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## CHAPTER 21

# Prenatal Period

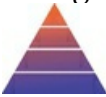
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## Priority Concepts

Development, Reproduction

### I. Gestation

- A. Time from **fertilization** of the ovum until the date of **delivery**
- B. About 280 days
- C. **Näegele's rule** for estimating the date of delivery, also known as date of birth ([Box 21-1](#))
  1. Use of Näegele's rule requires that the woman have a regular 28-day menstrual cycle.
  -  2. Subtract 3 months and add 7 days to the first day of the last menstrual period; then add 1 year if appropriate. Alternatively, add 7 days to the first day of the last menstrual period and count forward 9 months.

### II. Gravidity and Parity

#### A. Gravidity

1. **Gravida** refers to a pregnant woman.
2. *Gravidity* refers to the number of pregnancies.
3. A nulligravida is a woman who has never been pregnant.
4. A primigravida is a woman who is pregnant for the first time.
5. A multigravida is a woman in at least her second pregnancy.

#### B. Parity

1. **Parity** is the number of births (not the number of fetuses, e.g., twins) carried past 20 weeks of gestation, whether or not the fetus was born alive.
2. A nullipara is a woman who has not had a birth at more than 20 weeks of gestation.
3. A primipara is a woman who has had 1 birth that occurred after the 20th week of gestation.
4. A multipara is a woman who has had 2 or more pregnancies to the stage of fetal viability.



C. Use of GTPAL: Pregnancy outcomes can be described with the acronym *GTPAL* (Box 21-2).

1. *G* is gravidity, the number of pregnancies, including the present one.
2. *T* is term births, the number born at term (longer than 37 weeks of gestation).
3. *P* is preterm births, the number born before 37 weeks of gestation.
4. *A* is abortions or miscarriages, the number of abortions or miscarriages (included in gravida if before 20 weeks of gestation)
5. *L* is the number of current living children. This number can be greater than the *P* if multiples were delivered, or less than the *P* if a loss occurred.
6. *Note:* Multiples count as a 1 for gravidity, as well as a 1 for term, preterm, or abortions, but are recorded as the actual number for living.



### III. Pregnancy Signs

#### A. Presumptive signs

1. Amenorrhea
2. Nausea and vomiting
3. Increased size and increased feeling of fullness in breasts
4. Pronounced nipples
5. Urinary frequency
6. **Quickening:** The first perception of fetal movement by the mother may occur at the 16th to 20th week of gestation.
7. Fatigue
8. Discoloration of the vaginal mucosa

#### B. Probable signs

1. Uterine enlargement
2. **Hegar's sign:** Compressibility and softening of the lower uterine segment that occurs at about week 6
3. **Goodell's sign:** Softening of the cervix that occurs at the beginning of the second month
4. **Chadwick's sign:** Violet coloration of the mucous membranes of the cervix, **vagina**, and vulva that occurs at about week 6
5. **Ballottement:** Rebounding of the fetus against the examiner's fingers on palpation
6. Braxton Hicks contractions (irregular painless contractions that may occur intermittently throughout pregnancy)
7. Positive pregnancy test for determination of the

presence of human chorionic gonadotropin

C. Positive signs (diagnostic)

1. Fetal heart rate detected by electronic device (Doppler transducer) at 10 to 12 weeks and by nonelectronic device (fetoscope) at 20 weeks of gestation
2. Active fetal movements palpable by examiner
3. Outline of fetus via radiography or ultrasonography

IV. Fundal Height (Box 21-3)

A. Fundal height is measured to evaluate the gestational age of the fetus.



B. During the second and third trimesters (weeks 18 to 30), fundal height in centimeters approximately equals fetal age in weeks  $\pm$  2 cm (Fig. 21-1).

C. At 16 weeks, the fundus can be found approximately halfway between the symphysis pubis and the umbilicus.

D. At 20 to 22 weeks, the fundus is approximately at the location of the umbilicus.

E. At 36 weeks, the fundus is at the xiphoid process.



*When assessing fundal height, monitor the client closely for supine hypotension when placed in the supine position.*



V. Physiological Maternal Changes



*Culture often determines health beliefs, values, and family expectations. Therefore, it is important to assess cultural beliefs during care of the maternity client.*

A. Cardiovascular system

1. Circulating blood volume increases, plasma increases, and total red blood cell volume increases (total volume increases by approximately 40% to 50%).
2. Physiological anemia occurs as the plasma increase exceeds the increase in production of red blood cells.
3. Iron requirements are increased.
4. Heart size increases, and the heart is elevated slightly upward and to the left because of displacement of the diaphragm as the **uterus** enlarges (Fig. 21-2).
5. Retention of sodium and water may occur.

B. Respiratory system

1. Oxygen consumption increases by approximately 15% to 20%.
2. Diaphragm is elevated because of the enlarged uterus (Fig. 21-2).

3. Shortness of breath may be experienced.



*During pregnancy, a woman's pulse rate may increase about*

*10 to 15 beats per minute; the blood pressure slightly decreases in the second trimester, then increases in the third trimester, but not above the prepregnancy level; and the respiratory rate remains unchanged or slightly increases.*

#### C. Gastrointestinal system

1. Nausea and vomiting may occur as a result of the secretion of human chorionic gonadotropin; it typically subsides by the third month.
2. Poor appetite may occur because of decreased gastric motility.
3. Alterations in taste and smell may occur.
4. Constipation may occur because of an increase in progesterone production or pressure of the uterus resulting in decreased gastrointestinal motility.
5. Flatulence and heartburn may occur because of decreased gastrointestinal motility and slowed emptying of the stomach caused by an increase in progesterone production.
6. Hemorrhoids may occur because of increased venous pressure.
7. Gum tissue may become swollen and easily bleed because of increasing levels of estrogen.
8. Ptyalism (excessive secretion of saliva) may occur because of increasing levels of estrogen.

#### D. Renal system

1. Frequency of urination increases in the first and third trimesters because of increased bladder sensitivity and pressure of the enlarging uterus on the bladder.
2. Decreased bladder tone may occur and is caused by an increase in progesterone and estrogen levels; bladder capacity increases in response to increasing levels of progesterone.
3. Renal threshold for glucose may be reduced.

#### E. Endocrine system

1. Basal metabolic rate increases and metabolic function increases.
2. The anterior lobe of the pituitary gland enlarges and produces serum prolactin needed for the lactation process.
3. The posterior lobe of the pituitary gland produces oxytocin, which stimulates uterine contractions.
4. The thyroid enlarges slightly, and thyroid activity increases.
5. The parathyroid increases in size.

6. Aldosterone levels gradually increase.
7. Body weight increases.
8. Water retention is increased, which can contribute to weight gain.

#### F. Reproductive system

##### 1. Uterus

- a. Uterus enlarges, increasing in mass from approximately 60 to 1000 g as a result of hyperplasia (influence of estrogen) and hypertrophy.
- b. Size and number of blood vessels and lymphatics increase.
- c. Irregular contractions occur, typically beginning after 16 weeks of gestation.

##### 2. Cervix

- a. Cervix becomes shorter, more elastic, and larger in diameter.
- b. Endocervical glands secrete a thick mucous plug, which is expelled from the canal when dilation begins.
- c. Increased vascularization and an increase in estrogen cause softening and a violet discoloration known as Chadwick's sign, which occurs at about 6 weeks of gestation.

##### 3. Ovaries

- a. A major function of the ovaries is to secrete progesterone for the first 6 to 7 weeks of pregnancy.
- b. The maturation of new follicles is blocked.
- c. The ovaries cease ovum production.

##### 4. Vagina

- a. Hypertrophy and thickening of the muscle occur.
- b. An increase in vaginal secretions is experienced; secretions are usually thick, white, and acidic.

##### 5. Breasts: Breast changes occur because of the increasing effects of estrogen and progesterone.

- a. Breast size increases, and breasts may be tender.
- b. Nipples become more pronounced.
- c. The areolae become darker in color.
- d. Superficial veins become prominent.
- e. Hypertrophy of Montgomery's follicles occurs.
- f. Colostrum may leak from the breast.

