

# Postpartum Physiologic Adaptations

## OBJECTIVES

*After studying this chapter, you should be able to:*

1. Explain the physiologic changes that occur during the postpartum period.
2. Describe nursing assessments and nursing care during the postpartum period.
3. Describe expected outcomes and interventions for the most common nursing diagnoses.
4. Discuss the role of the nurse in health education and identify important areas of teaching.
5. Describe criteria for discharge and available health care services.
6. Compare nursing assessments and care for women who have undergone cesarean birth and vaginal birth.
7. Use critical thinking exercises to improve selected nursing care plans.

## DEFINITIONS

**afterpains** Cramping pain after childbirth caused by alternating relaxation and contraction of uterine muscles.

**atony** Absence or lack of usual muscle tone.

**catabolism** Destructive process that converts living cells into simpler compounds; process involved in involution of the uterus after childbirth.

**decidua** Name applied to the endometrium during pregnancy. All except the deepest layer is shed after childbirth.

**diastasis recti** Separation of the longitudinal muscles of the abdomen (rectus abdominis) during pregnancy.

**dyspareunia** Difficult or painful coitus in women.

**engorgement** Swelling of the breasts resulting from increased blood flow, edema, and presence of milk.

**episiotomy** Surgical incision of the perineum to enlarge the vaginal opening.

**fundus** Part of the uterus that is farthest from the cervix, above the openings of the fallopian tubes.

**involution** Retrogressive changes that return the reproductive organs, particularly the uterus, to their nonpregnant size and condition.

**Kegel exercises** Alternate contracting and relaxing of the pelvic floor muscles to strengthen the muscles surrounding the urinary meatus and vagina.

**lactation** Secretion of milk from the breasts; also describes the period of breastfeeding.

**lochia alba** White, cream-colored, or light yellow vaginal discharge that follows lochia serosa. Occurs when the amount of blood is decreased and the number of leukocytes is increased.

**lochia rubra** Reddish or red-brown vaginal discharge that occurs immediately after childbirth; composed mostly of blood.

**lochia serosa** Pink or brown-tinged vaginal discharge that follows lochia rubra and precedes lochia alba; composed largely of serous exudate, blood, and leukocytes.

**milk-ejection reflex** Release of milk from the alveoli into the ducts; also known as the *letdown reflex*.

**oxytocin** Posterior pituitary hormone that stimulates uterine contractions and the milk-ejection reflex. Also prepared synthetically.

**prolactin** Anterior pituitary hormone that promotes growth of breast tissue and stimulates production of milk.

**puerperium** Period from the end of childbirth until involution of the reproductive organs is complete; approximately 6 weeks.

**DEFINITIONS —cont'd**

**REEDA** Acronym for redness, ecchymosis, edema, discharge, and approximation; useful for assessing wound healing or the presence of inflammation or infection.

**subinvolution** Delayed return of the uterus to its nonpregnant size and consistency.

The first 6 weeks after the birth of an infant are known as the *postpartum period*, or puerperium. During this time, mothers experience numerous changes. Physiologic and psychosocial changes and their implications are presented in separate chapters, although in actual practice they occur at the same time. (See Appendix C, “Keys to Clinical Practice,” for a summary of postpartum assessment and care.)

Many of the physiologic changes are retrogressive in nature: changes that occurred in body systems during pregnancy are reversed as the body returns to the nonpregnant state. Progressive changes also occur, most obviously in the initiation of lactation.

**REPRODUCTIVE SYSTEM****Involvement of the Uterus**

Involution refers to the changes the reproductive organs, particularly the uterus, undergo after childbirth to return to their nonpregnant size and condition. Uterine involution depends on three processes: (1) contraction of muscle fibers, (2) catabolism, and (3) regeneration of uterine epithelium. Involution begins immediately after delivery of the placenta, when uterine muscle fibers contract firmly around maternal blood vessels at the area where the placenta was attached. This contraction controls bleeding from the area left denuded when the placenta separated. The uterus decreases in size as muscle fibers, which have been stretched for many months, contract and gradually regain their former contour and size.

Although the total number of cells remains unchanged, the enlarged muscle cells of the uterus undergo catabolic changes in protein cytoplasm that cause a reduction in individual cell size. The products of the catabolic process are absorbed by the bloodstream and excreted in the urine as nitrogenous waste.

