CONTRACEPTION

* Contraception is the voluntary prevention of pregnancy. Two important factors influence the selection of the particular type of contraceptive method: acceptability and effectiveness.

Data Collection
A. Types of contraception.
   1. Temporary methods used to delay or avoid pregnancy.
B. Contraceptive methods (see Appendix 20-1).

NORMAL PREGNANCY CYCLE: PHYSIOLOGICAL CHANGES

Uterus
A. Increase in size as a result of the stimulating influence of estrogen and the distention caused by the growing fetus.
B. Irregular, painless uterine contractions (Braxton Hicks) begin in the early weeks of pregnancy; contraction and relaxation assist in accommodating the growing fetus.
C. Softening of the lower uterine segment (Hegar’s sign).
D. Cervical changes.
   1. Softening of the cervix (Goodell’s sign).
   2. Formation of the mucous plug to prevent bacterial contamination from the vagina.

Vagina
A. An increase in vaginal secretions.
B. A blue-purple hue of the vaginal walls is seen very early (Chadwick’s sign).
C. Vaginal secretions: thickish white and acidic (pH is 3.5 to 6.0).

Breasts
A. Increase in breast size accompanied by feelings of fullness, tingling, and heaviness.
B. Superficial veins prominent; nipples erect; darkening and increase in diameter of the areola.
C. Thin, watery secretion (precursor to colostrum) may be expressed from the nipples by the end of the tenth week.

Cardiovascular System
A. Increased blood volume (40% to 50%).
B. Increase in heart rate (by 10 beats per minute) by the end of the first trimester.
C. Increase in cardiac output (30% to 50%).
D. Cardiac enlargement and systolic murmurs.
E. Hematocrit (Hct) decreases by 7%; physiological anemia.
F. Blood pressure (BP) will decrease slightly in the second trimester.

Respiratory System
A. Diaphragm is elevated; change from abdominal to thoracic breathing around the twenty-fourth week.
B. Breathes deeper; only slightly increased respiratory rate.
C. Common complaints of nasal stuffiness and epistaxis due to estrogen influence on nasal mucosa.

Urinary/Renal Systems
A. Ureter and renal pelvis dilate (especially on the right side) as a result of the growing uterus.
B. Increased frequency of urination (first and last trimesters).
C. Decreased bladder tone (due to effect of progesterone); bladder capacity increases: 1300 to 1500 ml.
D. Frequent spilling of glucose in urine (glycosuria).

Gastrointestinal System
A. Pregnancy gingivitis: gums reddened, swollen, and bleed easily.
B. Nausea and vomiting due to elevated level of human chorionic gonadotropin (HCG).
C. Decreased tone and motility of smooth muscles; decreased emptying time of stomach; slowed peristalsis leads to complaints of bloating, heartburn, and constipation.

Musculoskeletal System
A. Increase in the normal lumbosacral curve leads to backward tilt of the torso.
B. Center of gravity is changed, which often leads to leg and back strain and predisposition to falling.
C. Pelvis relaxes due to the effects of the hormone relaxin; leads to the characteristic “duck waddling” gait.
D. Abdominal wall stretches and loses tone.

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D. Abdominal wall stretches and loses tone.
Integumentary System
A. Increased skin pigmentation in various areas of the body.
   2. Abdomen: striae (reddish purple stretch marks) and linea nigra (darkened vertical line from umbilicus to symphysis pubis).
B. Appearance of vascular spider nevi, especially on the neck, arms, and legs.
C. Acne vulgaris, dermatitis, and psoriasis usually improve during pregnancy.

Placenta
A. Functions include transport of nutrients and removal of waste products from the fetus.
B. Produces human chorionic gonadotropin (HCG) and human placental lactogen (HPL).
C. Produces estrogen and progesterone after 2 months of gestation.
D. Production of posterior pituitary hormone oxytocin, which promotes uterine contractility and stimulation of milk let-down reflex.

Metabolism
A. Weight gain - determined by prepregnancy weight for height calculated by using the body mass index (BMI), which 19.8 to 26 is considered normal.
B. Normal weight gain: recommended 11.5-16kg; (average, 26-28 lb).
   1. Underweight: 12.5-18 kg.
   2. Overweight: 7-11 kg.
   3. Multiple gestations: 21-28 kg.

NURSING PRIORITY: The pattern of weight gain is important. Approximately 0.4kg per week for normal weight; 0.5kg/week for underweight; 0.3kg/week for overweight. Inadequate weight gain for a normal weight woman would be less than 1kg/month. Excessive weight gain is considered more than 3kg/month and should be evaluated, as it can indicate preeclampsia if it occurs after the 20th week of gestation.

C. There are variations of recommended weight gain based on whether the woman is overweight, underweight, or carrying twins. An inadequate weight gain is associated with a higher risk for intrauterine growth retardation (IUGR).

Prenatal Care

Data Collection
A. Initial visit.
   1. Complete history and physical.
   2. Obstetrical history.
      a. Past pregnancies (date, course of pregnancy, labor and postpartum; information about infant and neonatal course).
      b. Present pregnancy.
B. Subsequent assessment data follow-up.
   1. Vital signs.
   2. Urinalysis: check for protein and glucose.
   5. Auscultation of fetal heart rate (FHR).
C. Definition of Common Terms (Table 20-1).

<table>
<thead>
<tr>
<th>COMMON TERM</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gravida*</td>
<td>A pregnancy regardless of duration; includes present pregnancy</td>
</tr>
<tr>
<td>Para*</td>
<td>Refers to past pregnancies that continue to period of viability (legal definition: 24 to 28 weeks of gestational age; 20 weeks in some states)</td>
</tr>
<tr>
<td>Primigravida</td>
<td>Woman who is pregnant for first time</td>
</tr>
<tr>
<td>Multigravida</td>
<td>Woman who is pregnant for second or subsequent time</td>
</tr>
<tr>
<td>Nullipara (para 0)</td>
<td>Woman who has not had children</td>
</tr>
<tr>
<td>Primipara (para 1)</td>
<td>Woman who has carried a pregnancy to viability; term is often used interchangeably with primigravida</td>
</tr>
<tr>
<td>Multipara (para II, para III, para IV, etc.)</td>
<td>Woman who has given birth to two or more children</td>
</tr>
<tr>
<td>Parturient</td>
<td>A woman in labor</td>
</tr>
</tbody>
</table>

*The terms gravida and para refer to the number of pregnancies, not the number of fetuses. The woman who delivers twins on her first pregnancy remains a para 1, in spite of having two infants. She also is a para 1 if the fetus was stillborn or died soon after birth.

Another system used to describe reproductive status is the five-digit identification system characterized by the acronym GTPAL:

G = total number of pregnancies 
T = number of term infants (37 weeks of gestation) 
P = number of preterm infants (before 37 weeks of gestation) 
A = number of spontaneous or therapeutic abortions 
L = number of living children
D. Signs and Symptoms of Pregnancy (Table 20-2).
E. Summary of Nursing Management During the Antepartum Period (Table 20-3).

**Diagnostics**

A. Pregnancy tests: all tests including OTC “home pregnancy” tests are based upon the presence of hCG as the biologic marker. A false negative test may be due to testing too early. Whenever there is doubt about the results, further evaluation or retesting in a few days may be appropriate.

B. Laboratory tests.
   1. Urinalysis.
   2. Complete blood count (CBC), electrolytes, BUN, creatinine.
   3. Venereal Disease Research Laboratory (VDRL), rapid plasmin reagin (RPR), or fluorescent treponemal antibody-absorption (FTA-ABS) - serological screening for syphilis.
   4. Vaginal cultures for gonorrhea and chlamydia in high-risk populations.
   5. Antibody titers for HIV infection, rubella, and hepatitis B (HBsAg), tuberculin skin testing, maternal serum alpha-fetoprotein (MSAFP) at 15-22 weeks.
   6. Blood type and Rh; if Rh is negative, client will receive RhoGam.
   7. If mother is of African or Mediterranean descent, sickle cell screening.

C. Pelvic examination.
   1. Papanicolaou smear of the cervix (Pap smear).
   2. Pelvic measurements (pelvimetry).

D. Calculation of estimated date of birth (EDB).
   1. Nägele’s rule: count back 3 calendar months from the first day of the last menstrual period (LMP) and add 7 days.

**Table 20-2**

<table>
<thead>
<tr>
<th><strong>Presumptive/Subjective</strong></th>
<th><strong>Probable/Objective</strong></th>
<th><strong>Positive/Diagnostic</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Amenorrhea.</td>
<td>1. Positive pregnancy test result.</td>
<td></td>
</tr>
<tr>
<td>2. Nausea and vomiting.</td>
<td>2. Enlarged abdomen.</td>
<td></td>
</tr>
<tr>
<td>5. Breast changes: tenderness, fullness, increased pigmentation of areola, pre-colostrum discharge.</td>
<td>5. Goodell’s sign: softening of cervical lip.</td>
<td></td>
</tr>
<tr>
<td>6. Quickening: active movements of the fetus felt by the mother.</td>
<td>6. Ballottement: pushing on fetus (fourth to fifth month) and feeling it rebound back.</td>
<td></td>
</tr>
<tr>
<td>7. Increased pigmentation of skin and abdominal striae.</td>
<td>7. Fetal outline distinguished by palpation.</td>
<td></td>
</tr>
</tbody>
</table>

**TEST ALERT:** Be sure you are able to differentiate between presumptive, probable, and positive signs.

D. Signs and Symptoms of Pregnancy (Table 20-2).
E. Summary of Nursing Management During the Antepartum Period (Table 20-3).

**Nursing Interventions**

- **Goal:** To educate families regarding general health practices.
  - A. Hygiene: tub baths permitted until the last trimester; when balance is altered due to change in center of gravity; no douching, no hot tubs.
  - B. Clothing: loose, comfortable clothing with good supporting brassiere; low-heeled shoes.
  - C. Employment: no severe physical straining, heavy lifting, or prolonged periods of sitting or standing.
  - D. Travel: avoid during the last month of pregnancy; when traveling by car or airplane, frequent walking and stretching is advised; use seat belts (both lap and shoulder), positioning the lap belt under the abdomen.
  - E. Rest and exercise: adequate amounts of exercise (e.g., walking, swimming); client should stop exercising when she begins to feel tired; moderation is the key word.
  - F. Smoking: not advised; associated with infants who are small for gestational age (SGA).
  - G. Alcohol: recommended not to consume any alcohol; the more consumed, the greater the risk for fetal alcohol syndrome (FAS).
  - H. Medications: client advised to avoid over-the-counter (OTC) medications, especially during the first trimester. She should consult with her primary care provider (PCP) before taking any medications.

- **Goal:** To promote relief of common discomforts through client education of Home Care measures (Table 20-4).
- **Goal:** To promote adequate nutrition.
  - A. Assess normal food intake.
  - B. Dietary instructions and nutrient requirements.
### TABLE 20-3  SUMMARY OF NURSING MANAGEMENT DURING THE ANTEPARTUM PERIOD

<table>
<thead>
<tr>
<th>Weeks of Gestation</th>
<th>Physical Signs and Symptoms</th>
<th>Characteristic Behaviors</th>
<th>Nursing Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-16</td>
<td>Amenorrhea</td>
<td>Ambivalence with mood swings. Anxiety related to confirmation of pregnancy. Tells selected close persons of pregnancy. <em>Couvade syndrome</em> refers to the presence of physical discomforts in the father during the pregnancy that mimic his partner’s symptoms.</td>
<td>1. Obtain complete history, including gynecological and obstetrical histories. 2. Ascertain any maternal high-risk problems such as maternal age (greater than 35 years or less than 16 years), heart disease, diabetes or potential neonatal high-risk problems such as history of congenital defects, premature births, etc. (See complete discussion in this chapter on high-risk problems.) 3. Identify maternal nutritional status by assessing height, weight and compare with BMI chart. 4. Complete a diet history and instruction. Important to teach about necessary changes, rather than all the concepts of good nutrition. 5. Food cravings are usually benign and may be indulged, providing a well-balanced diet is maintained. Pica is an abnormal eating pattern and requires treatment. 6. Encourage client to express feelings or ambivalence about pregnancy. 7. Anticipatory guidance/teaching (including family) related to: OTC drugs, normal signs and symptoms of pregnancy, as well as reportable signs of possible complications, and the normality of her mood swings.</td>
</tr>
<tr>
<td></td>
<td>Fatigue</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nausea, vomiting</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Increased breast size and tenderness</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Urinary frequency</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Increased appetite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16-30</td>
<td>Quickening</td>
<td>Wears maternity clothes. Tells the world she’s pregnant; begins to notice other pregnant women. Interested in learning about birth and babies: reads books, seeks out and questions friends and family, attends classes. Increased dependency as time goes on. Promote father’s involvement by allowing him to watch and feel fetal movement. Father needs to confront and resolve his own conflicts about the fathering he received as a child. Father will decide on what he does and does not want to imitate from his father role model.</td>
<td>1. Ongoing assessment of maternal/fetal status: FHR; vital signs; fundal height. Urine test for glucose (mild glycosuria is usually benign), and protein. Finger stick for hemoglobin analysis (12-14 g/dl normal). Balanced diet. 2. Prevent or minimize activity intolerance and promote adequate rest by: • Encouraging 8 hours sleep each day, plus one nap. • Scheduling rest periods at place of employment. • Napping at home while other small children are sleeping. • Using left lateral position while resting or sleeping. 3. Promote adequate exercise (e.g., Kegel, pelvic rocking, modified sit ups), sitting tailor-fashion (lotus position). 4. Anticipatory guidance/teaching (including family) related to: libido changes, mood swings, increasing dependency, introversion, and reportable signs of possible complications.</td>
</tr>
<tr>
<td></td>
<td>“Pregnant figure”</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Increased energy</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Feeling of well-being</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Round ligament pain</td>
<td></td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

*Continued*
TABLE 20-3 SUMMARY OF NURSING MANAGEMENT DURING THE ANTEPARTUM PERIOD—cont’d.