## G. Skin

1. Some changes occur because the levels of melanocyte-stimulating hormone increase as a result of an increase in estrogen and progesterone levels; these changes include the following:
  - a. Increased pigmentation
  - b. Dark streak down the midline of the abdomen (linea nigra)
  - c. Chloasma (mask of pregnancy)—a blotchy brownish hyperpigmentation over the forehead, cheeks, and nose
  - d. Reddish-purple stretch marks (striae gravidarum) on the abdomen, breasts, thighs, and upper arms
2. Vascular spider nevi may occur on the neck, chest, face, arms, and legs.
3. Rate of hair growth may increase.

## H. Musculoskeletal system

1. Changes in the center of gravity begin in the second trimester and are caused by the hormones relaxin and progesterone.
2. The lumbosacral curve increases.
3. Aching, numbness, and weakness may result; walking becomes more difficult, and the woman develops a waddling gait and is at risk for falls.
4. Relaxation and increased mobility of pelvic joints occur, which permit enlargement of pelvic dimensions.
5. Abdominal wall stretches with loss of tone throughout pregnancy, regained postpartum.
6. Umbilicus flattens or protrudes.



*During pregnancy, postural changes occur as the increased weight of the uterus causes a forward pull of the bony pelvis. It is important for the nurse to encourage the client to implement measures that maintain safety and correct posture to prevent a backache.*

## VI. Psychological Maternal Changes

### A. Ambivalence

1. Ambivalence may occur early in pregnancy, even when the pregnancy is planned.
2. The mother may experience a dependence–independence conflict and ambivalence related to role changes.
3. The partner may experience ambivalence related to the new role being assumed, increased financial responsibilities, and sharing the mother’s attention with the child.

B. Acceptance: Factors that may be related to acceptance of the pregnancy are the woman's readiness for the experience and her identification with the motherhood role. Specific developmental tasks must be accomplished successfully for positive maternal role adaptation. These tasks include accepting the pregnancy, identifying with the mothering role, solidifying her relationship with her partner, establishing a relationship with her unborn infant, and preparing for her birth experience.

C. Emotional lability

1. Emotional lability may be manifested by frequent changes of emotional states or extremes in emotional states.
2. These emotional changes are common, but the mother may think that these changes are abnormal.

D. Body image changes

1. The changes in a woman's perception of her image during pregnancy occur gradually and may be positive or negative.
2. The physical changes and signs and symptoms that the woman experiences during pregnancy contribute to her body image.



E. Relationship with the fetus

1. The woman may daydream to prepare for motherhood and think about the maternal qualities that she would like to possess.
2. The woman first accepts the biological fact that she is pregnant.
3. The woman next accepts the growing fetus as distinct from herself and a person to nurture.
4. Finally, the woman prepares realistically for the birth and parenting of the child.



VII. Discomforts of Pregnancy

A. Nausea and vomiting

1. Occurs in the first trimester and usually subsides by the third month
2. Caused by elevated levels of human chorionic gonadotropin and other pregnancy hormones as well as changes in carbohydrate metabolism
3. Interventions
  - a. Eating dry crackers before arising
  - b. Avoiding brushing teeth immediately after arising
  - c. Eating small, frequent, low-fat meals during the day
  - d. Drinking liquids between meals rather

- than at meals
- e. Avoiding fried foods and spicy foods
- f. Asking the primary health care provider (PHCP) about acupuncture (some types may require a prescription)
- g. Asking the PHCP about the use of herbal remedies
- h. Taking antiemetic medications as prescribed

## B. Syncope

1. Usually occurs in the first trimester; supine hypotension occurs particularly in the second and third trimesters.
2. May be triggered hormonally or caused by the increased blood volume, anemia, fatigue, sudden position changes, or lying supine
3. Interventions
  - a. Sitting with the feet elevated
  - b. Risk for falls; teach to change positions slowly



*The nurse needs to instruct the pregnant*

*woman to avoid lying in the supine position, particularly in the second and third trimesters. The supine position places the woman at risk for supine hypotension, which occurs as a result of pressure of the uterus on the inferior vena cava.*

## C. Urinary urgency and frequency

1. Usually occurs in the first and third trimesters
2. Caused by pressure of the uterus on the bladder
3. Interventions
  - a. Drinking no less than 2000 mL of fluid during the day
  - b. Limiting fluid intake in the evening
  - c. Voiding at regular intervals
  - d. Sleeping side-lying at night
  - e. Wearing perineal pads, if necessary
  - f. Performing Kegel exercises

## D. Breast tenderness

1. Can occur in the first through the third trimesters
2. Caused by increased levels of estrogen and progesterone
3. Interventions
  - a. Wearing a supportive bra
  - b. Avoiding the use of soap on the nipples and areolar area to prevent drying of skin



#### E. Increased vaginal discharge

1. Can occur in the first through the third trimesters
2. Caused by hypertrophy and thickening of the vaginal mucosa and increased mucus production
3. Interventions
  - a. Using proper cleansing and hygiene techniques
  - b. Wearing cotton underwear
  - c. Avoiding douching
  - d. Consulting the PHCP if infection is suspected

#### F. Nasal stuffiness

1. Occurs in the first through third trimesters
2. Results from increased estrogen, which causes edema of the nasal tissues and dryness
3. Interventions
  - a. Encouraging the use of a humidifier
  - b. Avoiding the use of nasal sprays or antihistamines (the PHCP should be consulted about their use)

#### G. Fatigue

1. Occurs usually in the first and third trimesters
2. Usually results from hormonal changes
3. Interventions
  - a. Arranging frequent rest periods throughout the day
  - b. Using correct posture and body mechanics
  - c. Obtaining regular exercise
  - d. Performing muscle relaxation and strengthening exercises for the legs and hip joints
  - e. Avoiding eating and drinking foods containing stimulants throughout the pregnancy

#### H. Heartburn

1. Occurs in the second and third trimesters
2. Results from increased progesterone levels, decreased gastrointestinal motility, esophageal reflux, and displacement of the stomach by the enlarging uterus
3. Interventions
  - a. Eating small, frequent meals
  - b. Sitting upright for 30 minutes after a meal
  - c. Drinking milk between meals
  - d. Avoiding fatty and spicy foods
  - e. Performing tailor-sitting exercises
  - f. Consulting with the PHCP about the

use of antacids

I. Ankle edema

1. Usually occurs in the second and third trimesters
2. Results from vasodilation, venous stasis, and increased venous pressure below the uterus
3. Interventions
  - a. Elevating the legs at least twice a day and when resting
  - b. Sleeping in a side-lying position
  - c. Wearing supportive stockings or support hose
  - d. Avoiding sitting or standing in 1 position for long periods

J. Varicose veins

1. Usually occur in the second and third trimesters
2. Result from weakening walls of the veins or valves and venous congestion
3. Thrombophlebitis is rare, but it may occur.
4. Interventions
  - a. Wearing supportive stockings or support hose
  - b. Elevating the feet when sitting
  - c. Lying with the feet and hips elevated
  - d. Avoiding long periods of standing or sitting
  - e. Moving about while standing to improve circulation
  - f. Avoiding leg crossing
  - g. Avoiding constricting articles of clothing such as knee-high stockings
  - h. Teaching leg exercises
  - i. Avoiding airline because of sitting position

K. Headaches

1. Usually considered benign in the first trimester. May need further investigation if occurring in the second and third trimesters
2. Result from changes in blood volume and vascular tone
3. Interventions
  - a. Changing position slowly
  - b. Applying a cool cloth to the forehead
  - c. Eating a small snack
  - d. Using acetaminophen only if prescribed by the PHCP

L. Hemorrhoids

1. Usually occur in the second and third trimesters
2. Result from increased venous pressure and

constipation

3. Interventions

- a. Soaking in a warm sitz bath
- b. Sitting on a soft pillow
- c. Eating high-fiber foods and drinking sufficient fluids to avoid constipation
- d. Increasing exercise, such as walking
- e. Applying ointments, suppositories, or compresses as prescribed by the PHCP

M. Constipation

1. Usually occurs in the second and third trimesters
2. Results from an increase in progesterone production, decreased intestinal motility, displacement of the intestines, pressure of the uterus, and taking iron supplements

