UNIT IV

Nursing Assessment of Special Groups

29 Assessing Childbearing Women

Structure and Function

The body experiences physiologic and anatomic changes during pregnancy. Most of these changes are influenced by the hormones of pregnancy, primarily estrogen and progesterone. Normal physiologic and anatomic changes during pregnancy are discussed in this chapter.

SKIN, HAIR, AND NAILS

During pregnancy, integumentary system changes occur primarily because of hormonal influences. Many of these skin, hair, and nail changes fade or completely resolve after the end of the gestation. As the pregnancy progresses, the breasts and abdomen enlarge and striae gravidarum, or stretch marks—pinkish-red streaks with slight depressions in the skin—begin to appear over the abdomen, breasts, thighs, and buttocks. These marks usually fade to a white or silvery color, but they typically never completely resolve after the pregnancy.

Hyperpigmentation also results from hormonal influences (e.g., estrogen, progesterone, and melanocyte-stimulating hormone). It is most noted on the abdomen (linea nigra, a dark line extending from the umbilicus to the mons pubis) and face (chloasma, a darkening of the skin on the face, known as the facial "mask of pregnancy"). Some women who take oral contraceptives may also have chloasma because of the hormones in the medication.

Other skin changes during pregnancy include darkening of the areolae and nipples, axillae, umbilicus, and perineum. Scars and moles may also darken from the influence of melanocyte-stimulating hormone. Vascular changes, such as spider nevi (tiny red angiomas occurring on the face, neck, chest, arms, and legs), may occur because of elevated estrogen levels. Palmar erythema (a pinkish color on the palms of the hands) may also be noted. Pruritic urticarial papules and plaques of pregnancy (PUPPP) is a skin disorder seen during the third trimester of pregnancy, characterized by erythematous papules, plaques and urticarial lesions. The rash begins on the abdomen and may soon spread to the thighs, buttocks and arms. The intense itching and rash usually resolve within weeks of delivery. Acne vulgaris is an unpredictable response during pregnancy. Acne may worsen or improve. It consists of erythema, pustules, comedones, and/or cysts that appear on the face, back, neck, or chest. The activity of the eccrine sweat glands and the excretion rate of sebum onto the skin increase in normal pregnancy, whereas the activity of the apocrine sweat glands appears to decrease. The changes that occur in the endocrine system help to maintain optimal maternal and fetal health. Estrogen is primarily responsible for the changes that occur to the pituitary, thyroid, parathyroid, and adrenal glands. The increased production of the hormones, especially triiodothyronine (T_3) and thyroxine (T_4), increases the basal metabolic rate, cardiac output, vasodilation, heart rate, and heat intolerance. The basal metabolic rate increases up to 30% in a term pregnancy.

Growth of hair and nails also tends to increase during pregnancy. Some women note excessive oiliness or dryness of the scalp and a softening and thinning of the nails by the 6th week of gestation. Pregnancy hormones increase the growing phases of the hair follicle and decrease the resting phase of the hair follicle. During the postpartum period, hormone withdrawal increases the resting phase of the hair follicle and transient hair loss is noticed and commonly peaks at 3 to 4 months postpartum. This loss is normally resolved within 9 months to 1 year of delivery.

Hirsutism of the face, abdomen and back may also be experienced during the second and third trimesters of pregnancy. Hormonal changes (androgens) cause this hair growth, which may improve after delivery.

EARS AND HEARING

Pregnant women may report a decrease in hearing, a sense of fullness in the ears, or earaches because of the increased vascularity of the tympanic membrane and blockage of the eustachian tubes.

MOUTH, THROAT, NOSE, AND SINUS

Some women may note changes in their gums during pregnancy. Gingival bleeding when brushing the teeth and hypertrophy are common. Occasionally epulis, which are small, irritating nodules of the gums, develop. These nodules usually resolve on their own. Occasionally the lesion may need to be surgically excised if the nodule bleeds excessively.

Vocal changes may be noted because of the edema of the larynx. Nasal "stuffiness" and epistaxis are also common during pregnancy because of the estrogen-induced edema and vascular congestion of the nasal mucosa and sinuses.

THORAX AND LUNGS

As the pregnancy progresses, progesterone influences the relaxation of the ligaments and joints. This relaxation allows the rib cage to flare, thus increasing the anteroposterior and transverse diameters. This accommodation is necessary as the pregnancy progresses and the enlarging uterus pushes up on the diaphragm. The client's respiratory pattern changes from abdominal to costal. Shortness of breath is a common complaint during the last trimester. The client may be more aware of her breathing pattern and of deep respirations and more frequent sighing. Oxygen requirements increase during pregnancy because of the additional cellular growth of the body and the fetus. Pulmonary requirements increase, with the tidal volume increasing by 30% to 40%. All of these changes are normal and are to be expected during the last trimester.

BREASTS

Soon after conception, the surge of estrogen and progesterone begins, causing notable changes in the mammary glands (Fig. 29-1). Breast changes noted by many women include

- Tingling sensations and tenderness
- Enlargement of breast and nipple
- Hyperpigmentation of areola and nipple
- Enlargement of Montgomery tubercles
- Prominence of superficial veins
- Development of striae
- Expression of colostrum in the second and third trimester

HEART

Significant cardiovascular changes occur during pregnancy. One of the most dynamic changes is the increase in cardiac output and maternal blood volume by approximately 40% to 50%. Because the heart is required to pump much harder, it actually increases in size. Its position is rotated up and to the left approximately 1 to 1.5 cm. The heart rate may increase by 10 to 15 beats/min and systolic murmurs may be heard.

PERIPHERAL VASCULAR SYSTEM

With the dynamic increase in maternal blood volume, a physiologic anemia (pseudoanemia) commonly develops. This anemia results primarily from the disproportionate increase in blood volume compared to the increased red blood cell (RBC) production. Plasma volume increases 40% to 50% and RBC volume increases 18% to 30% by 30 to 34 weeks' gestation.

As the plasma blood volume increases, the blood vessels must accommodate for this volume, so progesterone acts on the

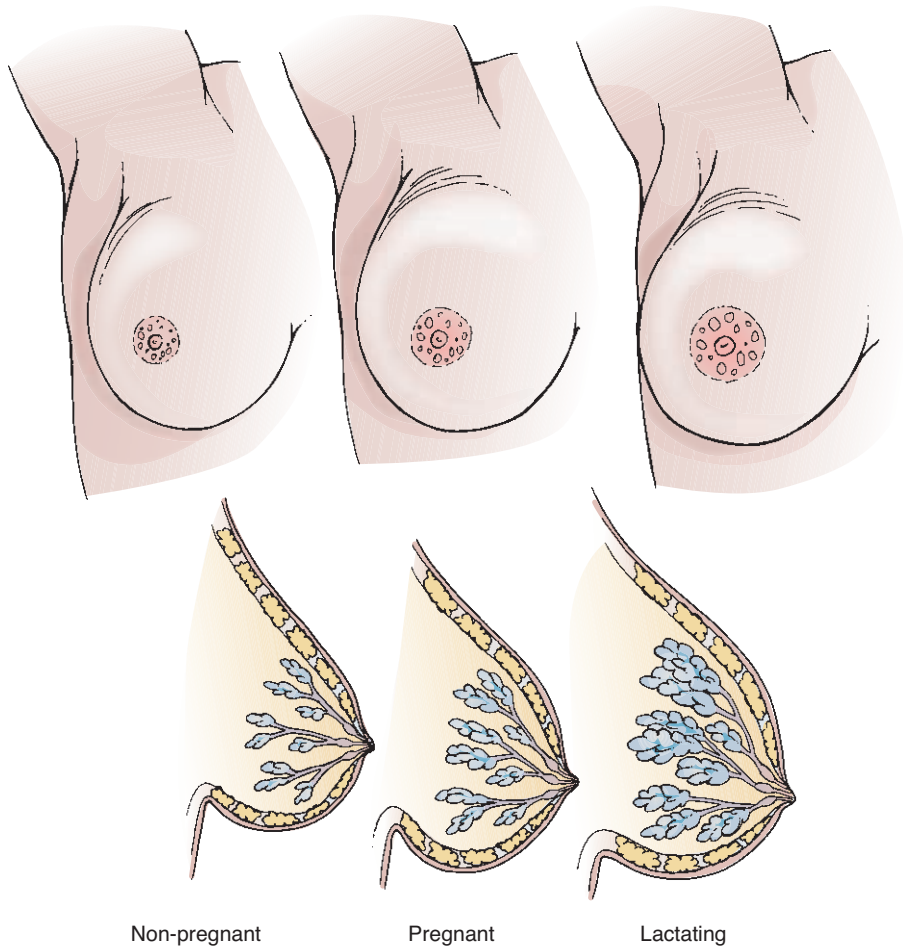

Figure 29-1 Breast changes during pregnancy.

vessels to make them relax and dilate. Clients often complain of feeling dizzy and lightheaded beginning with the second trimester. These effects peak at approximately 32 to 34 weeks. As the pregnancy progresses, the arterial blood pressure stabilizes and symptoms begin to resolve. Prepregnant values return in the third trimester.

Other changes that occur during pregnancy include dependent edema and varicosities. Two-thirds of all pregnant women have swelling of the lower extremities in the third trimester. Swelling is usually noted late in the day after standing for long periods. Fluid retention is caused by the increased hormones of pregnancy, increased hydrophilicity of the intracellular connective tissue, and the increased venous pressure in the lower extremities. As the expanding uterus applies pressure on the femoral venous area, femoral venous pressure increases. This uterine pressure restricts the venous blood flow return, causing stagnation of the blood in the lower extremities and resulting in dependent edema. Varicose veins in the lower extremities, vulva, and rectum are also common during pregnancy. Pregnant women are also more prone to development of thrombophlebitis because of the hypercoagulable state of pregnancy. Women who are placed on bedrest during pregnancy are at a very high risk for development of thrombophlebitis.

ABDOMEN

During pregnancy, the abdominal muscles stretch as the uterus enlarges. These muscles, known as the rectus abdominis muscles, may stretch to the point that permanent separation occurs. This condition is known as *diastasis recti abdominis*. Four paired ligaments (broad ligaments, uterosacral ligaments, cardinal ligaments, round ligaments) support the uterus and keep it in position in the pelvic cavity (Fig. 29-2). As the uterus enlarges, the client may complain of lower pelvic discomfort, which quite commonly results from stretching the ligaments, especially the round ligaments.

In the abdomen, the expanding uterus exerts pressure on the bladder, kidney, and ureters (especially on the right side), predisposing the client to kidney infection. Urinary frequency is a common complaint in the first and third trimesters. The applied pressure on the kidneys and ureters causes decreased flow and stagnation of the urine. As a result, physiologic hydronephrosis and hydroureter occur. During the second trimester, bladder pressure subsides and urinary frequency is relieved by the uterus enlarging and being lifted out of the pelvic area.

The enlarging uterus also applies pressure and displaces the small intestine. This pressure along with the secretion of progesterone decreases gastric motility. Gastric tone is decreased and the smooth muscles relax, decreasing emptying time of the stomach. Constipation results from these physiologic events. Heartburn, which may also result, may also be related to the decreased gastrointestinal motility and displacement of the stomach. This causes reflux of stomach acid into the esophagus. Progesterone secretion also relaxes the smooth muscles of the gallbladder; as a result, gallstone formation may occur because of the prolonged emptying time of the gallbladder.

Other gastrointestinal symptoms include ptyalism and pica. Ptyalism, excessive salivation may occur in the first trimester. Pica, a craving for or ingestion of non-nutritional substances such as dirt or clay, is seen in all socioeconomic classes and cultures. Pica can be a major concern if the craving interferes with proper nutrition during pregnancy.