<table>
<thead>
<tr>
<th>Weeks of Gestation</th>
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<th>Characteristic Behaviors</th>
<th>Nursing Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-40</td>
<td>Dependent edema&lt;br&gt;Pressure in lower abdomen&lt;br&gt;Frequent urination&lt;br&gt;Round ligament pain&lt;br&gt;Backache&lt;br&gt;Insomnia&lt;br&gt;Clumsiness&lt;br&gt;Fatigue</td>
<td>Introversion.&lt;br&gt;Increased dependency (craves attention and tenderness).&lt;br&gt;Altered responsiveness and spontaneity, as well as abdominal bulk and fatigue, may decrease interest in genital sex.&lt;br&gt;Intensifies study of labor and delivery.&lt;br&gt;Increasingly feeling more vulnerable.&lt;br&gt;Prepares nursery; buys baby things.&lt;br&gt;Decides on feeding method for baby</td>
<td>1. Ongoing continued physical assessment at more frequent intervals.&lt;br&gt;2. Reassure: provide emotional support related to attractiveness and self-worth.&lt;br&gt;3. Anticipatory guidance/teaching (including family) related to: Signs and symptoms of labor, environmental modification for coming infant, and providing rest for mother, teaching associated with either breast or bottle feeding, advising client concerning birthing and anesthesia options, promoting the developing parent/child attachment (encourage family to verbalize mental picture of infant and concepts of selves as parents).</td>
</tr>
</tbody>
</table>

TEST ALERT: Plan anticipatory guidance for developmental transitions. Pregnancy is considered a normal maturational crisis and developmental stage for the expectant couple.

1. Increase calories for pregnancy (an additional 300 calories per day).
2. Increase calories for lactation (an additional 500 calories per day greater than prepregnant intake).
3. Increase protein (an additional 10 gm per day for pregnancy; an additional 5 gm per day for lactation).
4. Increase vitamins (generally all vitamin intake is increased, especially folic acid).
5. Increase amount of minerals (especially iron, calcium, and phosphorus).
6. Additional calories and protein may be recommended for the pregnant adolescent.

Goal: To educate expectant family with regard to danger signs and symptoms requiring immediate attention (Box 20-1).

FETUS

Multifetal Pregnancy
A. Fraternal twins: can be either the same sex or a different sex.
B. Identical twins: same sex; resemble each other in appearance and structure.
C. Steady rise in multifetal pregnancies due to delayed childbearing and use of ovulation enhancing drugs.

Placenta
A. Transfer of oxygen, nutrients, and metabolites.
B. Elimination of waste products from the fetus.

BOX 20-1 DANGER SIGNS OF PREGNANCY

- Vaginal discharge of bloody or amniotic fluid
- Visual disturbances
- Swelling of face or fingers
- Fever and chills
- Severe continuous headache
- Pain in the abdomen
- Persistent vomiting
- Absence of fetal movement

C. Production of hormones: human chorionic gonadotropin (hCG), human placental lactogen (HPL), estrogen (estriol), and progesterone.
D. Fetal surface is shiny and slightly grayish: Schultze position.
E. Maternal side is rough and beefy red: Duncan’s position.
F. Maternal and fetal bloodstreams are in close proximity to each other, but the circulations do not mix.

Fetal Circulation
A. Fetal lungs do not participate in respiratory gas exchange.
B. There are special fetal structures to bypass blood supply to the lungs.
FETAL AND MATERNAL ASSESSMENT TESTING

Amniocentesis

- An invasive procedure performed on the mother to obtain amniotic fluid.

A. An outpatient procedure performed at 14 to 16 weeks of pregnancy.

B. Procedure: Placenta is located by ultrasound examination; a needle is inserted through the abdomen (puncture site has been anesthetized); amniotic fluid is aspirated and sent to the laboratory for testing.

NURSING PRIORITY: The fetal heart rate (FHR) is assessed before and after amniocentesis.

Ultrasonography

- Ultrasonography is a noninvasive technique in which high-frequency pulse sound waves are transmitted by a transducer applied directly to the woman’s abdomen or transvaginally.

A. Purpose.
   1. Identifies placental location for amniocentesis or to determine placenta previa.
   2. Determines gestational age, detects fetal anomalies, and multiple gestations.

B. Procedure (abdominal).
   1. Procedure is best done at 16 to 20 weeks’ gestation when fetal structures have completed development.
   2. Sometimes performed with a full bladder during the second trimester.
   3. Client may be advised to drink 1 quart of water 2 hours before sonogram.
   4. Requires approximately 20 to 30 minutes to perform; client must lie flat on back, which may be uncomfortable; transvaginal better tolerated as client is in lithotomy position and full bladder is not required.

C. Maturity studies.
   1. Lecithin/sphingomyelin (L/S) ratio: the components of phospholipid protein substance that comprise surfactant; L/S ratio of 2:1 or greater is indicative of sufficient surfactant (occurs around 35 weeks’ gestation).

Chorionic Villus Sampling

- Chorionic villus sampling is a method of obtaining fetal tissue for genetic testing.

A. Purpose: to obtain fetal tissue to establish a genetic profile as a first trimester alternative to amniocentesis; use is declining due to noninvasive screening techniques.

B. Procedure.
   1. An invasive procedure performed with the use of ultrasound guidance between 10 and 12 weeks’ gestation.

TEST ALERT: Instruct client on antepartal care.

<table>
<thead>
<tr>
<th>TABLE 20-4 SUMMARY OF COMMON DISCOMFORTS AND RELIEF MEASURES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Trimester</strong></td>
</tr>
<tr>
<td>Nausea and vomiting (morning sickness)</td>
</tr>
<tr>
<td>Urinary frequency and urgency</td>
</tr>
<tr>
<td>Breast tenderness</td>
</tr>
<tr>
<td>Increased vaginal discharge</td>
</tr>
</tbody>
</table>

| Second and Third Trimesters                                  |                                                             |
| Heartburn (pyrosis or acid indigestion)                     | Avoid fat and fried, spicy foods; eat small, frequent meals; maintain good posture; sit upright. |
| Ankle edema                                                  | Need ample fluid intake; avoid prolonged sitting or standing; support stockings should be applied before rising; elevate feet while sitting; do not cross legs at knees. |
| Varicose veins                                               | Avoid prolonged periods of standing; apply support hose before rising; elevate feet while sitting. |
| Hemorrhoids                                                  | Avoid constipation, do not strain; use ointments, bulk-producing laxatives, anesthetic suppositories as prescribed. |
| Constipation                                                 | Increase fluid intake (6 to 8 glasses/day); eat food and fruits high in roughage; exercise moderately; use bulk-producing laxatives as prescribed. |
| Backache                                                     | Correct posture; low-heeled shoes; pelvic tilt exercise. |
| Leg cramps                                                   | Stretch affected muscle and hold till it subsides; warm packs; maintain adequate calcium intake. |
| Faintness                                                    | Sit or lie down; avoid sudden changes in position; and avoid prolonged standing. |
| Shortness of breath                                          | Good posture; sleep with head elevated by several pillows. |

TEST ALERT: Instruct client on antepartal care.
tation; technique may be transcervically or transabdominal.
2. Administer RhoGam to Rh negative mothers because of possibility of fetomaternal hemorrhage.

Percutaneous Umbilical Blood Sampling (PUBS)

* An invasive procedure, also called cordocentesis, is obtaining fetal blood sampling during the second and third trimester.

A. Purpose: Most widely used method for fetal blood sampling and transfusion.
B. Procedure.
1. Insertion of a needle directly into a fetal umbilical vessel under ultrasound guidance.
2. Continuous FHR monitoring for up to an hour and a repeated ultrasound an hour later to ensure that bleeding or hematoma formation did not occur.

Daily Fetal Movement Count

* A simple activity performed by the mother is to count daily fetal movement, also called “kick counts.”

A. Purpose: to monitor the fetus when there may be complications affecting fetal oxygenation – e.g., preclampsia, diabetes.
B. Procedure.
1. Count all fetal movements with a 12 hour period until a minimum of 10 movements are counted or count fetal activity 2-3 times daily (after meals and before bed) for 2 hours until 10 movements are counted.
2. Any change in fetal activity, either an increase or a decrease, should be reported to the health care provider.
3. Fetal alarm signal – no fetal movements during a 12 hour period.

Nonstress Test

A. Purpose: to observe the response of the FHR to the stress of activity.
B. Procedure.
1. Requires approximately 20 minutes; client is placed in semi-Fowler’s position; external monitor is applied to document fetal activity; mother activates the “mark button” on the electronic fetal monitor when she feels fetal movement.
2. If no fetal movement is detected, client may gently rub or palpate abdomen to stimulate movement or may be asked to eat a light meal, because an increased blood sugar level increases fetal activity.
C. Interpretation.
1. Reactive: shows two or more fetal heart rate accelerations of 15 beats/min or more lasting at least 15 seconds for each acceleration within 20 minutes of beginning the test; indicates a healthy fetus. Test may be rescheduled, as indicated by condition. The 15 by 15 (15x15) criteria is for a fetus at least 32 weeks gestation.
2. Nonreactive: Reactive criteria are not met. The accelerations are less than two in number, the accelerations are less than 15 beats/min, or there are no accelerations. If nonreactive, then the test is extended another 20 minutes; if the tracing becomes reactive, the NST is concluded. If the NST is still nonreactive after a second 20-minute trial (total of 40 minutes), then additional testing, such as a biophysical profile is considered. If gestation is near term, a contraction stress test (CST) may be done.

**NURSING PRIORITY:** Appearance of any decelerations of the FHR during an NST should be immediately evaluated by the physician.

D. Advantages of NST.
1. Simple; easy to perform.
2. Does not require hospitalization.
3. Has no contraindications.

Biophysical Profile

* Noninvasive dynamic assessment of a fetus that is based on acute and chronic markers of fetal disease. Is an accurate indicator of impending fetal death.

A. First choice for follow-up fetal evaluation.
B. Assesses five fetal variables: breathing movement, fetal body movement (FBM), muscle tone, amniotic fluid volume (AFV), and FHR. The first four are assessed by ultrasonography; the fifth is assessed by NST.
C. Each area has a possible score of 2: maximum score of 10. A score of 4 or below indicates need for immediate delivery.

Contraction Stress Test or Oxytocin Challenge Test and the Breast Self-Stimulation Contraction Stress Test

A. Purpose: To observe the response of FHR to the stress of oxytocin-induced uterine contractions; means of evaluating respiratory function (oxygen and carbon dioxide exchange) of the placenta as an indicator of fetal health.
NURSING PRIORITY: Many facilities now use the breast self-stimulation contraction stress test, because endogenous oxytocin is produced in response to stimulation of the breasts or nipples.