3. Interventions

- a. Eating high-fiber foods such as whole grains, fruits, and vegetables
- b. Drinking no less than 2000 mL per day
- c. Exercising regularly, such as a daily 20-minute walk
- d. Consulting with the PHCP about interventions such as the use of stool softeners, laxatives, or enemas

N. Backache

1. Usually occurs in the second and third trimesters
2. Caused by an exaggerated lumbosacral curve resulting from an enlarged uterus
3. Risk for falls; teach to move about slowly

4. Interventions

- a. Obtaining rest
- b. Using correct posture and body mechanics
- c. Wearing low-heeled, comfortable, and supportive shoes
- d. Performing pelvic tilt (rock) exercises and conscious relaxation exercises
- e. Sleeping on a firm mattress

O. Leg cramps

1. Usually occur in the second and third trimesters
2. Result from an altered calcium-phosphorus balance and pressure of the uterus on nerves or from fatigue

3. Interventions

- a. Getting regular exercise, especially walking
- b. Dorsiflexing the foot of the affected leg
- c. Increasing calcium intake

P. Shortness of breath

1. Can occur in the second and third trimesters
2. Results from pressure on the diaphragm from the enlarged uterus
3. Interventions
  - a. Taking frequent rest periods
  - b. Sitting and sleeping with the head elevated or on the side
  - c. Avoiding overexertion

## VIII. Maternal Risk Factors

A. Maternal age: Women younger than 20 years and older than 35 years are at risk for adverse perinatal outcomes.



B. Adolescent pregnancy

1. Factors that result in adolescent pregnancy include the early onset of menarche, sexual behaviors in this age group, problems with family relationships, poverty, and lack of knowledge of reproduction and birth control.
2. Major concerns related to adolescent pregnancy include poor nutritional status; emotional and behavioral difficulties; lack of support systems; increased risk of stillbirth; low-birth-weight **infants**; fetal mortality; cephalopelvic disproportion; and increased risk of maternal complications, such as hypertension, anemia, prolonged **labor**, and infections.
3. The role of the nurse in reducing risks and consequences of adolescent pregnancy is twofold: first, to encourage early and continued prenatal care; and second, to refer the adolescent, if necessary, for appropriate assistance, which can help counter the effects of a negative socioeconomic environment on the pregnancy.

C. Nutrition: Adequate nutrition is necessary for normal fetal growth and development. Nutrition needs are determined by the stage of pregnancy and nutrition should support recommended weight gain during the various stages.



*Women of childbearing age should take folic acid supplements to prevent*

*neural tube defects and orofacial clefts in the fetus.*

D. Genetic considerations: Genetic abnormalities such as defective genes or transmissible inherited disorders can result in congenital anomalies; the nurse should perform a genetic risk assessment to determine an inheritable risk.

E. Health care: Failure to seek and obtain prenatal care, including dental care, increases the risk for preterm birth and low birth

weight.

F. Abuse and violence: Physical abuse and violence can increase the risk for abruptio placentae, preterm birth, and infections from unwanted and forced sex.

G. Medical conditions: Concurrent medical conditions, such as, but not limited to, diabetes mellitus, hypertensive disorder, or cardiac disease, increase the risk of complications during pregnancy.



H. German measles (rubella): Maternal infection during the first 8 weeks of gestation carries the highest rate of fetal infection.

I. Sexually transmitted infections

1. Syphilis

a. Organism may cross the **placenta**.

b. Infection usually leads to spontaneous abortions and increases the incidence of mental subnormality and physical deformities.

2. Condyloma acuminatum (human papillomavirus)

a. Transmission may occur during vaginal birth.

b. Infection is associated with the development of epithelial tumors of the mucous membranes of the larynx in children.

3. Gonorrhea

a. Fetus is contaminated at the time of birth.

b. Maternal infection may result in postpartum infection of the **neonate**.

c. Risks to the neonate include ophthalmia neonatorum, pneumonia, and sepsis.

4. Chlamydial infection

a. Transmission may occur during vaginal birth and can result in neonatal conjunctivitis or pneumonitis.

b. Infection can cause premature rupture of the membranes, premature labor, and postpartum endometritis.

5. Trichomoniasis: Associated with premature rupture of the membranes and postpartum endometritis

6. Genital herpes simplex virus

a. Characterized by painful lesions, fever, chills, malaise, and severe dysuria and may last 2 to 3 weeks

b. Assessment includes questioning all women about signs and symptoms and inspecting the vulvar, perineal, and vaginal areas for vesicles or areas of

ulceration or crusting; this is done during pregnancy and at the onset of labor.

- c. Vaginal birth may be acceptable; cesarean birth is required if visible lesions are present.
- d. Infants who are born through an infected vagina should be observed carefully, and samples should be taken for culture.



#### J. Human immunodeficiency virus (HIV)

1. HIV is transmitted through blood; blood products; and other bodily fluids such as urine, semen, and vaginal secretions; the virus is also transmitted through exposure to infected secretions during birth and through breast milk.
2. Repeated exposure to the virus during pregnancy through unsafe sex practices or intravenous drug use can increase the risk of transmission to the fetus.
3. Perinatal administration of zidovudine may be recommended to decrease the risk of transmission of HIV from mother to fetus.



#### K. Substance abuse

1. Substance abuse threatens normal fetal growth and successful term completion of the pregnancy.
2. Substance abuse places the pregnancy at risk for fetal growth restriction, abruptio placentae, and fetal bradycardia.
3. Many substances cross the placenta and can be teratogenic (drugs, tobacco, alcohol, medications, certain foods such as raw fish); no over-the-counter medications should be taken unless prescribed by the PHCP.
4. Smoking (tobacco) can result in low birth weight, a higher incidence of birth defects, and stillbirths.
5. Physical signs of drug abuse may include dilated or contracted pupils, fatigue, track (needle) marks, skin abscesses, inflamed nasal mucosa, and inappropriate behavior by the mother.
6. Consumption of alcohol during pregnancy may lead to fetal alcohol syndrome and can cause jitteriness, physical abnormalities, congenital anomalies, and growth deficits in the **newborn**.

L. Viral hepatitis (see [Chapters 22](#), [33](#), and [48](#) for information regarding hepatitis B infection)

## IX. Antepartum Diagnostic Testing



*The usual schedule for antepartum health care visits is every 4 weeks for the first 28 to 32 weeks, every 2 weeks from 32 to 36 weeks, and every week from 36 to 40 weeks.*



### A. Blood type and Rh factor

1. ABO typing is performed to determine the woman's blood type in the ABO antigen system.
2. Rh typing is done to determine the woman's blood type in the rhesus antigen system. (*Rh positive* indicates the presence of the antigen; *Rh negative* indicates the absence of the antigen.)
3. If the client is Rh negative and has a negative antibody screen, she will need repeat antibody screens and should receive Rh<sub>o</sub>(D) immune globulin (RhoGAM) at 28 weeks of gestation.



### B. Rubella titer

1. If the client has a negative titer (less than 1:8), indicating susceptibility to the rubella virus, she should receive the appropriate immunization postpartum.
2. The client must be using effective birth control at the time of the immunization and must be counseled not to become pregnant for 1 to 3 months after immunization (as specified by the PHCP) and to avoid contact with anyone who is immunocompromised.
3. If the rubella vaccine is administered at the same time as Rh<sub>o</sub>(D) immune globulin, it may not be effective.
4. Rubella vaccine is administered postpartum (before discharge) via the subcutaneous route if the titer is less than 1:8; inquire about sensitivity to eggs.



*Rubella vaccine is not given during pregnancy because the live attenuated virus may cross the placenta and present a risk to the developing fetus.*

### C. Hemoglobin and hematocrit levels

1. Hemoglobin and hematocrit levels decline during gestation as a result of increased plasma volume.
2. A decrease in the hemoglobin level to less than 10 g/dL (100 mmol/L) or in the hematocrit level to less than 30% indicates anemia.

D. Papanicolaou's smear may be done during the initial prenatal examination to screen for cervical neoplasia if the woman has not had a screening before or is beyond the recommended timeframe since her last screening.

E. Sexually transmitted infections ([Table 21-1](#))

F. Sickle cell screening

1. Screening is indicated for clients at risk for sickle cell disease.
2. A positive test may indicate a need for further screening.