Carbohydrate metabolism is also altered during pregnancy. Glucose use increases, leading to decreased maternal glucose levels. The rise in serum levels of estrogen, progesterone, and

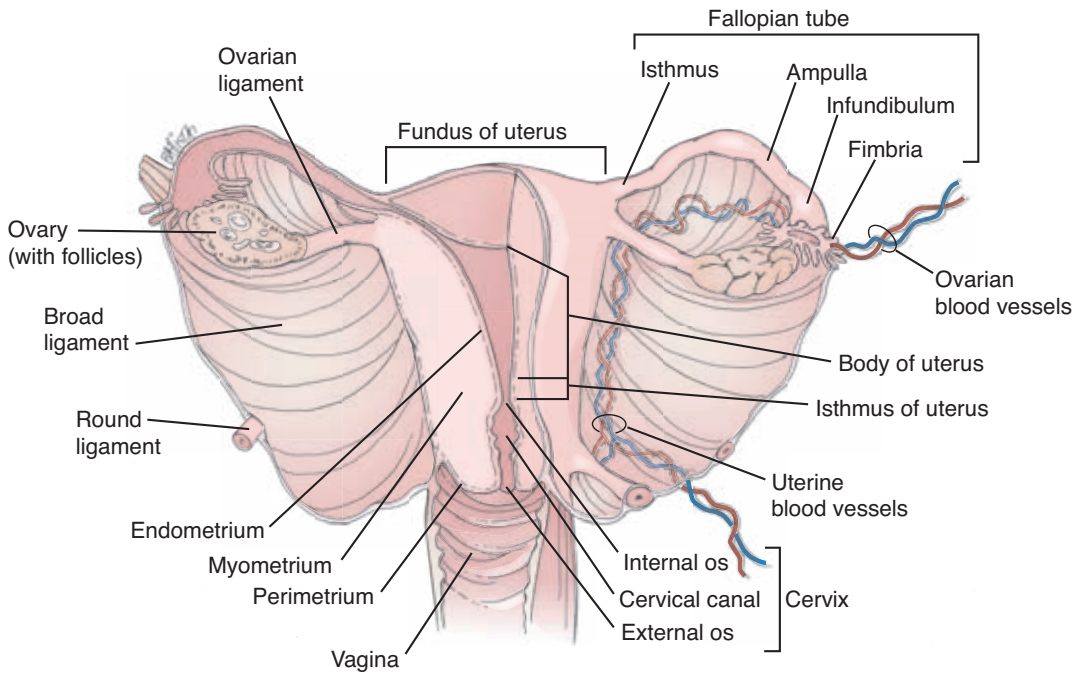

Figure 29-2 Anterior cross-section of the female reproductive structures.

other hormones stimulates beta-cell hypertrophy and hyperplasia, and insulin secretion increases. Glycogen is stored, and gluconeogenesis is reduced. In addition, the mother's body tissues develop an increased sensitivity to insulin, thus decreasing the mother's need. As a result, maternal hypoglycemia leads to hypoinsulinemia and increased rates of ketosis. Some well-controlled insulin-dependent diabetic clients have frequent episodes of hypoglycemia in the first trimester. This buildup of insulin ensures an adequate supply of glucose, because the glucose is preferentially shunted to the fetus.

In contrast during the second half of pregnancy, tissue sensitivity to insulin progressively decreases, producing hyperglycemia and hyperinsulinemia. Insulin resistance becomes maximal in the latter half of the pregnancy.

GENITALIA

Before conception, the uterus is a small, pear-shaped organ that weighs approximately 44 g. Its cavity can hold approximately 10 mL of fluid. Pregnancy changes this organ, giving it the capacity of weighing approximately 1,000 g and potentially holding approximately 5 L of amniotic fluid. This dynamic change is mainly due to the hypertrophy of preexisting myometrial cells and the hyperplasia of new cells. Estrogen and the growing fetus are primarily responsible for this growth. Once conception occurs, the uterus prepares itself for the pregnancy: ovulation ceases, the uterine endometrium thickens, and the number and size of uterine blood vessels increase.

With fetal growth, the uterus continues to expand throughout the pregnancy. At approximately 10 to 12 weeks' gestation, the uterus should be palpated at the top of the symphysis pubis. At 16 weeks' gestation, the top of the uterus, known as the fundus, should reach halfway between the symphysis pubis and the umbilicus. At 20 weeks' gestation, the fundus should be at the level of the umbilicus. For the rest of the pregnancy, the uterus grows approximately 1 cm/week, so the fundal height should equal the number of weeks pregnant (e.g., at 25 weeks' gestation, the fundal height should measure 25 cm). This formula is known as McDonald's rule. It can be calculated by taking the fundal height in centimeters and multiplying it by 8/7. With a full-term pregnancy, the fundus should reach the xiphoid process. The fundal height measurement may drop the last few weeks of the pregnancy if the fetal head is engaged and descended in the maternal pelvis. This occurrence is known as *lightening*.

Near term gestation, the uterine wall begins thinning out to approximately 5 mm or less. Fetal parts are easily palpated on the external abdomen in the term pregnancy. Braxton Hicks contractions (painless, irregular contractions of the uterus) may occur sporadically in the third trimester. These contractions are normal as long as no cervical change is noted.

Normal changes in the cervix, vagina, and vulva also occur during pregnancy. Cervical softening (Goodell's sign), bluish discoloration (Chadwick's sign), and hypertrophy of the glands in the cervical canal all occur. With these glands secreting more mucus, there is an increase in vaginal discharge, which is acidic. The mucus collects in the cervix to form the mucous plug. This plug seals the endocervical canal and prevents bacteria from ascending into the uterus, thus preventing infection. The vaginal smooth muscle and connective tissue soften and expand to prepare for the passage of the fetus through the birth canal.

ANUS AND RECTUM

Constipation is a common problem during pregnancy. Progesterone decreases intestinal motility, allowing more time for nutrients to be absorbed for the mother and fetus. This also increases the absorption time for water into the circulation, taking fluid from the large intestine and contributing to hardening of the stool and decreasing the frequency of bowel movements. Iron supplementation can also contribute to constipation for those women who take additional iron. As a result, hemorrhoids (varicose veins in the rectum) may develop because of the pressure on the venous structures from straining to have a bowel movement. Vascular congestion of the pelvis also contributes to hemorrhoid development.

MUSCULOSKELETAL SYSTEM

Anatomic changes of the musculoskeletal system during pregnancy result from fetal growth, hormonal influences, and maternal weight gain. As the pregnancy progresses, uterine growth pulls the pelvis forward, which causes the spine to curve forward, creating a gradual lordosis (Fig. 29-3). The enlarging breasts influence the shoulders to droop forward. The pregnant client typically finds herself pulling her shoulders back and straightening her head and neck to accommodate for this weight. Progesterone and relaxin (nonsteroidal hormone) influence the pelvic joints and ligaments to relax. The symphysis pubis, sacroiliac and sacrococcygeal joints become more flexible during pregnancy. This flexibility allows the pelvic outlet diameter to increase slightly, which reduces the risk of trauma during childbirth. After the postpartum period, the pelvic diameter will generally remain larger than the size before childbirth.

The relaxin hormone contributes to changing the client's gait during pregnancy. The pregnant woman's gait is often described as "waddling." Gait changes are also attributed to weight gain of the uterus, fetus, and breasts. At approximately 24 weeks gestation, the woman's center of gravity and stance change, causing the woman to lean back slightly to balance herself. Backaches are common during pregnancy. Along with these changes, the woman may also see an increase in shoe size, especially in width.

NEUROLOGIC SYSTEM

Most neurologic changes that occur during pregnancy are discomforting to the client. Common neurologic complaints include

- Pain or tingling feeling in the thigh: Caused by pressure on the lateral femoral cutaneous nerve
- Carpal tunnel syndrome: Pressure on the median nerve below the carpal ligament of the wrist causes a tingling sensation in the hand. Because fluid retention occurs during pregnancy, swollen tissues compress the median nerve in the wrist and produce the tingling sensations. Pain can be reproduced by performing Tinel's sign and Phalen's test. Up and down movement of the wrist aggravates this condition.
- Leg cramps: Caused by inadequate calcium intake
- Dizziness and lightheadedness: In early pregnancy, the client may experience dizziness because of the blood

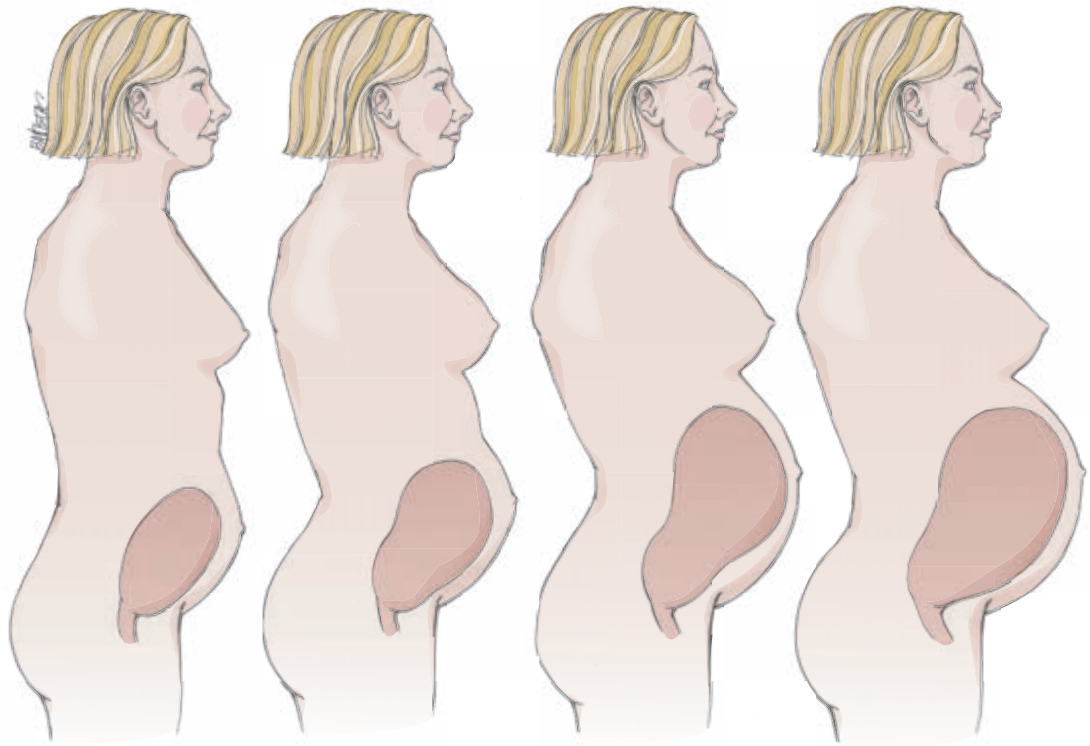

Figure 29-3 (A) Postural changes during pregnancy; (B) Lordosis in pregnant patient.

pressure slightly decreasing as a result of vasodilation and decreased vascular resistance. In later pregnancy, the client in the supine position may experience dizziness caused by the heavy uterus compressing the vena cava and aorta. This compression reduces cardiac return, cardiac output, and blood pressure. This is known as *supine hypotensive syndrome.*

Health Assessment

COLLECTING SUBJECTIVE DATA: THE NURSING HEALTH HISTORY

A complete health history is necessary to provide high-quality care for the pregnant client. If the examiner does not have access to a recent complete health history for the pregnant client, a complete health history should be performed before focusing on particular questions associated with the pregnancy, which are discussed in this section. The first prenatal visit focuses on collection of baseline data about the client and her partner and identification of risk factors.

Biographical Data

Biographical data should be included in the health history. This information may include the patient's name, birth date, address and phone number. Obtaining the patient's educational level, occupation and work status helps the staff to speak to the patient at the appropriate level for understanding. The health history should also include the patient's significant other with phone number and contact information in case of emergency.

(text continues on page 623)

HISTORY OF PRESENT HEALTH CONCERN/CURRENT HEALTH STATUS

Question	Rationale
What was your normal weight before pregnancy? Has your weight changed since a year ago?	Optimal weight gain during pregnancy depends on the client's height and weight. Recommended weight gain in pregnancy is as follows: Underweight client, 28 to 40 lb; normal weight client, 25 to 35 lb; overweight client, 15 to 25 lb; twin gestation, 35 to 45 lb (American College of Obstetricians and Gynecologists [ACOG], 2001). Low pregnant weight and inadequate weight gain during pregnancy contribute to intrauterine growth retardation and low birth weight. Figure 29-4 shows typical distribution of weight gain in pregnancy.
Is your nose often stuffed up when you don't have a cold? Have you had a fever or chills, except with a cold, since your last menstrual period?	Fetal exposure to viral illnesses has been associated with intrauterine growth retardation, developmental delay, hearing impairment, and mental retardation.
Do you have any trouble with your throat? Do you have a cough that hasn't gone away or do you have frequent chest infections?	Persistent cough and frequent chest infections may indicate pneumonia or tuberculosis.
Do you have nausea or vomiting that doesn't go away? Is your thirst greater than normal?	If proper hydration is not maintained, the client may be at risk for hyperemesis gravidarum, cholecystitis, or cholelithiasis.

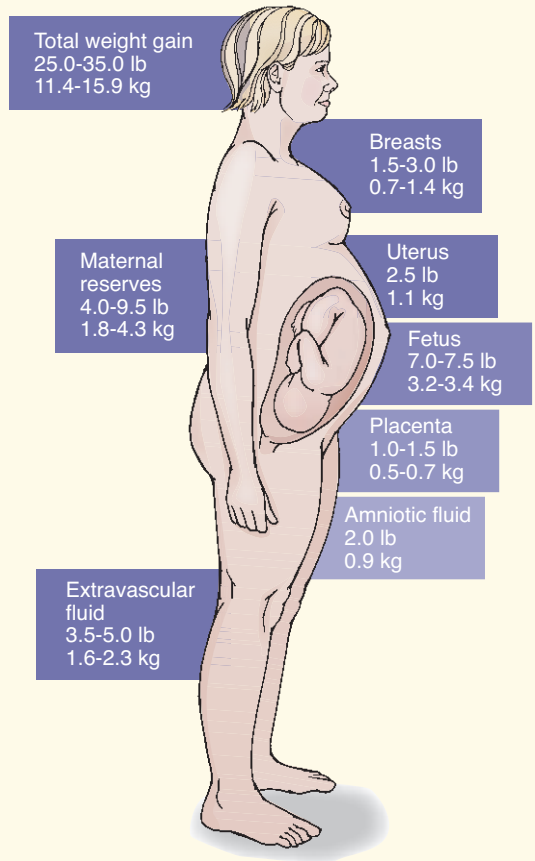

Figure 29-4 Distribution of weight gain during pregnancy.