Regeneration of the uterine epithelial lining begins soon after childbirth. The outer portion of the endometrial layer is expelled with the placenta. Within 2 to 3 days, the remaining decidua separates into two layers. The first layer is superficial and is shed in the lochia. The basal layer containing the residual endometrial glands remains intact to provide the source of new endometrium. Regeneration of the endometrium, except at the site of placental attachment, occurs by 16 days after birth (Blackburn, 2007).

The placental site, which is 8 to 10 cm (3 to 4 inches) in diameter, heals by a process of *exfoliation* (scaling off of dead tissue) (James, 2008). New endometrium is generated at the site from the sides and from glands and tissue that remain

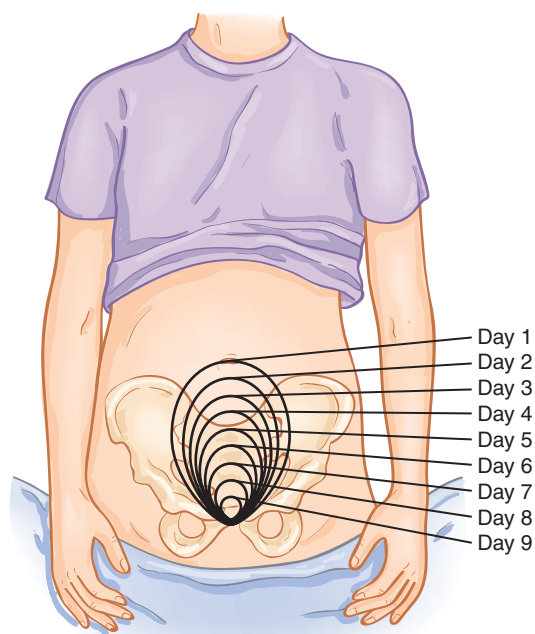
in the lower layer of the decidua after separation of the placenta (Cunningham et al., 2005). This process leaves the endometrial layer smooth and spongy, as it was before pregnancy, and leaves the uterine lining free of scar tissue unless the birth was cesarean. Scarring of the uterine lining may interfere with implantation of future pregnancies. Healing at the placental site occurs more slowly and requires approximately 6 weeks (Blackburn, 2007).

**Descent of the Uterine Fundus**

The location of the uterine fundus helps determine whether involution is progressing normally. Immediately after delivery, the uterus is about the size of a large grapefruit or softball and weighs approximately 1000 g (2.2 lb). The fundus can be palpated midway between the symphysis pubis and umbilicus. Within 12 hours the fundus rises to the level of the umbilicus, or slightly above or below the umbilicus (Blackburn, 2007; James, 2008).

By the second day, the fundus descends by approximately 1 cm, or one fingerbreadth, per day. Usually the fundus has descended into the pelvic cavity by the 14th day and cannot be palpated abdominally (Figure 17-1) (Blackburn, 2007). This process is normally slower when the uterus was distended during pregnancy with more than one fetus, a large fetus, or hydramnios (excessive amniotic fluid). When the process of involution does not occur properly, subinvolution occurs. Subinvolution can cause postpartum hemorrhage (see Chapter 28).

Descent is documented in relation to the umbilicus. For instance, *U-1* or  $\downarrow 1$  indicates that the fundus is palpable about 1 cm (a fingerbreadth) below the umbilicus. Within 1 week, the weight of the uterus decreases to about 500 g



**Figure 17-1** ■ Involution of the uterus. Height of the uterine fundus decreases by approximately 1 cm per day. The fundus is no longer palpable by 14 days.

(1 lb); at 6 weeks, the uterus weighs 60 to 80 g (2 to 3 oz), which is roughly the prepregnancy weight. The uterus of a multipara remains slightly heavier (Blackburn, 2007).

### Afterpains

Intermittent uterine contractions, known as *afterpains*, are a source of discomfort for many women. The discomfort is more acute for multiparas because repeated stretching of muscle fibers leads to loss of muscle tone that results in repeated contraction and relaxation of the uterus.

**Severity.** The uterus of a primipara tends to remain contracted, but she may also experience severe afterpains if her uterus has been overdistended by a multifetal pregnancy, a large infant, or hydramnios, or if retained blood clots are present. Afterpains are particularly severe during breastfeeding. Oxytocin, released from the posterior pituitary to stimulate the milk-ejection reflex, stimulates strong contractions of uterine muscles.