B. Indications.
1. Preexisting maternal medical conditions: diabetes mellitus, heart disease, hypertension, sickle cell disease, hyperthyroidism, renal disease.
2. Postmaturity, intrauterine growth retardation, nonreactive NST results, preeclampsia.

C. Contraindications.
1. Third-trimester bleeding.
2. Previous cesarean delivery.
3. Risk of preterm labor because of premature rupture of the membranes, incompetent cervical os, or multiple gestation.

1. Semi-Fowler’s position, with fetal monitor in place.
2. Nipple stimulation begins with woman brushing her palm across one nipple through her shirt or gown for 2 to 3 minutes. If contractions start, nipple stimulation should stop. If contractions do not occur, one nipple is massaged for 10 minutes.
3. Advantages: takes less time to perform, is less expensive, and causes less discomfort because no intravenous line is used.

E. Procedure: oxytocin challenge test.
1. Client must be NPO (receiving nothing by mouth) and be closely observed, either hospitalized or as an outpatient.
2. Place client in semi-Fowler’s to avoid supine hypotension.
3. Intravenous (IV) administration of oxytocin stimulates uterine contractions; uterine activity and FHR are recorded by means of external monitoring.
4. Hypoxia is reflected in late deceleration on monitor, which indicates a diminished fetal-placental reserve.
5. IV oxytocin is delivered at a rate of 0.5 mU/min with the rate increased every 15-30 minutes until contractions occur at a rate of three per 10 minutes; then oxytocin is discontinued, and the woman is observed until contractions stop.

F. Interpretation: oxytocin challenge test.
1. Negative (reassuring): shows no late decelerations after any contraction; implies that placental support is adequate.
2. Positive (nonreassuring; abnormal): shows late decelerations with at least two of the three contractions; may indicate the possibility of insufficient placental respiratory reserve.

NURSING PRIORITY: If the CST result is positive and there is no acceleration of FHR with fetal movement (nonreactive NST result), the positive CST result is an ominous sign, often indicating late fetal hypoxia. A negative CST result with a reactive NST result is desirable.

COMPLICATIONS ASSOCIATED WITH PREGNANCY

Abortion

An abortion is the termination of pregnancy before 20 weeks of gestation. Abortions can be spontaneous (miscarriage) or induced (therapeutic or elective); approximately 75% to 80% of all spontaneous abortions occur during the second and third months of gestation.

Data Collection

A. Risk factors.
2. Acute infection.

B. Clinical manifestations (types of spontaneous abortions).
1. Threatened abortion: slight bleeding, mild back and lower abdominal cramping, no cervical dilation, no passage of the products of conception.
2. Inevitable abortion: moderate amount of bleeding and cramping, internal cervical os dilates, and membranes may rupture.
3. Incomplete abortion: only part of the products of conception is expelled.
4. Complete abortion: all the products of conception are expelled.
5. Missed abortion: fetus dies in utero.
6. Habitual or recurrent abortion: three or more successive, spontaneous abortions.

Treatment

Treatment varies according to type of abortion.

A. Threatened abortion: bed rest, sedation, and avoidance of stress and sexual intercourse.

B. Inevitable and incomplete abortion.
1. Fluid replacement: IVs; type and cross-match for possible blood transfusion.
2. Administration of oxytocin.
3. Dilatation and curettage (D&C) or suction evacuation to remove products of conception.

C. Missed abortion: If abortion does not occur spontaneously after 4 weeks, suction evacuation or D&C will be done to avoid risk of disseminated intravascular coagulation (DIC) or hemorrhage.

D. Habitual or recurrent abortion: determination of cause, then specific therapy to correct.

E. Administration of RhoGAM if mother is Rh negative (given within 72 hours). Given after every pregnancy.
Nursing Interventions

- **Goal:** To assess or control hemorrhage.
  A. Monitor vital signs.
  B. Ensure accurate counting of pads to assess bleeding.
  C. Report any signs of increased bleeding to RN.
- **Goal:** To prevent complications.
  A. Observe for shock.
  B. Prevent isoimmunization by administration of RhoGAM.
  C. Assess for elevated temperature.
- **Goal:** To prevent complications.
  A. Encourage verbalization of feelings.
  B. Be available and actively listen.

Home Care

A. Report any increased bleeding.
B. Do not use tampons; use only peri-pads.
C. Check temperature every 8 hours for 3 days.
D. Do not resume sexual activity until PCP approves (usually after bleeding stops).

Ectopic Pregnancy

* Any pregnancy that develops outside the uterus (extrauterine) is an ectopic pregnancy. The majority of ectopic pregnancies are tubal; more common on the right side.

Data Collection

A. If tube ruptures, sudden excruciating pain in the lower abdomen, usually over the mass.
B. Possible referred shoulder pain as blood fills the abdomen.
C. Vaginal bleeding, hemorrhagic shock.
D. May be initially identified as undiagnosed abdominal pain (see Chapter 13).

Surgical Treatment

A. Laparoscopy, laparotomy, salpingectomy.

Nursing Interventions

- **Goal:** To prevent and detect early complications.
  A. Provide nursing care for shock as indicated.
  B. Prepare for surgery (e.g., IVs, oxygen, blood).
  C. Administer RhoGAM, if indicated.
- **Goal:** To provide emotional support (loss of pregnancy and possibly reproductive organ).

Hyperemesis Gravidarum

* This disorder is characterized by excessive vomiting during pregnancy that results in weight loss of at least 5% of prepregnancy weight.

Data Collection

A. Severe, persistent vomiting that is different from morning sickness.
B. If untreated, ketoacidosis (from loss of intestinal juices), hypovolemia, hypokalemia, elevated transaminase and bilirubin levels.
C. Decreased urine output.

Treatment

A. Medical: stop the vomiting; administer IV fluids, electrolytes, and vitamin B6 (pyridoxine), along with an antiemetic.
B. Dietary: NPO for first 48 hours; then begin small feedings alternated with liquid nourishment every 1 to 2-hours; if vomiting re-occurs, NPO and IV fluids restarted.

Nursing Interventions

- **Goal:** To assist with medical and dietary management.
  A. Maintain accurate intake and output (I&O) records.
  B. Perform daily weight checks and maintenance of intake and output measurements.
  C. Desired urine output is 1000 ml in 24 hours; usually administration of IVs at 3000 ml in first 24 hours after admission to correct hypovolemia.
  D. Follow oral hygiene measures.
  E. Client should be NPO for first 48 hours, then clear liquids with gradual progression to small meals that are low-fat and high protein.
  F. Stress may contribute to condition; provide emotional support.

Hypertensive Disorders

* Hypertensive disorders (preeclampsia and eclampsia) are a medical complication of pregnancy occurring in about 6-8% of pregnancies and the second leading cause of maternal and perinatal morbidity and mortality. Cause is unknown.

Data Collection

A. Risk factors.
1. Diabetes mellitus, chronic hypertension.
2. Chronic renal disease, multiple gestations.
3. Age (younger than 20 or older than 40).
4. Primigravida.
B. Clinical manifestations of preeclampsia (Table 20-5).

✔ NURSING PRIORITY: The common symptoms of preeclampsia are hypertension and proteinuria.
Treatment
A. Medical.
   1. Mild preeclampsia: bed rest in lateral recumbent position.
   2. Severe preeclampsia: absolute bed rest, sedatives, antihypertensives, anticonvulsants (see Appendix 20-2).
   3. Eclampsia: seizure precautions (vital signs, oxygen, suction, positioning), anticonvulsants.
B. Dietary: high-protein diet, no added salt intake, and fluid intake of 6 to 8 glasses of water per day.

Nursing Interventions
- **Goal:** (mild preeclampsia): To initiate preventative measures.
  A. Instruction for home care: encourage bed rest, provide dietary instruction, and encourage regular prenatal checkups.
  B. Tests to evaluate fetal status (e.g., fetal movement record, ultrasound, NST, estriol and creatinine levels).
  C. Goals and nursing interventions for severely preeclamptic and eclamptic clients are outlined in Box 20-2.

LABOR AND DELIVERY

Data Collection of the Labor Process

Maternal Data Collection
A. Signs and symptoms before true labor.
   1. Lightening: descent of the fetal head into the pelvis, experienced as “dropping” of the baby.
   2. Increased vaginal mucus discharge.
   3. Softening of the cervix.
   4. Braxton Hicks contractions may become uncomfortable, especially at night; discomfort is usually located in the abdomen.

B. Signs and symptoms of true labor.
   1. Cervical dilation and effacement (Figure 20-1).
   2. Contractions occur at regular intervals and increase in duration and intensity; intensity usually increases with walking (Figure 20-2).
   3. Pain in the back that radiates around to the abdomen.
   4. Bloody show: expulsion of the mucus plug; labor begins 24 to 48 hours after bloody show, or bloody show may be observed at the onset of labor.

C. Stages of labor.
   1. First stage (stage of cervical dilation): begins with onset of regular contractions and ends with complete cervical dilation and effacement; divided into phases: latent, active, transition.
   2. Second stage (stage of expulsion): begins with complete cervical dilation and ends with delivery of the fetus.
   3. Third stage (placental stage): begins immediately after the fetus is born and ends when the placenta is delivered.
      a. Signs of placental separation: discoid to globular shape of uterus, gush of blood, lengthening of umbilical cord, and rise of uterine fundus.

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**TABLE 20-5 CLINICAL MANIFESTATIONS OF PREECLAMPSIA and ECLAMPSIA**

<table>
<thead>
<tr>
<th></th>
<th>Mild Preeclampsia</th>
<th>Severe Preeclampsia</th>
<th>Eclampsia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elevated BP:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>systolic increase to 140 mm Hg</td>
<td></td>
<td>Increased hypertension: systolic at 160 mm Hg; diastolic at 110 mm Hg or more on 2 separate occasions.</td>
<td>Convulsions appear suddenly and without warning.</td>
</tr>
<tr>
<td>and diastolic increase of 90 mm Hg ×2 readings, 4-6 hr apart, no more than 1 week apart.</td>
<td></td>
<td>Proteinuria: greater than 2 g/24 hr (3+ to 4+ proteinuria).</td>
<td>Increased hypertension and tonic contraction of all body muscles (arms flexed, hands clenched, legs inverted) precede the tonic-clonic convulsions.</td>
</tr>
<tr>
<td>Proteinuria: greater than 0.3 g/24 hr (1+ proteinuria).</td>
<td></td>
<td>Elevated BUN, serum creatinine, uric acid levels, LDH, ALT, AST.</td>
<td>Hypotension follows and then coma.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Oliguria: less than 500 mL/24 hr.</td>
<td>Nystagmus and muscular twitching persist for a time.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cerebral or visual disturbances.</td>
<td>Coma (lasts from few minutes to several hours).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Severe headache.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vomiting.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Epigastric pain (due to edema of liver capsule, usually indicative of impending seizure).</td>
<td></td>
</tr>
</tbody>
</table>

*BP*, Blood pressure; *BUN*, blood urea nitrogen.
**BOX 20-2** NURSING MANAGEMENT OF CLIENTS WITH GESTATIONAL HYPERTENSION AND PREECLAMPSIA

**Goal:** To recognize the early signs of gestational hypertension and increased BP.
1. Check BP and record Korotkoff phase V (disappearance of sound) for diastolic reading. Take BP in left lateral recumbent position or seated. Allow 10 minutes of quiet rest before taking BP to encourage relaxation. No caffeine or nicotine use 30 minutes prior to taking BP.
3. Monitor for nondependent pathological edema (e.g., peri-orbital area and hands).

**NURSING PRIORITY:** Systolic increase of 30 mm Hg and a diastolic BP increase of 15 mm Hg warrant close observation if the BP elevation occurs with proteinuria.

**Goal:** To recognize progression of gestational hypertension symptoms and minimize or control their sequelae.
1. Institute weight controls. Check for sudden increases of 2 lb/wk or 6 lb/month.
2. Increase protein intake in the diet. Maintain normal sodium intake; avoid use of diuretics.
3. Institute bed rest.
4. Monitor for ominous signs of deteriorating condition: headache, visual disturbances, hyperreflexia, markedly decreased urine output, epigastric or right upper quadrant pain, dyspnea, vaginal bleeding (abruptio placentae), or any change in fetal activity.
5. Administer antihypertensives, as ordered, check maternal BP, pulse and fetal heart rate.