G. Tuberculin skin test

1. The PHCP may prefer to perform this skin test after **birth**.
2. A positive skin test indicates the need for a chest radiograph (using an abdominal lead shield) to rule out active disease; in a pregnant client, chest radiography would not be performed until after 20 weeks of gestation (after the fetal organs are formed).
3. Converters to positive may be referred for treatment with medication after birth.

H. Hepatitis B surface antigens

1. Testing for hepatitis antigens is recommended for all women because of the prevalence of the disease in the general population.
2. Vaccination for hepatitis B antigen may be specifically indicated for the following:
  - a. Health care workers
  - b. Intravenous drug users
  - c. Clients born in Asia, Africa, Haiti, or the Pacific islands
  - d. Clients with previously undiagnosed jaundice or chronic liver disease
  - e. Clients with tattoos
  - f. Clients with histories of blood transfusions
  - g. Clients with histories of multiple episodes of sexually transmitted infections
  - h. Clients who have been rejected previously as blood donors
  - i. Clients with histories of dialysis or renal transplantation
  - j. Clients from households having members infected with hepatitis B or hemodialysis clients
3. Hepatitis B vaccine is not contraindicated during pregnancy and may be recommended by the PHCP.



4. See [Chapters 22, 33, and 48](#) for additional information about hepatitis.

#### I. Glucose challenge test (GCT)

1. Screening for gestational diabetes mellitus begins at the initial prenatal visit and is diagnosed by a fasting blood glucose greater than 126 mg/dL (7.0 mmol/L), A1C greater than 6.5%, or a random plasma glucose level greater than 200 mg/dL (11.1 mmol/L), then subsequently confirmed by an elevated fasting glucose level or A1C.
2. According to the American Congress of Obstetricians and Gynecologists (ACOG), a GCT using a two-step approach should be used in screening for gestational diabetes mellitus (GDM).
3. A 50-g oral glucose load without regard to time of day is given. After 1 hour a plasma or serum glucose level is drawn and is considered elevated if it is greater than 140 mg/dL (7.8 mmol/L) and a 3-hour GCT should be done.
4. If the 3-hour GCT is above 130 to 140 mg/dL (7.2 to 7.8 mmol/L), it is considered a positive result and may be indicative of GDM.
5. It is important to note that the GCT has 86% sensitivity, and some false positives may be noted.

#### J. Urinalysis and urine culture

1. A urine specimen for glucose and protein determinations should be obtained at every antepartum visit.
2. Glycosuria is a common result of decreased renal threshold that occurs during pregnancy.
3. If glycosuria persists, it may indicate diabetes.
4. White blood cells in the urine may indicate infection.
5. Ketonuria may result from insufficient food intake or vomiting.
6. Levels of 2 + to 4 + protein in the urine may indicate infection or preeclampsia.

#### K. Ultrasonography

1. Outlines and identifies fetal and maternal structures
2. Assists in confirming gestational age and estimated date of delivery and evaluating **amniotic fluid** volume (amniotic fluid index), which is done via special measurements
3. May be done abdominally or transvaginally during pregnancy
4. Can be used to determine the presence of premature dilation of the cervix (incompetent cervix). A transvaginal ultrasound is used during the first trimester to check the length of the cervix.

## 5. Interventions

- a. If an abdominal ultrasound is being performed, the woman may need to drink water to fill the bladder before the procedure to obtain a better image of the fetus.
- b. If a transvaginal ultrasound is being performed, a lubricated probe is inserted into the vagina.
- c. The client should be informed that the test presents no known risks to the client or the fetus.

## L. Biophysical profile

1. Noninvasive assessment of the fetus that includes fetal breathing movements, fetal movements, fetal tone, amniotic fluid index, and fetal heart rate patterns via a nonstress test
2. Normal fetal biophysical activities indicate that the central nervous system is functional and that the fetus is not hypoxemic.

## M. Doppler blood flow analysis: Noninvasive (ultrasonography) method of studying the blood flow in the fetus and placenta

## N. Percutaneous umbilical blood sampling

1. Percutaneous umbilical blood sampling is performed if fetal blood sampling is necessary; it involves insertion of a needle directly into the fetal umbilical vessel under ultrasound guidance.
2. Fetal heart rate monitoring is necessary for 1 hour after the procedure, and a follow-up ultrasound to check for bleeding or hematoma formation is done 1 hour after the procedure.

## O. $\alpha$ -Fetoprotein screening

1. Assesses the quantity of fetal serum proteins; abnormal protein levels are associated with open neural tube and abdominal wall defects
2. Assists in screening for spina bifida and Down syndrome
3. If abnormal, repeat test; false positive is common.
4. Interventions
  - a.  $\alpha$ -Fetoprotein level is determined by a maternal blood sample drawn between 16 and 18 weeks of gestation.
  - b. If the level is abnormal and the gestation is less than 18 weeks, a second sample is drawn and screened.
  - c. An ultrasound is performed for elevated levels to rule out fetal abnormalities or multiple gestation.

P. Deoxyribonucleic acid (DNA) genetic testing

1. Can be used to detect abnormalities related to an inherited condition
2. Assists in determining if the woman is at risk for having a fetus with Down syndrome (trisomy 21), Edwards syndrome (trisomy 18), or Patau syndrome (trisomy 13).
3. Interventions: This type of testing can be done as early as 7 weeks of gestation, and a blood sample is used.

Q. Chorionic villus sampling

1. Performed for the purpose of detecting genetic abnormalities; the PHCP aspirates a small sample of chorionic villus tissue at 10 to 13 weeks of gestation.
2. Interventions
  - a. Ensure informed consent was obtained.
  - b. The client may need to drink water to fill the bladder before the procedure to aid in the visualization of the uterus for catheter insertion.
  - c. Obtain baseline vital signs and fetal heart rate; monitor frequently after the procedure.
  - d. Rh-negative women may be given Rh<sub>o</sub>(D) immune globulin, because chorionic villus sampling increases the risk of Rh sensitization.



R. Amniocentesis

1. Aspiration of amniotic fluid; best performed between 15 and 20 weeks of pregnancy because amniotic fluid volume is adequate and many viable fetal cells are present in the fluid by this time
2. Performed to determine genetic disorders, metabolic defects, and fetal lung maturity
3. Risks
  - a. Maternal hemorrhage
  - b. Infection
  - c. Rh isoimmunization
  - d. Abruptio placentae
  - e. Amniotic fluid emboli
  - f. Premature rupture of the membranes
4. Interventions
  - a. Ensure informed consent was obtained.
  - b. If less than 20 weeks of gestation, the client should have a full bladder to support the uterus; if performed after 20 weeks of gestation, the client should

- have an empty bladder to minimize the chance of puncture.
- c. Prepare the client for ultrasonography, which is performed to locate the placenta and avoid puncture.
  - d. Obtain baseline vital signs and fetal heart rate; monitor every 15 minutes.
  - e. Position the client supine during the examination and on the left side after the procedure.



*After chorionic villus sampling and*

*amniocentesis, instruct the client that if chills, fever, bleeding, leakage of fluid at the needle insertion site, decreased fetal movement, uterine contractions, or cramping occurs, she must notify the PHCP.*

#### S. Kick counts (fetal movement counting)

1. Beginning at 28 weeks' gestation, the client sits quietly or lies down on her side and counts fetal kicks as instructed.
2. Instruct the client to notify the PHCP if there are fewer than 10 kicks in 2 consecutive 2-hour periods or as instructed by the PHCP.

#### T. Fern test

1. The fern test is a microscopic slide test to determine the presence of amniotic fluid leakage.
2. Using sterile technique, a specimen is obtained from the external os of the cervix and vaginal pool and is examined on a slide under a microscope.
3. A fern-like pattern produced by the effects of salts of the amniotic fluid indicates the presence of amniotic fluid; may be done in conjunction with the Nitrazine test.
4. Interventions
  - a. Position the client in the dorsal lithotomy position.
  - b. Instruct the client to cough, which causes the amniotic fluid to leak from the uterus if the membranes are ruptured.

