone or superimposed on chronic hypertension—is the most dangerous (Cunningham et al., 2010). It can lead to complications such as eclampsia and HELLP syndrome and is one of the leading causes of maternal mortality in both the developed and developing world. Differential diagnosis can be challenging because gestational hypertension can present with a wide array of symptoms. Onset of clinical signs and symptoms suggesting gestational hypertension and/or preeclampsia should prompt careful evaluation, thereby ensuring that there is ample opportunity to institute early treatment. Laboratory testing is the most reliable way to assess a woman's potential for development of gestational hypertension. Treatment improves the likelihood of the pregnancy resulting in a healthy mother and healthy baby and increases the potential for a vaginal birth.

Client History and Chart Review: Components of the History to Consider

- Gestational age
- Presence, onset, and durations of symptoms (Table 3-5)

Table 3-5 Hypertensive Disorders of Pregnancy

HYPERTENSIVE DISORDER	SIGNS AND SYMPTOMS	CRITERIA FOR DIAGNOSIS
Chronic hypertension May be mild, moderate, or severe	Predates 20th week of pregnancy or persists beyond usual postpartum period. May have cardiac enlargement, vascular changes, renal insufficiency.	BP ≥ 140/90 mild/mod BP ≥ 170/110 severe Two or more BP elevations > 4 hr apart
Preeclampsia PIH, mild	Gestational age of ≥ 20 weeks Onset of: Elevated BP Proteinuria Elevated reflexes Fundal heights small for dates Elevated hemoglobin secondary to hemoconcentration Elevated serum uric acid (normal range 1.2–4.5 mg/dL)	Hypertension after 20 weeks: 1. Systolic ≥ 140 mm Hg, *or* 2. Diastolic ≥ 90 mm Hg 3. On two occasions ≥ 6 hr apart New onset proteinuria: 1. 1–2+ dip, on 2. Two specimens, in 3. Absence of UTI, *or* 4. ≥ 300 mg in 24-hr urine
Preeclampsia PIH, severe	Signs of mild PIH, plus 1. Clonus 2. Diminished renal function (elevated BUN, diminished urinary output, serum creatinine > 1.2 mg/dL, decreased creatinine clearance) 3. Headache 4. Visual disturbances 5. Epigastric discomfort 6. IUGR and/or oligohydramnios by ultrasound May have onset of 1. HELLP syndrome 2. Eclampsia 3. Pulmonary edema	Hypertension: 1. Systolic ≥ 160 mm Hg 2. Diastolic ≥ 110 mm Hg 3. Two readings ≥ 6 hr apart Proteinuria: 1. New onset, *or* 2. 3–4+ dip 3. ≥ 5 g in 24-hr urine
Eclampsia	Grand mal seizure(s) Fetal distress Placental abruption	Gestational hypertension with seizure that is responsive to initiation of $MgSO_4$ therapy
HELLP Syndrome (HELLP = Hemolysis, Elevated Liver enzymes and Low Platelet count)	Epigastric pain General malaise Abnormal coagulation profile (low fibrinogen prolonged prothrombin time, prolonged partial prothrombin time)	Hemolysis of red blood cells Elevated liver enzymes (AST, ALT, LDH) Low platelets (< 100,000)

Sources: ACOG, 2001a, 2002; Varney, Kriebs, & Gegor, 2004.

- Evaluate for factors associated with preeclampsia
  - Nulliparity
  -  African American or Asian race
  - Prior history of preeclampsia
  - Family history of hypertension or preeclampsia
  - Obesity
  - Maternal age < 18 years or > 35 years
  - Multi-fetal gestation
  - New partner
    - Exposure to partner's sperm for 6 months or more may protect against preeclampsia
    - Maternal immunologic recognition of partner's sperm
  - Hydatidiform mole
  - Fetal hydrops
  - Preexisting medical disorders
    - Essential hypertension
    - Diabetes mellitus
    - Collagen vascular disease
    - Renal vascular disease
    - Antiphospholipid disease
    - Cardiovascular disease
    - Thrombophilias
    - Sickle cell disease
    - Dyslipidemia
- Evaluate for chronic hypertension risk factors
  - Age > 35 years
  - Family history of chronic or gestational hypertension
- Social factors that may contribute to gestational hypertension
  - Poor nutrition
  - Tobacco use
  - Alcohol use
  - Excessive sodium intake
  - Current vasoactive drug use
    - Nasal decongestants
    - Cocaine
- Presence, onset, and durations of symptoms

Physical Examination: Components of the Physical Exam to Consider

- Vital signs, including BP and weight
- Weight: Patterns of gain
- BP evaluation
  - Two occasions, more than 6 hours apart
  - Allow a "rest" period after the following circumstances:
    - Anxiety
    - Pain
    - Smoking
    - Exercise
  - Equipment of correct size should be used
  - Sitting position used for each BP
  - Arm should be supported at the level of the heart
- Evaluation of extremities
  - Presence or absence of edema
  - Deep tendon reflexes
- Abdominal examination
  - Fundal height for evaluation of fetal growth
  - Liver margins
  - Epigastric pain
- Fundoscopic examination
  - Papilledema
  - Vessel narrowing
- Monitor pulmonary status

Clinical Impression: Differential Diagnoses to Consider (ICD9Data.com, 2012)

- Gestational hypertension
  - Preeclampsia, mild
  - Preeclampsia, severe
- Transient hypertension
- Essential hypertension
- Pregnancy-induced hypertension (PIH) superimposed on chronic hypertension
- HELLP syndrome
- Elevated BP without diagnosis of hypertension

Diagnostic Testing: Diagnostic Tests and Procedures to Consider

- Baseline preeclampsia laboratory testing for women with chronic hypertension and those at high risk
- Note: Normal ranges may vary by laboratory
  - Urine dipstick for protein

  - Hematocrit (normal range: 10.5–14 g/dL)
  - Platelet count (normal range: 130,000–400,000/mL)
  - Liver function tests
    - Aspartate aminotransferase (AST/SGOT) (normal range: 0–35 IU/L)
    - Alanine aminotransferase (ALT/SGPT) (normal range: 5–35 IU/L)
    - Lactate dehydrogenase (LDH) (normal range: 0–250 IU/L)
- Coagulation studies
  - Fibrinogen
  - Prothrombin time (PT), partial thromboplastin time (PTT)
- Renal function tests
  - Serum uric acid (normal range: 1.2–4.5 mg/dL)
  - Serum albumin (normal range: 2.5–4.5 g/dL)
  - Serum creatinine (normal range: 1.0 mg/dL)
  - Blood urea nitrogen (BUN) (normal range: 7–25 mg/dL)
  - 24-hour urine for protein and creatinine
    - Initiate based on symptoms, clinical presentation, or when dip urinalysis indicates protein
    - Analysis of the first 4 hours for protein-to-creatinine ratio of a 24-hour collection
    - Reasonable rule-out test for proteinuria > 0.3g/day (Côté et al., 2008)
- Fetal evaluation
  - Fetal kick counts daily
  - NST and BPP: At diagnosis
  - Frequency determined by clinical condition and gestational age
    - Biweekly is the typical schedule
    - Amniotic fluid index (AFI) # (5 cm)
    - EFW: Should be within the 10th percentile for gestational age (GA)
  - Immediately with change in maternal condition (National Heart, Lung, and Blood Institute, 2000)
- Ultrasound
  - At diagnosis
  - Schedule as indicated by maternal and fetal condition
    - Amniotic fluid index
    - Fetal growth evaluation

Providing Treatment: Therapeutic Measures to Consider

- For women at moderate to high risk for preeclampsia
  - Increase calcium intake (Sibai & Cunningham, 2009): 1500–2000 mg daily
  - Low-dose aspirin therapy (Bujold et al., 2010)
    - Start before 16 weeks' gestation
    - 50–150 mg daily
    - Reduces risk of FGR, preterm birth, and hypertension
    - Benefits of reducing preeclampsia outweigh risk in pregnancy
- Consider hospitalization
  - Upon initial diagnosis to determine severity and progression
  - If restricted activity is not possible at home
  - If the client shows progressive signs and symptoms
- Medications
  - Sustained BP > 160 mm Hg systolic
  - Sustained BP > 105 mm Hg diastolic
- Outpatient: Methyldopa (Aldomet) (King & Brucker, 2011)
  - Pregnancy Category B
  - Chronic hypertension
  - Longest safety record in pregnancy
- Inpatient
  - Hydralazine
    - 5 mg IV or 10 mg IM
    - Repeat at 20-minute intervals until BP is stable
    - Repeat as needed approximately every 3 hours
    - Change medication if no response occurs by dosing of 20–30 mg
  - Labetalol
    - ⚠ Do not use in women with asthma or congestive heart failure

        - 20 mg IV bolus
        - May give 40 mg IV in 10 minutes, followed by
            - 80 mg IV for two doses
            - Maximum dose 220 mg
        - Pregnancy Category C
    - Nifedipine
        - 10 mg PO
        - Repeat in 30 minutes
- $MgSO_4$ therapy (Leeman, Dresang, & Fontaine, 2006)
    - 4 to 6 g bolus, slow IV
    - Followed by 2 g/hr IV or 5 g 50% $MgSO_4$ IM every 4 hours
    - Titrated to renal output and reflexes
    - Monitor
        - BP
        - Therapeutic $MgSO_4$ level 5 4–7 mg/dL
        - Monitor reflexes
        - Intake and output
    - Calcium gluconate at bedside
- Avoid
    - Angiotensin-converting enzyme inhibitors
    - Angiotensin II receptor agonists
    - Atenolol (beta blocker)
    - Thiazide diuretics
- Perform labor induction or cesarean section if no improvement occurs or the client's condition worsens