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HISTORY OF PRESENT HEALTH CONCERN/CURRENT HEALTH STATUS *Continued*

Question	Rationale
Do you ever have bloody stools? Do you have diarrhea or difficulty when trying to have a bowel movement?	Changes in stool appearance and bowel habits may indicate constipation or hemorrhoids.
Do you experience a burning sensation while urinating?	Pregnant women may have asymptomatic bacteriuria. Urinary tract infections (UTIs) need to be diagnosed and treated with antibiotics. Untreated UTIs predispose the client to complications such as preterm labor, pyelonephritis, and sepsis.
Do you have vaginal bleeding, leakage of fluid, or vaginal discharge?	Vaginal bleeding, leakage, or discharge may indicate placenta previa, membrane rupture, or vaginal infections (e.g., bacterial vaginosis, trichomoniasis, *Chlamydia*). Untreated infections can predispose the client to preterm labor or fetal infections.
Have you lost interest in eating? Do you have trouble falling asleep or staying asleep? Do you ever feel depressed or like crying for no reason? Are problems at home or work bothering you? Have you ever thought of suicide? Have you ever had professional counseling (psychiatric/psychological)?	These symptoms may indicate psychological disorders. If the client has a history of psychological disorders, be aware of these and continually monitor her for signs and symptoms. Collaboration with a psychologist or psychiatrist may be needed. If the client is on medications prescribed for psychological problems, evaluate the medications in light of their possible teratogenic effects on the fetus.
Have you noticed breast pain, lumps, or fluid leakage?	Breast pain, lumps, or fluid leakage may indicate breast disease. Colostrum secretion, however, is normal during pregnancy. Colostrum varies in color among individuals. Erythematous, painful breasts may indicate a bacterial infection.
Have you thought about breast-feeding or bottle-feeding your infant?	Discuss advantages of breast-feeding for the client and infant. Supply educational resources for the client. Be supportive of the feeding method chosen by the client.
Are there any problems or concerns you may have that we haven't discussed yet?	This question gives the client an opportunity to discuss any other concerns she may have.

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COLDSPA Example

Use the **COLDSPA** mnemonic as a guideline to collect needed information for each symptom the client shares. In addition, the following questions help elicit important information.

Mnemonic	*Question*	*Client Response Example*
Character	Describe the sign or symptom (feeling, appearance, sound, smell, or taste if applicable).	"nausea; occasional small amounts of vomiting with some dry heaves"
Onset	When did it begin?	"One week ago"
Location	Where is it? Does it radiate? Does it occur anywhere else?	n/a
Duration	How long does it last? Does it recur?	"Usually all morning and seems to subside by lunch time"
Severity	How bad is it? or How much does it bother you?	"I can't eat breakfast in the morning"
Pattern	What makes it better or worse?	"Some odors like bay leaf sausage cooking makes me more nauseated"
Associated factors/How it **A**ffects the client	What other symptoms occur with it? How does it affect you?	"Some vomiting and belching and dry heaves. It is hard for me to concentrate at work."

PAST HEALTH HISTORY

Question	Rationale
List the number of times you have been pregnant, beginning with the first pregnancy.	Determine patient's gravida/para status. • Gravida—total number of pregnancies • Para—number of pregnancies that have delivered at 20 weeks gestation or greater ○ **Term Gestation**—delivery of pregnancy 38–42 weeks ○ **Preterm Gestation**—delivery of pregnancy after 20 weeks and before the start of 38 weeks gestation ○ **Abortion**—termination of pregnancy (miscarriage) prior to the 20th week of gestation ○ **Living**—number of living children Example: $G_{\#}P_{T\ Pt\ Ab\ L}$ $G_{4}P_{2\ 1\ 1\ 3}$ This represents a patient who has been pregnant 4 times; 2 term deliveries, 1 preterm delivery, 1 miscarriage, and 3 children living.
Describe your previous pregnancies including child's name, birth date, birth weight, sex, gestational age, type of delivery (if cesarean section, discuss reason). Did you experience any complications (e.g., pregnancy-induced hypertension, diabetes, bleeding, depression) during any of these pregnancies?	History of previous pregnancies helps identify clients at risk for complications during current pregnancy (e.g., preterm labor, gestational diabetes).
Describe any neonatal complications such as birth defects, jaundice, infection, or any problems within the first 2 weeks of life. Describe any perinatal or neonatal losses, including when the loss occurred and the reason for the loss, if known.	Previous neonatal complications may be hereditary and may recur in future births. Knowledge of such complications helps in detecting abnormalities early.
Discuss previous abortions (elective or spontaneous) including procedures required and gestational age of fetus.	Previous history of abortions helps to identify women who have had habitual abortions and who may need medical treatment to maintain the pregnancy.
Have you ever had a hydatidiform mole (molar pregnancy)?	Molar pregnancies occur in 1 of every 1,000 pregnancies in the United States and Europe. Incidence increases with the woman's age and particularly after age 45. Recurrence of the hydatidiform mole is seen in approximately 1%–2% of cases. Due to prompt diagnosis, mortality rates have been reduced to practically zero. Nearly 20% of complete moles progress to gestational trophoblastic tumor (Cunningham et al., 2005).
Have you ever had a tubal (ectopic) pregnancy (pregnancy outside of the uterus)?	Ectopic pregnancy occurs in 1 in every 100 pregnancies in the United States. A history of previous ectopic pregnancy increases the risk of having a second ectopic pregnancy to between 7% and 15% (Cunningham et al., 2005).
Do you have regular periods? When was the first day of your last menstrual period (LMP)? Was this period longer, shorter, or normal? Have you had any bleeding or spotting since your last period? Are your periods usually regular or irregular?	Menstrual history helps to determine expected date of confinement (EDC).
Describe the most recent form of birth control used. If you've used birth control pills in the past, when did you take the last pill?	Intrauterine devices in place at the time of conception place the client at risk for an ectopic pregnancy. Birth control pills should be discontinued when pregnancy is confirmed.

continued

PAST HEALTH HISTORY *Continued*

Question	Rationale
Have you had any difficulty in getting pregnant for more than 1 year?	Inability to conceive after trying for more than 1 year may signal reproductive complications such as infertility.
Have you ever had any type of reproductive surgery? Have you ever had an abnormal Pap smear? Have you ever had any treatment performed on your cervix for abnormal Pap smear results? When was your last Pap test, and what were the results?	Reproductive surgery and instrumentation to the cervix place the client at risk for complications during pregnancy. Conization of the cervix places the client at risk for an incompetent cervix during pregnancy.
Do you have a history of having any type of sexually transmitted infections (STIs) such as a chlamydial infection, gonorrhea, herpes, genital warts, or syphilis? If so, describe when it occurred and the treatment. Does your partner have a history of STI? If so, when was he treated?	Early identification and treatment of STIs prevent intrauterine complications from long-term exposure to infections.
Do you have a history of any vaginal infections such as bacterial vaginosis, yeast infection, or others? If so, when did the last infection occur and what was the treatment?	Vaginal infections need treatment. During pregnancy, nonteratogenic medications, such as clindamycin (Cleocin 2%) intravaginal cream or oral tablets, may be recommended. Metronidazole may be used in the second or third trimester (ACOG, 1996).
Do you know your blood type and Rh factor? If you are Rh negative, do you know the Rh factor of your partner?	Rh-negative mothers should receive Rho immune globulin at 28 weeks' gestation and with antepartum testing (chorionic villi sampling, amniocentesis) if the partners blood type is unknown to prevent isoimmunization.
Have you ever received a blood transfusion for any reason? If so, explain reason and provide date.	Infections (hepatitis, human immunodeficiency virus [HIV]) and antibodies can be received from contaminated blood during blood transfusions, which can be detrimental to the mother and fetus. Foreign antibodies can be life threatening for the fetus. Positive antibody screens need to be followed up to identify the antibody detected in the blood. Besides Rh antibody, other antibodies include Kell, Duffy, and Lewis. Titers should be followed to prevent fetal complications.
Do you have a history of any major medical problem (e.g., heart trouble, rheumatic fever, hypertension, diabetes, lung problems, tuberculosis, asthma, trouble with nerves and/or depression, kidney disease, cancer, convulsions or epilepsy, abnormality of female organs [uterus, cervix], thyroid problems, or hearing loss in infancy)?	Identification of any medical problem is important during pregnancy because the body undergoes so many physiologic changes. Certain medical conditions put the mother at high risk for maternal or fetal complications.
Do you have diabetes?	The fetus of diabetic clients who have uncontrolled disease and high $HgbA_{1c}$ values at the time of conception have a 6% to 8% incidence of anomalies and increased risk of spontaneous abortion.
Have you had twins or multiple gestation?	Early identification of multiple gestation is important. Refer clients with multiple gestation to an obstetrician for continued care. Multiple gestation places the client in the "high risk" category during pregnancy.
Do you have a history of medication, food, or other allergies? If so, list the allergies and describe the reactions.	Identification of medication allergies is necessary to prevent complications.
Have you ever been hospitalized or had surgery (not including hospitalizations or surgery related to pregnancy)? If so, discuss the reason for the hospitalization or surgery, the date, and if the problem is resolved today.	Previous hospitalizations or surgeries must be noted to assess for potential medical complications during the pregnancy.

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PAST HEALTH HISTORY *Continued*

Question	Rationale
Are you currently taking any medications (either prescription or nonprescription) or have you taken any since you have become pregnant? If so, list the medication, the amount taken, the date you started taking it, and the reason for taking it.	Some medications are teratogenic to the fetus during pregnancy. All medications taken since the LMP need to be discussed with the practitioner.
Are your immunizations up to date? Have you received the influenza immunization this year?	Assessment for immunity for rubella and hepatitis B is performed at the initial OB visit along with the other prenatal labs. CDC recommends influenza vaccination for women who are pregnant during the influenza season (Lugo, 2008).
Genetic Information Will you be 35 years or older at the time the baby is born? Are you and the baby's father related to each other (e.g., cousins or other relations)?	Women who are age 35 or older at the time of delivery should be offered genetic counseling and testing. Obtain genetic information so you can assess fetal risk of abnormal karyotype or genetic disorders.
Have you had two or more pregnancies that ended in miscarriage?	A woman who has had habitual abortions needs medical evaluation for incompetent cervix, systemic lupus erythematosus, and other potential complications.
Have you ever had a child that died around the time of delivery or in the first year of life?	Death of a child in the first year of life may indicate a risk for fetal cardiac disease or other diseases. This information is necessary for assessing fetal risk for birth defects.
Do you have a child with a birth defect? Do you have any type of birth defect or inherited disease such as cleft lip or cleft palate, clubfoot, hemophilia, mental retardation, or any others? Are there any members in your family with a birth defect? What is your ethnic or racial group: Jewish, Black/African, Asian, Mediterranean (e.g., Greek, Italian), French Canadian?	Certain inherited disorders occur more often in particular ethnic groups such as Tay-Sachs disease in the Ashkenazi Jewish population.

FAMILY HISTORY

Question	Rationale
Has anyone in your family (grandparents, parents, siblings, children) had rheumatic fever or heart trouble before age 50 years?	Cardiovascular disease or heart defects may be inherited.
Has anyone in your family had lung problems, diabetes, tuberculosis, or asthma?	Pulmonary or endocrine disorders may be familial.
Has anyone in your family been diagnosed with any type of cancer? If so, what kind?	There is a genetic component associated with certain types of cancer.
Has anyone in your family been born with any birth defects, inherited diseases, blood disorders, mental retardation, or any other problems?	There is a genetic risk factor for Down's syndrome, spina bifida, brain defects, chromosome problems, anencephaly, heart defects, muscular dystrophy, cystic fibrosis, hemophilia, thalassemia, and other inherited diseases. Cystic fibrosis screening should be offered to all patients during preconceptual counseling.
For the African-American client: Is there a history of sickle cell disease?	Identification of signs and symptoms of sickle cell disease is important to assist in early interventions and treatment.