#### U. Nitrazine test

1. A nitrazine test strip is used to detect the presence of amniotic fluid in vaginal secretions.
2. Vaginal secretions have a pH of 4.5 to 5.5 and do not affect the nitrazine strip or swab.
3. Amniotic fluid has a pH of 7.0 to 7.5 and turns the

nitrazine strip or swab blue.

#### 4. Interventions

- a. Position the client in the dorsal lithotomy position.
- b. Touch the test tape to the fluid.
- c. Assess the test tape for a blue-green, blue-gray, or deep blue color, which indicates that the membranes are ruptured, causing leakage of amniotic fluid.

#### V. Fibronectin test

1. Sampling of cervical and vaginal secretions for fetal fibronectin; done between week 22 and week 34 of pregnancy if the primary health care provider is concerned about preterm labor.
2. Positive results may indicate the onset of labor in 1 to 3 weeks; negative test results are more predictive that preterm labor will not begin.
3. Test used if at risk for preterm labor, before 37 weeks of gestation
4. Interventions
  - a. Client is placed in lithotomy position for sterile speculum exam.
  - b. Cervical secretions are obtained with cotton swab.
  - c. Laboratory tests are done for the presence of fibronectin.

W. Nonstress test (Box 21-4)

X. Contraction stress test (Box 21-5)

#### X. Nutrition

##### A. General guidelines

1. Guidelines for health and nutrition information for breast-feeding and pregnant women are located at the U.S. Department of Agriculture ChooseMyPlate website at [www.choosemyplate.gov/moms-pregnancy-breastfeeding](http://www.choosemyplate.gov/moms-pregnancy-breastfeeding). The woman should be assisted with accessing this site and preparing a nutritional plan.
2. The average expected weight gain during pregnancy is 25 to 35 lb (11 to 16 kg) for women with a normal prepregnancy weight.
3. An increase of about 300 calories/day is needed during pregnancy.
4. Calorie needs are greater in the last 2 trimesters than in the first.
5. An increase of about 500 calories/day is needed during lactation.
6. A diet high in folic acid or folic acid supplements is

necessary for all women of childbearing age to prevent neural tube defects and orofacial clefts in the fetus.

7. At least 8 to 10 (8-oz) glasses of fluid are needed each day, of which 4 to 6 glasses should be water.
8. Sodium is not restricted unless specifically prescribed by the PHCP.

#### B. Vegan and Vegetarian Diets (see [Chapter 11](#))

1. Ensure that the client eats a sufficient amount of varied foods to meet normal nutrient and energy needs.
2. Clients should be educated about consuming complementary proteins over the course of each day to ensure that all essential amino acids are provided.
3. Potential deficiencies in vegetarian diets include energy, protein, vitamin B<sub>12</sub>, zinc, iron, calcium, omega-3 fatty acids, and vitamin D (if limited exposure to sunlight).
4. Protein consumption can be increased by consumption of a variety of vegetable protein sources based on whole grains, legumes, seeds, nuts, and vegetables combined to provide all essential amino acids.
5. To enhance absorption of iron, vegetarians should include a good source of iron and vitamin C with each meal.
6. Foods commonly eaten include tofu, tempeh, soy milk and soy products, meat analogs, legumes, nuts and seeds, sprouts, and a variety of fruits and vegetables.

#### C. Lactose intolerance

1. Lactose consumed by an individual with lactose intolerance can cause abdominal distention, discomfort, nausea, vomiting, cramps, and loose stools.
2. Clients with lactose intolerance need to incorporate sources of calcium other than dairy products into their dietary patterns regularly.
3. Milk may be tolerated in cooked form, such as in custards or fermented dairy products.
4. Cheese and yogurt sometimes are tolerated.
5. Lactase, an enzyme, may be prescribed and is taken before ingesting milk or milk products.
6. Lactase-treated milk or lactose-free products are also available commercially.

#### D. Pica

1. Pica refers to eating nonfood substances, such as dirt, clay, starch, and freezer frost.
2. The cause is unknown; cultural values, such as beliefs regarding the effect of a material on the mother or

- fetus, may make pica a common practice.
3. Iron deficiency anemia may occur as a result of pica.

### **Box 21-1**

## **Näegele's Rule for Estimating the Date of Delivery**

First day of last menstrual period: September 12, 2021  
Subtract 3 months: June 12, 2021  
Add 7 days: June 19, 2021  
Add 1 year: June 19, 2022  
Estimated date of delivery: June 19, 2022

### **Box 21-2**

## **Describing Pregnancy Outcome with GTPAL**

G = Gravidity  
T = Term births  
P = Preterm births  
A = Abortions or miscarriages  
L = Current living children

*Example:* A woman is pregnant for the fourth time. She had 1 elective abortion in the first trimester, a daughter who was born at 40 weeks of gestation, and a son who was born at 36 weeks of gestation. She is gravida (G), 4; term (T), 1 (the daughter born at 40 weeks); preterm (P), 1 (the son born at 36 weeks); abortion (A), 1 (the abortion is counted in the gravidity, but is not included in the parity because it occurred before 20 weeks); living children (L), 2. Parity is the number of births (not the number of fetuses) carried past 20 weeks of gestation, whether or not the fetus was born alive. Therefore, the parity for this woman is 2.