Providing Treatment: Complementary and Alternative Measures to Consider

(Romm, 2010)

- Garlic
    - Inhibits platelet aggregation and inflammation
    - 800 mg daily
    - Discontinue 3 weeks before due date
- Cramp bark tincture
- Hawthorn berry tincture
    - Best for chronic hypertension
    - Infusion: one cup daily
    - Tincture: 15 drops TID
- Chlorophyll liquid or capsules
- Stress reduction techniques: Breathing techniques, yoga, guided imagery, journaling

Providing Support: Education and Support Measures to Consider

- Discussion with client and family regarding the following topics:
    - Diagnosis
    - Treatment options and recommendations
- Home care: preeclampsia
    - Adequate diet
    - Rest periods throughout the day
    - Daily fetal movement counting
    - Home BP monitoring
    - Home urine protein by dipstick
    - Daily weights
    - Call the healthcare provider in the event of elevating BP, proteinuria, significant weight increase, or decreased fetal movement
    - Return to the provider's office every 2 to 3 days
    - Hospitalization or induction if symptoms worsen
- Potential need for the following measures:
    - Hospitalization or more frequent prenatal visits
    - OB/GYN consultation/referral
    - Change in planned location for birth
    - Pediatric care at birth
    - Newborn special care after birth
- ⚠ Indications for immediate care
    - Epigastric pain
    - Visual disturbance
    - Severe headache unrelieved by acetaminophen

Follow-up Care: Follow-up Measures to Consider

- Document
    - List parameters for consultation and referral
    - Update the plan of care weekly or as indicated
- Continued assessment for preeclampsia in women with the following conditions:
    - Gestational hypertension
    - Chronic hypertension

- Increased frequency of office visits (biweekly)
  - Fetal surveillance testing
  - Maternal evaluation/laboratory values
  - Consider hospitalization in the following circumstances:
    - Inability of the mother to follow the provider's recommendations
    - Signs and symptoms indicating a worsening condition
- Indications for delivery
  - Persistent or severe headache
  - Persistent or severe abdominal pain
  - Abnormal liver function tests
  - Rising serum creatinine
  - Thrombocytopenia
  - Pulmonary edema
  - Eclampsia
  - Abruptio placentae
  - Oligohydramnios
  - Nonreassuring NST
  - FGR noted by ultrasound
  - Abnormal biophysical profile

Multidisciplinary Practice: Consider Consultation, Collaboration, or Referral

- OB/GYN services
  - For chronic hypertension in pregnancy
  - With diagnosis or suspicion of preeclampsia or gestational hypertension
  - Signs and symptoms of worsening condition
  - For any indications for delivery (see the preceding section)
- For diagnosis or treatment outside the midwife's scope of practice

CARE OF THE PREGNANT WOMAN WITH INADEQUATE WEIGHT GAIN

Key Clinical Information

Optimal weight gain during pregnancy is based on the woman's prepregnant BMI and age (see "A Nutritional Primer"). Inadequate weight gain may indicate a number of medical problems. More commonly, however, inadequate nutrition is due to psychosocial issues, such as poverty, substance abuse, mental illness, or simply poor food choices. Women with a history of anorexia or bulimia may have difficulty maintaining adequate intake to support growth of a healthy baby. Overweight women may require fewer calories during pregnancy while still demonstrating an adequate fundal growth pattern. Weight gain is a gross marker for the nutritional status of the mother, and it is a factor in body image issues for many women. A woman's body undergoes remarkable changes during pregnancy; she should be helped to appreciate the beauty of such changes. The focus of diet counseling should be on healthy food choices from a variety of whole foods in appropriate portions. In most cases, appropriate weight gain follows from a nutritious diet.

Client History and Chart Review: Components of the History to Consider

- Age of client
- Gestational age
- Review of gestational dating parameters
- Review of BMI and weight gain pattern to date
- Nutritional assessment; see "A Nutritional Primer"
  - 24-hour diet recall
  - Appetite, taste for food
  - Preferred diet and portion size
  - Food sources available
- Assessment for eating disorders
  - Use of enemas and laxatives
  - Eating in secret
  - Binge eating
  - Self-induced vomiting after eating
- Assessment for depression
- Physical health issues
  - Activity level and general metabolic rate
  - Involvement in athletics and exercise frequency
  - Presence of symptoms
    - Nausea and vomiting
    - Constipation, diarrhea

    - Abdominal pain
    - Pica
- Prior health history
  - Presence of maternal illness or infection
  - Gastrointestinal and malabsorption disorders
  - Bariatric surgery
  - Hyperthyroidism
  - Hepatitis
  - Anemia
  - Malnutrition
  - Anorexia or bulimia
- Emotional and spiritual health issues
  - Family and personal support for pregnancy
    - Education level
    - Social living conditions and financial resources
    - Physical abuse
  - Stress levels and coping skills: Physical response to stress
  - Other mental health issues
- Substance abuse

Physical Examination: Components of the Physical Exam to Consider

- Vital signs, including height and weight
- BMI and weight distribution
  - Adult BMI charts for women > 18 years
  - Adolescent BMI-for-age charts for women < 18 years (Groth, 2007)
- Abdominal examination
  - Fundal height
    - For gestation
    - Fundal height growth curve
  - Bowel sounds
  - Palpation of abdomen
- Dental/oral evaluation
  - Caries
  - Abscess
- Evaluation of other symptoms

Clinical Impression: Differential Diagnoses to Consider (ICD9Data.com, 2012)

- Short maternal stature, constitutional
- Small-for-gestational-age baby
- Intrauterine fetal growth restriction
- Malnutrition, secondary to conditions such as the following:
  - Homelessness
  - Poverty
  - Substance abuse
  - Physical abuse
    - Anorexia nervosa
    - Bulimia
  - Mental illness

Diagnostic Testing: Diagnostic Tests and Procedures to Consider

- Calculate the BMI-specific recommended weight gain (see "A Nutritional Primer")
- Laboratory testing
  - Toxicology if drug use suspected
  - Thyroid-stimulating hormone
  - Serum albumin
  - Hepatitis screen
- Fetal kick counts
- Ultrasound for evaluation of the following:
  - Gestational age
  - Interval fetal growth
  - Evidence of FGR
  - Amniotic fluid index

Providing Treatment: Therapeutic Measures to Consider

- Prenatal vitamin and mineral supplement PO once daily
- Diet and nutrition counseling
  - Normal-weight women need 300 extra calories per day while pregnant
  - Daily calorie intake may range from 1800 cal/day to 2400 cal/day, depending on the woman's BMI
  - Explore suitable food choices
    - Adequate protein, fat, and carbohydrates
    -  Culturally acceptable foods
    - Use of additional dietary supplements as needed

- Consider hospitalization in the following circumstances:
  - Malnutrition
  - Anorexia or bulimia
  - Significant mental illness

Providing Treatment: Complementary and Alternative Measures to Consider

- Dietary supplements
  - Smoothies
  - Energy bars
- Herbal appetite stimulants
  - May be combined for flavor and effectiveness
  - Alfalfa, 500 mg daily (avoid with lupus or allergies to pollen)
  - Dandelion root tea, one cup BID (avoid with history of gallstones)
  - Hops tea, one to two cups daily
  - Chamomile tea, one to two cups daily

Providing Support: Education and Support Measures to Consider

- Provide information about the following topics:
  - Weight gain and fetal growth pattern
  - Maternal and fetal nutrient needs from the maternal diet
  - Examples of high-calorie, nutrient-dense foods
  - Anticipated weight gain for gestation
    - FGR infants
    - Constitutionally small infants
- Fetal kick counts
- Warning signs
  - ⚠ Decreased fetal motion
  - PIH signs and symptoms
- Potential effect on the following issues:
  - Planned location for birth
  - Need for pediatric care at birth
- Importance of the following considerations:
  - Fundal/fetal growth over weight gain
  - Maternal and fetal well-being
  - Dietary needs during pregnancy
    - Small frequent meals
    - Balanced selection of food choices
    - Adequate caloric intake
- Excessive or rapid weight gain risks
  - Increased maternal insulin resistance
  - Postpartum or future obesity
- Provide support
  - Develop the plan of care with the client
  - Address client and family concerns

Follow-up Care: Follow-up Measures to Consider

- Document
- Reevaluate weekly or biweekly
  - Diet review
  - Interval fetal growth
  - Signs and symptoms of PIH
- Address client concerns and preferences
  - Nutritional counseling
  - Emotional issues
- Parameters for consultation or referral

Multidisciplinary Practice: Consider Consultation, Collaboration, or Referral

- Nutritional counseling: Refer to a dietician as needed
- Social services referral
  - Enroll the family in a supplemental nutrition program, such as the WIC program
  - Refer to local food assistance programs
- Obstetric/pediatric services
  - For persistent poor weight gain accompanied by the following:
    - Delayed fetal growth
    - PIH
  - For transfer of care or change planned location of birth
- Medical services
  - Evidence of malnutrition
  - Suspected or documented mental health issues
  - Suspected or documented medical illness
- For diagnosis or treatment outside the midwife's scope of practice

CARE OF THE PREGNANT WOMAN WHO IS OBESE

Key Clinical Information

Obesity is defined as a body mass index (BMI) measurement of 30 or greater. Approximately one in four reproductive-age women in the United States currently meets the BMI criterion for obesity. There is an ethnic disparity in obesity rates, however, with this condition having a prevalence of 49% in non-Hispanic black women, 39% in Mexican American women, and 31% in non-Hispanic white women (March of Dimes, 2010).