continued

LIFESTYLE AND HEALTH PRACTICES

Question	Rationale
Since the start of this pregnancy, have you had drinks containing alcohol almost each day or frequently?	Daily alcohol intake puts the fetus at risk for fetal alcohol syndrome.
Do you smoke? If so, how much do you smoke per day?	Maternal cigarette smoking correlates with an increased incidence of perinatal mortality, preterm delivery, premature rupture of membranes, abruptio placentae, stillbirth, and bleeding during pregnancy (Niebyl et al., 2001). Smoking is also associated with decreased fetal size, low birth weight, attention deficit hyperactivity disorder (ADHD), and behavioral and learning disorders in school (Cunningham, 2005). Women who quit smoking during the 9-month gestation quit smoking for the health of themselves and for the fetus. These women may also have a lower relapse rate of smoking again when compared to women who are not pregnant (ACOG, 1997).
Have you used cocaine, marijuana, speed, or any street drug during this pregnancy?	Women who use cocaine during pregnancy have a higher rate of spontaneous abortions and abruptio placentae. Infants exposed to these drugs in utero are shown to have poor organizational response to stimuli compared with a control group (ACOG, 2004).
Does anyone in your family consider your social habits to be a problem? Do your social habits interfere with your daily living? If so, please explain.	Women who abuse substances (e.g., alcohol, cocaine, marijuana) do not always consider their habits to be a problem. They also tend to underestimate the amount of substances used. Family members or friends may give a truer estimate of the substances abused. These habits need to be known to assist the client during pregnancy and to alert neonatal personnel after delivery to prepare for potential neonatal complications.
What is a normal daily intake of food for you? Are you on any special diet? Do you have any diet intolerances or restrictions? If so, what are they?	Maternal nutrition has a direct relationship to maternal—fetal well-being. Daily maternal caloric intake, as reflected by weight gain, has a direct relationship to birth weight. The caloric content required to supply daily energy needs and to achieve appropriate weight gain can be estimated by multiplying the client's optimal body weight (in kilograms) by 35 kcal and adding 300 kcal to the total.
Do you eat lunch meats and milk products?	Unpasteurized milk products and deli meats should be avoided or cooked well. Undercooked meats and unpasteurized milk products can cause an infection called listeriosis. Maternal infection can cause fetal infection and mortality may approach 50%. Listeria can cause neonatal sepsis or meningitis (Creasy & Resnick, 2004).
Do you currently take any vitamin supplements? If so, what are they?	The client's balanced diet should provide an appropriate supply of vitamins required for pregnancy. Routine multivitamin supplementation for clients is based solely on a needs assessment. The diet selection should be from protein-rich foods, whole-grain breads and cereals, dairy products, and fruits and vegetables. Of the minerals, only iron supplementation is recommended to maintain body stores and minimize the occurrence of iron deficiency anemia. All women of childbearing age are recommended to consume 400 μg of folic acid daily to help prevent neural tube defects in the fetus. This can be achieved by eating fruits, vegetables, and fortified cereals and/or a folic acid supplement. Women who have previously had newborns born

continued on page 622

LIFESTYLE AND HEALTH PRACTICES *Continued*

Question	Rationale
	with spinal cord defects can decrease the risk of neural tube defects in future pregnancies by supplementing the diet with folic acid 2 to 3 months prior to conceiving.
Activity and Exercise Do you exercise daily? If so, what do you do and for how long?	Daily exercise is highly recommended as long as it is tolerated well by the pregnant client. Women who are in good physical condition tend to have shorter, less difficult labors compared with women who are not physically fit.
Do you perform any type of heavy labor working? If so, please describe.	Pregnancy places a tremendous amount of stress on the body due to the physiologic changes that occur. Encourage rest periods.
Are you easily fatigued? If so, please describe. What are your normal sleeping patterns?	Sleep restores the body and assists with the energy level of the client.
Do you frequently have rest periods? If so, for how long? Has your normal routine or exercise ever had a negative impact on your previous pregnancies? If so, please discuss.	Regular and routine exercise may be continued as long as tolerated. Caution women not to start *new* forms of exercise during pregnancy.
Toxic Exposure Have you or your partner ever worked around chemicals or radiation? If so, please explain. Are you exposed to an excessive amount of smoke daily?	Assessment of toxic exposure can identify potential teratogens to the fetus.
Do you have a cat? If so, are you exposed to the cat litter or the cat's feces?	Education regarding proper handling of cat litter is needed because of risk of infection (toxoplasmosis). Advise clients to have other family members change cat litter. Encourage the client to wash hands well after petting cats and to wear gloves when planting in outdoor soil if cats are present in neighborhood.
Role and Relationships What is the highest level of education you have completed? What is your occupation or major activity?	This helps to identify environmental exposures/risks for the patient.
Discuss your feelings about this pregnancy. Is the father of the baby involved with the pregnancy? How does your partner feel about the pregnancy? To what degree do you feel that the father of the baby will be involved with the pregnancy (e.g., not involved, interested and supportive, full caretaker of the pregnancy)?	These questions identify psychosocial issues for the patient. Assess social support systems for the family.
What type of support systems do you have at home? Who is your primary support person? List the people living with you including their names, ages, relationship to you, and any health problems that they may have. Are they aware of your pregnancy?	Assessment of social structures and supportive influences is required to determine potential client needs. If additional needs are noted, contact social services for assistance.
How have you introduced this pregnancy to the siblings? What are their reactions regarding this pregnancy? Do you plan to involve the siblings in any type of education program to enhance the attachment process for the newborn?	Sibling rivalry can interfere with the bonding process between siblings. Education and preparation for the new family member (the newborn) can alleviate potential problems with sibling rivalry. Encourage siblings to attend sibling class offered at your institution.
Has anyone close to you ever threatened to hurt you? Has anyone ever hit, kicked, choked, or physically hurt you? Has anyone ever forced you to have sex?	Lack of recognition of domestic violence is one of the primary barriers to recognizing domestic violence for women. Universal screening is recommended for all women.

continued

LIFESTYLE AND HEALTH PRACTICES *Continued*

Question	*Rationale*
What is your partner's highest level of education? What is your partner's occupation or major activity? Does your partner consume alcohol? If yes, how much alcohol does your partner use daily? List type and amount. Does your partner smoke? If yes, how often does your partner smoke? List amount and frequency. Does your partner use illicit drugs? If yes, how often does your partner use illicit drugs? List drug type, amount, and frequency.	Exploration of the partner's social or cultural habits may identify needs of the family unit.

COLLECTING OBJECTIVE DATA: PHYSICAL EXAMINATION

Preparing the Client

The nurse needs to provide a warm and comfortable environment for the physical assessment. After meeting the client, the nurse should quickly explain the sequence of events for the visit. Note that a full head-to-toe examination will be performed including a pelvic examination. Pelvic cultures obtained with this examination include a Pap smear and gonorrhea and chlamydial cultures. Explain that after the examination is complete, the client will go to the laboratory for initial prenatal blood tests including complete blood count, blood type and screen, Rh status, rubella titer, serologic test for syphilis, hepatitis B surface antigen, and sickle cell anemia screen (for clients of African ancestry). Universal screening for HIV is recommended.

The first procedure involves obtaining a clean-catch, midstream urine specimen. After the client has voided, instruct her to undress. Provide adequate gowns and cover-up drapes to ensure privacy.

Equipment

- Adequate room lighting
- Ophthalmoscope
- Otoscope
- Stethoscope
- Sphygmomanometer
- Speculum
- Light for pelvic examination
- Tape measure
- Fetal Doppler ultrasound device
- Disposable gloves
- Lubricant
- Slides
- KOH (potassium hydroxide)
- Normal saline solution
- Thin prep Pap smear test

Physical Assessment

Remember these key points during examination:

- Obtain an accurate and complete prenatal history.
- Understand and recognize cardiovascular changes of pregnancy.
- Recognize skin changes.
- Identify common complaints of pregnancy and explain what causes them.
- Correctly measure growth of uterus during pregnancy.
- Demonstrate the four Leopold's maneuvers and explain their significance.

(text continues on page 638)

PHYSICAL ASSESSMENT

Assessment Procedure	Normal Findings	Abnormal Findings
General Survey: Vital Signs, Height, and Weight		
Measure blood pressure (BP). Have the client sit on the examination table.	BP range: systolic 90–134 mmHg and diastolic 60–89 mmHg. BP decreases during the second trimester because of the relaxation effect on the blood vessels. By 32 to 34 weeks, the client's BP should be back to normal.	Elevated BP at 9 to 11 weeks may be indicative of chronic hypertension hydatidiform mole pregnancy or thyroid storm. After 20 weeks, increased BP (>140/90) may be associated with pregnancy-induced hypertension. Decreased blood pressure may indicate supine hypotensive syndrome.

continued

PHYSICAL ASSESSMENT *Continued*

Assessment Procedure	Normal Findings	Abnormal Findings
Measure pulse rate.	60 to 90 beats/min; may increase 10 to 15 beats/min higher than prepregnant levels	Irregularities in heart rhythm, chest pain, dyspnea, and edema may indicate cardiac disease.
Take the client's temperature.	97° to 98.6°F	An elevated temperature (above 100°) may indicate infection.
Measure height and weight (Fig. 29-5.)	Establish a baseline height and weight. The client should gain 2 to 4 lb in the first trimester and approximately 11 to 12 lb in both the second and third trimesters for a total weight gain between 25 and 35 lb.	A sudden gain exceeding 5 lb a week may be associated with pregnancy-induced hypertension and fluid retention. Weight gain <2 lb a month may indicate insufficient nourishment.
Observe behavior.	*First trimester:* Tired, ambivalent. *Second trimester:* Introspective, energetic. *Third trimester:* Restless, preparing for baby, labile moods (father may also experience these same behaviors).	Denial of pregnancy, withdrawal, depression, or psychosis may be seen in the client with psychological problems.

Figure 29-5 Weighing the pregnant client.

continued

Assessment Procedure	Normal Findings	Abnormal Findings
Skin, Hair, and Nails		
Inspect the skin. Note hyperpigmented areas associated with pregnancy.	Linea nigra, striae, gravidarum, chloasma, and spider nevi may be present.	Pale skin suggests anemia. Yellow discoloration suggests jaundice.
Observe skin for vascular markings associated with pregnancy.	Angiomas and palmar erythema are common.	
Inspect the hair and nails.	Hair and nails tend to increase in growth; softening and thinning are common.	
Head and Neck		
Inspection and Palpation		
Inspect and palpate the neck. Assess the anterior and posterior cervical chain lymph nodes. Also palpate the thyroid gland.	Smooth, nontender, small cervical nodes may be palpable. Slight enlargement of the thyroid may be noted during pregnancy.	Hard, tender, fixed, or prominent nodes may indicate infection or cancer. Marked enlargement of the thyroid gland indicates thyroid disease. Benign and malignant nodules as well as tenderness are noted in thyroiditis.
Eyes		
Inspection		
Inspect eyes. Examine cornea, lens, iris, and pupil. Use an ophthalmoscope to examine the fundus of the eye.	Pupils are equal and round, reactive to light and accommodate.	Narrowing of the arterioles or AV nicking may indicate hypertension.
Ears		
Inspection		
Inspect the ears.	Tympanic membranes clear: landmarks visible.	Tympanic membrane red and bulging with pus indicates infection.
Mouth, Throat, and Nose		
Inspection		
Inspect the mouth. Pay particular attention to the teeth and the gingival tissues, which may normally appear swollen and slightly reddened.	Hypertrophy of gingival tissue is common. Bleeding may occur due to brushing teeth or dental examinations.	Epulis nodules may be present (Fig. 29-6).
Inspect the throat.	Throat pink, no redness or exudate.	Throat red, exudate present, tonsillary hypertrophy indicate infection.
Inspect the nose.	Nasal mucosal swelling and redness may result from increased estrogen production. Epistaxis is a common variation because of the increased vascular supply to the nares during pregnancy.	Abnormal findings are the same as those in nonpregnant clients.

continued

PHYSICAL ASSESSMENT *Continued*

Assessment Procedure	Normal Findings	Abnormal Findings
Thorax and Lungs		
Inspect, palpate, percuss, and auscultate the chest.	Normal findings include increased anteroposterior diameter, thoracic breathing, slight hyperventilation; shortness of breath in late pregnancy. Lung sounds are clear to auscultation bilaterally.	Dyspnea, rales, rhonchi, wheezes, rubs, absence of breath sounds, and unequal breath sounds are signs of respiratory distress. Patients with a history of asthma have increased risk of perinatal morbidity mortality, and increased risk of pregnancy-induced hypertension, preterm labor, and low birth weight (Brown, 2006).
Breasts		
Inspection and Palpation **Inspect and palpate the breasts and nipples for symmetry and color (Fig. 29-7).**	Venous congestion is noted with prominence of veins. Montgomery's tubercles are prominent. Breast size is increased and nodular. Breasts are more sensitive to touch. Colostrum is excreted, especially in the third trimester. Hyperpigmentation of nipples and areolae is evident (Fig. 29-8).	Nipple inversion could be problematic for breast-feeding. Inverted nipples should be identified in the beginning of the third trimester. Breast shields can be inserted in the bra to train the nipple to turn outward. Localized redness, pain, and warmth could indicate mastitis. Bloody discharge of the nipple and retraction of the skin could indicate breast cancer.

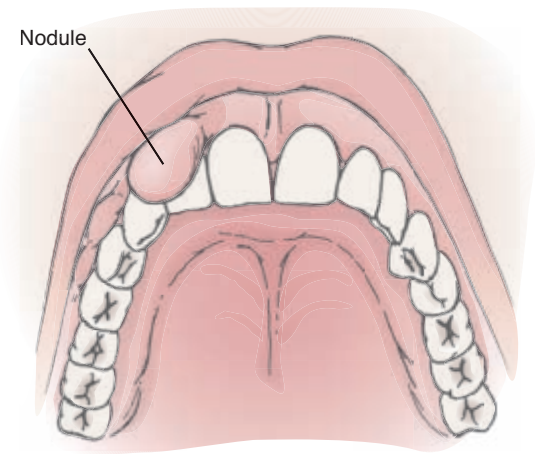


Figure 29-6 Epulis.