**Nursing Considerations.** Analgesics are frequently used to lessen the discomfort of afterpains. Many breastfeeding mothers are reluctant to take medication for fear that the infant will be harmed by the medication in breast milk. However, health care experts generally agree that most common analgesics may be used for short-term pain relief without harm to the infant. The benefits of pain relief, such as comfort and relaxation, facilitate the milk-ejection reflex and usually outweigh the small effect of the medication on the infant. The woman should check with her health care provider before taking any medication.

Some mothers find that lying in a prone position with a small pillow or folded blanket under the abdomen helps keep the uterus contracted and provides relief. The nurse can reassure the mother that afterpains are self-limiting and decrease rapidly after 48 hours.

### Lochia

Changes in the color and amount of lochia also provide information about whether involution is progressing normally. Table 17-1 summarizes the characteristics of normal and abnormal lochia.

**Changes in Color.** For the first 3 days after childbirth, lochia consists almost entirely of blood, with small particles

of decidua and mucus. It is called lochia rubra because of its red or red-brown color. The amount of blood decreases by about the fourth day, when leukocytes begin to invade the area, as they do any healing surface. The color of lochia then changes from red to pink or brown-tinged (lochia serosa). Lochia serosa is composed of serous exudate, erythrocytes, leukocytes, and cervical mucus. By about the 11th day, the erythrocyte component decreases. The discharge becomes white, cream, or light yellow in color (lochia alba). Lochia alba contains leukocytes, decidual cells, epithelial cells, fat, cervical mucus, and bacteria. It is present in most women until the third week after childbirth but may persist until the end of the 6th week.

**Amount.** The total amount of lochia is normally 250 mL (Lund & McManaman, 2008). Because estimating the amount of lochia on a peripad (perineal pad) is difficult, nurses frequently document lochia in terms that are difficult to quantify, such as scant, moderate, and heavy. Agreement on the meanings of terms in an agency is important to make charting accurate. One method for recording the amount of lochia in 1 hour uses the following labels:

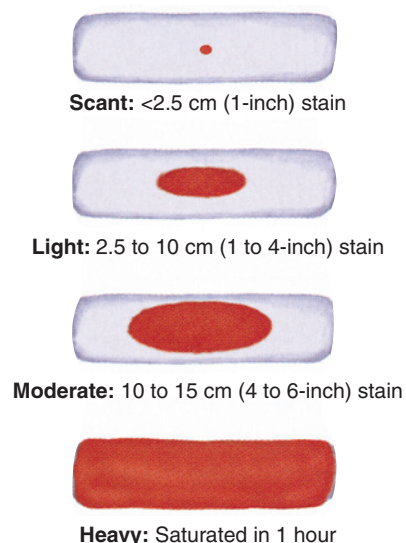
- Scant—Less than a 2.5-cm (1-inch) stain on the peripad
- Light—2.5- to 10-cm (1- to 4-inch) stain
- Moderate—10- to 15-cm (4- to 6-inch) stain
- Heavy—Saturated peripad in 1 hour
- Excessive—Saturated peripad in 15 minutes (Scoggin, 2004)

Determining the time a peripad has been in place is important when assessing lochia. What appears to be a light amount of lochia may be a moderate flow if the peripad has been in use for less than 1 hour (Figure 17-2). The amount of lochia absorbed by a peripad varies according to the brand used.

The time between delivery and assessment of lochia also is important. Lochia flow will be greater immediately after delivery but will gradually decrease. It is less after cesarean birth because some of the endometrial lining is removed

**TABLE 17-1** Characteristics of Lochia

Time and Type	Normal Discharge	Abnormal Discharge
Days 1-3: lochia rubra	Bloody; small clots; fleshy, earthy odor; red or red-brown	Large clots; saturated perineal pads; foul odor
Days 4-10: lochia serosa	Decreased amount; serosanguineous; pink or brown-tinged	Excessive amount; foul smell; continued or recurrent reddish color
Days 11-21: lochia alba (may last until sixth week for some women)	White, cream, or light yellow color; decreasing amounts	Persistent lochia serosa; return to lochia rubra; foul odor; discharge continuing



**Figure 17-2** ■ Guidelines for assessing the amount of lochia on the perineal pad.

during surgery. The lochia of the cesarean mother will go through the same phases as that of the woman who had a vaginal birth, even though the amount may be reduced.

Lochia flow often is heavier when the new mother first gets out of bed after birth or after sleeping because gravity allows blood that pooled in the vagina during the hours of rest to flow freely when she stands.