**Goal:** To prevent or control seizures.
1. IV administration of MgSO₄ by the RN. (Have calcium gluconate available as antitode for possible respiratory/neurological depression).
2. Have emergency items readily available (e.g., oxygen, suction, airway, sedatives).
3. Modify environment to ensure rest and quiet.
   a. Eliminate noise, bright lights, and other harsh stimuli.
   b. Minimize number of personnel giving care.
   c. Initiate painful and/or intrusive procedures after sedation.
   d. Promote comfort and total bed rest.
4. Monitor I&O, edema and weight for evidence of vasodilation and increased tissue perfusion.

**Goal:** To recognize alterations in fetal well-being and promote safe delivery of the infant.
1. Auscultate and record FHR pattern, noting presence of variability or accelerations, and report decelerations.
2. Instruct and support client during amniocentesis.
3. Collect specimen for estril determination.
4. Assist with NST and/or oxytocin challenge test.
5. Give instructions about induction of labor and electronic FHR monitoring.

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**Fetal Heart Rate Monitoring**

**A. Intermittent Auscultation (IA).**
1. Very common, inexpensive, easy-to-use method using either a DeLee-Hillis fetoscope or ultrasound fetoscope by counting the FHR for 30-60 seconds between contractions to obtain the baseline rate.
2. Auscultate the FHR during a contraction and for 30 seconds after a contraction to identify any increases or decreases in FHR in response to the contraction.
3. If ultrasound device is used, FHR can be heard as early as 10 to 12 weeks.

**B. Electronic Fetal Monitoring (EFM).**
1. External monitoring: a noninvasive procedure which uses two external transducers placed on the maternal abdomen, which the ultrasound transducer uses high-frequency sound waves to detect FHR and the tocotransducer monitors frequency and duration of contractions by a pressure-sensing device.
   a. Advantage is its noninvasiveness.
   b. Does not require rupture of the membranes or cervical dilation.
2. Internal monitoring: invasive, but provides accurate, continuous information through use of a spiral electrode applied to the fetal presenting part to assess FHR and an intrauterine pressure catheter (IUPC) to assess uterine activity (frequency, duration, and intensity of contractions) and pressure.
   a. Spiral electrode picks up electrical impulses from the fetal ECG.
   b. Membranes must be ruptured and cervix sufficiently dilated.

**NURSING INTERVENTIONS DURING LABOR AND DELIVERY**

**Maternal**

**Goal:** To monitor changes during each stage of labor (Table 20-6).

**Goal:** To provide relief from pain and discomfort.

**A.** Administer analgesic medication.

**B.** Do not administer PO or IM analgesic medication within 2 hours of delivery. Medication may depress neonate.

**C.** Monitor pain control with epidural analgesia or anesthesia.

**Fetal**

**Goal:** To monitor fetal status and detect early complications.
Goal: To provide immediate care to the normal newborn.
A. Airway: clear air passages to establish respirations.
B. Body temperature: maintain warmth.
C. Apgar scoring: immediate appraisal of newborn’s condition taken at 1 minute and again at 5 minutes (Table 20-7).
D. Care of the umbilical cord: clamped after pulsation ceases; examine for number of vessels (two arterial and one venous) and record (one umbilical artery may indicate increased incidence of congenital anomalies, especially renal and genitourinary); no dressing is applied to cord.
E. Care of the eyes: prophylaxis against ophthalmia neonatorum: ophthalmic antibiotic ointment.
F. Identification: wristbands fastened to both infant and mother and appropriate footprints taken before leaving delivery area.
G. Administration of vitamin K (AquaMEPHYTON): 0.5 mg to 1 mg IM injected into the upper outer aspect of the thigh for prevention of neonatal hemorrhagic disease, due to lack of Escherichia coli necessary for the synthesis of vitamin K in the intestines.
H. Inspection for gross abnormalities (e.g., clubfoot, imperforate anus, birthmarks).
I. Attachment: provide contact of newborn with mother as soon as possible after birth.

OPERATIVE OBSTETRICS

Episiotomy

An episiotomy is an incision in the perineum to facilitate delivery by enlarging the vaginal outlet. Once done routinely, the practice is less common today. It is being replaced in many settings by manually supporting the perineum during birth and allowing small perineum tears rather than incising the perineum. Healing after a tear is faster and is less painful.

Data Collection

A. Observe perineal site for bleeding, swelling, redness, or any discharge.
B. Evaluate for pain and discomfort. Increased pain should be reported to RN.
<table>
<thead>
<tr>
<th>Physical Findings</th>
<th>Nursing Interventions</th>
</tr>
</thead>
</table>
| **Stage 1 Cervical Dilation:** begins with onset of regular contractions and ends with complete cervical dilation and effacement; divided into phases—latent, active, and transition. | 1. Orient to hospital environment and personnel.  
2. Assess history and physical status.  
3. Assess attitudes, past experiences, expectations.  
4. Teach about labor.  
5. Practice breathing and relaxation techniques.  
6. Monitor physical status: obtain vital signs including FHR.  
7. Voiding.  
8. Amount and character of vaginal discharge.  
| **Latent Phase**  
Cervical dilation: 0 to 3 cm.  
Cervical effacement in primipara is usually complete before dilation; in multipara, it occurs with dilation.  
Duration of latent phase: 6-8 hr.  
Uterine contractions are mild to moderate, 5 to 30 min apart, and last 30 to 45 sec.  
Membranes ruptured or intact.  
Scant brown or pink vaginal discharge or mucous plug.  
Station: primipara, usually 0; multipara, 0 to –2.  
FHR: clearest at level of or below umbilicus, dependent on fetal position. | 1. Anticipate needs:  
Sponge face.  
Keep bed clean and dry.  
Care for dry, cracked mouth.  
Check bladder for fullness.  
2. Stay at bedside, working through each contraction with client; praise woman’s efforts; point out progress.  
3. Reinforce supportive efforts of the father.  
4. Use touch to soothe, relax, comfort.  
5. Check FHR every 15 min and BP every 30 min.  
6. Observe for hyperventilation.  
7. Client may need analgesia to enhance coping.  
8. Monitor IV and fluid status: increased risk of hyperemia as a result of fluid retention.  
9. Encourage ambulation if membranes intact. Lateral position preferred when in bed as it increases uteroplacental blood flow. |
| **Active Phase**  
Cervical dilation: 4 to 7 cm.  
Duration of active phase: approximately 3-6 hr  
Uterine contractions are moderate to strong, 3 to 5 min apart, and last 40 to 70 sec.  
Scant to moderate bloody mucus.  
Station: +1 to +2.  
FHR: heard slightly below umbilicus or lower abdomen. | 1. Continue physical and supportive care.  
2. Use palpation or uterine contraction monitor to help client define contractions and rest periods.  
3. Observe perineum for bulging. |
| **Transition Phase**  
Cervical dilation: 8 to 10 cm.  
Duration of transition phase: 1 to 2 hr.  
Uterine contractions of transition phase: strong, 2 to 3 min apart, and last 45 to 90 sec.  
Copious bloody mucus.  
Station: +2 to +3.  
FHR: clearest directly about symphysis pubis. | 1. Direct pushing efforts with father for each contraction.  
2. Provide comfort measures and facilitate rest between contractions:  
Apply cool cloth to face.  
Keep perineum clean and dry.  
3. Encourage efforts; point out progress.  
4. Explain preparations being made for delivery.  
5. Check FHR with each contraction.  
| **Stage 2 Expulsion of Fetus:** begins with complete cervical dilation and ends with delivery of the fetus.  
Cervical dilation complete at 10 cm.  
Cervical effacement 100%.  
Duration of stage 2: 20 to 50 min.  
Uterine contractions are strong, 2 to 3 min apart and last 60 to 90 sec; fetal bradycardia may occur during contraction.  
Membranes may rupture; copious bloody mucus.  
Station: fetal descent continues at a rate of 1 cm/hr in primiparas and 2 cm/hr or more in multiparas until perineal floor is reached.  
Urge to push begins.  
Perineum flattens, bulges.  
Crowning occurs.  
Infant is born. | 1. TEST ALERT: Monitor client in labor.  
2. Provide comfort measures and facilitate rest between contractions:  
Apply cool cloth to face.  
Keep perineum clean and dry.  
3. Encourage efforts; point out progress.  
4. Explain preparations being made for delivery.  
5. Check FHR with each contraction.  
**TABLE 20-6** SUMMARY OF OBSERVATIONS AND NURSING CARE DURING LABOR—cont’d.

<table>
<thead>
<tr>
<th>Physical Findings</th>
<th>Nursing Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stage 3 Expulsion of Placenta:</strong> begins immediately after the infant is delivered and ends when the placenta is delivered.</td>
<td>1. Congratulate.</td>
</tr>
<tr>
<td>Usually within 5 to 10 min of delivery.</td>
<td>2. Initiate maternal contact with infant.</td>
</tr>
<tr>
<td>Uterine shape globular, usually firmer; fundus rises.</td>
<td>3. Coach in relaxation for delivery of placenta and perineal repair.</td>
</tr>
<tr>
<td>Dark vaginal bleeding: gush or trickle.</td>
<td>4. Watch for signs of placental separation: discoid to globular shape of uterus, gush of blood, lengthening of umbilical cord, and rise of uterine fundus.</td>
</tr>
<tr>
<td>Umbilical cord protrudes further from introitus.</td>
<td>5. May administer oxytocics after placenta has been delivered (see Appendix 20-3).</td>
</tr>
<tr>
<td>Placenta intact: shiny presentation of fetal side of placental separation occurs from inner to outer margins (Schultze mechanism); rough presentation of maternal side of placental separation occurs from outer margins inward (Duncan mechanism).</td>
<td></td>
</tr>
</tbody>
</table>

**Stage 4 Maternal Homeostatic Stabilization:** begins after the delivery of the placenta and continues for 1 to 4 hours after delivery.

- Fundus firm or becomes firm when massaged, in midline at level of umbilicus.
- Moderate lochia rubra.
- Episiotomy or laceration repair clean without ecchymosis or discharge, minimal edema; tenderness commensurate with analgesia, usually mild; edges well approximated.
- Possible extrusion of hemorrhoids

1. Facilitation of attachment: ensure that parents have time with newborn; mother may initiate breast-feeding.
2. Ongoing assessment (every 15 min for 1 hr, then every 30 min for 2 hr) of vital signs, fundus, lochia, episiotomy, and bladder function.
3. Encourage rest for both parents.

**BP**, Blood pressure; **FHR**, fetal heart rate.

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**TABLE 20-7** APGAR SCORING SYSTEM

<table>
<thead>
<tr>
<th>Sign</th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart rate</td>
<td>Not detectable</td>
<td>Slow (below 100 beats/min)</td>
<td>Greater than 100 beats/min</td>
</tr>
<tr>
<td>Respiratory effort</td>
<td>Absent</td>
<td>Slow, irregular</td>
<td>Good crying</td>
</tr>
<tr>
<td>Muscle tone</td>
<td>Flaccid, limp</td>
<td>Some flexion of extremities</td>
<td>Active motion</td>
</tr>
<tr>
<td>Reflex irritability</td>
<td>No response</td>
<td>Grimace</td>
<td>Cough, sneeze, or cry</td>
</tr>
<tr>
<td>Color</td>
<td>Blue, pale</td>
<td>Body pink, extremities pale</td>
<td>Completely pink</td>
</tr>
</tbody>
</table>

---

Nursing Interventions

- **Goal:** To alleviate pain and swelling and promote comfort.
  - A. Ice pack (first 2 hours, then PRN for pain relief); later followed by sitz baths, application of dry heat lamp treatment for 20 minutes, three to four times per day.
  - B. Analgesic sprays, ointments, or foam, as ordered.
  - C. Teach importance of perineal cleansing (i.e., use of the squeeze spray bottle; direct flow from front to back; and change perineal pad after each elimination – apply peripad from front to back to avoid contamination).

**Forceps Delivery**

- A forceps delivery is the use of an instrument to extract the fetal head during delivery.

Data Collection

A. Criteria for forceps delivery.
   1. Head fully engaged.
   2. Complete dilation of the cervix.
   3. Membranes have ruptured.
B. Monitor fetal heart rate, as forceps may compress umbilical cord.