Figure 29-7 Palpating the breasts.

Figure 29-8 Hyperpigmentation of the nipples and areolae.

continued

Assessment Procedure	Normal Findings	Abnormal Findings
Heart		
Auscultation		
Auscultate the heart.	Normal sinus rhythm.	Irregular rhythm.
	Soft systolic murmurs are audible during pregnancy secondary to the increased blood volume.	Progressive dyspnea, palpitations, and markedly decreased activity tolerance indicate cardiovascular disease.
Peripheral Vascular		
Inspection and Percussion		
Inspect face and extremities. Note color and edema.	During the third trimester, dependent edema is normal. Varicose veins may also appear.	Abnormal findings include calf pain, positive Homans' sign, generalized edema (or facial edema), and diminished pedal pulses. These findings may indicate thrombophlebitis. Facial edema may indicate pregnancy-induced hypertension with elevated blood pressure and weight gain.
Percuss deep tendon reflexes.	Normal reflexes 1 to 2+. Clonus is absent.	Reflexes 3 to 4+ and positive clonus require evaluation for pregnancy-induced hypertension.
Abdomen		
Inspection		
Inspect the abdomen. For this part of the examination, ask the client to recline with a pillow under her head and her knees flexed. Note striae, scars, and the shape and size of the abdomen.	Striae and linea nigra are normal. The size of the abdomen may indicate gestational age. The shape of the uterus may suggest fetal presentation and position in later pregnancy.	Scars indicate previous surgery; be careful to note cesarean section scars and location. A transverse lie may be suspected by abdominal palpation, noting enlargement of the width of the uterus.
Palpation		
Palpate the abdomen. Note organs and any masses.	The uterus is palpable beginning at 10 to 12 weeks' gestation.	Abnormal masses palpable in the abdomen may indicate uterine fibroids or hepatosplenomegaly.
Palpate for fetal movement after 24 weeks.	Fetal movement should be felt by the mother by approximately 18 to 20 weeks.	If fetal movement is not felt, the EDC may be wrong or possibly intrauterine fetal demise may have occurred.
Palpate for uterine contractions (Fig. 29-9). Note intensity, duration, and frequency of contractions.	The uterus contracts and feels firm to the examiner.	Regular contractions before 37 completed weeks' gestation may suggest preterm labor.
Palpate the abdomen. Notice the difference between the uterus at rest and during a contraction.	Intensity of contractions may be mild, moderate, or firm to palpation.	Regular contractions prior to 37 weeks' gestation suggests premature labor.

continued

PHYSICAL ASSESSMENT *Continued*

Assessment Procedure	Normal Findings	Abnormal Findings
Time the length of the contraction from the beginning to the end. Also note the frequency of the contractions, timing from the beginning of one contraction until the beginning of the next (Fig. 29-10).	Contraction may last 40 to 60 seconds and occur every 5 to 6 min.	Contractions lasting too long or occurring too frequently cause fetal distress.
Fundal Height **Measure fundal height.** Do this by placing one hand on each side of the abdomen and walk hands up the sides of the uterus until you feel the uterus curve; hands should meet. Take a tape measure and place the zero point on the symphysis pubis and measure to the top of the fundus (Fig. 29-11).	Uterine size should approximately equal the number of weeks of gestation (e.g., the uterus at 28 weeks' gestation should measure approximately 28 cm) (Fig. 29-12). Measurements may vary by about 2 cm and examiners' techniques may vary but measurements should be about the same.	Measurements beyond 4 cm of gestational age need to be further evaluated. Measurements greater than expected may indicate a multiple gestation, polyhydramnios (excess of amniotic fluid), fetal anomalies, or macrosomia (great increase in size similar to obesity). Measurements smaller than expected may indicate intrauterine growth retardation.

Figure 29-9 Palpating for uterine contractions.

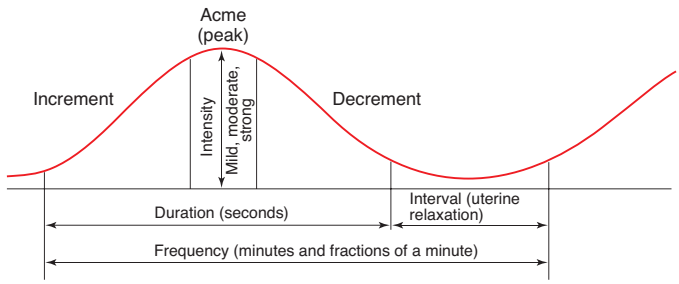


Figure 29-10 Contraction cycle.

Figure 29-11 Measuring the fundal height.

continued

Assessment Procedure	Normal Findings	Abnormal Findings
Fetal Position **Using Leopold's maneuvers, palpate the fundus, lateral aspects of the abdomen, and the lower pelvic area.** Leopold's maneuvers assist in determining the fetal lie (where the fetus is lying in relation to the mother's back), presentation (the presenting part of the fetus into the maternal pelvis), size, and position (the fetal presentation in relation to the maternal pelvis).	A longitudinal lie, in which the fetal spine axis is parallel to the maternal spine axis, is the expected finding. The presentation may be cephalic, breech, or shoulder. The size of the fetus may be estimated by measuring fundal height and by palpation. Fetal positions include right occiput anterior (ROA), left occiput posterior (LOP), left sacrum anterior (LSA), and so on. (Refer to a textbook on obstetrics for further detail.)	Oblique or transverse lie needs to be noted. If vaginal delivery is expected, external version can be performed to rotate the fetus to the longitudinal lie. Breech or shoulder presentations can complicate delivery if it is expected to be vaginal.
For the first maneuver, face the client's head. Place your hands on the fundal area, expecting to palpate a soft, irregular mass in the upper quadrant of the maternal abdomen (Fig. 29-13).	The soft mass is the fetal buttocks. The fetal head feels round and hard.	

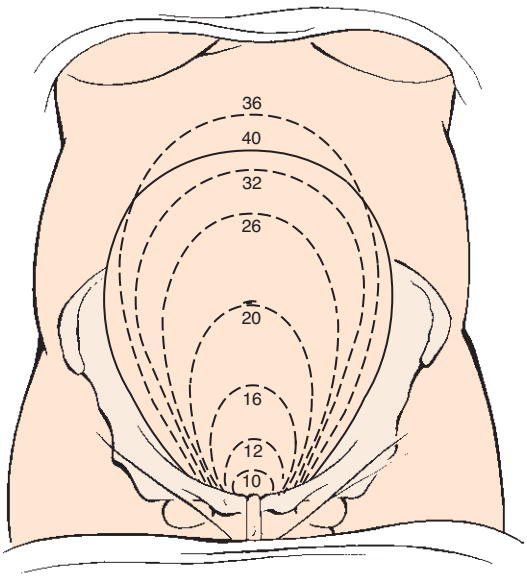


Figure 29-12 Approximate height of fundus at various weeks of gestation.

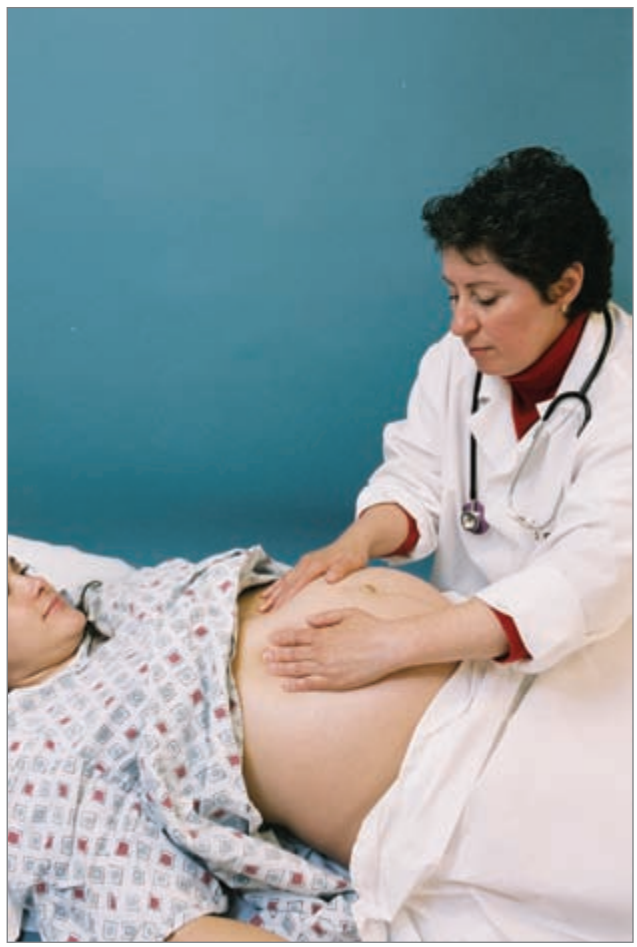


Figure 29-13 Leopold's maneuver: first maneuver.

continued

PHYSICAL ASSESSMENT *Continued*

Assessment Procedure	Normal Findings	Abnormal Findings
For the second maneuver, move your hands to the lateral sides of the abdomen (Fig. 29-14).	On one side of the abdomen, you will palpate round nodules; these are the fists and feet of the fetus. Kicking and movement are expected to be felt. The other side of the abdomen feels smooth; this is the fetus's back.	
For the third maneuver, move your hands down to the lower pelvic area and palpate the area just above the symphysis pubis to determine the presenting part. Grasp the presenting part with the thumb and third finger (Fig. 29-15).	The unengaged head is round, firm, and ballottable, whereas the buttocks are soft and irregular.	Soft, presenting part at the symphysis pubis indicates breech presentation.

Figure 29-14 Leopold's maneuver: second maneuver.

Figure 29-15 Leopold's maneuver: third maneuver.

continued

Assessment Procedure	Normal Findings	Abnormal Findings
For the fourth maneuver, face the client's feet, place your hands on the abdomen, and point your fingers toward the mother's feet. Then try to move your hands toward each other while applying downward pressure (Fig. 29-16).	If the hands move together easily, the fetal head has not descended into the maternal pelvic inlet. If the hands do not move together and stop to resistance met, the fetal head is engaged into the pelvic inlet.	

Figure 29-16 Leopold's maneuver: fourth maneuver.

continued

PHYSICAL ASSESSMENT *Continued*

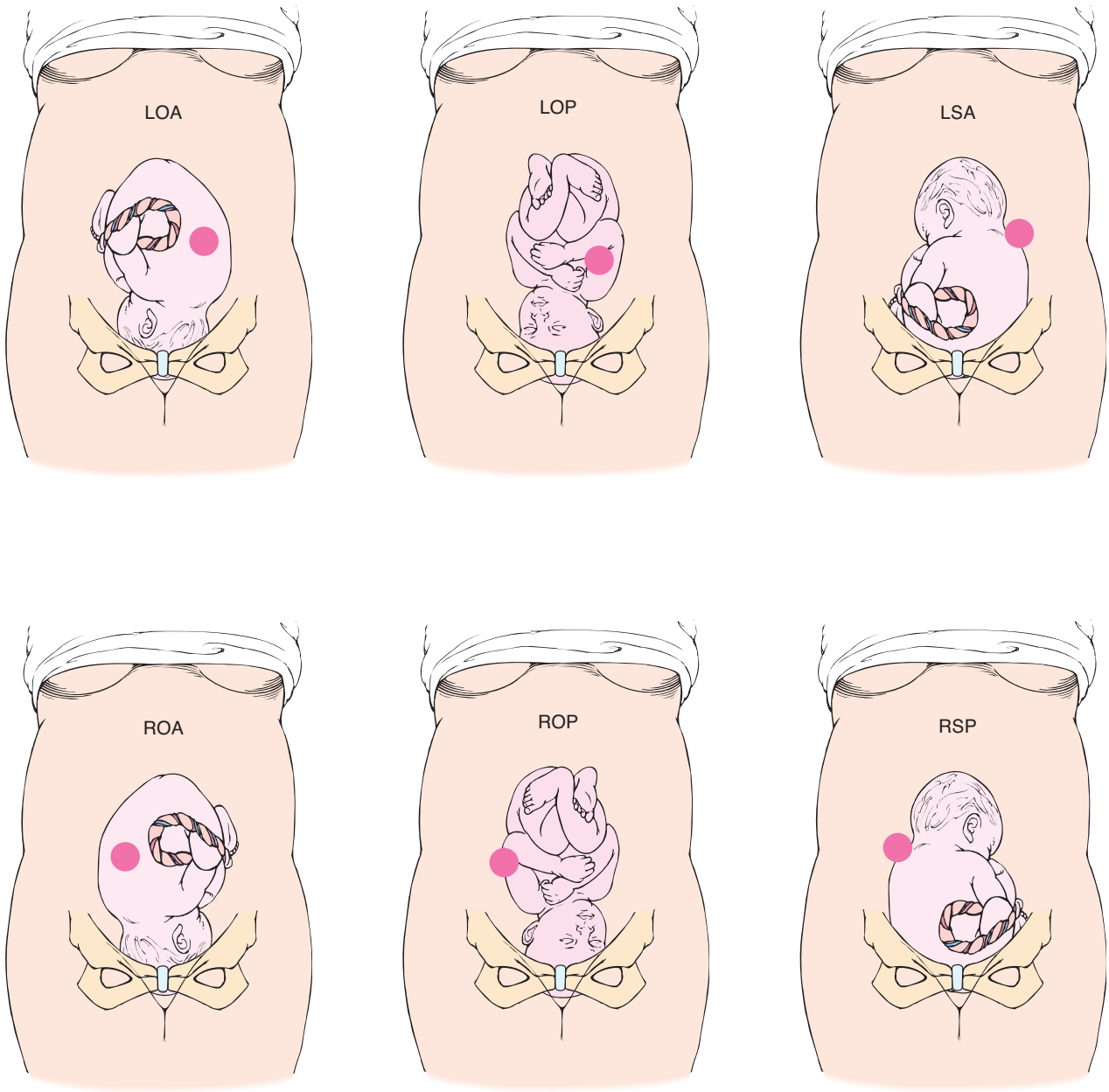
Assessment Procedure	Normal Findings	Abnormal Findings
Fetal Heart **Determine the location, rate, and rhythm of the fetal heart.** Auscultate the fetal heart rate in the left lower quadrant when the fetal back is noted on maternal left, vertex position (Fig. 29-17). When the fetal back is located elsewhere, note other locations illustrated in Display 29-1 for auscultation. ➤ ***Clinical Tip*** • *After assessing the fetal position, you can auscultate fetal heart tones best through the back of the fetus. A fetal Doppler ultrasound device can be used after 10 to 12 weeks' gestation to hear the fetal heartbeat. A fetoscope may also be used to hear the heartbeat after 18 weeks' gestation.*	Fetal heart rate ranges from 120 to 160 beats/min. During the third trimester, the fetal heart rate should accelerate with fetal movement.	Inability to auscultate fetal heart tones with a fetal Doppler at 12 weeks may indicate a retroverted uterus, uncertain dates, fetal demise, or false pregnancy. Fetal heart rate decelerations could indicate poor placental perfusion. In breech presentations, fetal heart rate is heard in the upper quadrant of maternal abdomen.