Obesity contributes to reproductive health problems such as infertility, miscarriage, preeclampsia, gestational diabetes, thromboembolic disorders, perinatal depression, large-for-gestational-age fetus, excessive pregnancy weight, labor induction, and operative birth. Maternal obesity also increases the risk of preterm birth due to medical complications, stillbirth, neural tube defects, and birth injury. Weight gain during pregnancy is important, even in obese women (ACOG, 2005). In fact, assisting obese women achieve a healthy amount of weight gain through diet and lifestyle modification is an important goal during prenatal care to reduce the risk of complications during delivery and postpartum. Babies born to obese women have an increased risk of childhood obesity (March of Dimes, 2010). Postpartum, obese women have a higher risk for postpartum hemorrhage and delayed lactogenesis.

Client History and Chart Review: Components of the History to Consider

- Current gestational age
- GP TPAL
- Prior maternity history
  - Weight gain pattern in prior pregnancies and their outcomes
  - Newborn weight
  - Gestational diabetes
  - Preeclampsia or hypertension
- Health history
  - Hypertension
  - Heart disease
  - Lipid disorders
  - Depression
- Family members and obesity
- Diet assessment
- Food resources assessment
- Activity assessment
- Screening for depression: The Edinburgh Depression Scale is valid for use in pregnancy
- Additional risk factors for gestational diabetes (see "Care of the Pregnant Woman with Gestational Diabetes")

Physical Examination: Components of the Physical Exam to Consider

- Blood pressure with appropriate-size cuff
- Weight and height: Make an accurate BMI determination
- Maternal skin and adipose tissue
  - Abdominal pannus
  - Skin fold disorders
    - Intertrigo
    - Candidosis
- Uterine size
- Routine prenatal visit exam per gestational age

Clinical Impression: Differential Diagnoses to Consider (ICD9Data.com, 2012)

- BMI between 30 and 39
- BMI of 40 or higher

Diagnostic Testing: Diagnostic Tests and Procedures to Consider

- Ultrasound for verification of uterine size and gestational age: Periodic ultrasound may be needed to monitor serial uterine growth
- One-hour OGTT at first visit; repeat at 24 to 28 weeks' gestation if normal on the first visit
- Assess urine dip for glucose and protein at every visit due to the increased risk for gestational diabetes and preeclampsia in the women who is obese

Providing Treatment: Therapeutic Measures to Consider

- Nutritional counseling and support
  - Gain 11–20 lb in pregnancy
  - Increase intake of fruits, vegetables, and complex carbohydrates
  - Reduce intake of refined carbohydrates and processed foods
  - Reduce intake of fats, sugar, and high-glycemic-index foods such as peas, potatoes, corn, and rice
  - Advise the woman not to lose weight in pregnancy
- Provide prescription for increased activity
  - Walking 30 minutes per day and increasing the amount of time devoted to this activity; can be divided into segments each day
  - Low-impact aerobics
  - Water aerobics
  - Yoga
- Offer anomaly screening by ultrasound and serum screening
- Teach signs and symptoms of deep venous thrombosis (DVT)
- Birth place discussion: The increased risks associated with obesity should be considered when determining environment for birth
- Anesthesia consult in labor for vaginal birth after cesarean (VBAC) or induction

Providing Treatment: Complementary and Alternative Measures to Consider

Take the focus off the number on the scale:

- Validate the woman as a beautiful person
- Reinforce her healthy lifestyle choices
- Acknowledge the difficulty of making change

Providing Support: Education and Support Measures to Consider

- Use appropriate language such as the actual BMI number instead of broader terms such as "morbid obesity"
- Be sensitive to providing respectful and honest care, as obese women often encounter judgmental attitudes from healthcare providers (Nyman, Prebensen, & Flensner, 2010)
- Instruct the client about the benefits of increased activity
- Provide logs in which she can record her daily activity
- Provide positive feedback for diet and activity changes
- Encourage family involvement and social support

Follow-up Care: Follow-up Measures to Consider

- Document (Jevitt, 2009)
  - BMI and serial weight and fundal heights
  - Weight gain advised
  - Glucose screening results
  - Anomaly serum screening offered
  - Anomaly screening by ultrasound offered
  - Nutritional counseling and referrals
  - Teaching done on signs and symptoms of DVT
- Plan for postpartum weight loss
- Return for care
  - Per routine for prenatal care
  - More frequently for support as needed
  - Individualized based on clinical presentation

Multidisciplinary Practice: Consider Consultation, Collaboration, or Referral

- Nutritional services for ongoing nutritional assessment and counseling
- Lactation consultant for instruction and support
- Consult with obstetrical/perinatal services
  - Abnormal uterine growth
  - Elevated blood pressure
  - Elevated glucose testing results
  - Abnormal genetic screening
- For diagnosis or treatment outside the midwife's scope of practice

CARE OF THE PREGNANT WOMAN EXPOSED TO PARVOVIRUS (FIFTH DISEASE)

Key Clinical Information

Human parvovirus B19 causes erythema infectiosum, also known as fifth disease. It is spread by hand-to-mouth contact and by respiratory secretions, most often in the springtime. Viremia occurs 4 to 14 days after inoculation and may last several days (Cunningham et al., 2010). Symptoms may include a lacy rash on the face, trunk, and extremities. In addition, the hand, wrist, and knee joints may swell. Elementary teachers and women with elementary school–aged children are more prone to exposure. Fortunately, most women contract parvovirus as children and are not at risk for primary infection during pregnancy. Parvovirus infection during pregnancy is considered to pose a low risk for fetal morbidity; however, it may result in fetal hydrops, aplastic anemia, or fetal growth restriction (FGR), especially if infection occurs in the first half of pregnancy (CDC, 2005).

Client History and Chart Review: Components of the History to Consider

- Current gestational age
- Blood type and Rh
- Rubella and rubeola titers
- Employment history
- History of recent outbreak with close contact
  - School teachers
  - Healthcare workers
  - Woman with school-aged child
- Symptoms of parvovirus infection
  - Rash
  - Fever
  - Malaise
  - Myalgia, arthralgia

Physical Examination: Components of the Physical Exam to Consider

- Vital signs, including temperature
- Routine prenatal surveillance
- Evaluate for the following conditions:
  - Flulike symptoms
    - Fever
    - Headache
  - Rash
    - Diffuse maculopapular rash
    - May appear on the face, trunk, and extremities
    - Occurs several days after fever
    - Resolves in 7–10 days
  - Joint and muscle pain, especially in the hands, wrists, and knees
- Some patients may be asymptomatic

Clinical Impression: Differential Diagnoses to Consider (ICD9Data.com, 2012)

- Fifth disease, erythema infectiosum, parvovirus B19
- Other viral exanthema
- Allergic rash

Diagnostic Testing: Diagnostic Tests and Procedures to Consider

- Serologic testing for parvovirus B19
  - Indications
    - Post-exposure
    - Positive clinical signs and symptoms
    - Fetal nonimmune hydrops
  - Parvovirus B19 IgM and IgG
    - Positive IgM indicates recent infection
    - Positive IgG indicates current immunity; if the woman is not immune, repeat the test in 3–4 weeks
- Ultrasound every 2 weeks for those individuals who test positive for parvovirus infection
  - Fetal cardiac, spleen, and liver evaluation
  - Fetal hydrops

Providing Treatment: Therapeutic Measures to Consider

No treatment for parvovirus B19 infection is available. However, heightened fetal surveillance is recommended if seroconversion occurs.

Providing Treatment: Complementary and Alternative Measures to Consider

In women with possible exposure to parvovirus B19, consider the following measures:

- Herbs for immune support: Astragalus
- Stress reduction techniques: Breathing techniques, yoga, guided imagery, journaling

Providing Support: Education and Support Measures to Consider

- Provide reassurance: Most adults are immune to the virus
- Explain the screening and management plan
- Identify the warning signs to report
  - Rash
  - Decreased fetal movement
- Note the potential for fetal compromise with infection
  - May have no effect
  - Spontaneous abortion (SAB) in first trimester
  - Fetal death in second trimester (3–6 weeks post maternal infection)
  - Nonimmune hydrops
  - Severe anemia
  - Viral-induced cardiomyopathy
- Parvovirus B19 is not associated with birth defects

Follow-up Care: Follow-up Measures to Consider

(Hunt & Hunt, 2010)

- Document
- Testing
  - Positive IgG: Immune, no further testing is necessary
  - Negative IgG: Past or current infection; repeat testing in 3–4 weeks
- Return for care
  - In 2–3 weeks post-exposure
  - At the onset of signs or symptoms
- Mother with acute illness
  - Follow for hydrops: Biweekly ultrasound for 12 weeks
  - Provide emotional support

Multidisciplinary Practice: Consider Consultation, Collaboration, or Referral

- OB/GYN services
  - Maternal infection with parvovirus B19
  - Fetus with evidence of the following conditions:
    - Cardiomyopathy
    - Hydrops
    - Anemia
- For diagnosis or treatment outside the midwife's scope of practice

CARE OF THE PREGNANT WOMAN WITH PRURITIC URTICARIAL PAPULES AND PLAQUES OF PREGNANCY

Key Clinical Information

Pruritic urticarial papules and plaques of pregnancy (PUPPP) is a form of urticaria that most commonly appears in the third trimester. These pruritic dermatoses typically erupt on the abdomen but may extend to the torso and extremities (Brzoza, Kasperska-Zajac, Oles, & Rogala, 2007). The condition generally resolves within 6 weeks after the birth of the infant. There are no systemic disorders associated with PUPPP; therefore treatment is aimed at relieving the symptoms, which can range from mild to severe in nature.