Nursing Interventions

- **Goal:** To briefly explain procedure to couple.
  - A. Monitor fetal heart rate.
  - B. Provide emotional support.
- **Goal:** To detect complications for forceps application.
  - A. Maternal: possible lacerations to birth canal and perineum.
  - B. Fetal: possible cephalhematoma, lacerations and bruising to face, facial paralysis, skull fracture, umbilical cord compression.

**Cesarean Birth**

- An incision into the abdominal and uterine walls to deliver the fetus.

Types

A. Low-segment transverse incision.
   1. Preferred and most common method.
   2. Decreased blood loss; less chance of uterine rupture with subsequent pregnancy as incision is made into lower uterine segment.
   3. Fewer complications, such as peritonitis and postoperative adhesions.
B. Classic cesarean incision.
   1. Used in cases of placenta previa when there are adhesions in the lower uterine segment, or in transverse fetal lie.
   2. Vertical incision is made between the umbilicus and symphysis pubis.

Common Indications

A. Maternal.
   1. Uterine dystocia.
   2. Cephalopelvic disproportion (CPD).
   3. Severe preeclampsia and eclampsia.
   4. Previous cesarean birth or surgery on the uterus.
   5. Placenta previa and abruptio placentae.
B. Fetal.
   1. Fetal distress.
   2. Prolapsed cord.

Data Collection

A. Assess for possible indication for cesarean delivery.
B. Trend is that once a cesarean birth occurs, it is highly likely that subsequent births will also be cesarean.
C. Cesarean delivery may be planned for a specific date or may occur as an emergency procedure; common elective reasons are previous cesarean delivery, breech presentation, and cephalopelvic disproportion, along with medical risk factors of hypertension, active genital herpes, positive HIV status, and diabetes.

Nursing Interventions

- **Goal:** To provide preoperative preparation.
  - A. Preparation is similar to that for any abdominal surgery.
- **Goal:** To provide postoperative care.
  - A. Cesarean birth includes both normal abdominal postoperative care and postpartum care.

**Induction of Labor**

Procedure

A. Prostaglandin E2 gel is inserted vaginally to soften the cervix.
B. Amniotomy: artificial rupture of membranes (bag of water); labor often begins spontaneously.

- **NURSING PRIORITY:** FHR is assessed before and immediately after an amniotomy.

C. Oxytocin (Pitocin) is administered intravenously with a physician in attendance and a physician order. **High Alert Medication**
   1. Oxytocin is always piggybacked and hooked up to an infusion pump along with a primary intravenous (IV) line in case it needs to be discontinued.
   2. Nursing management and information regarding Pitocin is covered in Appendix 20-3.
CHAPTER 20  Maternal Care  429

Data Collection
A. Careful assessment of uterine contractions is priority; tetanic contractions could result in uterine rupture, premature separation of placenta, and fetal hypoxia.
B. Fetal heart rate (FHR) check every 15 minutes along with mother’s vital signs.

Nursing Interventions
❖ Goal: To monitor and evaluate uterine response and fetal response to induction.
A. Perform frequent vital sign checks and FHR checks (every 15 minutes); indirect or direct fetal monitoring may be used.
B. Report any of the following findings to the RN:
   1. Contractions are more frequent than every 2 minutes.
   2. Contraction duration exceeds 75 to 90 seconds.
   3. Uterus does not relax; remains contracted and tetanic.

COMPLICATIONS ASSOCIATED WITH LABOR AND DELIVERY

Preterm Labor
❖ Preterm labor is defined as cervical changes and uterine contractions occurring between 20 and 37 weeks’ gestation.

Data Collection
A. Contractions occurring in increasing frequency and intensity.
B. Premature rupture of the membranes.

Treatment
A. Tocolytic medications (see Appendix 20-4).
   1. Tocolytics.
   2. Prostaglandin synthetase inhibitors (NSAIDS)
      – Indomethacin (Indocin).
   3. Antenatal corticosteroids.

Nursing Interventions
❖ Goal: To assist in delivery if maternal complications are present.
A. Maternal complications: diabetes, preeclampsia, hemorrhage.
❖ Goal: To provide emotional support.
A. Encourage expression of feelings related to anxiety and guilt.
B. Identify and support coping mechanisms for couple.
❖ Goal: To minimize fetal complications.
A. Promote fetal oxygenation.
   1. Avoid supine position during labor: risk of supine hypotensive syndrome.
   2. Avoid maternal hyperventilation because it can lead to decreased oxygen to the fetus.
   3. Anticipate the administration of betamethasone (Celestone) or dexamethasone (Decadron) to minimize/prevent respiratory distress syndrome in the newborn.

Dystocia
❖ Dystocia is a long, difficult, or abnormal labor.

Data Collection
A. Dysfunctional Labor.
   1. Hypotonic contractions: slow, infrequent, weak contractions occurring more than 3 minutes apart and lasting less than 40 seconds.
   2. Hypertonic contractions: frequent, strong, painful contractions occurring 2 to 3 minutes apart, lasting 60 seconds or more.
B. Abnormal Labor Patterns.
   1. Cephalopelvic disproportion (CPD): also called fetopelvic disproportion (FPD) and is related to excessive fetal size (greater than 4000g or more).
   2. Abnormal fetal presentation - breech, most common.
   3. Prolonged or arrested labor: labor lasting for more than 24 hours after onset of regular contractions.
   4. Precipitous delivery: a very rapid, intense labor of 2 to 4 hours’ duration.

Treatment
A. Mechanical dystocia relating to CPD, or faulty presentation, is treated by a cesarean delivery.
B. Hypotonic uterine contractions or prolonged labor is treated by administration of Pitocin IV.
C. Hypertonic uterine contractions are treated by sedation and rest.

Nursing Interventions
❖ Goal: To monitor level of fatigue and ability to cope with pain.
A. Provide basic comfort measures, such as back rubs, change of position, clean dry linen.
B. Provide emotional support to mother and significant other.
C. Give reassurance and stay with client continually.
❖ Goal: To assist in the medical management of dystocia.
A. Explain procedures needed to determine cause of dystocia (e.g., sonogram, x-ray studies).
B. Monitor Pitocin levels if indicated for hypotonic dysfunction or prolonged labor.
C. Prepare client for cesarean delivery (indicated in CPD and unfavorable presentation).
D. Administer broad-spectrum antibiotics to decrease incidence of infection.
E. Maintain hydration, monitor intake and output, and administer oxygen if indicated.
   ❖ Goal: To detect early complications associated with dystocia.
   A. Monitor maternal vital signs.
   B. Assess mother for signs of exhaustion, dehydration, and increasing temperature, and report to PCP.
   C. Assess fetal heart rate frequently through fetal electronic monitoring.

Supine Hypotensive Syndrome (Vena Caval Syndrome)
❖ Shock-like symptoms seen when pregnant woman assumes a supine position. (The weight of the uterus causes partial occlusion of the vena cava, leading to decreased venous return to the heart.)

Data Collection
A. Decreased BP; increased pulse rate.
B. Client feels faint; pale.
C. Decreased FHR.

Nursing Interventions
❖ Goal: To decrease supine hypotensive syndrome episode.
A. Educate mother to turn to left or right side; preferred position because pressure is removed from vena cava.
B. Administer oxygen via face mask.
C. Assess fetal heart rates and report any changes to RN or PCP.

Abnormal Fetal Position

Data Collection
A. Breech presentation.
   1. FHR usually auscultated above the umbilicus.
   2. Passage of meconium often occurs.
   3. Increased risk of prolapsed umbilical cord.
B. Transverse lie (shoulder presentation): dysfunctional labor patterns are seen.

Treatment
A. Cesarean delivery is most often performed.

Nursing Interventions
❖ Goal: To provide reassurance and explanations of procedures as indicated.
A. Provide explanation of possible cesarean delivery.
B. Assess for complications relating to prolonged labor and possible infection (e.g., temperature, fatigue).

Hemorrhage in the Pregnant Client
Nursing management of hemorrhage in the pregnant client is discussed in Table 20-8 and Figure 20-3.

Multifetal Pregnancy

Data Collection
A. Increased incidence of PIH, abruptio placentae, placenta previa, and hydramnios.
B. Auscultation of two FHRs.
C. Measurement of fundal height exceeds gestational age.
D. Increased experience of more physical discomfort (e.g., shortness of breath, dyspnea on exertion, backaches, and leg edema, due to excessive size of uterus).

Treatment
A. Medical.
   1. Bed rest in lateral position to treat hypertension.
   2. Antiemetic for nausea and vomiting past the first trimester.
B. Dietary: increase of 300 calories along with increased protein, iron, folic acid, and vitamin supplements.

Nursing Interventions
❖ Goal: To provide anticipatory guidance during the antepartal period.
A. Second trimester: prenatal visits every 2 weeks.
B. Third trimester: weekly visits if there are no complications.
C. Discourage travel, as labor may begin without warning.
❖ Goal: To provide psychological support.
A. Provide assistance and advice regarding care of twins at-home.
B. Because the twins are likely to be small, anticipate nursing care for a preterm neonate.
C. Assess for maternal complications (e.g., postpartal hemorrhage) and report to RN.
D. Ensure correct identification, such as Baby A and Baby B.

Prolapsed Cord
❖ A prolapsed cord is the presence of the cord below the presenting part of the fetus.

Data Collection
A. Commonly occurs following rupture of the membranes.
B. Cord is washed through the birth canal with a gush of amniotic fluid.
C. Visualization of the cord.
D. FHR is decreased.
<table>
<thead>
<tr>
<th>Causes and Sources</th>
<th>Symptoms</th>
<th>Nursing Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abortion</td>
<td>Vaginal bleeding</td>
<td>1. Obtain history of onset, duration, amount of bleeding, and associated symptoms.</td>
</tr>
<tr>
<td></td>
<td>Intermittent uterine contractions</td>
<td>2. Observe perineal pads for amount of bleeding (blood loss can be measured by weighing perineal pads, approximately 1 g = 1 ml of blood).</td>
</tr>
<tr>
<td></td>
<td>Rupture of the membranes</td>
<td>3. Monitor vital signs of mother and fetus (frequency is determined by severity of clinical symptoms).</td>
</tr>
<tr>
<td>Placenta previa</td>
<td>Painless vaginal bleeding</td>
<td></td>
</tr>
<tr>
<td>Abruptio placentae</td>
<td>Vaginal bleeding</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Extreme tenderness in abdomen</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rigid, board-like abdomen</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Increase in size of abdomen</td>
<td></td>
</tr>
<tr>
<td>Uterine atony in stage 3</td>
<td>Bright red vaginal bleeding</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ineffectual contractility</td>
<td></td>
</tr>
</tbody>
</table>

**TEST ALERT:** Recognize the occurrence of hemorrhage and assess mother for complications.

## INTRAPARTAL PERIOD

<table>
<thead>
<tr>
<th>Causes and Sources</th>
<th>Symptoms</th>
<th>Nursing Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Placenta previa</td>
<td>Bright vaginal bleeding</td>
<td>1. Start IV and provide volume replacement.</td>
</tr>
<tr>
<td>Abruptio placentae</td>
<td>Symptoms same as above</td>
<td>2. Request type and crossmatch for blood.</td>
</tr>
<tr>
<td></td>
<td>Bright red vaginal bleeding</td>
<td>3. Administer fluids and blood as prescribed.</td>
</tr>
<tr>
<td></td>
<td>Ineffectual contractility</td>
<td>4. Monitor intake and output.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Minimize chances for further bleeding.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. NO vaginal or rectal exams.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8. Anticipate delivery by cesarean section.</td>
</tr>
<tr>
<td>Uterine atony in stage 3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## POSTPARTAL PERIOD

<table>
<thead>
<tr>
<th>Causes and Sources</th>
<th>Symptoms</th>
<th>Nursing Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uterine atony</td>
<td>Boggy uterus</td>
<td>1. Massage fundus of uterus and anticipate administration of oxytocin for client with uterine atony.</td>
</tr>
<tr>
<td>Retained placental</td>
<td>Dark vaginal bleeding</td>
<td>2. Reduce anxiety.</td>
</tr>
<tr>
<td>Lacerations of cervix or</td>
<td>Firm uterus</td>
<td>4. Record amount of bleeding in a specific amount of time.</td>
</tr>
<tr>
<td>vagina</td>
<td>Bright red blood</td>
<td>5. Monitor vital signs: Overt hypotension and shock will not be seen until the woman has lost almost one third of her blood volume (1500-2000 ml); watch for tachycardia and orthostatic BP changes first.</td>
</tr>
</tbody>
</table>

**NURSING PRIORITY:** Frequent, accurate assessment and documentation of blood loss is a priority in postpartum care; two thirds of cases of postpartum hemorrhage occur without any predisposing risk factors.