Figure 29-17 Auscultating the fetal heart rate with (A) a fetoscope and (B) a Doppler ultrasound device.

continued on page 634

DISPLAY 29-1 Where to Auscultate Fetal Heart Rate

The illustrations below represent the best locations for auscultating the fetal heart rate: Left occiput anterior (LOA), right occiput anterior (ROA), left occiput posterior (LOP), right occiput posterior (ROP), left sacrum anterior (LSA), and right sacrum posterior (RSP).



PHYSICAL ASSESSMENT *Continued*

Assessment Procedure	Normal Findings	Abnormal Findings
Genitalia		
External Genitalia		
Inspect the external genitalia. Note hair distribution, color of skin, varicosities, and scars.	Normal findings include enlarged labia and clitoris, parous relaxation of the introitus, and scars from an episiotomy or perineal lacerations (in multiparous women).	Labial varicosities, which can be painful.
Palpate Bartholin's and Skene's glands.	There should be no discomfort or discharge with examination.	Discomfort and discharge noted with palpation may indicate infection.
Inspect vaginal opening for cystocele or rectocele.	No cystocele or rectocele.	Cystocele or rectocele may be more pronounced because of the muscle relaxation of pregnancy.
Internal Genitalia		
Inspect internal genitalia (refer to gynecologic examination in textbook). Insert speculum into the vagina. Visualize the cervix, noting position and color. Obtain Pap smear and cultures if indicated. Withdraw speculum.	Cervix should look pink, smooth, and healthy. With pregnancy, the cervix may appear bluish (Chadwick's sign). In multiparous women, the cervical opening has a slitlike appearance known as "fish mouth." A small amount of whitish vaginal discharge (leukorrhea) is normal.	Gonorrhea infection may present with thick, purulent vaginal discharge. A thick, white, cheesy discharge presents with a yeast infection. Grayish-white vaginal discharge, positive "whiff test" (fishy odor), and clue cells positive on microscopic wet prep (epithelial cells that have been invaded by disease-causing bacteria) are evidence of bacterial vaginosis.
Perform pelvic examination. Put on gloves lubricated with water or KY jelly, gently insert fingers into the vagina, and palpate the cervix. Estimate the length of the cervix by palpating the lateral surface of the cervix from the cervical tip to the lateral fornix.	The cervix may be palpated in the posterior vaginal vault. It should be long, thick, and closed. Cervical length should be approximately 2.3 to 3 cm. Positive Hegar's sign (softening of the lower uterine segment) should be present (Fig. 29-18).	An effaced opened cervix may indicate preterm labor or an incompetent cervix if gestation is not at term (Fig. 29-19).

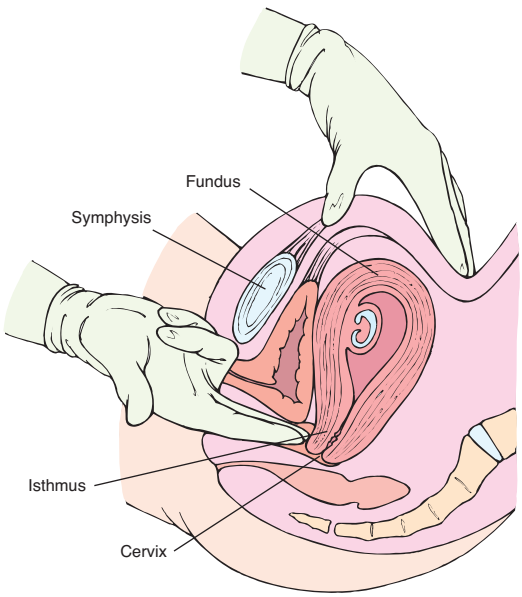


Figure 29-18 Positive Hegar's sign.

continued

Assessment Procedure	Normal Findings	Abnormal Findings
Feel for uterus. While leaving the fingers in the vagina, place the other hand on the abdomen and gently press down toward the internal hand until you feel the uterus between the two hands.	The uterus should feel about the size of an orange at 10 weeks (palpable at the suprapubic bone) and about the size of a grapefruit at 12 weeks.	If uterine size is not consistent with dates, consider wrong dates, uterine fibroids, or multiple gestation.
Palpate the left and right adnexa.	No masses should be palpable. Discomfort with examination is due to stretching of the round ligaments throughout the pregnancy.	Adnexal masses may indicate ectopic pregnancy (Fig. 29-20).

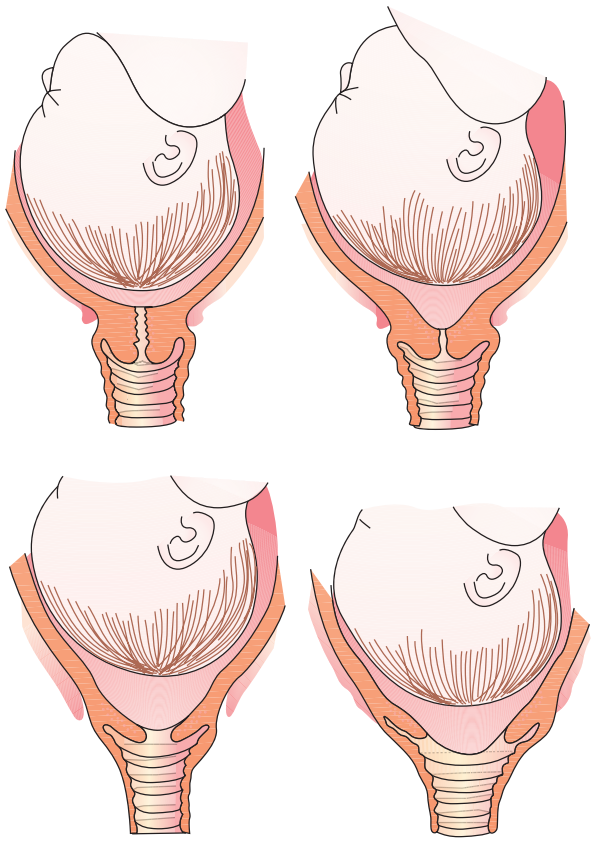


Figure 29-19 Effacement and dilation. (Top left) Before labor, 0% effacement. (Top right) Early effacement, 30%. (Bottom left) Complete effacement, 100%. (Bottom right) Complete effacement and dilation.

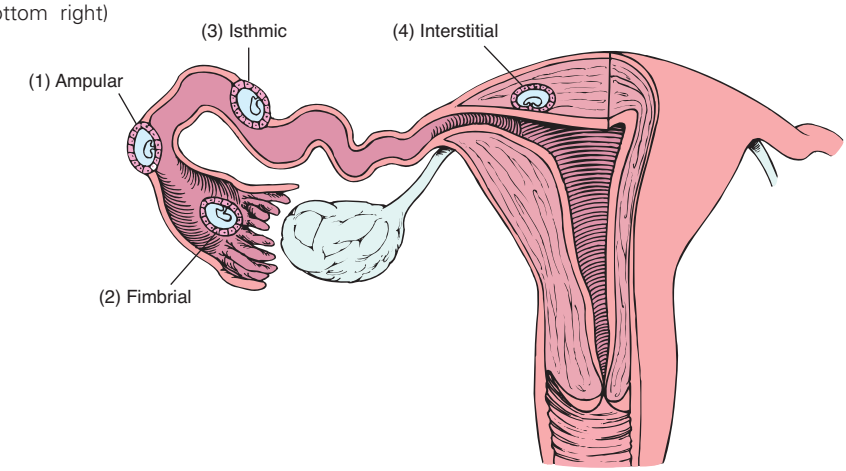


Figure 29-20 Sites of ectopic pregnancy.

continued

PHYSICAL ASSESSMENT *Continued*

Assessment Procedure	Normal Findings	Abnormal Findings
Anus and Rectum		
Inspect the anus and rectum. Note color, varicosities, lesions, tears, or discharge.	Mucosa should be pink and intact. No varicosities, lesions, tears, or discharge present. Hemorrhoids or varicose veins may be present. Hemorrhoids usually get bigger and more uncomfortable during pregnancy. Bleeding and infection may occur.	Masses may indicate cancer.
Musculoskeletal		
Determine pelvic adequacy for a vaginal delivery by estimating the angle of the subpubic arch. Place hands as shown in Figure 29-21, noting angle between thumb and first finger.	The subpubic arch should be greater than 90 degrees.	A narrow pubic arch displaces the presenting part posteriorly and impedes the fetus from passing under the pubic arch.
Determine the height and inclination of the symphysis pubis (Fig. 29-22).	The height and inclination of the symphysis pubis should be short and gradual, respectively.	A long or steeply inclined symphysis pubis may interfere with a successful vaginal delivery.
Palpate the lateral walls of the pelvis.	Lateral walls should be straight or divergent.	Lateral walls that narrow as they approach the vagina may be problematic with vaginal delivery.

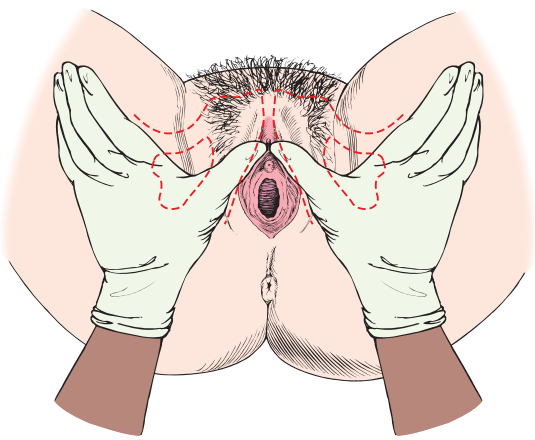


Figure 29-21 Estimating the angle of the sub-pubic arch.

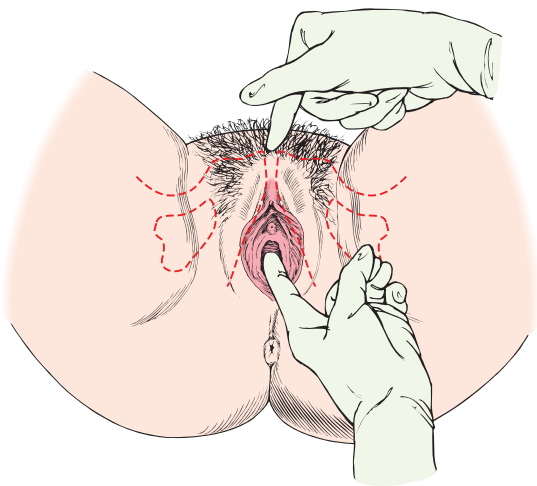


Figure 29-22 Determining the height and incline of the symphysis pubis.

continued

Assessment Procedure	Normal Findings	Abnormal Findings
Palpate the ischial spines. Sweep the finger posteriorly from one spine over to the other spine.	Ischial spines are small, not prominent. Interspinous diameter is at least 10.5 cm (Fig. 29-23).	Prominent spines. Interspinous diameter less than 10.5 cm may interfere with delivery.
Examine the sacrum and coccyx. Sweep fingers down the sacrum. Gently press back on the coccyx to determine mobility.	Gynecoid pelvis is most common. Mobile coccyx increases ease of delivery by expansion, enlarging the area in the pelvis.	Anthropoid or platypoid pelvis with an immobile coccyx may interfere with vaginal birth.
Measure the diagonal conjugate. The diagonal conjugate measures the anteroposterior diameter of the pelvic inlet through which the fetal head passes first. Measure the diagonal conjugate by pressing internal hand into the sacral promontory and up; mark the spot on your hand directly below the symphysis pubis (Fig. 29-24).	Pelvic adequacy is expected if diagonal conjugate measures 12.5 cm or greater. If the middle finger cannot reach the sacral promontory, space is considered adequate.	A diagonal conjugate measuring less than 12.5 cm may impede vaginal delivery process.
Calculate the obstetric conjugate. The obstetric conjugate is the smallest opening through which the fetal head must pass. To calculate it, subtract 1.5 cm from the diagonal conjugate measurement (Fig. 29-25).	Measurement of the obstetric conjugate should be 10.5 to 11 cm.	An obstetric conjugate measuring less than 10.5 cm may pose difficulty with vaginal delivery.
Measure the transverse diameter of the pelvic outlet. To do this, make a fist and place it between the ischial tuberosities (Fig. 29-26). ➤ ***Clinical Tip*** • *Know the measurement of your own hand to estimate the measurement of the transverse diameter at pelvic outlet.*	The measurement between ischial tuberosities is usually 10 to 11 cm.	Diameters of less than 10 cm may inhibit fetal descent toward the vagina.