Client History and Chart Review: Components of the History to Consider

- Gestational age
  - Most often primipara
  - Third trimester
- Onset, duration, and severity of symptoms
  - Pruritic papules often begin in striae (Brzoza et al., 2007)
    - May have small vesicles
    - Surrounded by narrow, pale halo
    - Severe itching
  - Pattern of spread
    - Abdomen and striae
    - Periumbilical area not involved
    - Trunk and limbs
    - Face, palms, and soles spared

- Other associated signs and symptoms
- Presence of allergies
  - Medications
  - Exposure to topical irritants
- Exposure to viral infections: Provide immune titers as indicated
- Self-help remedies and their effects

Physical Examination: Components of the Physical Exam to Consider

- Vital signs, including temperature
- Abdominal distention: Striae gravidarum
- Location and appearance of lesions
  - Erythematous, edematous papules
  - Urticarial plaques
  - Papulovesicular lesions
- Evaluate as needed for signs related to other differential diagnoses

Clinical Impression: Differential Diagnoses to Consider (ICD9Data.com, 2012)

- PUPPP
- Scabies
- Allergic dermatitis
  - Drug or food reaction
  - Poison ivy
- Impetigo
- Viral exanthema
- Herpes gestationis
- Erythema multiform
- Cholestasis of pregnancy

Diagnostic Testing: Diagnostic Tests and Procedures to Consider

- Culture of vesicular lesions
  - Herpes
  - Impetigo
  - Scabies skin prep
- Immune titers as needed
  - Rubella
  - Rubeola
  - Varicella
- Liver function tests to evaluate for cholestasis
  - Alkaline phosphatase
  - Gamma-glutamyl transferase

Providing Treatment: Therapeutic Measures to Consider

- Topical antipruritic lotions
  - Calamine or Caladryl (over-the-counter preparations)
  - Doxepin HCl 5% cream (Pregnancy Category B)
- Oral antihistamines
  - Diphenhydramine HCl (Benadryl)
    - 25–50 mg every 4–6 hours
    - Pregnancy Category B in third trimester
  - Loratadine (Claritin)
    - 10 mg daily
    - Pregnancy Category B in third trimester
  - Cetirizine HCl (Zyrtec)
    - 5–10 mg daily
    - Pregnancy Category B in third trimester
  - Hydroxyzine (Atarax)
    - 25–100 mg PO daily
    - Pregnancy Category C
- Topical corticosteroids
  - Pregnancy Category C
  - Rule out viral cause before using the following medications:
    - Alclometasone dipropionate 0.05%
    - Aclovate cream or ointment
    - Hydrocortisone 1%
    - Cortisporin cream
    - Hytone cream, lotion, or ointment
    - Triamcinolone acetonide 0.025%, 0.1%, or 0.5%
    - Aristocort cream
    - Kenalog cream, lotion, or ointment
- Oral steroid therapy
  - Prednisone 0.5–1 mg/kg/day PO
    - Use the minimum effective dose
    - Taper off doses when symptoms abate
  - Pregnancy Category B

  - Use with caution in women with the following conditions:
    - Gestational diabetes
    - Hypertension
- Topical relief of itching
  - Colloidal oatmeal baths
  - Calendula cream or calendula-infused oil
  - Olive oil
  - Aloe gel

Providing Treatment: Complementary and Alternative Measures to Consider

(Romm, 2010)

- Topical relief of itching
  - Chamomile cream
  - Gotu kola ointment
  - Chinese skullcap
  - St. John's wort extract
- Internal use
  - Yellow dock root tea
  - Dried nettle leaf tea

Providing Support: Education and Support Measures to Consider

- PUPPP not associated with fetal jeopardy
- Instructions to call the healthcare provider if symptoms persist or worsen
- Address client concerns
- Treatment options
- Medication instructions
  - Topical steroids
    - Apply a thin film only
    - Do not cover or occlude
    - May be systemically absorbed
  - Oral steroids
    - Take as directed
    - Do not stop suddenly

Follow-up Care: Follow-up Measures to Consider

- Document
- Return for care
  - Per routine for prenatal care
  - If symptoms worsen or additional symptoms develop

Multidisciplinary Practice: Consider Consultation, Collaboration, or Referral

- Dermatology services
- For diagnosis or treatment outside the midwife's scope of practice

CARE OF THE PREGNANT WOMAN WHO IS RH NEGATIVE

Key Clinical Information

Rh alloimmunization or ABO incompatibility can have devastating effects on both mother and baby. Infants are at risk when fetomaternal bleeding initiates the process of Rh or ABO incompatibility or if the mother became sensitized previously after blood transfusion. This outcome can result when an Rh-positive infant is born to an Rh-negative mother, an infant with type A or B blood is born to a mother with type O blood, an infant with type B or AB blood is born to a mother with type A blood, or an infant with type A or AB blood is born to a mother with type B blood. ABO incompatibility can lead to hemolytic disease in the newborn accompanied by jaundice; the latter condition is usually successfully treated with phototherapy.

Often, the baby who is being carried when the fetomaternal bleeding occurs does not have a problem, but instead the mother becomes sensitized. This problem then manifests itself in a subsequent pregnancy when maternal antibodies attack the fetal blood. Alloimmunization can result in fetal hydrops, congestive heart failure, and fetal anemia. Adherence to established guidelines in the treatment of the Rh-negative mother significantly decreases the incidence of fetal hemolytic disease and its sequelae (ACOG, 1999).

Client History and Chart Review: Components of the History to Consider

- Gestational age
- Previous blood transfusions

- Prior pregnancy history
  - Unexplained fetal losses
  - Stillbirth
  - Miscarriage
- Ectopic pregnancy
- Termination of pregnancy at more than 8 weeks since last menstrual period
- Previous Rh immune globulin injection
- Knowledge of own blood type and the pathophysiology of the incompatibility

Physical Examination: Components of the Physical Exam to Consider

Routine prenatal surveillance

Clinical Impression: Differential Diagnoses to Consider (ICD9Data.com, 2012)

- Rh-negative mother
- Rh-sensitized mother
- ABO-sensitized mother

Diagnostic Testing: Diagnostic Tests and Procedures to Consider

- Maternal: test at the first prenatal visit, and repeat at 24–28 weeks for Rh-negative mothers
  - Type and Rh factor
  - Antibody screen (indirect Coombs test)
  - Antibody identification for positive antibody screen
  - Early Rh immune globulin (RhIG) testing after amniocentesis or threatened SAB may give a positive titer at the 24- to 28-week screen
- Maternal test results
  - Titer < 1:8 anti-D suggests passive immunity from RhIG
  - Titer > 1:8 suggests active immunization due to Rh incompatibility
  - Rh(D)-negative or type O mother
    - Plan to obtain cord blood at birth for analysis
    - Maternal/newborn follow-up postpartum

Providing Treatment: Therapeutic Measures to Consider

(ACOG, 1999)

- RhIG is indicated for an unsensitized Rh-negative client in the following circumstances:
  - Amniocentesis
  - Chorionic villus sampling
  - External version
  - Trauma, such as a car accident
  - Placenta previa
  - Abruptio placentae
  - Fetal death
  - Multiple gestation
  - 28 weeks' gestation prophylaxis if the father of the baby is Rh positive or his Rh status is unknown
  - Accidental transfusion of Rh-positive blood to an Rh-negative person
- Give RhIG (Pregnancy Category C) in the following circumstances (Moise & Brecher, 2004):
  - Threatened or spontaneous miscarriage at later than 12 weeks' gestation: 50 or 300 mg IM
  - Procedures or trauma: 300 mg IM
  - 28- to 36-week prophylaxis: 300 mg IM with negative 28-week antibody screen
    - Consider redosing if pregnancy continues for longer than 12 weeks from the first dose
    - If paternity is certain and the father is Rh negative, antepartum prophylaxis is not needed (ACOG, 1999)
  - Postpartum: 300 mg IM or IV
    - Provide to an unsensitized Rh-negative mother with an Rh-positive infant
    - Give as soon as possible after birth, preferably within 72 hours postpartum
    - Can be given up to 28 days postpartum for some benefit
    - Adjust dose for large fetomaternal transfusion based on laboratory results
  - Intravenous RhIG is available as Rhophylac

- For women who refuse antenatal RhIG, perform an antibody screen (indirect Coombs test) every 4 weeks prenatally

Providing Treatment: Complementary and Alternative Measures to Consider

- Maintain a healthy pregnancy and placenta
  - Consume a well-balanced diet
  - Ensure adequate trace mineral intake
- Limit invasive procedures
- Avoid traumatic placental delivery

Providing Support: Education and Support Measures to Consider

Provide information about the following topics:

- Rh and blood type status
- Rh immune globulin
  - Prophylaxis and desired result
  - Potential risks with RhIG
    - Transfusion-type adverse reactions
    - Mercury sensitivity or reaction with RhoGAM
  - Potential risks without RhIG
    - Maternal sensitization
    - Fetal hydrops or other complications with future pregnancy
    - Difficulty of cross-matching blood for the woman in the future (e.g., after an accident or surgery)
    - Potential for jaundice in the infant due to Rh or ABO incompatibility

Follow-up Care: Follow-up Measures to Consider

- Document
  - Indication for RhIG
  - Rh-negative and antibody status
  - Client education, discussion, and preferences
- Observe for potential blood transfusion–type reactions
  - Warmth at injection site
  - Low-grade fever
  - Flushing
  - Chest or lumbar pain
  - Poor clotting
- If mother is Rh(D) negative or type O
  - Newborn
    - Type and Rh
    - Direct Coombs test
    - Bilirubin levels
  - Maternal testing postpartum
    - Type and Rh
    - Antibody screen (indirect Coombs test)
    - Antibody ID for positive antibody screen
    - Fetal red cell screen
- Kleihauer-Betke quantitative testing
  - Determine the volume of fetal blood in the maternal system and the dosage of RhIG to give to the mother
  - Performed when a high risk of fetomaternal hemorrhage exists
    - Previa
    - Abruption
    - Abdominal trauma
    - Hydrops
    - Sinusoidal fetal heart patterns
    - Unexplained fetal demise

Multidisciplinary Practice: Consider Consultation, Collaboration, or Referral

- OB/GYN or perinatology services
  - For Rh-negative mother with a positive antibody screen
  - Evidence of large fetomaternal bleed
  - Transfusion-type reactions
- For diagnosis or treatment outside the midwife's scope of practice

CARE OF THE PREGNANT WOMAN WITH SIZE–DATE DISCREPANCY

Key Clinical Information

Serial fundal height measurements during pregnancy provide a clinical estimation that, along with other parameters, is used to form a broad assessment of fetal growth. Discrepancies in uterine size and gestational

age can be physiologic: Many infants are simply constitutionally small or large. Overweight and obese women may measure consistently larger for dates, which can reflect maternal adipose tissue rather than fetal weight. For other women, size–date discrepancy may signal a problem, with the most common causes including fetal growth restriction (FGR) and gestational diabetes mellitus (GDM). Increased fetal surveillance and attention to maternal health help to prevent over- or under-intervention when fetal size–date discrepancy is noted.

Client History and Chart Review: Components of the History to Consider

(Cunningham et al., 2010)

- GP TPAL
- Review accuracy of last menstrual period and estimated date of confinement (EDC—the "due date")
- Verify gestational age
  - Estimated date of conception
  - Uterine size at first visit
  - Date of quickening
  - Early ultrasound report
- Pregnancy history
  - Review past and current fundal growth curve
  - Hypertension
  - Preeclampsia
  - Gestational diabetes
  - Birth weights of prior infants
- Social history
  - Diet and weight gain pattern
  - Maternal activity patterns
  - Tobacco, alcohol, or drug use
  - Poverty
  - Psychosocial factors
    - Stress
    - Mental illness
    - Abuse
- Family history
  - Personal or family history of diabetes
  - Hypertension
  - Other preexisting disease
  - Ethnic norm for fetal weight
- Review of systems
  - Shortness of breath, palpitations
  - Signs or symptoms of illness
  - Fetal activity

Physical Examination: Components of the Physical Exam to Consider

- Vital signs, including BP and BMI
- Weight gain/loss and pattern
- General appearance and well-being
- Palpation of thyroid
- Cardiopulmonary evaluation
- Abdominal examination
  - Fundal height
  - Interval growth
  - Fetal lie
  - Fetal heart rate (FHR)
- Extremities
  - Reflexes
  - Edema
  - Physical evidence of substance abuse
- Pelvic examination
  - Station of presenting part
  - Evidence of ROM

Clinical Impression: Differential Diagnoses to Consider (ICD9Data.com, 2012)

- Poor fetal growth affecting management of the mother
- Excessive fetal growth affecting management of the mother
- Small-for-dates fetus
  - Fetal growth restriction
  - Small for gestational age (SGA)
  - Constitutionally small infant
  - Oligohydramnios
- Congenital malformations
- Large-for-dates fetus
  - Large for gestational age (LGA)
  - Gestational or maternal diabetes
  - Multiple pregnancy
  - Polyhydramnios
  - Constitutionally large infant
  - Fibroid uterus

- Symmetric versus asymmetric FGR secondary to the following conditions:
  - Hypertension
  - Underlying maternal disease or infection
  - Poor nutrition

Diagnostic Testing: Diagnostic Tests and Procedures to Consider

- Dip urinalysis
- Urine toxicology
- Diabetes screen
- Maternal antiphospholipid antibody testing
- Maternal drug screen
- Symmetric FGR
- Fetal karyotype
- Titers for the following infections:
  - Toxoplasmosis
  - Cytomegalovirus
  - Herpes virus
- Preeclampsia laboratory profile
- Ultrasound evaluation
  - Verify singleton versus multiple pregnancy
  - Confirm estimated date of birth (EDB) by ultrasound parameters
  - Fetal anomaly study
  - Fetal growth: May be done serially
    - Schedule at least 3 weeks apart
    - Abdominal circumference: Decreased in asymmetric FGR
  - Amniotic fluid index (AFI) for oligohydramnios or polyhydramnios
  - Placenta previa
  - Chronic placental abruption
  - Presence of uterine fibroids
- Ultrasound evaluation for FGR
  - Confirm EDB by ultrasound parameters
  - Fetal anomaly study
  - Fetal growth: May be done serially
    - Schedule at 2–3 weeks apart
    - Abdominal circumference: Decreased in asymmetric FGR
  - AFI for oligodydramnios or polyhydramnios
  - Placenta previa
  - Chronic placental abruption
  - Presence of uterine fibroids
  - Fetal surveillance begins as early as FGR is suspected
    - Weekly or biweekly non-stress test (NST), biophysical profile (BPP)
    - Consider oxytocin challenge test (OCT) or contraction stress test (CST) if NST is nonreactive
  - Weekly or biweekly AFI: normal range > 6
- LGA/macrosomia
  - Ultrasound evaluation
    - Poor diagnostic power for estimated fetal weight (EFW) and macrosomia
    - Accurate approximately one-third of the time (Wagner, 2011)
  - Clinician palpation of EFW is more accurate than ultrasound
  - A multiparous woman's perception of fetal size is more accurate than ultrasound (Campaigne & Conway, 2007)
- LGA/polyhydramnios
  - Ultrasound evaluation

Providing Treatment: Therapeutic Measures to Consider

- Treat underlying medical condition(s)
  - Preeclampsia
  - Gestational diabetes
  - Infection
  - Anemia
- Substance abuse treatment
- FGR
  - Decrease maternal activity
  - Consume a high-quality diet
  - Avoid substances that may affect placental efficiency, such as smoking or illegal drug use
  - Encourage the left lateral position to enhance uteroplacental blood flow
  - Ensure adequate nutrition and oxygenation
  - Consider delivery if fetal compromise is evident

- LGA/macrosomia
  - Not an indication for induction (ACOG, 2000b; Suneet et al., 2005)
  - Not a contraindication for vaginal birth after cesarean (VBAC)
  -  Both ultrasound and clinical estimates of fetal weight are imprecise
  -  Cesarean may be considered in the following circumstances:
    - EFW > 5000 g in a nondiabetic mother
    - EFW > 4500 g in a diabetic mother
- LGA/polyhydramnios
  - Consider amnio-reduction of fluid (therapeutic amniocentesis)
  - Antacids for increased heartburn

Providing Treatment: Complementary and Alternative Measures to Consider

Alternative measures vary with condition causing the size/date discrepancy.

Providing Support: Education and Support Measures to Consider

- Provide information about the following topics:
  - Implications for continued care
  - Options for treatment
  - Parameters for intervention
- Nutritional counseling and surveillance as needed
- Potential for serial evaluation of fetal well-being
- Potential for change in location or providers for birth
- Provide support and reassurance
- Address client and family concerns

Follow-up Care: Follow-up Measures to Consider

- Document
  - Results of diagnostic testing
  - Discussions with client and family
  - Note findings with indications for consultation or referral
- Anticipated follow-up
  - Serial fetal assessment: Weekly or biweekly
  - Update plan weekly or as indicated by findings
  - Assess nutritional intervention understanding and adherence
- Anticipate the need for birth before term in the presence of the following conditions:
  - Positive CST
  - Oligohydramnios
  - Ultrasound documentation of limited cranial growth
- LGA infant: Anticipate potential for shoulder dystocia
- Anticipate need for fetal/neonatal resuscitation

Multidisciplinary Practice: Consider Consultation, Collaboration, or Referral

- OB/GYN services
  - Prenatal consultation based on maternal and fetal condition
  - Documented FGR
  - Potential referral to high-risk obstetrics service
  - With induction
  - With anticipated LGA infant
  - As indicated or needed during labor and birth
- Pediatric services
  - Anticipated preterm infant
  - FGR
  - Maternal diabetes
  - Chronic maternal malnutrition
  - Anticipated newborn resuscitation
- Social services as indicated
  - Tobacco, drug, or alcohol use
  - Poor social support systems
  - WIC, food stamps, local food assistance
- For diagnosis or treatment outside the midwife's scope of practice

CARE OF THE PREGNANT WOMAN WITH TOXOPLASMOSIS INFECTION

Key Clinical Information

Acute primary maternal infection with toxoplasmosis puts the unborn baby at increased risk for congenital toxoplasmosis infection. Infection in pregnancy

is more likely to be transmitted to the fetus as the pregnancy progresses toward term. The risk of congenital fetal toxoplasmosis infection rises from 15% in women who contract toxoplasmosis in the first trimester to 30% in women who develop this infection during the second trimester, and peaks at 60% during the last trimester (CDC, 2011c). Complications of maternal toxoplasmosis infection can include spontaneous abortion or miscarriage, fetal demise, fetal microcephaly, chorioretinitis, cerebral calcifications, and abnormalities of the cerebrospinal fluid. Because prevalence of this disease is low in the United States, however, routine screening for toxoplasmosis during pregnancy is not currently recommended (ACOG, 2000a). Preventive measures for pregnant women to employ are essential to protecting them and their children from infection.