*BP, Blood pressure; IV, Intravenous.*

Treatment
A. Medical.
   1. Insert gloved hand into the vagina and hold the fetal head off the cord to relieve the pressure.
   2. Administer oxygen to the mother.
   3. Positioning.
      a. Place mother in modified Sims’ position, knee-chest position or in Trendelenburg position (head of bed or table is lowered); administer oxygen to the mother and call for help.
B. Surgical.
   1. If incomplete dilation, cesarean delivery necessary.
   2. Occasionally, if dilation is complete, vaginal delivery possible.

Nursing Interventions

Goal: To maintain fetal oxygenation and assist with immediate delivery.
A. Provide continuing assessment of FHR.
B. Maintain woman in one of the positions described previously to alleviate compression of the cord and call for help.
C. Offer emotional support to the couple.

POSTPARTAL DATA COLLECTION

The postpartum period is the time spanning the first 6 weeks following delivery. It is often referred to as the “fourth trimester.”

Physiological Changes
A. Uterus.
   1. Uterine involution: process by which the uterus returns to its normal prepregnant condition.
   2. Immediately after delivery, top of fundus is several finger breadths above the umbilicus.
   3. Twelve hours after delivery, fundus of uterus is one finger breadth above umbilicus.
   4. Fundus recedes/descends into the pelvis approximately one finger breadth per day.
   5. The uterus should not be palpable abdominally after 2 weeks.
   6. Afterpains: alternate contractions and relaxations of the uterine muscle.
      a. Occur primarily in multiparas.
      b. May be severe, requiring analgesics.
      c. Usually subside in 48 hours.
   7. Lochia.
   a. Lochia rubra: dark red discharge; occurs the first 3 days.
   b. Lochia serosa: pinkish, serosanguineous discharge; lasts approximately 3 to 10 days.
   c. Lochia alba: creamy or yellowish discharge; occurs after the tenth day and may last a week or two.
   d. When lochia subsides, uterus is considered closed; postpartal infection is less likely.
B. Cervix.
   1. May be stretched and swollen.
   2. Small lacerations may be apparent.
   3. External os closes slowly; at end of first week, the opening is fingertip size.
C. Vagina/perineum.
   1. May be stretched and swollen.
   2. Small lacerations may be apparent.
   3. External os closes slowly; at end of first week, the opening is fingertip size.

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C. Vagina/perineum.
   1. May be stretched and swollen.
   2. Small lacerations may be apparent.
   3. Muscle tone is improved by Kegel exercises.
D. Ovulation and menstruation.
      a. Menstruation resumes in 6 weeks.
      b. Ovulation: 50% of women may ovulate during the first cycle.
   2. Lactating women.
      a. Ovulation and menstrual period varies.
      b. 45% resume menstruation within 12 weeks after delivery.
E. Abdomen.
   1. Soft and flabby.
   2. Muscle tone can be improved/restored within 2 to 3-months with exercise.
F. Breasts.
   1. Anterior pituitary releases prolactin, which stimulates production and secretion of milk.
   2. Engorgement may occur approximately 36 to 48 hours after delivery.
   3. Colostrum released: thin, yellowish fluid that contains antibodies and large amounts of vitamins.
G. Gastrointestinal (GI) system.
   1. Immediately after delivery, hunger is common.
   2. GI tract is sluggish and hypoactive, due to decreased muscle tone and peristalsis.
   3. Constipation may initially be a problem.
H. Urinary tract.
   1. Bladder is edematous and hyperemic.
   2. May be bruising and swelling due to trauma around the urinary meatus.
   3. Increased bladder capacity and urinary retention.
   4. Diuresis occurs during the first 2 days postpartum.
   5. Bladder distention may displace the uterus, leading to a “boggy” uterus and increased bleeding.
   6. Hematuria may occur after delivery.
I. Integumentary system
   1. Cholasma usually disappears at end of pregnancy.
   2. Spider nevi, darker pigmentation of areolae and linea nigra may persist.
3. Fingernails return to normal.
4. Profuse diaphoresis occurs immediate postpartum.

J. Vital signs.
1. Temperature may be slightly elevated (100.4°F) after a long labor; should return to normal within 24-hours. Report any elevated temperature to the RN.
2. Blood pressure may be slightly decreased after delivery; however, should remain stable.
3. Pulse rate slow after delivery.

K. Blood values.
1. Abnormal white blood cell (WBC) count (20,000/mm³ to 25,000/mm³).
2. Hemoglobin, hematocrit, and red blood cell (RBC) counts return to normal within 2 to 6 weeks.
3. Increased risk of development of thrombophlebitis and thromboembolism.

L. Weight loss.
1. Initial 10- to 12-lb loss occurs due to the weight of the infant, placenta, and amniotic fluid.
2. Diuresis leads to an additional 5-lb weight loss.
3. At 6 to 8 weeks postpartum: return to prepregnant weight if an average of 25 to 30 lb was gained.

Attachment: Psychosocial Response

A. Phases.
1. Taking-in phase.
   a. First few days postpartum.
   b. Characterized by passiveness and dependency.
   c. Preoccupied with own self-needs: food, attention, and physical comforts and care.
   d. Talkative.
2. Taking-hold phase.
   a. Occurs about 2 to 3 days postpartum; characterized by increase in own physical well-being.
   b. Emphasis on the present; woman takes hold of the task of mothering; requires reassurance.
   c. Very receptive to teaching.

B. Attachment behaviors.
1. Exploration and identification pattern.
   a. Touch: begins by stroking the extremities and the outline of the head with the fingertips; gradually moves toward using the entire surface of the hand; touches and observes first at arm’s length, then on lap, or slightly away from the body; finally enfolds infant close to body with both arms.
   b. Eye-to-eye contact: en face position (gazing into the eyes of the infant).

C. Postpartum blues.
1. Transient period of depression (occurring during the puerperium).
2. Complaints of anorexia, insomnia, tearfulness, and a general let-down, sad feeling.
3. Thought to be caused by fatigue, discomfort, sensory overload or deprivation, and hormonal changes.
4. Woman needs support and reassurance that it is usually transient and self-limiting experience.
5. Assess mental health status and report concerns to RN.
6. Educate the woman and her family about postpartum depression. Offer post discharge resources if “transient blues” become more serious. Stress the importance of seeking help for self and infant.

Nursing Interventions

Goal: To initiate routine postpartum data collection.
A. General observations of mood, activity level, and feelings of wellness; routine vital sign data collection.
B. Inspection of breasts: check for beginning engorgement and presence of cracks in nipples, any pain or tenderness, and progress of breast-feeding.
C. Check uterine fundus: determine height of fundus in relation to umbilicus; should feel firm and globular and be midline; perform fundal massage if bleeding increases (see Figure 20-3).
D. Assess for bladder distention, especially during the first 24 to 48 hours, and report to PCP if client is distended.
E. Perineal area.
1. Observe episiotomy site for hematoma.
2. Apply anesthetic sprays or ointments to decrease pain.
3. Determine presence of hemorrhoids and provide relief measures.
F. Lochia: record color, odor, and amount of discharge.
1. Report any significant increase in amount or foul odor of lochia to the charge nurse or the PCP.
2. Change perineal pads frequently.
G. Abdomen and perineum.
1. Initiate strengthening exercises for both abdominal wall and perineum (e.g., isometric Kegel exercises for strengthening pelvic floor, leg raises).
2. Kegel exercise – practice trying to stop the passing of gas or the flow of urine midstream, which replicates the sensation of the pelvic muscles drawing upward and inward.

Goal: To provide comfort and relief of pain.
A. Episiotomy: use ice packs for first few hours, followed by dry heat light or sitz baths.
B. Perineal care: use of “peri bottles” to squirt over perineum (front to back) to prevent contamination; avoid use of toilet tissue.
C. Afterpain: use of analgesics (preferably 1 hour before feeding, especially for breast-feeding mothers).
D. Hemorrhoidal pain.
1. Sitz baths, anesthetic ointments, rectal suppositories, Tucks.
2. Encourage lying on side and avoiding prolonged sitting.
3. Stool softeners or laxatives may be indicated;
usually normal bowel movement by second or third day after delivery.

E. Breast engorgement: well-fitting bra to provide support.

Goal: To promote maternal-infant attachment and facilitate integration of the newborn into the family unit.

A. Use infant’s name when talking about him or her.
B. Encourage parents to provide as much care as possible to the infant while still hospitalized.
C. Accept parents’ emotions and encourage expression of feelings.
D. Help parents understand sibling behavior and to plan for the arrival of the new family member.

Goal: To establish successful infant feeding patterns.

A. Lactation suppression.
1. Provide supportive bra, binder, or ice pack to decrease engorgement, application of fresh cabbage leaves inside of bra.
2. Explain proper position for feeding.
3. Formulas: ready-to-feed in disposable bottles often with disposable nipples.

B. Lactating mothers (lactation promotion).
1. Cleanse breast before infant nursing and afterwards.
2. Air-dry nipples at least 15 minutes after breast-feeding.
3. Assess breasts for engorgement, nipple inversion, cracking, inflammation, or pain and report to RN.
4. If mother experiences uterine contractions during breast-feeding, administer analgesics before breast-feeding.

Goal: To prepare and plan for discharge.

A. Determine if mother will need household help (especially important if birth is twins).
B. Assist the RN to teach the following infant care skills:
   1. Infant feeding. Always hold infant for feeding.
      a. Hold bottle so that air does not get into nipple.
      b. Method of cleaning bottles and making formula.
      c. Positioning and feeding for lactating mothers.
      d. How to break the infant’s suction on the breast.
      e. Positioning for burping and bubbling.
   2. Diapering.
      a. Frequent changing to prevent diaper rash.
      b. Vaseline or Desitin ointment to prevent irritation.
      c. Keep diaper below the umbilical cord.
      a. Use of a mild soap.
      b. Kitchen sink is often a good place to bathe infant.
      c. Lotions can be applied; best advice is to avoid use of powders.
   4. Umbilical cord.
      a. Apply alcohol or wash with warm soap and water daily and after every diaper change, allow to dry.
      b. Stump usually falls off in 1 week to 10 days.
      c. Do not immerse abdomen during bathing until cord stump falls off.

5. Pacifiers.
   a. May be used to meet infant’s sucking need.
   b. Usually discontinued around 4 to 6 months due to infant’s lack of interest.

   a. Usually sleeps through the night at around 2 to 3 months of age.
   b. Encourage mother to sleep while infant is sleeping, to avoid sleep deprivation.

7. Illness.
   a. Common behavior changes are irritability, crying, loss of appetite, and fever.
   b. Explain how to take an infant’s temperature.

8. Taking the infant outside.
   a. Dress infant as you would dress yourself.
   b. Traveling: use a car seat.

9. Explain importance of follow-up well-baby checkup visits with health care provider.

COMPLICATIONS OF THE POSTPARTUM

Postpartum Infection

Puerperal infection is any clinical infection of the genital canal that occurs within 28 days after miscarriage, abortion, or childbirth.

Data Collection

A. Predisposing factors.
   1. Antepartal infection.
   2. Premature rupture of the membranes.
   3. Prolonged labor.
   4. Laceration.
   5. Anemia; postpartum hemorrhage.
   6. Poor aseptic technique.

B. Clinical manifestations.
   1. Temperature elevation 38° C (100.4° F), if taken at least four times daily on any 2 of the first 10 postpartum days, with the exception of the first 24 hours.
   2. Symptoms vary according to system involved.
   3. Area of involvement characterized by five cardinal symptoms of inflammation.
   4. Tachycardia, chills, abdominal tenderness common.
   5. Headache, malaise, deep pelvic pain.

C. Area involved.
   1. Uterus is most often affected: endometritis.
   2. May have localized infection of the perineum, vulva, and vagina.
   3. Urinary system.
      a. Pyelitis.
      b. Cystitis.
Treatment
A. Medications.
   1. Antibiotics.
   2. Antipyretics.
B. Dietary.
   1. High-protein, high-calorie, high-vitamin diet.
   2. Encourage 3000 to 4000 ml of fluid per 24 hours.