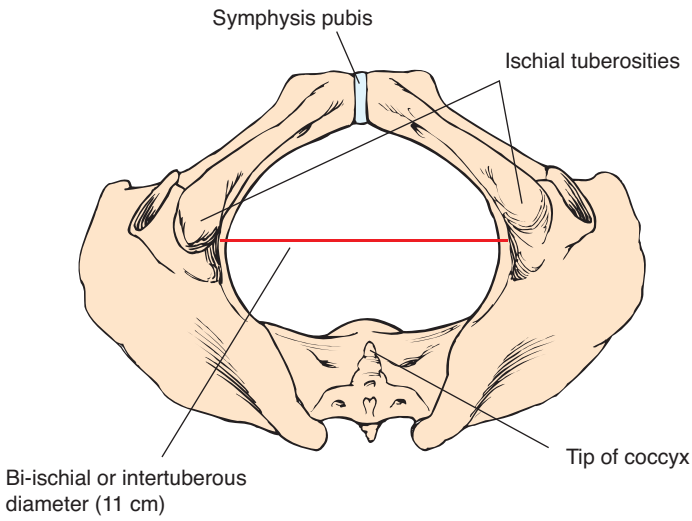


Figure 29-23 Ischial spines.

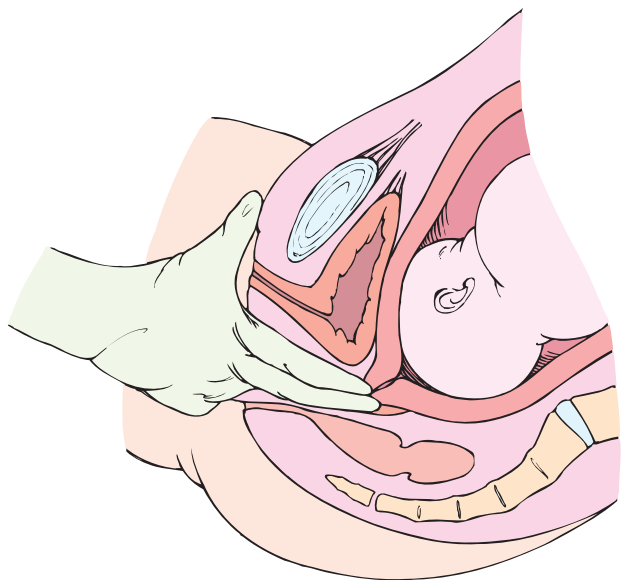


Figure 29-24 Measuring the diagonal conjugate.

continued

PHYSICAL ASSESSMENT *Continued*

Assessment Procedure	Normal Findings	Abnormal Findings

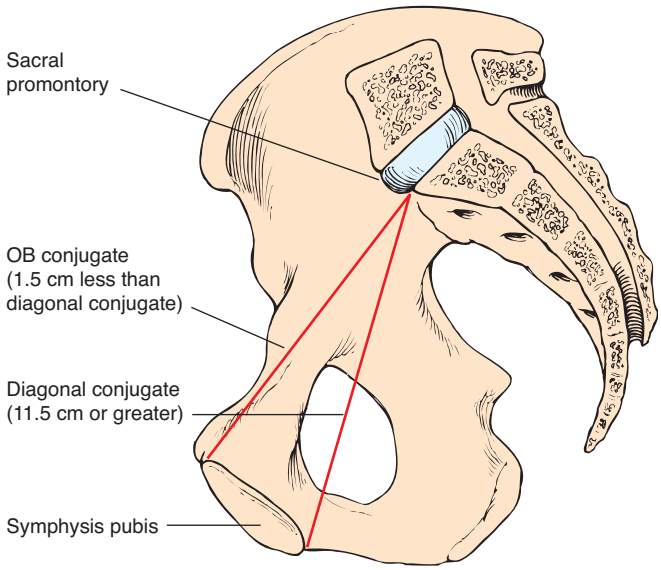


Figure 29-25 Pelvic structure: Obstetric (OB) conjugate, diagonal conjugate.

Figure 29-26 Using the fist to measure the pelvic outlet.

VALIDATING AND DOCUMENTING FINDINGS

Validate the assessment data that you have collected about the childbearing woman. This is necessary to verify that the data are reliable and accurate. Document the assessment data following the health care facility or agency policy.

Sample of Subjective Data

Client is a 25-year-old white, married, obstetric patient at 10 weeks' gestation by LMP. Prepregnancy weight 125 lb. No recent change in weight. No s/s cold or illness since LMP. Has occasional nausea and vomiting. Drinks fluids well. No change in stools or urinary pattern. Denies vaginal bleeding or discharge. Eats well. No history of psychological problems. Reports normal breast exam.

Past History: *Gravida 1: first pregnancy; denies previous deliveries, miscarriages, or molar pregnancy. LMP 2/20/05. Normal period: 28-day cycle. No spotting. Last form of contraception: oral contraceptive pill; stopped pill 4 months ago. Denies history of reproductive or fertility problems. Denies history of vaginal infections or STIs; partner also negative for STIs. Patient blood type A positive; no history of blood transfusion. Medical history: unremarkable. Allergies: no known drug allergies. Surgeries: none. Hospitalizations: none. Gynecological: no problems. Pap smear: up to date; no history of abnormal pap smears. Breast: unremarkable. Current medications: Prenatal vitamin: one daily. Father not related to client. Primigravida: no history of past pregnancies. Race: white.*

Family History: *No history of early deaths, diabetes, tuberculosis, asthma, cancer, birth defects, blood disorders, or mental retardation.*

Lifestyle and Health Practices: *No alcohol, cigarettes, or drug use since LMP. No family members consider habits a problem. Diet consists of three meals a day and snacks (primarily meats, vegetables, fruits, bread, water). Prepregnant weight is 125 lb with no significant weight changes. Current vitamins: one prenatal vitamin with folic acid daily.*

Activity and Exercise: *Exercises three to five times week. Walks 30 min; occasional weight lifting with aerobics. Denies heavy lifting or heavy labor. Denies exposure to toxic substances. Has cats but does not change litter. Washes hands well after petting cat. Wears gloves if working outdoors in dirt/plants.*

Role and Relationships: *Highest level education: M.S. Occupation: RN. Lives with husband who is delighted about pregnancy. Additional support: parents, in-laws, sister, and friends. Partner: highest level education B.S. in*

business administration; current occupation: CPA; nonsmoker; drinks alcohol occasionally on weekends with friends; no history of illicit drug use.

Sample of Objective Data

B/P 100/60; pulse 90; temp 98.6°; height 5 feet 4 inches; weight 125 lb. Behavior: ambivalent, excited. Skin: no hyperpigmentation yet. Hair/nails: soft, smooth, clean. Neck: supple. Thyroid: no masses or enlargement noted. Ears: TM clear; landmarks visible. Mouth/throat/nose: pink, no exudate, no hypertrophy. Thorax/lungs: CTA bilaterally. Breasts: no masses palpable, no discharge, symmetric, no nipple inversion. Heart: NSR without murmur. Abdomen: soft, nontender, no hepatosplenomegaly; fundal height palpable above symphysis pubis, approx. 10 weeks' size. Fetal heart tones: audible with fetal Doppler, rate 158 b/min. Genitalia: External: no scars or varicosities; Bartholin's and Skene's glands negative; no cystocele or rectocele noted. Speculum: Chadwick's sign present; no vaginal discharge or bleeding; Pap smear performed. GC and Chlamydia cultures taken and sent to lab. Pelvic: Cervix: posterior, closed, long and thick. Uterus: approx. 10 weeks' size. No masses palpable. Adnexa: negative R and L. Anus/rectum: negative for lesions or varicosities. Peripheral vascular: Face/extremities:no edema; pink, well perfused; pulses equal bilaterally, Homans' sign negative, DTRs 1–2 +, −clonus. Pelvis: subpubic arch >90°; symphysis pubis: short, gradual inclination. Lateral walls straight. Ischial spines: blunt. Interspinous diameter >10.5 cm. Pelvis: gynecoid, coccyx mobile. Diagonal conjugate >12.5 cm. Obstetric conjugate >10.5 cm. Transverse diameter >11 cm. Assessment: Healthy obstetric physical examination. Plan: Routine obstetric care.

Analysis of Data

After collecting your assessment data, you will need to analyze the data using diagnostic reasoning skills presented in Chapter 5. In Diagnostic Reasoning: Possible Conclusions, you will see an overview of common conclusions you may reach after assessment of the childbearing woman. Also the Diagnostic Reasoning: Case Study at the end of this chapter shows you how to analyze assessment data for a *specific* childbearing client. Finally you have an extra opportunity to analyze data in the critical thinking exercise presented in the lab manual study guide available with the textbook.

DIAGNOSTIC REASONING: POSSIBLE CONCLUSIONS

Listed are some possible conclusions after assessing a childbearing woman.

Selected Nursing Diagnoses

After collecting subjective and objective data pertaining to the assessment of the childbearing woman, you will need to identify abnormalities and cluster the data to reveal any significant patterns or abnormalities. These data will then be used to make clinical judgments (nursing diagnoses: wellness, risk, or actual) about the status of the client's pregnancy. Following is a listing of selected nursing diagnoses that you may identify when analyzing data for this part of the assessment.

Wellness Diagnoses

- Opportunity for enhanced self-care during pregnancy

Risk Diagnoses

- Risk for Deficient Fluid Volume (related to excessive nausea/vomiting)
- Risk for Injury (maternal; related to elevated arterial pressure)
- Risk for Injury (fetal; related to decreased placental perfusion due to blood loss)

Actual Diagnoses

- Anxiety (related to fear of loss of pregnancy)
- Imbalanced Nutrition: Less Than Body Requirements, related to lack of knowledge of proper nutrition during pregnancy
- Disturbed Body Image, related to excessive weight gain during pregnancy

Selected Collaborative Problems

After grouping the data, certain collaborative problems may emerge. Remember that collaborative problems differ from nursing diagnoses in that they cannot be prevented with nursing interventions alone. However, these physiologic complications of medical conditions can be detected and monitored by the nurse. In addition, the nurse can use physician- and nurse-prescribed interventions to minimize the complications of these problems. The nurse may also have to refer the client in such situations for further treatment of the problem. Following is a list of collaborative problems that may be identified when assessing the childbearing woman. These problems are worded as Risk for Complications (or RC) followed by the problem.

- RC: Anemia
- RC: Advanced maternal age
- RC: Gestational diabetes

Medical Problems

After grouping the data, it may become apparent that the client has signs and symptoms that may require medical diagnosis and treatment. Referral to a primary care provider is necessary.

CASE STUDY

The case study presents assessment data for a specific client. It is followed by an analysis of the data, working out the seven key steps to arrive at specific conclusions.

Mrs. Mary Farrow is a 29-year-old Caucasian woman, gravida 3, para 2, who presents to the clinic today for her initial prenatal examination. She states that her last menstrual period (LMP) was on September 15, approximately 16 weeks ago. Because she was unable to get transportation to the clinic, she did not come in for prenatal care earlier in this pregnancy. "I do know how important early prenatal care is, but I just couldn't get here. And I feel good—no problems so far." Mrs. Farrow lives with her husband and two sons in a two-bedroom trailer on land owned by her in-laws. She states that her in-laws are very supportive and help out during tough times by not charging rent. Her husband works full time at a fast-food chain restaurant but is looking for a job that pays more money. It is often hard for them to meet their financial responsibilities; however, they believe it is important for her to stay home with the children so she does not contribute financially. She reports that, in general, she encourages healthful practices for herself and family, but because her husband gets a discount on food and soda from his work, they don't eat as well as she knows they should. "But I am eating less so I don't gain so much weight this time."