Client History and Chart Review: Components of the History to Consider

- Gestational age
- Fetal activity
- Query regarding possible source of exposure
  - Cat feces, fur, and bedding
  - Raw or rare meat (primary source)
  - Soil or sand
  - Unwashed fruit or vegetables
  - Contaminated water or milk
- Onset, duration, and severity of symptoms
  - Fever
  - Exhaustion
  - Sore throat
  - Swollen lymph nodes
  - Other associated symptoms
- Most people infected are symptomatic

Physical Examination: Components of the Physical Exam to Consider

- Vital signs, including temperature
- Evaluation for lymphadenopathy
- Evaluation for liver margins
- Fundal height growth

Clinical Impression: Differential Diagnoses to Consider (ICD9Data.com, 2012)

- Toxoplasmosis
- Mononucleosis
- Influenza
- Other viral illnesses

Diagnostic Testing: Diagnostic Tests and Procedures to Consider

- Toxoplasmosis testing
  - Preconception as needed
  - Retest every trimester as needed
- Types of tests
  - IgG-Sabin-Feldman dye test
  - IgM-immunofluorescent antibody (IFA): If titers exceed 1:512, recent acute infection is likely
  - Possible exposure
    - IgG and IgM negative: no infection or previous exposure
    - IgG positive and IgM negative: previous infection/immunity
    - Both IgG and IgM positive: possible acute infection, repeat for rising titers
- Recheck IgM in 3 weeks: If titers are rising, acute infection is likely

Providing Treatment: Therapeutic Measures to Consider

Provide maternal therapy per the perinatologist's or obstetrician's orders

- Spiramycin
- Pyrimethamine, sulfadiazine, and folic acid

Providing Treatment: Complementary and Alternative Measures to Consider

- Immune support
  - Maintain a high-quality diet
  - Rest
  - Echinacea
- Astragalus tea, tincture, or capsule
- Emotional support and reassurance

Providing Support: Education and Support Measures to Consider

- Prevention measures (CDC, 2011c): Avoid the following:
  - Contact with cats, cat feces, and cat bedding
  - Travel during pregnancy to areas with endemic toxoplasmosis
  - Drinking untreated water
  - Handling raw meat whenever possible
  - Eating rare-cooked meat
    - Cook whole cuts of meat to 145 degrees
    - Cook ground meat to 160 degrees
    - Cook poultry to 165 degrees
  - Eating unwashed fruits and vegetables
- Recommended practices
  - Careful hand washing with soap and water
  - Use of gloves in the following situations:
    - Gardening
    - Cleaning litter or sandbox
    - Preparing raw meat
  - Clean surfaces after handling raw meat
- Information and discussion about the following topics:
  - Test results and diagnosis
  - Options for care
  - Recommendations for continued care
  - Optimal location for birth
  - Pediatric care for birth
  - Breastfeeding recommended

Follow-up Care: Follow-up Measures to Consider

- Document
- Positive maternal titer
  - Ultrasound at 20–22 weeks' gestation for fetal anomalies
  - Serial ultrasounds as indicated
  - Percutaneous umbilical blood sampling (PUBS) for fetal IgM and culture
  - Evaluation of the newborn for congenital infection
- Return for care
  - Per prenatal routine
  - Provide ongoing support

Multidisciplinary Practice: Consider Consultation, Collaboration, or Referral

- Diagnosis of acute toxoplasmosis—referral
  - Perinatology
  - Genetic counseling
  - Counseling or support group
- For diagnosis or treatment outside the midwife's scope of practice

CARE OF THE PREGNANT WOMAN WITH URINARY TRACT INFECTION

Key Clinical Information

The physiologic changes experienced by pregnancy enhance the risk of ascending urinary tract infection (UTI). Urinary tract infection during pregnancy can have a variety of presentations. Asymptomatic bacteriuria is common in pregnancy, and acute pyelonephritis occurs in as many as 30% of women with previously untreated asymptomatic bacteriuria (Johnson & Kim, 2011). Pyelonephritis is a serious complication for both the woman and her fetus, as it is associated with premature delivery and low-birth-weight infants. Simple cystitis can also occur during pregnancy and can be extremely painful. Renal calculi typically present with flank pain, accompanied by blood or leukocytes in the urine. UTIs can lead to renal damage, severe pain, and increased risk of preterm labor. The economic costs and impact on quality of life related to UTIs may be considerable.

Client History and Chart Review: Components of the History to Consider

- Gestational age
- Current symptoms
  - Onset, duration, and severity
  - Dysuria, urgency, frequency, and burning
  - Fever, chills
  - Nausea, vomiting
  - Flank pain, back pain, suprapubic pain or heaviness
  - Colicky pain
  - Hematuria

  - Self-diagnosis in women with history of UTI
  - Symptoms of preterm labor
  - Other associated symptoms
- Review history related to the following issues:
  - UTIs
  - Renal calculi
  - Recent urinary catheterization
  - Frequency of intercourse, new partner
  - Voiding and fluid intake habits
  - Recent antibiotic therapy
  - Structural or functional abnormalities of the urinary tract
  - Intimate-partner violence
  - Chronic conditions, such as sickle cell trait/disease and diabetes

Physical Examination: Components of the Physical Exam to Consider

- Vital signs, including temperature
- Evaluation of hygiene
- Abdominal evaluation
  - Fetal heart tone
  - Presence of contractions
  - Suprapubic tenderness
  - Guarding or rebound tenderness
  - Distended bladder
- Signs of renal involvement
  - Fever
  - Costovertebral angle (CVA) tenderness
- Pelvic examination
  - External genitalia and ureters
  - Vaginal discharge or odor
  - Evaluate cervical length, consistency, and dilation
  - Station of presenting part

Clinical Impression: Differential Diagnoses to Consider (ICD9Data.com, 2012)

- Urinary tract
  - Asymptomatic bacteriuria
  - Cystitis
  - Pyelonephritis
  - Renal calculi
- Pregnancy-related diagnoses
  - Preterm labor
  - Preeclampsia
  - Concealed abruption
  - Ectopic pregnancy
- Appendicitis
- STI

Diagnostic Testing: Diagnostic Tests and Procedures to Consider

- Urinalysis
  - Dip
    - Positive nitrites: First-morning urine collection is more accurate
    - Positive leukocytes: Frequent false positives
    - Positive nitrites with positive leukocytes is predictive of UTI
  - Microscopy
    - Blood (red blood cells)
    - Pyuria (white blood cells)
    - Bacteria
    - Casts
- Gram stain: Positive result correlates with positive culture
- Urine culture and sensitivity testing from a clean-catch sample are indicated for the following conditions:
  - Symptoms of UTI
  - Positive urinalysis
  - History of UTI
  - Sickle trait
  - Diabetes
  - Chronic renal disease
  - Hypertension
  - Test of cure after treatment
  - Repeat every 6–12 weeks for remainder of pregnancy
- Urine culture findings
  - Less than 10,000 colonies
    - No infection
    - Treatment not indicated
  - Colonies of 25,000–100,000
    - Asymptomatic bacteriuria
    - Treatment indicated

  - More than 100,000 colonies
    - UTI if pathogenic bacteria are present
    - Contamination if mixed bacteria are present
    - Treat when UTI is present
    - Check for sensitivity of the identified bacteria to the prescribed drug
  - Presence of Group B *Streptococcus* (GBS) in urine
    - Treatment indicated with any colony count of GBS
    - Additional vaginal/rectal screening is not needed, as the urine test is considered GBS positive
- For complicated UTI (pyelonephritis, calculi)
  - CBC
  - Electrolytes
  - Blood urea nitrogen, creatinine
  - Renal ultrasound
  - Strain all urine
- Ultrasound to evaluate for the following conditions:
  - Maternal hydronephrosis
  - Calculi
  - Fetal status
- Screening for recurrent UTI
  - Group B *Streptococcus*
  - Sickle cell
  - Glucose-6-phosphate dehydrogenase (G6PD)
  - Diabetes
  - Kidney function
    - Blood urea nitrogen
    - Creatinine, 24-hour creatinine clearance
    - Total protein

Providing Treatment: Therapeutic Measures to Consider

(ACOG, 2011; King & Brucker, 2011)