Nursing Interventions
- **Goal:** To prevent postpartum infection.
  A. Maintain meticulous aseptic technique during labor and delivery.
  B. Assess and treat antepartal infection.
  C. Prevent anemia: hemoglobin and hematocrit should be checked during prenatal visits and/or before delivery. 
     *Report any significant decrease to PCP.*
- **Goal:** To promote mother’s resistance to infection.
  A. Administer antibiotic and antipyretic medications.
  B. Encourage good nutrition.
  C. Use semi-Fowler’s position to promote free drainage of lochia and prevent upward extension of infection into pelvis.

Mastitis
* Mastitis is the invasion of the breast tissue by pathogenic organisms.

Data Collection
A. Predisposing factors.
   1. Fissured nipples.
   2. Erosion of the areola.
   3. Causative agent is most frequently *Staphylococcus*, which is transmitted from the nasopharynx of the nursing infant.
B. Clinical manifestations.
   1. Occurs most often between the first and fourth weeks of the postpartal period.
   2. Chills and tachycardia.
   4. Fever.

Treatment
A. Medication.
   1. Antibiotics.
   2. Antipyretics.
   3. Analgesics.

Nursing Interventions
- **Goal:** To prevent the complication of mastitis.
  A. Teach mother how to cleanse breasts and nipples.
  B. Explain importance of wearing a support bra.
- **Goal:** To promote comfort and maintain lactation if desired.
  A. Apply ice to breasts to decrease pain.
  B. May continue to breast-feed.
  C. Encourage good nutrition and adequate rest.
  D. Administer antibiotics as ordered.

Thrombophlebitis
There is an increased risk (five times) for *thrombophlebitis* and *pulmonary* embolism during the postpartum. The reason for the increased incidence is a change in blood coagulation during pregnancy, along with engorgement of the veins of the lower extremities and pelvis, leading to pooling of blood and venous stasis. Data collection and nursing interventions are discussed in Chapter 16.

Cystitis and Pyelitis
* Cystitis and *pyelitis* occur as a result of bladder distention and incomplete emptying of urine postpartum; three common predisposing factors are trauma to the bladder mucosa, the temporary loss of bladder tone, and an increased bladder capacity (see Chapter 18).

Parental Reaction to Premature Infant or Infant with Special Needs

Data Collection
A. Period of disorganization.
   1. Grief reaction characterized by guilt, anger, and sorrow.
   2. Feelings of exhaustion, emptiness, and frequent crying.
B. Period of information-seeking and resource utilization.
   1. Anxiety decreases; problem-solving begins.
   2. Begins to resolve the crisis.
   3. Often information-seeking leads to further anger and sorrow followed then by a period of denial or disbelief.
C. Resolution of the crisis situation.
   2. Acceptance and coming to terms with the situation.

Nursing Interventions
- **Goal:** To provide emotional support to the parents.
  A. Encourage verbalization of feelings and expression of grief.
  B. Promote parent-infant contact; point out normal characteristics.
  C. Encourage parents to visit, touch, and care for their infant as much as possible.
Study Questions: Maternal Care

1. While discussing nutrition, the nurse explains the best way for a primigravida client to meet her increasing iron needs is to:
   1. Add an extra serving of red meat to her daily diet.
   2. Include at least two eggs in her daily diet.
   3. Increase her daily intake of spinach.
   4. Take an iron supplement with orange juice.

2. When teaching clients in a prenatal clinic, the nurse includes all of the following areas. What is the most important area of discussion for clients in their first trimester?
   1. Diet to promote fetal development and maternal well-being.
   2. Postpartal care with emphasis on hygiene and breast care.
   3. Anticipation and points on how to deal with sibling rivalry.
   4. Signs of beginning labor and instructions to come to the hospital as soon as the membranes rupture.

3. The nurse understands that the following finding is considered a positive sign of pregnancy?
   1. Nausea and vomiting.
   2. Changes in breasts.
   3. Fetal outline on ultrasound.

4. A young pregnant woman comes to the clinic and complains of nausea and vomiting. What would the nurse suggest to assist in alleviating this problem?
   1. Take 3 tablespoons of bismuth subsalicylate (Pepto-Bismol) before eating.
   2. Increase fluids to 4000 ml per day.
   3. Increase protein in diet.
   4. Eat five or more small meals a day.

5. What is important for the nurse to teach a client regarding how to prevent venous stasis and varicose veins during pregnancy?
   1. Elevate feet and take frequent rest breaks.
   2. Wear loose shoes and clothes to help circulation.
   3. Decrease salt in the diet and increase fluids.
   4. Wear thigh-high TED hose throughout the night.

6. The nurse is checking a postpartum client the day after her delivery and notes the lochia has a foul smell. What is the best nursing intervention?
   1. Report the foul-smelling lochia to the supervisor.
   2. Do nothing; this is normal during the first few days after delivery.
   3. Begin vaginal irrigations to decrease the odor and increase client comfort.
   4. Stop the use of perineal pads for the next few days.

7. During the postpartum assessment, the nurse notes a blood pressure of 98/68 mm Hg, pulse rate of 110 beats per minute, respirations of 28 breaths per minute, and profuse lochia rubra. What is the priority nursing action?
   1. Immediately advise the charge nurse.
   2. Massage the mother’s fundus.
   3. Check her urinary output.
   4. Change her perineal pad.

8. The nurse understands that the following is considered a sign of true labor:
   1. Effacement and cervical dilation.
   2. Uterine contractions 8 minutes apart.
   3. Braxton Hicks contractions every 4 minutes.
   4. Bloody show with contraction every 30 minutes.

9. How does the nurse measure the duration of a contraction?
   1. From the beginning of the contraction to the end of the contraction.
   2. From the beginning of one contraction to the end of the next contraction.
   3. From the point of maximal intensity until the contraction subsides.
   4. From the beginning of one contraction to the start of the next contraction.

10. In order for a pregnant woman to fulfill her daily need for folic acid, what would the nurse suggest adding to or increasing in her diet?
    1. Beef and chicken.
    2. Milk, yogurt, cheese.
    3. Green, leafy vegetables.
    4. Whole-grain breads.

11. A postpartum client complains of abdominal cramping following breastfeeding. What is the best nursing interpretation of this information?
    1. All women experience abdominal discomfort during the postpartal period.
    2. Breast-feeding causes the release of oxytocin, which acts on the uterus.
    3. Abdominal pain is not normal and may indicate problems of involution.
    4. Abdominal discomfort may be an indication of problems with peristalsis.

12. Considering a woman is of normal weight, the nurse would reinforce teaching related to the average recommended weight gain during pregnancy, which is:
    1. 15 to 20 pounds.
    2. 20 to 40 pounds.
    3. 25 to 35 pounds.
    4. 40 to 45 pounds.

13. While assessing a prenatal client, the nurse would be alert to symptoms of preeclampsia, which include:
    1. Oliguria, hypotension, proteinuria.
    2. Hypertension, tachycardia, tachypnea.
    3. Edema, tachycardia, nausea.
    4. Hypertension, edema, proteinuria.
14. Which condition would the nurse identify as contributing to the complication of intrapartal bleeding?
   1. Placenta previa.
   2. Third-degree laceration.
   3. Vena caval syndrome.
   4. Retained placental fragments.

15. What is the best position for the nurse to place a client in during labor?
   1. Position of comfort.
   2. Right Sims'.
   4. Left lateral.

16. The nurse is asked to complete an Apgar assessment:
   1. Within 2 hours of birth.
   2. At 1 minute and 5 minutes after birth.
   3. At 5 minutes and 10 minutes after birth.
   4. Within the first hour of birth.

17. The primigravida client is experiencing Braxton Hicks contractions. The nurse understands the following about the characteristics of this type of contraction:
   1. Contractions increase with ambulation.
   2. Do not increase in intensity or frequency.
   3. Cause a rapid dilation and effacement.
   4. Do not occur with the second pregnancy.

18. A young woman has been prescribed oral contraceptives. What is the priority information to teach her?
   1. Call the clinic if you have nausea, vomiting, or diarrhea.
   2. Take the pill with a glass of milk to increase the effectiveness.
   3. If you forget to take a pill, discontinue taking them until the next month.
   4. Call the clinic if you have a sudden headache or severe leg pain.

19. The nurse would anticipate which medication to be used to suppress contractions?
   1. Oxytocin (Pitocin).
   2. Conjugated estrogen (Premarin).
   3. Terbutaline (Brethine).
   4. Ergot alkaloid (Cafergot).

20. The client is in her last trimester and is concerned about the presence of “stretch marks” on her abdomen and breasts. What is the best nursing response?
   1. They cannot be prevented and occur in all pregnancies.
   2. Application of cocoa butter or vitamin E oil will decrease formation of scars.
   3. After delivery the reddish marks will gradually fade.
   4. There is nothing that can be done to prevent them.

Answers and rationales to these questions are in the section at the end of the book titled Chapter Study Questions: Answers and Rationales.
### Appendix 20-1 CONTRACEPTIVE METHODS

<table>
<thead>
<tr>
<th>Methods/Description</th>
<th>Nursing Implications/Client Teaching</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FAMILY AWARENESS METHODS</strong></td>
<td></td>
</tr>
<tr>
<td>Calendar (rhythm)</td>
<td><strong>Client Teaching</strong> 1. Calendar (rhythm) method: calculate the days of fertility; considered to be days 10 to 17 of a 28-day menstrual cycle. 2. BBT method: a slight decrease then an increase of about 0.4° to 0.8° in temperature when ovulation occurs; fertile period ends 3 days after temperature elevation. Need a special BBT thermometer. 3. Cervical mucus method: before ovulation, mucus becomes clear and stringy; nonfertile period occurs when mucus becomes thick, cloudy, and sticky or when no mucus is apparent. 4. Symptothermal method: combines two methods, usually cervical mucus and BBT.</td>
</tr>
<tr>
<td>Basal Body Temperature (BBT)</td>
<td></td>
</tr>
<tr>
<td>Ovulation (Billings)</td>
<td></td>
</tr>
<tr>
<td>Cervical mucus</td>
<td></td>
</tr>
<tr>
<td>Symptothermal</td>
<td></td>
</tr>
<tr>
<td><strong>IUD</strong></td>
<td><strong>Client Teaching</strong> 1. Discuss the technique and the experience of IUD insertion and removal. 2. Emphasize the need for yearly Pap smears; failure rate is less than 1%. 3. Encourage client to check IUD string, especially after each period. 4. Make sure the woman understands which type of IUD she has and when to return to have it checked or replaced. Copper IUD is approved for 10 years; progesterone IUD effective for up to 5 years and uterine cramping and bleeding is diminished as compared to the copper one. 5. Review common side effects, serious complications, and reports of any of the following symptoms (PAIN): P – period late, abnormal spotting or bleeding, A – abdominal pain, pain with intercourse, I – infection exposure, abnormal vaginal discharge, N – not feeling well, fever or chills, S – string missing; shorter or longer.</td>
</tr>
<tr>
<td>Progesterone (Progestasert) IUD; Copper T380A (ParaGard) IUD</td>
<td></td>
</tr>
<tr>
<td><strong>HORMONAL METHODS</strong></td>
<td><strong>Client Teaching</strong> 1. Instruct as to correct use of medication, the need for followup checkup in 3 mo, and importance of taking the pill at same time each day; effectiveness is close to 100% when used correctly. 2. Explain if a pill is forgotten one day, she should take it when she remembers, then take the next pill as scheduled the following day. 3. If two pills are missed, she should take them as above and use some other form of contraception for the remainder of the month. 4. Review common side effects, serious complications, and reports of any of the following symptoms: Abdominal pain, Chest pain or shortness of breath, Headaches, Eye problems, and Severe leg pain (ACHES).</td>
</tr>
<tr>
<td>Combined Oral Contraceptive: pill is a combination of estrogen and progestin</td>
<td></td>
</tr>
<tr>
<td>Progestin only (minipill): norethindrone; medroxyprogesterone</td>
<td></td>
</tr>
<tr>
<td>Transdermal Contraceptive Patch: applied once a week; has both hormones.</td>
<td></td>
</tr>
<tr>
<td>Vaginal Contraceptive Ring: a ring is inserted into the vaginal for 3 weeks; removed for 1 week, then new ring inserted.</td>
<td></td>
</tr>
<tr>
<td><strong>INJECTABLE/IMPLANTABLE PROGESTINS</strong></td>
<td><strong>Client Teaching</strong> 1. Requires injections only 4 times per year (every 11-13 weeks). 2. Disadvantages include weight gain, prolonged amenorrhea, and breakthrough uterine bleeding. Long-term use may decrease bone density; need to encourage calcium intake and exercise.</td>
</tr>
<tr>
<td>Injectable (DMPA, Depo-Provera)</td>
<td><strong>NURSING PRIORITY: OTC medications, herbal supplements (St. John’s Wort), phenytoin (Dilantin), rifampin, ritonavir, tetracyclines, and ampicillin can reduce the effectiveness of the pill.</strong></td>
</tr>
<tr>
<td>Implantable: single rod implant (Implanon)</td>
<td>1. Requires a small incision in the inner aspect of the nondominant upper arm with a local anesthetic; provides up to 3 years of contraception. 2. The most common side effect is irregular menstrual bleeding.</td>
</tr>
</tbody>
</table>

**NURSING PRIORITY:** Do not massage the site after the injection because it may speed up absorption and decrease duration of effectiveness; effectiveness rate is comparable to that of oral contraceptives.
## Appendix 20-1 CONTRACEPTIVE METHODS—cont’d.