Mrs. Farrow's past medical history is unremarkable; her two pregnancies were term gestations and deliveries were vaginal. However, during the last pregnancy, she was diagnosed with pregnancy-induced hypertension and gestational diabetes, and labor was induced at 38 weeks' gestation. She states that she gained 60 lb with that pregnancy and that her son weighed 9 lb, 2 oz.

Your physical assessment of Mrs. Farrow reveals BP 100/60 right arm, sitting; pulse rate 86, regular and strong; respirations 18, regular and moderately shallow; temperature 36.7 degrees centigrade. Her apical beat is also 86 and strong; heart sounds: S_1 and S_2 with no murmurs or clicks. Skin is warm and dry, slightly pale with light pink nail beds, pale palpebral conjunctiva and oral mucous membranes. Abdomen moderately rounded with striae; fundal height 20 cm; fetal heart rate 158 per Doppler, right lower quadrant. Current weight 138 lb at 5 feet 9 inches tall, 2 lb less than her stated usual weight. Lab values show hemoglobin (Hgb) 10.2 g/dL; hematocrit (Hct) 29.9%; red blood cell (RBC) count $3.20 \times 10^{-6}/mm^3$. The remainder of the blood values is within normal limits. Urinalysis results are negative for protein and glucose.

The following concept map illustrates the diagnostic reasoning process.

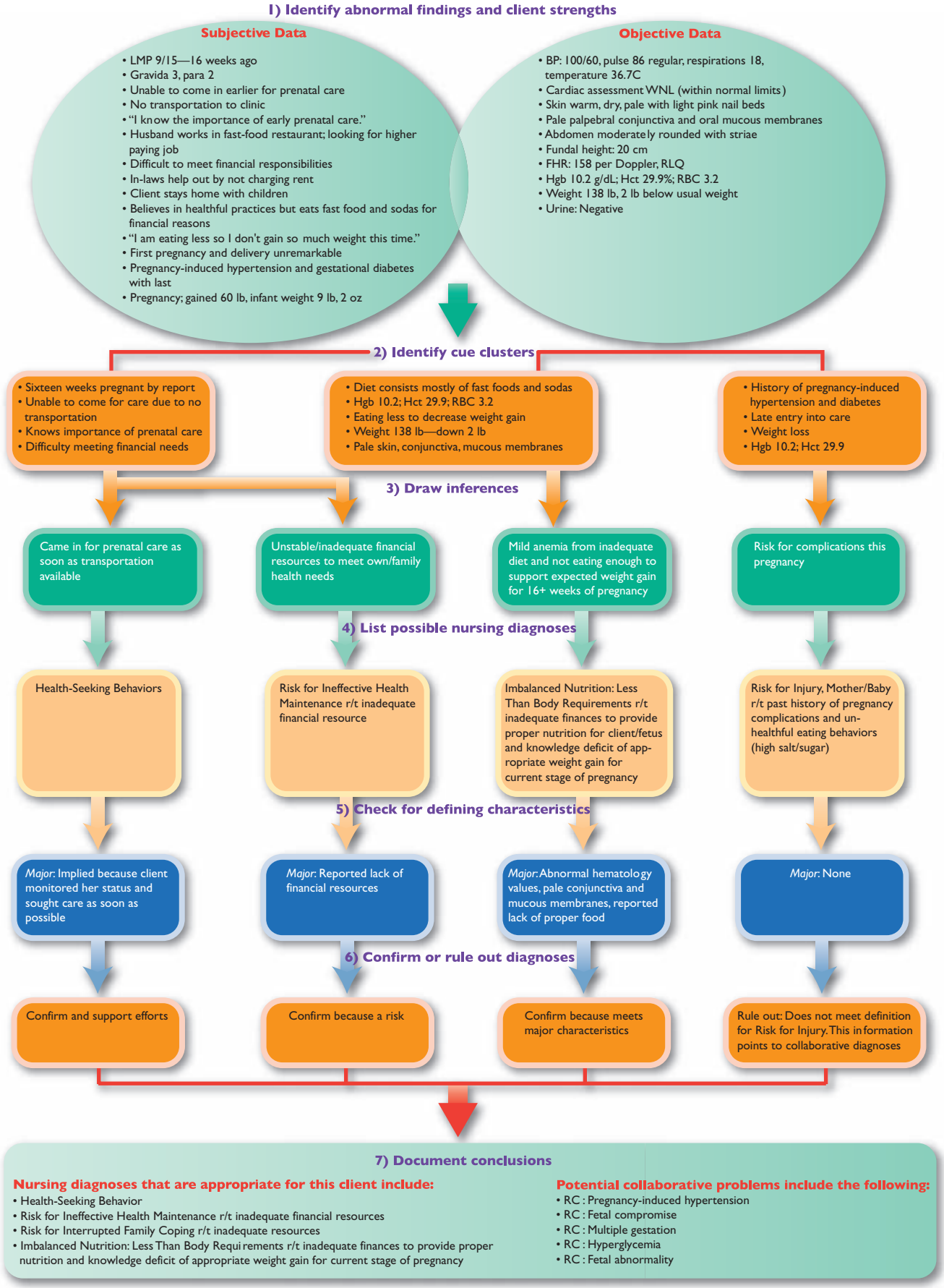
Applying COLDSPA

Applying **COLDSPA** for client symptoms: "29 year old woman G3 P2; LMP 16 weeks ago."

Mnemonic	*Question*	*Data Provided*	*Missing Data*
Character	Describe the sign or symptom (feeling, appearance, sound, smell, or taste if applicable).	Client says she feels good but has no transportation to get to clinic for prenatal care during the last 16 weeks	"How did you get to the clinic today?"
Onset	When did it begin?	During the client's last pregnancy, she gained 60 pounds and her son weighed 9lb.2oz. at birth. She tries to eat healthy, but says her husband brings home free "fast food" often.	
Location	Where is it? Does it radiate? Does it occur anywhere else?		
Duration	How long does it last? Does it recur?		"What is your typical fluid and food intake at this time? Are you taking any prenatal vitamins? What proteins do you typically eat?"

continued

Mnemonic	*Question*	*Data Provided*	*Missing Data*
Severity	How bad is it? or How much does it bother you?	Client is 5′9″ and weighs 138 lbs; 2 pounds less than normal stated weight. Oral mucous membranes and conjunctiva are pale.	
Pattern	What makes it better or worse?	During her last pregnancy, the client was diagnosed with pregnancy-induced hypertension and gestational diabetes. Labor was induced at 38 weeks.	
Associated factors/How it **A**ffects the client	What other symptoms occur with it? How does it affect you?	The client has financial concerns; her husband works at a fast food chain and is looking for a better paying job.	What prenatal resources does the client qualify for and which ones has the client used in the past?


1) Identify abnormal findings and client strengths
Subjective Data
• LMP 9/15—16 weeks ago
• Gravida 3, para 2
• Unable to come in earlier for prenatal care
• No transportation to clinic
• "I know the importance of early prenatal care."
• Husband works in fast-food restaurant; looking for higher paying job
• Difficult to meet financial responsibilities
• In-laws help out by not charging rent
• Client stays home with children
• Believes in healthful practices but eats fast food and sodas for financial reasons
• "I am eating less so I don't gain so much weight this time."
• First pregnancy and delivery unremarkable
• Pregnancy-induced hypertension and gestational diabetes with last
• Pregnancy; gained 60 lb, infant weight 9 lb, 2 oz
Objective Data
• BP: 100/60, pulse 86 regular, respirations 18, temperature 36.7C
• Cardiac assessment WNL (within normal limits)
• Skin warm, dry, pale with light pink nail beds
• Pale palpebral conjunctiva and oral mucous membranes
• Abdomen moderately rounded with striae
• Fundal height: 20 cm
• FHR: 158 per Doppler, RLQ
• Hgb 10.2 g/dL; Hct 29.9%; RBC 3.2
• Weight 138 lb, 2 lb below usual weight
• Urine: Negative
2) Identify cue clusters
• Sixteen weeks pregnant by report
• Unable to come for care due to no transportation
• Knows importance of prenatal care
• Difficulty meeting financial needs
• Diet consists mostly of fast foods and sodas
• Hgb 10.2; Hct 29.9; RBC 3.2
• Eating less to decrease weight gain
• Weight 138 lb—down 2 lb
• Pale skin, conjunctiva, mucous membranes
• History of pregnancy-induced hypertension and diabetes
• Late entry into care
• Weight loss
• Hgb 10.2; Hct 29.9
3) Draw inferences
Came in for prenatal care as soon as transportation available
Unstable/inadequate financial resources to meet own/family health needs
Mild anemia from inadequate diet and not eating enough to support expected weight gain for 16+ weeks of pregnancy
Risk for complications this pregnancy
4) List possible nursing diagnoses
Health-Seeking Behaviors
Risk for Ineffective Health Maintenance r/t inadequate financial resource
Imbalanced Nutrition: Less Than Body Requirements r/t inadequate finances to provide proper nutrition for client/fetus and knowledge deficit of appropriate weight gain for current stage of pregnancy
Risk for Injury, Mother/Baby r/t past history of pregnancy complications and unhealthful eating behaviors (high salt/sugar)
5) Check for defining characteristics
Major: Implied because client monitored her status and sought care as soon as possible
Major: Reported lack of financial resources
Major: Abnormal hematology values, pale conjunctiva and mucous membranes, reported lack of proper food
Major: None
6) Confirm or rule out diagnoses
Confirm and support efforts
Confirm because a risk
Confirm because meets major characteristics
Rule out: Does not meet definition for Risk for Injury. This information points to collaborative diagnoses
7) Document conclusions
Nursing diagnoses that are appropriate for this client include:
• Health-Seeking Behavior
• Risk for Ineffective Health Maintenance r/t inadequate financial resources
• Risk for Interrupted Family Coping r/t inadequate resources
• Imbalanced Nutrition: Less Than Body Requirements r/t inadequate finances to provide proper nutrition and knowledge deficit of appropriate weight gain for current stage of pregnancy
Potential collaborative problems include the following:
• RC: Pregnancy-induced hypertension
• RC: Fetal compromise
• RC: Multiple gestation
• RC: Hyperglycemia
• RC: Fetal abnormality

References and Selected Readings

Albrecht, S., Maloni, J., Thomas, K., Jones, R., Halleran, J., & Osborne, J. (2004). Smoking Cessation Counseling for pregnant women who smoke. Scientific Basis for Practice for AWHONN's Success Project. *JOGNN, 33*(3), 298–305.

Bowen, A., & Mubajarine, N. (2006). Prevalence of Antenatal Depression in Women Enrolled in an Outreach Program Canad. *JOGNN, July/August 35(14),* 491–498.

Brown, W. (2006). Pharmacological Management of Asthma during Pregnancy. *Women's Health in Primary Care. May/June,* 23–28.

Buist, A., Morse, C., & Durkin, S. (2003). Men's Adjustment to Fatherhood. Implications for Obstetric Health Care. *JOGNN, 32(2),* 172–180.

Case, A., Ramadhani, T., Canfield, M., Beverly, L., & Wood, R. (2007). Folic Acid Supplementation Among Diabetic, Overweight, or Obese Women of Childbearing Age. *JOGNN, 36(4),* 335–341.

Cunnigham, E., Levano, K., Bloom, S., et al. (2005). *Williams Obstetrics.* (22nd ed.). New York: McGraw-Hill.

Dunn, L., & Oths, K. (2004). Prenatal Predictors of Intimate Partner Abuse. *JOGNN, 33(1),* 54–63.

George, T., Shefer, A. M., Ricket, D., David, F., Stevenson, J., & Fishbein, D. (2007). A status report from 1996–2004: are more effective immunization interventions being used in the women, infants, and children (WIC) program? *Maternal and Child Health Journal, July 11 (4),* 327–333.

Harner, H. (2004). Domestic Violence and Trauma Care in Teenage Pregnancy: Does Paternal Age make a Difference. *JOGNN 33(3),* 312–319.

Johnson, T., Mulder, P., Strube, K. (2007). Mother-Infant Breastfeeding Progress Tool: A guide for Education and Support of Breastfeeding Dyad. *JOGNN 36(4),* 319–327.

Lindgren, K. (2005). Testing the Health Practices in Pregnancy. Questionnaire-II. *JOGNN 34(4),* 465–473.

Lugo, N. (2008). Responding to Patient's Concerns: Influenza Immunization in Pregnancy. *The American Journal for Nurse Practitioners. July/August 12, (7–8),* 8–11.

McKinney, E. S., James, S. R., Murray, S. S., Ashwill, J. W. (2005). *Maternal-Child Nursing*. (2nd ed.). St. Louis, MO: Elsevier Inc.

Palmer, L, & Carter, E. (2006). Deciding when it's Labor: the experience of women who have received antepartum care at home for preterm labor. *JOGNN, July/August 35(4),* 509–515.

Sandelowski, M., & Barroso, J. (2005). The travesty of choosing after positive prenatal diagnosis. *JOGNN 34(3),* 307–318.

Shieh, C., & Kravitz, M. (2006). Severity of Drug Use, Initiation of Prenatal Care and Maternal-Fetal Attachment in pregnant Marijuana and Cocaine/Heroin Users. *JOGNN. July/August 35(4),* 499–508.