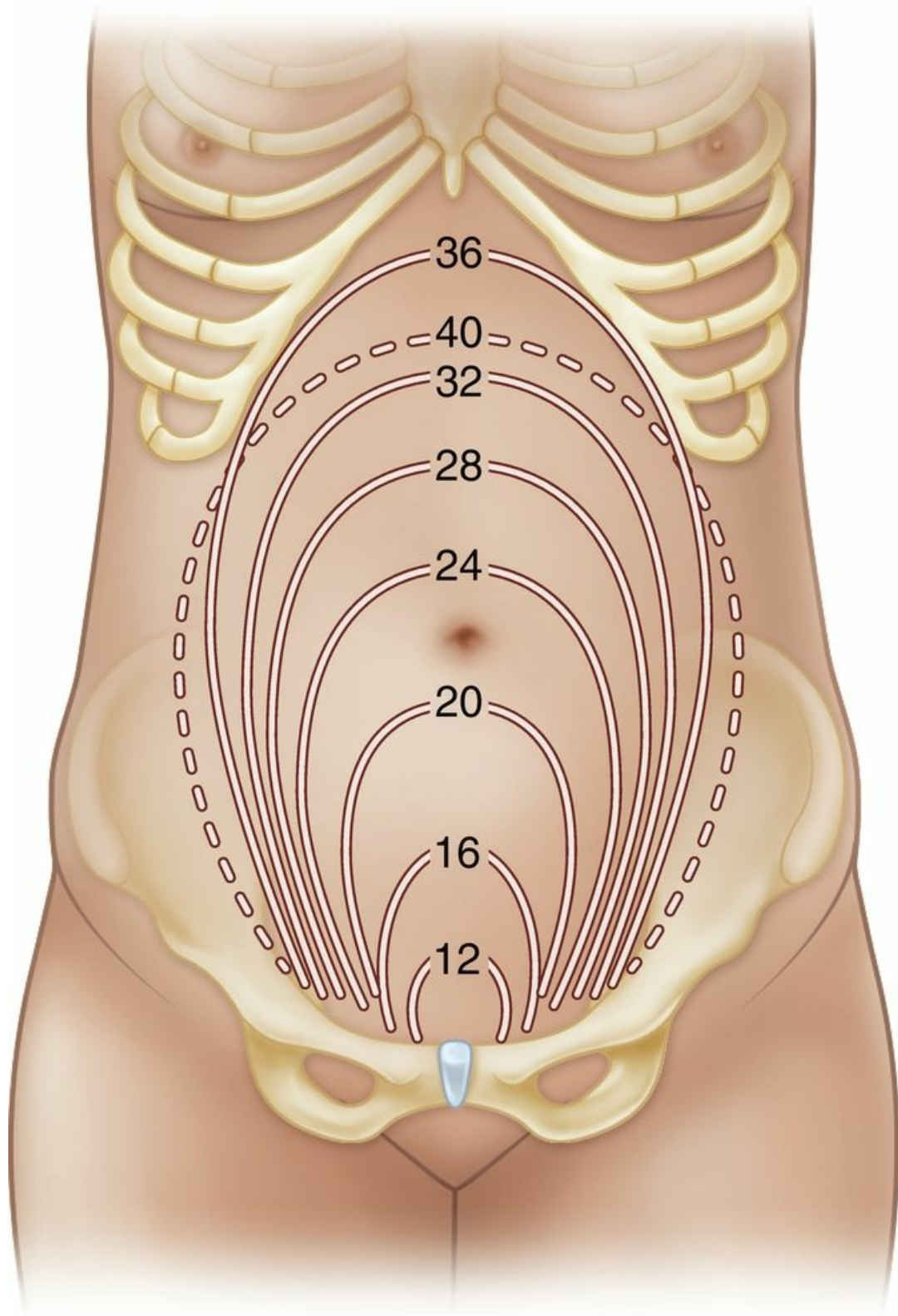
GTPAL = 4,1,1,1,2

### **Box 21-3**

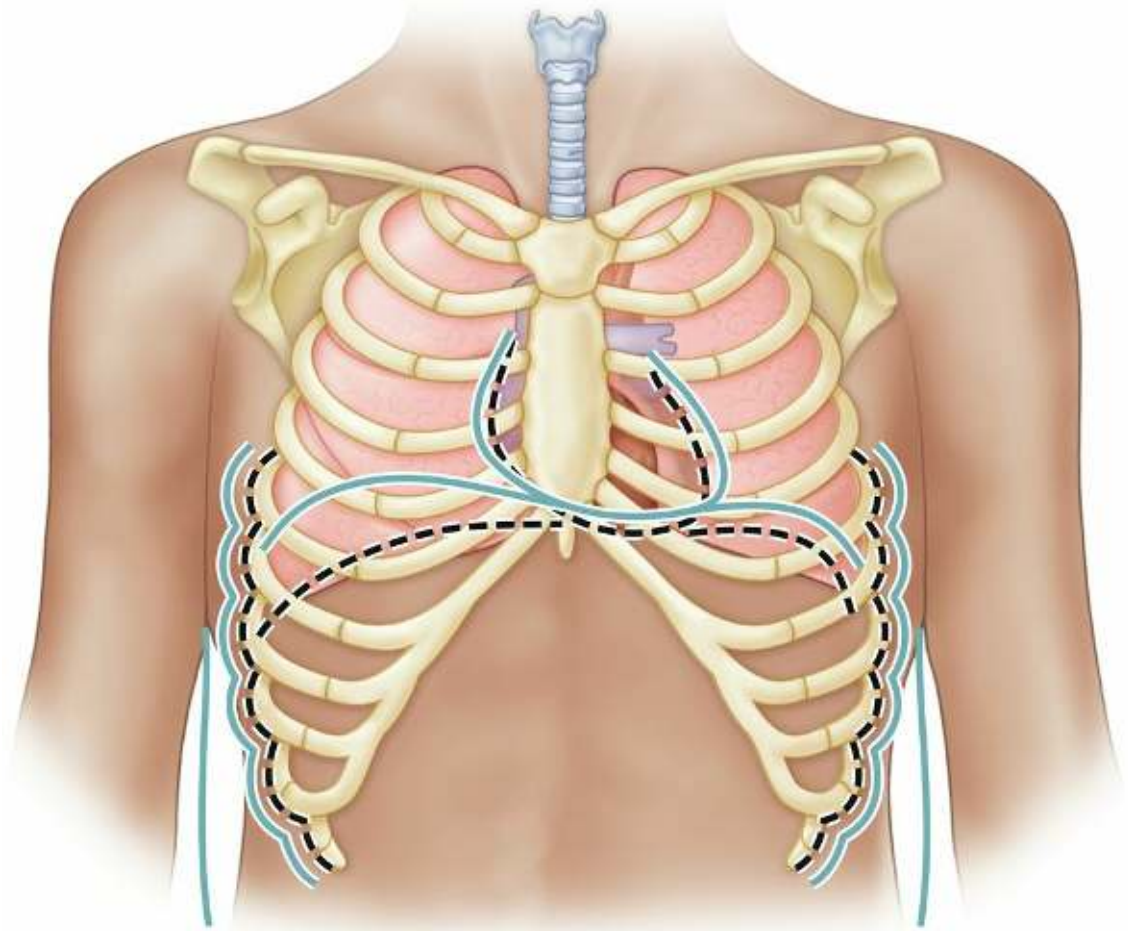
## **Measuring Fundal Height**

1. Place the client in the supine position.
2. Place the end of the tape measure at the level of the symphysis pubis.
3. Stretch the tape to the top of the uterine fundus.
4. Note and record the measurement.





**FIG. 21-1** Height of fundus by weeks of normal gestation with a single fetus. *Dashed line*, Height after lightening (descent of the fetus toward the pelvic inlet before labor).



**FIG. 21-2** Changes in position of heart, lungs, and thoracic cage in pregnancy. *Broken line*, Nonpregnant state. *Solid line*, Change that occurs in pregnancy.

**Table 21-1**

**Monitoring for Sexually Transmitted Infections**

Disease	Laboratory Test
Gonorrhea	Vaginal culture is done during initial prenatal examination to screen for gonorrhea. Culture may be repeated during third trimester in high-risk clients.
Syphilis	Culture of lesions (if present) is done during initial prenatal examination to screen for syphilis. Diagnosis depends on microscopic examination of primary and secondary lesion tissue and serology (Venereal Disease Research Laboratory [VDRL] or rapid plasma reagin [RPR] test) during latency and late infection. Culture may be repeated during the third trimester in high-risk clients.
Condyloma acuminatum (human papillomavirus)	Culture is indicated for clients with positive history or with active lesions. Test is performed to determine route of delivery. Weekly cultures may be done at week 35 or 36 of pregnancy until birth.
<i>Chlamydia</i>	Vaginal culture is indicated for all pregnant clients if client is in a high-risk group or if infants from previous pregnancies have developed neonatal conjunctivitis or pneumonia.
Trichomoniasis	Normal saline wet smear of vaginal secretions is checked for presence of protozoa. Associated with premature rupture of membranes and postpartum endometritis.
Genital herpes simplex virus (HSV-2)	Culture is done of lesions (if present) during initial prenatal examination to screen for HSV. Microscopic examination is done to determine presence of virus. Additional screening may be necessary as pregnancy progresses.
HIV	Testing may be done for a high-risk client. Common tests to determine the presence of antibodies include ELISA, Western blot, and immunofluorescence assay (IFA).

ELISA, Enzyme-linked immunosorbent assay; HIV, human immunodeficiency virus.

## **Box 21-4**

### **Nonstress Test**

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#### **Description**

Test is performed to assess placental function and oxygenation.  
Test determines fetal well-being.  
Test evaluates the fetal heart rate (FHR) response to fetal movement.

#### **Interventions**

An external ultrasound transducer and tocodynamometer are applied to the client, and a tracing of at least 20 minutes' duration is obtained so that the FHR and uterine activity can be observed.  
Baseline blood pressure is obtained, and blood pressure is monitored frequently.  
The client is placed in the lateral (side-lying) position to avoid vena cava compression.  
The client may be asked to press a button every time she feels fetal movement; the monitor records a mark at each point of fetal movement, which is used as a reference point to assess the FHR response.

#### **Results**

##### **Reactive Nonstress Test (Normal, Negative)**

"Reactive" indicates a healthy fetus.  
The result requires 2 or more FHR accelerations of at least 15 beats per minute, lasting at least 15 seconds from the beginning of the acceleration to the end, in association with fetal movement, during a 20-minute period.

##### **Nonreactive Nonstress Test (Abnormal)**

No accelerations or accelerations of less than 15 beats per minute or lasting less than 15 seconds in duration occur during a 40-minute observation.

##### **Unsatisfactory**

The result cannot be interpreted because of the poor quality of the FHR tracing.

## **Box 21-5**

### **Contraction Stress Test**

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## Description

Test assesses placental oxygenation and function.  
Test determines fetal ability to tolerate labor and determines fetal well-being.  
Fetus is exposed to the stress of contractions to assess the adequacy of placental perfusion under simulated labor conditions.  
Test is performed if nonstress test is abnormal.