- Keflex
  - Pregnancy Category B
  - 250 mg PO QID or 500 mg BID for 7–14 days
  - First choice for GBS in urine
- Ampicillin
  - Pregnancy Category B
  - 250–500 mg PO QID for 7–10 days
  - High rates of bacterial resistance
- Augmentin
  - Pregnancy Category B
  - 250 mg PO QID for 7–10 days
  - High rates of bacterial resistance
- Macrobid
  - Pregnancy Category B
  - Simple cystitis: 100 mg PO BID for 3 days
  - Simple or recurrent UTI: 100 mg PO BID for 7–10 days
  - First choice for suppressive therapy: 50–100 mg daily
  - ⚠ Avoid before 13 weeks' gestation unless it is the best choice: May be associated with increased risk of birth defects
  - ⚠ Do not use after 36 weeks' gestation: Can cause newborn anemia
  - ⚠ Do not use with G6PD anemia
- Sulfatrimethoprim DS
  - Pregnancy Category C
  - 1 (400/80 mg) PO BID for 7–10 days
  - ⚠ Avoid before 13 weeks' gestation unless it is the best choice: May be associated with increased risk of birth defects
  - ⚠ Do not use after 36 weeks' gestation: Can cause newborn anemia
  - ⚠ Do not use with G6PD anemia
- Pyridium for dysuria
  - Pregnancy Category B
  - 200 mg TID after meals
  - Maximum six doses
- Consider a prescription for *Candida* treatment PRN for women who frequently get UTIs with antibiotic therapy
- Pyelonephritis
  - Hospitalization
  - IV hydration
    - 200 mL/hr
    - Balanced electrolyte solution

- Antibiotics
  - IV Cefoxitin 1–2 g every 6 hours or other cephalosporins
  - Change to PO when the patient has been afebrile for 24 hours
- Provide for adequate pain control

Providing Treatment: Complementary and Alternative Measures to Consider

(Romm, 2010)

- Live culture probiotics
- Vitamin C 500 mg up to 200 mg daily during acute infection
- Herbals
  - Cranberry juice
  - Concentrated cranberry tablets, 1–2 tablets every 4–6 hours with fluid
  - Oregano tincture or capsules

Providing Support: Education and Support Measures to Consider

- Medication instructions: Take full antibiotic course
- Review warning signs of progression
  - Fever and chills
  - Flank pain
  - Urinary urgency or burning
  - Hematuria
  - Generalized abdominal pain
  - Nausea, vomiting, loss of appetite, inability to maintain hydration
- Review perineal hygiene
  - Void immediately after intercourse
  - Blot after voiding
  - Wipe front to back after bowel movement
- When to call or come in for care
  - Symptoms do not resolve within 24 hours
  - Symptoms worsen
  - Symptoms recur
- Indications for hospitalization
- Indications for a consult or referral
- Encourage the following practices:
  - Increased frequency of voiding: Every 1–2 hours while awake
  - Increased fluid intake
    - Water preferable
    - Cranberry juice or tea
    - One cup of fluid per hour while awake
  - Avoid the following:
    - Caffeine
    - Excess vitamin C
    - Sugars

Follow-up Care: Follow-up Measures to Consider

- Document
- Maternal surveillance
  - Observe for improvement
  - Change antibiotics based on sensitivities
  - Culture for test of cure
  - Perform urinalysis on each visit to assess for blood, nitrites, and leukocytes
  - Culture each trimester
  - Suppressive therapy after two positive cultures
  - Observe for signs and symptoms of preterm labor
- Fetal surveillance: Monitor FHR and activity
- Hospital discharge is appropriate in the following circumstances:
  - 24 hours on PO antibiotics
  - Afebrile
  - Calculi passed
  - No signs or symptoms of preterm labor

Multidisciplinary Practice: Consider Consultation, Collaboration, or Referral

- OB/GYN services
  - Pyelonephritis
  - Renal calculi
  - Threatened preterm labor
- For diagnosis or treatment outside the midwife's scope of practice

CARE OF THE PREGNANT WOMAN WITH VAGINAL BLEEDING, FIRST TRIMESTER

Key Clinical Information

Although vaginal bleeding in the first trimester is a relatively common occurrence, affecting as many as 15% to 25% of pregnant women (Snell, 2009), it must be considered serious until all potential abnormal causes have been effectively ruled out. The precipitating cause may not readily present itself and can take some investigation to identify. Serial evaluation with quantitative β-HCG levels and ultrasound can assist in evaluation. Ectopic pregnancy should always be considered. This emotionally difficult time is made more so by uncertainty and lack of effective treatments. The midwife must present a cautious prognosis while maintaining hope when such a stance is warranted.

Client History and Chart Review: Components of the History to Consider

- Onset, duration, and severity of bleeding
  - Color, amount, and characteristics of discharge
  - Precipitating events, if any
  - Presence of cramping or abdominal pain
  - Fever or flu-like symptoms
  - Presence or regression of pregnancy symptoms
  - Other associated symptoms
- Estimated gestational age
  - Last menstrual period
  - Date of conception, if known
  - Ultrasound report, if done
- Pregnancy/gynecologic history
  - GP TPAL
  - Blood type and Rh
  - Risk factors for ectopic pregnancy
    - Pelvic inflammatory disease
    - Intrauterine device
    - Gynecologic surgery
    - STIs
  - Previous pregnancy losses
  - History
    - Abnormal Pap smears
    - STIs
    - Vaginal infections
    - Infertility
    - Cesarean birth
- Potential exposure
  - STIs
  - Viral infections
  - Physical abuse or trauma

Physical Examination: Components of the Physical Exam to Consider

(Snell, 2009)

- Vital signs
- FHR as appropriate for gestation
- External genitalia
  - Trauma
  - Lesions
  - Varicosities, hemorrhoids
  - Blood or discharge at introitus
- Speculum examination
  - Blood or discharge
    - From vaginal vault
    - From cervix
  - Visual cervical dilation
  - Presence of products of conception (POC) at os or in vaginal vault
  - Presence of erosion, polyps, or other cervical cause of bleeding
- Bimanual examination
  - Cervical dilation
  - Uterine size for dates
  - Uterine tenderness or pain
  - Presence of adnexal mass or pain
  - Presence of cervical motion tenderness

Clinical Impression: Differential Diagnoses to Consider (ICD9Data.com, 2012)

- Implantation bleeding
- Spontaneous abortion
  - Threatened SAB
  - Inevitable SAB

  - Incomplete SAB
  - Complete SAB
  - Missed SAB
- Ectopic pregnancy
- Molar pregnancy
- Cervical bleeding
  - Cervicitis
  - Cervical polyps
  - Cervical trauma
  - Cervical cancer
- STIs

Diagnostic Testing: Diagnostic Tests and Procedures to Consider

- Serial quantitative β-HCG 48 hours apart (Table 3-6)
- CBC
- Type and Rh status
- Infection screening if indicated
- Coagulation studies if missed abortion is suspected
  - Prothrombin time
  - Partial prothrombin time
  - Fibrinogen level
  - Platelets
- Ultrasound
  - Fetal heart motion
  - Dating
  - Placenta previa or abruptio
  - Ectopic

Table 3-6 Anticipated HCG Level

WEEKS POST-LMP	LEVEL (MIU/ML)
4	5–425
5	18–7350
6	1080–56,500
7–8	7650–230,000
9–12	25,700–288,000
13–16	13,500–253,000
17–24	4060–65,500

Source: Frye, 2007.

Providing Treatment: Therapeutic Measures to Consider

- Expectant management
  - Pelvic rest, await spontaneous resolution to SAB
  - Bleeding can be significant
  - Clear parameters and reassurance
- Medical management: Methotrexate for ectopic pregnancy
- Surgical management: D & C or D & E
- Discussion of risk/benefits of each option
- Rh immune globulin for Rh-negative mother (see "Care of the Pregnant Woman Who Is Rh Negative")
- Iron replacement therapy for anemia (see "Care of the Pregnant Woman with Anemia")
- Misoprostol for incomplete SAB < 13 weeks' gestation
  - 600–800 mg PO or vaginally
  - Repeat dose if POC are not passed within 8–24 hours

Providing Treatment: Complementary and Alternative Measures to Consider

- For early pregnancy loss: Encourage expulsion of products of conception with blue or black cohosh tincture
- Herbal treatment for missed abortion (Romm, 2010)
  - Evening primrose oil capsules 1000 mg BID for 2 days
  - Tincture of cotton root, black cohosh, or blue cohosh
  - Take 2.5 mL every 4 hours; repeat daily up to 5 days
- Promote healing after SAB
  - Rescue remedy
  - Herbal combinations that may include the following herbs:
    - Red raspberry leaf
    - Vitex berries
    - Black haw root

- Bleeding during pregnancy with rising HCG levels (Frye, 1998)
  - Red raspberry leaf
  - False unicorn root
  - Wild yam root
  - Black haw