<table>
<thead>
<tr>
<th>Methods/Description</th>
<th>Nursing Implications/Client Teaching</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BARRIER METHODS</strong></td>
<td><strong>Client Teaching</strong></td>
</tr>
</tbody>
</table>
| Diaphragm: a dome-shaped rubber device that fits over the cervix. | 1. Should be refitted after every pregnancy or when there is a weight gain or loss of 20 lb; failure rate in the first year of use may be 20%.  
2. Instruct client to use spermicidal jelly or cream around diaphragm rim and in the dome.  
3. Instruct client to leave diaphragm in place 6 to 8 hr after intercourse.  
4. Explain the proper method for cleansing (use mild nonperfumed soap only), storing (dry thoroughly and dust with cornstarch, not baby powder), and checking for defects or holes in the diaphragm.  
5. Allow for sufficient practice of insertion/removal techniques and use with a spermicide, such as nonoxynol-9 (N-9). |
| Condoms: “rubbers” are thin sheaths of rubber that fit over an erect penis. | 1. Advise client to apply condom to erect penis by rolling the sheath along the entire shaft and leaving enough slack at the end of the penis to receive the semen.  
2. Explain importance of holding the condom in place while withdrawing the penis to prevent emptying of sperm into the vagina.  
3. Condom should be applied before any penetration because the pre-ejaculatory seminal fluid may contain sperm.  
4. Ask client about allergy to latex. |

**UNRELIABLE PRACTICES**

<table>
<thead>
<tr>
<th>Nursing Implications</th>
<th><strong>Client Teaching</strong></th>
</tr>
</thead>
</table>
| Withdrawal (coitus interruptus): withdrawal of penis before ejaculation. | 1. Requires absolute cooperation and control of partner.  
2. Good choice for couples who do not have other contraceptive methods available.  
3. Douching may actually move the sperm upward in the vagina. |
| Douching: the act of cleansing, washing the semen out of the vagina. | 1. Encourage use of a more reliable contraceptive practice. |

**EMERGENCY CONTRACEPTION**

| Client Teaching | 1. Available without a prescription; prescription required if under age 18.  
2. Should be taken within 120 hours of unprotected intercourse.  
3. Is ineffective if the woman is pregnant, since pills do not disturb an implanted pregnancy. |
| Plan B: 2 doses of progestin. |

**PERMANENT STERILIZATION**

| Client Teaching | 1. Discuss the permanence of the sterilization procedure with the couple – informed consent required for all procedures.  
2. Explain that she may experience sensation of tugging, but not pain during procedure which is carried out via local anesthetic.  
1. Insertion of an occlusive agent (small metallic implants) into the uterine tubes, which stimulate scar tissue formation that occlude the tubes.  
2. Procedure does not provide immediate contraception – need to use another form of contraception until tubal blockage is proven, which may take up to 3 months. |
| Tubal ligation (minilaprotomy) |
| Essure System |
| Vasectomy: surgical ligation and resection bilaterally of the vas deferens. | 1. Discuss with couple the permanence of vasectomy (informed consent required); even if the vas deferens is reconnected, the fertility varies between 5% and 60%.  
2. Activity level should be moderate for 2 days; skin sutures are usually removed within a week.  
3. Encourage the use of a scrotal support and application of ice for pain or swelling.  
4. Follow-up visit for sperm sample is usually done in 4 to 6 wk.  
5. Advise couple to use another form of birth control until two ejaculate sperm counts contains no sperm. |

**BBT**, Basal body temperature; **CO₂**, carbon dioxide; **IUD**, intrauterine device.
## Appendix 20-2  MAGNESIUM SULFATE

<table>
<thead>
<tr>
<th>Medications</th>
<th>Side Effects</th>
<th>Nursing Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ANTICONVULSANT</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magnesium sulfate:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV: Given via an IV pump,</td>
<td><em>Maternal:</em> sweating, flushing, muscle weakness,</td>
<td>1. Criteria for continuing administration:</td>
</tr>
<tr>
<td>piggybacked to primary</td>
<td>depressed or absent reflexes, oliguria, respiratory</td>
<td>a. Respirations: greater than 12 breaths/min.</td>
</tr>
<tr>
<td>infusion. A bolus dose (4–</td>
<td>paralysis.</td>
<td></td>
</tr>
<tr>
<td>6 g over 15–20 min) is</td>
<td><em>Fetal:</em> crosses placenta; lethargy, hypotonia,</td>
<td>b. Presence of patellar knee-jerk movement.</td>
</tr>
<tr>
<td>routinely given, followed</td>
<td>and weakness.</td>
<td></td>
</tr>
<tr>
<td>by a maintenance infusion</td>
<td><em>Contraindications:</em> maternal—impaired renal</td>
<td>c. Urinary output: greater than 30 ml/hr.</td>
</tr>
<tr>
<td>(1-4 g/hr).</td>
<td>renal function.</td>
<td></td>
</tr>
</tbody>
</table>

### BP, Blood pressure; FHR, fetal heart rate; IV, intravenous.

## Appendix 20-3  OXYTOCIC MEDICATIONS AND PROSTAGLANDINS TO CAUSE UTERINE CONTRACTIONS

<table>
<thead>
<tr>
<th>Medications</th>
<th>Side Effects</th>
<th>Nursing Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OXYTOCIC MEDICATIONS:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IM, IV, intranasal</td>
<td>hypertension, tachycardia.</td>
<td></td>
</tr>
<tr>
<td>Ergonovine (Ergotrate):</td>
<td><em>Fetal:</em> hypoxia, irregularity and decrease in</td>
<td>2. Assess maternal vital signs before increasing oxytocin infusion rate.</td>
</tr>
<tr>
<td>PO, IM, IV</td>
<td>FHR, possible hyperbilirubinemia.</td>
<td></td>
</tr>
<tr>
<td>Methylergonovine (Mether-</td>
<td><em>Contraindications:</em> Severe pre-eclampsia or</td>
<td>3. Discontinue IV oxytocin and turn on primary IV solution, if any of the following</td>
</tr>
<tr>
<td>gine):</td>
<td>eclampsia. Predisposition to uterine rupture or</td>
<td>occur:</td>
</tr>
<tr>
<td>PO, IM, IV</td>
<td>CPD. Preterm infant or presence of fetal distress.</td>
<td>a. Non-reassuring fetal heart rate pattern; absent variability; abnormal baseline rate.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. Sustained uterine contractions lasting greater than 90 secs.</td>
</tr>
<tr>
<td>Prostaglandin F2a (Hema-</td>
<td></td>
<td>c. Insufficient relaxation of the uterus between contractions.</td>
</tr>
<tr>
<td>bate):</td>
<td></td>
<td>d. Contractions occurring more often than every 2 minutes.</td>
</tr>
<tr>
<td>IM</td>
<td><em>Contraindications:</em> Asthma</td>
<td>e. Repeated late decelerations or prolonged decelerations.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPD, Cephalopelvic</td>
<td>1. Used to contract the uterus in situations of</td>
<td></td>
</tr>
<tr>
<td>disproportion; FHR, fetal</td>
<td>postpartum hemorrhage.</td>
<td></td>
</tr>
<tr>
<td>heart rate; IM,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>intramuscularly; IV,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>intravenously; PO, by</td>
<td></td>
<td></td>
</tr>
<tr>
<td>mouth (orally).</td>
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</tr>
</tbody>
</table>
## Appendix 20-4  TOCOLYTIC AGENTS TO SUPPRESS LABOR

<table>
<thead>
<tr>
<th>Medications</th>
<th>Side Effects</th>
<th>Nursing Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOCOLYTIC AGENTS:</strong> Relax myometrial cells of the uterus leading to inhibition of labor. Also result in bronchial dilation and cardiac output.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Terbutaline (*Brethine*): IV, SQ, PO     | **Maternal:** tachycardia (very little effect on BP), nervous-ness and tremors, headache, and possible pulmonary edema.  
**Fetal:** tachycardia, hypoglycemia. | 1. Assess maternal (especially pulse) and fetal vital signs frequently; fetal monitoring is necessary; notify RN or physician if maternal pulse is greater than 120 beats/min or FHR is greater than 180 beats/min.  
2. Strict I & O, daily weight.  
3. Encourage lateral position (Sims’) to decrease hypotension and increase placental perfusion.  
4. IV: Use a pump for continuous infusion; infusion is continued for 12 hr after labor has stopped.  
5. Watch for signs of pulmonary edema, assess blood glucose with IV Ritodrine administration and do not give in presence of an infection.  
6. **Use:** premature labor. |
| Ritodrine: IV, PO                        | **Maternal:** altered pulse and BP (dose-related), widening pulse pressure, tachycardia, hypotension, nausea and vomiting, hyperglycemia, nervousness and tremors, skin rash.  
**Fetal:** altered FHR (dose-related), increased serum glucose, acidosis, hypoxia, and hypotension at birth.  
**Contraindications:** Severe pre eclampsia, hypovolemia, cardiac disease; used with caution in diabetic mothers. | 1. Obtain baseline maternal EKG  
2. Assess maternal (especially pulse) and fetal vital signs frequently; fetal monitoring is necessary; notify physician if maternal pulse is greater than 120 beats/min or FHR is greater than 180 beats/min.  
4. Encourage lateral position (Sims’) to decrease hypotension and increase placental perfusion.  
5. IV: Use a pump for continuous infusion; infusion is continued for 12 hr after labor has stopped.  
6. Watch for signs of pulmonary edema, assess blood glucose with IV Ritodrine administration and do not give in presence of an infection.  
7. **Use:** premature labor. |
| Calcium channel blockers Nifedipine (*Procardia*): PO, sublingual | **Maternal:** facial flushing, mild hypotension, reflex tachycardia, headache, nausea. | 1. No reported fetal side effects.  
2. Not in common use as a tocolytic agent.  
3. Monitor blood pressure for hypotension. |
| Prostaglandin synthesis inhibitors       | **Maternal:** Nausea, vomiting, dyspepsia.         | 1. Used when other methods fail and gestational age is less than 30 weeks.  
2. Administer for 48-72 hr or less as may close the fetal patent ductus.  
3. Administer with food or use rectal route to decrease gastrointestinal distress. |
| Indomethacin (*Indocin*): PO or rectally | **Fetal:** oligohydramnios, premature closure of the ductus arteriosus in utero. | 1. **Most commonly used tocolytic agent,** because maternal and fetal/neonatal adverse reactions are less common than with the other tocolytic agents, especially the beta-adrenergic agonists (ritodrine and terbutaline). |
| NSAIDs                                   | **Maternal:** promotes relaxation of smooth muscles. |  |
### Appendix 20-5  RhoGAM

<table>
<thead>
<tr>
<th>Medication</th>
<th>Side Effects</th>
<th>Nursing Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMMUNE GLOBULIN HUMAN Rh(D):</td>
<td>Prevents Rho(D) sensitization in nonsensitized Rh-negative mothers following pregnancy or accidental transfusion; “tricks” the body into thinking it has already made antibodies.</td>
<td></td>
</tr>
</tbody>
</table>
| RhoGAM: IM                  | Pain and soreness at injection site | 1. Is administered twice, at 28 weeks gestation and within 72 hours of delivery, or after an abortion, miscarriage, or transfusion.  
2. Do not administer this to the infant.  