## Interventions

External fetal monitor is applied to the client, and a 20- to 30-minute baseline strip is recorded.  
The uterus is stimulated to contract by the administration of a dilute dose of oxytocin or by having the client use nipple stimulation until 3 palpable contractions with a duration of 40 seconds or more in a 10-minute period have been achieved.  
Frequent maternal blood pressure readings are done, and the mother is monitored closely while increasing doses of oxytocin are given.

## Results

### Negative Contraction Stress Test (Normal)

A negative result is represented by no late decelerations of the fetal heart rate (FHR).

### Positive Contraction Stress Test (Abnormal)

A positive result is represented by late decelerations of the FHR, with 50% or more of the contractions in the absence of hyperstimulation of the uterus.

### Equivocal

An equivocal result contains decelerations, but with less than 50% of the contractions, or uterine activity shows a hyperstimulated uterus.

### Unsatisfactory

An unsatisfactory result means that adequate uterine contractions cannot be achieved, or the FHR tracing is of insufficient quality for adequate interpretation.

## Practice Questions

194. The nurse is providing instructions to a pregnant client who is scheduled for

an amniocentesis. What instruction should the nurse provide?

1. Strict bed rest is required after the procedure.
  2. Hospitalization is necessary for 24 hours after the procedure.
  3. An informed consent needs to be signed before the procedure.
  4. A fever is expected after the procedure because of the trauma to the abdomen.
195. A pregnant client in the first trimester calls the nurse at a health care clinic and reports that she has noticed a thin, colorless vaginal drainage. The nurse should make which statement to the client?
1. "Come to the clinic immediately."
  2. "The vaginal discharge may be bothersome, but is a normal occurrence."
  3. "Report to the emergency department at the maternity center immediately."
  4. "Use tampons if the discharge is bothersome, but be sure to change the tampons every 2 hours."
196. A nonstress test is performed on a client who is pregnant, and the results of the test indicate nonreactive findings. The primary health care provider prescribes a contraction stress test, and the results are documented as negative. How should the nurse document this finding?
1. A normal test result
  2. An abnormal test result
  3. A high risk for fetal demise
  4. The need for a cesarean section
197. A rubella titer result of a 1-day postpartum client is less than 1:8, and a rubella virus vaccine is prescribed to be administered before discharge. The nurse provides which information to the client about the vaccine? **Select all that apply.**
1. Breast-feeding needs to be stopped for 3 months.
  2. Pregnancy needs to be avoided for 1 to 3 months.
  3. The vaccine is administered by the subcutaneous route.
  4. Exposure to immunosuppressed individuals needs to be avoided.
  5. A hypersensitivity reaction can occur if the client has an allergy to eggs.
  6. The area of the injection needs to be covered with a sterile gauze for 1 week.
198. The nurse in a health care clinic is instructing a pregnant client how to perform "kick counts." Which statement by the client indicates a **need for further instruction**?
1. "I will record the number of movements or kicks."
  2. "I need to lie flat on my back to perform the procedure."
  3. "If I count fewer than 10 kicks in a 2-hour period, I should count the kicks again over the next 2 hours."
  4. "I should place my hands on the largest part of my abdomen and

concentrate on the fetal movements to count the kicks.”

199. The nurse is performing an assessment of a pregnant client who is at 28 weeks of gestation. The nurse measures the fundal height in centimeters and notes that the fundal height is 30 cm. How should the nurse interpret this finding?

1. The client is measuring large for gestational age.
2. The client is measuring small for gestational age.
3. The client is measuring normal for gestational age.
4. More evidence is needed to determine size for gestational age.

200. The nurse is performing an assessment on a client who suspects that she is pregnant and is checking the client for probable signs of pregnancy. The nurse should assess for which probable signs of pregnancy? **Select all that apply.**

- 1. Ballottement
- 2. Chadwick’s sign
- 3. Uterine enlargement
- 4. Positive pregnancy test
- 5. Fetal heart rate detected by a nonelectronic device
- 6. Outline of fetus via radiography or ultrasonography

201. A pregnant client is seen for a regular prenatal visit and tells the nurse that she is experiencing irregular contractions. The nurse determines that she is experiencing Braxton Hicks contractions. On the basis of this finding, which nursing action is appropriate?

1. Contact the primary health care provider.
2. Instruct the client to maintain bed rest for the remainder of the pregnancy.
3. Inform the client that these contractions are common and may occur throughout the pregnancy.
4. Call the maternity unit and inform them that the client will be admitted in a preterm labor condition.

202. A client arrives at the clinic for the first prenatal assessment. She tells the nurse that the first day of her last normal menstrual period was October 19, 2020. Using Nägele’s rule, which expected date of delivery should the nurse document in the client’s chart?

1. July 12, 2021
2. July 26, 2021
3. August 12, 2021
4. August 26, 2021

203. The nurse is collecting data during an admission assessment of a client who is pregnant with twins. The client has a healthy 5-year-old child who was delivered at 38 weeks and tells the nurse that she does not have a history of any type of abortion or fetal demise. Using GTPAL, what should the nurse document in the client’s chart?

1. G = 3, T = 2, P = 0, A = 0, L = 1
2. G = 2, T = 1, P = 0, A = 0, L = 1

3. G = 1, T = 1, P = 1, A = 0, L = 1

4. G = 2, T = 0, P = 0, A = 0, L = 1

## Answers

194. *Answer:* 3

**Rationale:** Because amniocentesis is an invasive procedure, informed consent needs to be obtained before the procedure. After the procedure, the client is instructed to rest, but may resume light activity after the cramping subsides. The client is instructed to keep the puncture site clean and to report any complications, such as chills, fever, bleeding, leakage of fluid at the needle insertion site, decreased fetal movement, uterine contractions, or cramping. Amniocentesis is an outpatient procedure and may be done in the obstetrician's office or in a special prenatal testing unit. Hospitalization is not necessary after the procedure.

**Test-Taking Strategy:** Focus on the **subject**, nursing implications related to amniocentesis. Recalling that this procedure is invasive will direct you to the correct option.

**Level of Cognitive Ability:** Applying

**Client Needs:** Physiological Integrity

**Integrated Process:** Teaching and Learning

**Content Area:** Maternity: Antepartum

**Health Problem:** N/A

**Priority Concepts:** Client Education; Health Care Law

**Reference:** McKinney et al. (2018), pp. 17, 280.

195. *Answer:* 2

**Rationale:** Leukorrhea begins during the first trimester. Many clients notice a thin, colorless, or yellow vaginal discharge throughout pregnancy. Some clients become distressed about this condition, but it does not require that the client report to the health care clinic or emergency department immediately. If vaginal discharge is profuse, the client may use panty liners, but she should not wear tampons because of the risk of infection. If the client uses panty liners, she should change them frequently.

**Test-Taking Strategy:** Eliminate options 1 and 3 first because they are **comparable or alike**, indicating that the client requires medical attention. From the remaining options, recalling that this manifestation is a normal physiological occurrence or that tampons should be avoided will assist in directing you to the correct option.

**Level of Cognitive Ability:** Applying

**Client Needs:** Health Promotion and Maintenance

**Integrated Process:** Nursing Process—Implementation

**Content Area:** Maternity: Antepartum

**Health Problem:** N/A

**Priority Concepts:** Health Promotion; Reproduction

**Reference:** Lowdermilk et al. (2016), p. 289.

196. *Answer:* 1

**Rationale:** Contraction stress test results may be interpreted as negative (normal), positive (abnormal), or equivocal. A negative test result indicates that no late decelerations occurred in the fetal heart rate, although the fetus was stressed by 3 contractions of at least 40 seconds' duration in a 10-minute period. Options 2, 3, and 4 are incorrect interpretations.

**Test-Taking Strategy:** Note that options 2, 3, and 4 are **comparable or alike** in that they indicate an abnormal test result finding.