Providing Support: Education and Support Measures to Consider

- For threatened SAB: Provide emotional support
- Discuss the following topics:
  - Potential for miscarriage
  - Options for care
  - Expectant care
  - Tests available
  - Potential findings
  - RhIG for Rh-negative mother
- For SAB:
  - Pelvic rest
  - Avoid heavy lifting
  - Call if bleeding increases or is accompanied by pain
  - If awaiting spontaneous resolution of SAB at home, call or seek care immediately in the following circumstances:
    - Heavy bleeding with pain for more than 1 hour
    - Faintness or weakness
    - Adnexal pain
    - Fever
- After SAB:
  - Abstain from intercourse for 2 weeks
  - Bleeding may last 7–10 days
  - Discuss birth control if desired
- In case of incomplete SAB: Provide information on options for care
- For ectopic pregnancy, discuss the following options:
    - Surgical treatment
    - Medical treatment
- For bleeding of unknown etiology:
  - Reassurance that 50% of women with bleeding go on to have a healthy pregnancy
  - Warning signs given, with indications when to call the healthcare provider
  - Plan for follow-up
- Before next pregnancy:
  - Take a multivitamin with folic acid daily
  - Improve nutrition if indicated
  - Avoid cigarettes, drugs, and alcohol

Follow-up Care: Follow-up Measures to Consider

- Document
- ⚠ Rule out
  - Molar pregnancy
  - Choriocarcinoma
  - Ectopic pregnancy
  - Incomplete SAB
- Follow β-HCG levels
  - 48 to 96 hours in case of threatened SAB
  - Repeat every 3–5 days until either of the following occurs:
    - Clear regression
    - Appropriate increase
  - 4–6 weeks post-SAB
- Ultrasound follow-up
  - No intrauterine pregnancy (IUP) seen on ultrasound
    - Serial HCG levels
    - Continued positive or elevated HCG
      - ⚠ Suspect ectopic pregnancy
      - Repeat ultrasound in 2–7 days
  - Subchorionic bleeding on ultrasound
    - Follow-up ultrasound for anomalies
    - Follow β-HCG levels
- After SAB
  - Examination in 2–4 weeks
  - Evaluate return to nonpregnant state
  - Assess emotional status
  - Initiate birth control if desired

Multidisciplinary Practice: Consider Consultation, Collaboration, or Referral

- OB/GYN services
  - Ectopic pregnancy
  - No IUP seen on ultrasound

  - Molar pregnancy
  - Excessive bleeding
  - Dilatation and curettage as indicated or desired
  - Cervical lesion or suspected cervical cancer
- Genetic counseling for recurrent losses
- Other referrals as needed
  - Pathology or genetic evaluation of products of conception
  - Evaluation for problems that can lead to SAB
    - Maternal disease (e.g., lupus, *Listeria* infection, syphilis)
    - Congenital anomalies of the genital tract
    - Previous cervical surgery
    - Hormonal imbalances
    - Fibroids
- Social services
  - Mental health services
  - Grief counseling
- For diagnosis or treatment outside the midwife's scope of practice

CARE OF THE PREGNANT WOMAN WITH VAGINAL BLEEDING, SECOND AND THIRD TRIMESTERS

Key Clinical Information

When a woman presents with vaginal bleeding in the latter part of the second trimester or in the third trimester, evaluation and stabilization of the mother and fetus are the immediate goals. There are benign causes for spotting or bleeding in this time frame, such as postcoital or postexamination spotting, vaginal or cervical infection or inflammation, and labor with bloody show. However, the midwife must be vigilant for signs and symptoms of placenta previa and placental abruption. Bleeding is a frightening experience for the woman; the midwife's prompt attention and action are reassuring.

Client History and Chart Review: Components of the History to Consider

- Onset, duration, and severity of bleeding
  - Color, amount, and characteristics of discharge
  - Precipitating events, if any
  - Presence of contractions, abdominal pain, or no pain
  - Other associated symptoms
- Recent examination or intercourse
- Recent trauma or strain
- Gestational age: Location of placenta on prior ultrasound, if done
- Fetal activity
- Pregnancy and gynecologic history (Cunningham et al., 2010)
  - GP TPAL
  - Blood type and Rh
  - Risk factors for placenta previa
    - Multiparity
    - Maternal age > 35 years
    - Previous placenta previa
    - Previous uterine surgery, including cesarean section
    - Multiple pregnancy
    - Smoking
  - Risk factors for abruptio placentae
    - Maternal hypertensive disorders
    - Advanced maternal age or parity
    - Poor nutritional status
    - Previous abruptio placentae
    - Chorioamnionitis
    - Smoking
    - External cephalic version
    - Preterm rupture of membranes
    - Uterine leiomyoma
    - History of Factor V Leiden thrombophelia
    - Sudden decrease in uterine volume (e.g., with spontaneous or artificial rupture of membranes [SROM or AROM])
    - Blunt abdominal trauma
    - Cocaine use, especially crack cocaine

Physical Examination: Components of the Physical Exam to Consider

- Vital signs
- Pain rating or assessment
- FHR pattern

- Abdominal evaluation
  - Uterine enlargement
  - Uterine pain
  - Board-like abdomen
- ⚠ No vaginal examination until placenta location is known
- External genitalia evaluation
  - Trauma
  - Lesions
  - Varicosities, hemorrhoids
  - Blood or discharge at introitus
- Speculum examination if no placenta previa
  - Blood or discharge
    - From vaginal vault
    - From cervix
  - Visual cervical dilation
  - Presence of erosion, polyps, or other cervical cause of bleeding
- Bimanual examination if no placenta previa
  - Cervical dilation, effacement, and station
  - Presenting part
  - Status of membranes

Clinical Impression: Differential Diagnoses to Consider (ICD9Data.com, 2012)

- Abruptio placentae
- Placenta previa
- Early labor
- Premature labor
- Bleeding, secondary to the following conditions:
  - Postcoital spotting
  - Postexamination spotting
  - Trauma
  - Cervicitis
- STIs

Diagnostic Testing: Diagnostic Tests and Procedures to Consider

- Ultrasound evaluation for previa, abruption, and fetal status
- NST, BPP
- Type and Rh status
- CBC, hematocrit, and hemoglobin
- Type and cross-match
- Coagulation studies
  - Prothrombin time
  - Partial prothrombin time
  - Fibrinogen level
  - Platelets

Providing Treatment: Therapeutic Measures to Consider

- For benign spotting
  - Pelvic rest until spotting resolves
  - Treatment of underlying cause, if known (e.g., bacterial vaginosis)
  - Reassurance and review of danger signs
- For labor at term or preterm: See "Care of the Woman During Labor and Birth"
- 📞 For placenta previa
  - If bleeding stops and fetal response is reassuring:
    - May go home on bed rest
    - Strict pelvic rest, avoiding the following:
      - Intercourse, orgasm
      - Douching
      - Placement of anything in the vagina
    - Plan for cesarean section at term
    - Plan for emergency transport as needed
  - If bleeding continues and fetal response is nonreassuring:
    - Assemble surgical team and neonatal resuscitation team
    - Plan for emergency cesarean section
  - Marginal previa
    - Plan for vaginal birth if bleeding is minimal or stops and fetal response is reassuring
    - May cautiously support, induce, or augment labor with consultation
- 📞 For abruptio placentae
  - If bleeding is minimal or stops and fetal response is reassuring:
    - May cautiously support, induce or augment labor per consultant
    - Hospital birth with physician available

  - If bleeding is significant or continues and fetal response is nonreassuring:
    - Assemble surgical team and neonatal resuscitation team
    - Plan for emergency cesarean section
- Rh immune globulin for Rh-negative mother (see "Care of the Pregnant Woman Who Is Rh Negative")
- Iron replacement therapy for anemia (see "Care of the Pregnant Woman with Anemia")
- Fluid and blood replacement as indicated

Providing Treatment: Complementary and Alternative Measures to Consider

There are no alternative treatments for placenta previa or abruptio placentae.

Providing Support: Education and Support Measures to Consider

- Nonemergent bleeding
  - Provide support and reassurance
  - Review cause, treatment, and warning signs
  - Provide clear indications for when to call the healthcare provider
- During an emergency
  - Briefly explain the nature of the emergency
  - Keep the client and family apprised of what is happening
  - Provide emotional support
- After an emergency
  - Provide information about the emergency
  - Employ compassionate listening
- Education
  - Potential for recurrence in future pregnancies
  - Status and prognosis of the infant

Follow-up Care: Follow-up Measures to Consider

- Document
  - Findings, client response, and plan of care
  - Parameters for immediate care
- Rh immune globulin for Rh-negative mother
- Iron replacement therapy for anemia
- Postpartum
  - Examination in 1–4 weeks
  - Evaluate return to nonpregnant state
  - Assess emotional status
  - Initiate birth control if desired

Multidisciplinary Practice: Consider Consultation, Collaboration, or Referral

- OB/GYN services
  - Placenta previa
  - Abruptio placentae
- For diagnosis or treatment outside the midwife's scope of practice

WEB RESOURCES FOR CLINICIANS

RESOURCE	URL
Patient Information	
Dietary sources of iron and of vitamin C (CDC)	http://www.cdc.gov/nutrition/everyone/basics/vitamins/iron.html
"What Do I Need to Know About Gestational Diabetes" (National Diabetes Clearing House, 2006)	http://diabetes.niddk.nih.gov/dm/pubs/gestational/
"A Patient's Guide to Managing Gestational Diabetes" (NIH, 2004)	http://www.nichd.nih.gov/publications/pubs/upload/Managing_Gestational_Diabetes_rev.pdf
Clinician Information	

Female genital mutilation (World Health Organization, 2011)	http://www.who.int/mediacentre/factsheets/fs241/en/
Recommendations for antiretroviral therapy in pregnancy (NIH, 2011).	http://aidsinfo.nih.gov/contentfiles/PerinatalGL.pdf
March of Dimes	http://www.marchofdimes.com/professionals/patients.html

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