**Level of Cognitive Ability:** Applying

**Client Needs:** Physiological Integrity

**Integrated Process:** Nursing Process—Assessment

**Content Area:** Maternity: Antepartum

**Health Problem:** N/A

**Priority Concepts:** Perfusion; Reproduction

**Reference:** McKinney et al. (2018), pp. 283-284.

197. *Answer:* 2, 3, 4, 5

**Rationale:** Rubella vaccine is administered to women who have not had rubella or women who are not serologically immune. The vaccine may be administered in the immediate postpartum period to prevent the possibility of contracting rubella in future pregnancies. The live attenuated rubella virus is not communicable in breast milk; breast-feeding does not need to be stopped. The client is counseled not to become pregnant for 1 to 3 months after immunization or as specified by the obstetrician because of a possible risk to a fetus from the live virus vaccine; the client must be using effective birth control at the time of the immunization. The client should avoid contact with immunosuppressed individuals because of their low immunity toward live viruses and because the virus is shed in the urine and other body fluids. The vaccine is administered by the subcutaneous route. A hypersensitivity reaction can occur if the client has an allergy to eggs because the vaccine is made from duck eggs. There is no useful or necessary reason for covering the area of the injection with a sterile gauze.

**Test-Taking Strategy:** Focus on the **subject**, client instructions regarding the rubella vaccine. Recalling that the rubella vaccine is a live virus vaccine will assist in selecting options 2 and 5. Next, recalling the route of administration and the contraindications associated with its use will assist in selecting options 3 and 4.

**Level of Cognitive Ability:** Analyzing

**Client Needs:** Health Promotion and Maintenance

**Integrated Process:** Teaching and Learning

**Content Area:** Maternity: Postpartum

**Health Problem:** Maternity: Infections/Inflammations

**Priority Concepts:** Client Education; Immunity

**Reference:** McKinney et al. (2018), p. 401.

198. *Answer:* 2



**Rationale:** The client should sit or lie quietly on her side to perform kick counts. Lying flat on the back is not necessary to perform this procedure, can cause discomfort, and presents a risk of vena cava (supine hypotensive) syndrome. The client is instructed to place her hands on the largest part of the abdomen and concentrate on the fetal movements. The client records the number of movements felt during a specified time period. The client needs to notify the primary health care provider (PHCP) if she feels fewer than 10 kicks over two consecutive 2-hour intervals or as instructed by the PHCP.

**Test-Taking Strategy:** Note the **strategic words**, *need for further instruction*. These words indicate a **negative event query** and ask you to select an option that is an incorrect statement. If you are unfamiliar with this procedure, recalling that the risk of vena cava (supine hypotensive) syndrome exists when the client lies on her back will direct you to the correct option.

**Level of Cognitive Ability:** Evaluating

**Client Needs:** Health Promotion and Maintenance

**Integrated Process:** Teaching and Learning

**Content Area:** Maternity: Antepartum

**Health Problem:** N/A

**Priority Concepts:** Client Education; Perfusion

**Reference:** McKinney et al. (2018), p. 285.

199. **Answer:** 3

**Rationale:** During the second and third trimesters (weeks 18 to 30), fundal height in centimeters approximately equals the fetus's age in weeks  $\pm 2$  cm. Therefore, if the client is at 28 weeks' gestation, a fundal height of 30 cm would indicate that the client is measuring normal for gestational age. At 16 weeks, the fundus can be located halfway between the symphysis pubis and the umbilicus. At 20 to 22 weeks, the fundus is at the umbilicus. At 36 weeks, the fundus is at the xiphoid process.

**Test-Taking Strategy:** Focus on the **subject**, the location of fundal height. Remember that during the second and third trimesters (weeks 18 to 30), fundal height in centimeters approximately equals the fetus's age in weeks  $\pm 2$  cm.

**Level of Cognitive Ability:** Analyzing

**Client Needs:** Health Promotion and Maintenance

**Integrated Process:** Nursing Process—Assessment

**Content Area:** Maternity: Antepartum

**Health Problem:** N/A

**Priority Concepts:** Development; Reproduction

**Reference:** Lowdermilk et al. (2016), pp. 287, 315-316.

200. **Answer:** 1, 2, 3, 4

**Rationale:** The probable signs of pregnancy include uterine enlargement, Hegar's sign (compressibility and softening of the lower uterine segment that occurs at about week 6), Goodell's sign (softening of the cervix that occurs at the beginning of the second month), Chadwick's sign (violet coloration of the mucous membranes of the cervix, vagina, and vulva that occurs at about week 4), ballottement (rebounding of

the fetus against the examiner's fingers on palpation), Braxton Hicks contractions, and a positive pregnancy test for the presence of human chorionic gonadotropin. Positive signs of pregnancy include fetal heart rate detected by electronic device (Doppler transducer) at 10 to 12 weeks and by nonelectronic device (fetoscope) at 20 weeks of gestation, active fetal movements palpable by the examiner, and an outline of the fetus by radiography or ultrasonography.

**Test-Taking Strategy:** Focusing on the **subject**, probable signs of pregnancy, will assist in answering this question. Remember that detection of the fetal heart rate and an outline of the fetus via radiography or ultrasonography are positive signs of pregnancy.

**Level of Cognitive Ability:** Analyzing

**Client Needs:** Health Promotion and Maintenance

**Integrated Process:** Nursing Process—Assessment

**Content Area:** Maternity: Antepartum

**Health Problem:** N/A

**Priority Concepts:** Development; Reproduction

**Reference:** Lowdermilk et al. (2016), pp. 286, 302.

201. **Answer:** 3

**Rationale:** Braxton Hicks contractions are irregular, painless contractions that may occur intermittently throughout pregnancy. Because Braxton Hicks contractions may occur and are normal in some pregnant women during pregnancy, there is no reason to notify the primary health care provider. This client is not in preterm labor and, therefore, does not need to be placed on bed rest or be admitted to the hospital to be monitored.

**Test-Taking Strategy:** Options 1 and 4 are **comparable or alike** and can be eliminated first. From the remaining options, knowing that Braxton Hicks contractions are common and normal and can occur throughout pregnancy will assist in directing you to the correct option.

**Level of Cognitive Ability:** Applying

**Client Needs:** Health Promotion and Maintenance

**Integrated Process:** Nursing Process—Implementation

**Content Area:** Maternity: Antepartum

**Health Problem:** N/A

**Priority Concepts:** Clinical Judgment; Reproduction

**Reference:** McKinney et al. (2018), pp. 214, 223-224.

202. **Answer:** 2

**Rationale:** Accurate use of Nägele's rule requires that the woman have a regular 28-day menstrual cycle. Subtract 3 months and add 7 days to the first day of the last menstrual period, and then add 1 year to that date: first day of the last menstrual period, October 19, 2020; subtract 3 months, July 19, 2020; add 7 days, July 26, 2020; add 1 year, July 26, 2021.

**Test-Taking Strategy:** Focus on the **subject** and use knowledge regarding Nägele's rule to answer this question. This rule requires addition and subtraction,

so read all options carefully, noting the dates and years in the options, before selecting an answer.

**Level of Cognitive Ability:** Applying

**Client Needs:** Health Promotion and Maintenance

**Integrated Process:** Nursing Process—Assessment

**Content Area:** Maternity: Antepartum

**Health Problem:** N/A

**Priority Concepts:** Development; Reproduction

**Reference:** McKinney et al. (2018), p. 225.

203. *Answer:* 2

**Rationale:** Pregnancy outcomes can be described with the acronym *GTPAL*. *G* is gravidity, the number of pregnancies; *T* is term births, the number born at term (longer than 37 weeks); *P* is preterm births, the number born before 37 weeks of gestation; *A* is abortions or miscarriages, the number of abortions or miscarriages (included in gravida if before 20 weeks of gestation; included in parity [number of births] if past 20 weeks of gestation); and *L* is the number of current living children. A woman who is pregnant with twins and has a child has a gravida of 2. Because the child was delivered at 38 weeks, the number of term births is 1, and the number of preterm births is 0. The number of abortions is 0, and the number of living children is 1.

**Test-Taking Strategy:** Focus on the **subject** of the question. Recalling the meaning of the acronym *GTPAL* and focusing on the information in the question will direct you to the correct option.

**Level of Cognitive Ability:** Applying

**Client Needs:** Health Promotion and Maintenance

**Integrated Process:** Nursing Process—Assessment

**Content Area:** Maternity: Antepartum

**Health Problem:** N/A

**Priority Concepts:** Clinical Judgment; Reproduction

**Reference:** McKinney et al. (2018), p. 225.