Some women have a sudden, short episode of bleeding at 7 to 14 days after birth. This bleeding occurs when the eschar over the placental site sloughs. Bleeding lasting longer than 2 hours should be evaluated by the health care provider (Katz, 2007).

### Cervix

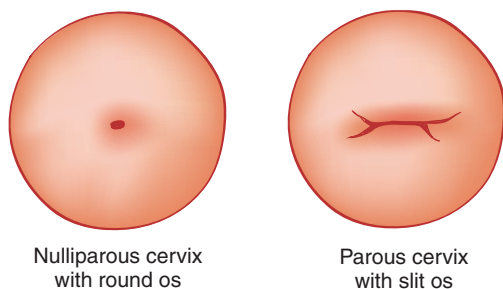
Immediately after childbirth the cervix is formless, flabby, and open wide enough to admit the entire hand. This allows manual extraction of the placenta and manual examination of the uterus, if necessary. Small tears or lacerations may be present, and the cervix is often edematous. Rapid healing takes place, and by the end of the first week the cervix feels firm and the external os is 1 cm in diameter (Beckmann et al., 2006). There may be some edema for as long as 3 to 4 months, however (Blackburn, 2007). The internal os closes as before pregnancy, but the shape of the external os is permanently changed. It remains slightly open and appears slitlike rather than round, as in the nulliparous woman (Figure 17-3).

### Vagina

The vagina and vaginal introitus are greatly stretched during birth to allow passage of the fetus. Soon after childbirth, the vaginal walls appear edematous, and multiple small lacerations may be present. Very few vaginal rugae (folds) are present. The hymen is permanently torn and heals with small, irregular tags of tissue visible at the vaginal introitus.

Although the vaginal mucosa heals and rugae are regained by 3 to 4 weeks, 6 to 10 weeks are needed for the vagina to complete involution and to gain approximately the same size and contour it had before pregnancy (Blackburn, 2007). The vagina does not entirely regain the nulliparous size, however.

During the postpartum period, vaginal mucosa becomes atrophic and vaginal walls do not regain their thickness until estrogen production by the ovaries is reestablished. Because ovarian function, and therefore estrogen production, is not well established during lactation, breastfeeding



**Figure 17-3** ■ A permanent change occurs in the cervical os after childbirth.

mothers are likely to experience vaginal dryness and may experience dyspareunia or discomfort during intercourse.

### Perineum

The muscles of the pelvic floor stretch and thin greatly during the second stage of labor, when the fetal head applies pressure as it descends, rotates, and then extends to be delivered. After childbirth, the perineum may be edematous and bruised. In the United States many women who give birth also have a surgical incision (episiotomy) of the perineal area. The episiotomy site may take 4 to 6 months to heal completely (Blackburn, 2007).

Generally, the episiotomy is median or midline, extending straight back from the lower edge of the introitus toward the anus. A mediolateral incision, begun at the introitus and directed laterally and downward away from the rectum to either the right or the left side, may be performed to provide additional room for birth of the infant. This type of episiotomy results in more blood loss and pain but less likelihood of extension of the incision (Cunningham et al., 2005).

Lacerations of the perineum may also occur during delivery. Lacerations and episiotomies are classified according to tissue involved (Box 17-1). In one study, Asian women were more likely to experience episiotomy or perineal trauma during childbirth than non-Asian women (Dahlen & Homer, 2008). (See Chapter 16 for further discussion of episiotomy and lacerations.)

**Discomfort.** Although the episiotomy is relatively small, the muscles of the perineum are involved in many activities (walking, sitting, stooping, squatting, bending, urinating, and defecating). An incision in this area can cause a great deal of discomfort. In addition, many pregnant women are affected by hemorrhoids (distended rectal

#### BOX 17-1 Lacerations of the Birth Canal

##### Perineum

Perineal lacerations are classified in degrees to describe the amount of tissue involved. Some physicians or nurse-midwives also use degrees to describe the extent of midline episiotomies.

- *First-degree:* Involves the superficial vaginal mucosa or perineal skin.
- *Second-degree:* Involves the vaginal mucosa, perineal skin, and deeper tissues, which may include fascia and muscles of the perineum.
- *Third-degree:* Same as second-degree lacerations but involves the anal sphincter.
- *Fourth-degree:* Extends through the anal sphincter into the rectal mucosa.

##### Periurethral Area

A laceration in the area of the urethra may cause a woman to have difficulty urinating after birth. An indwelling catheter may be necessary for a day or two.

##### Vaginal Wall

A laceration involves the mucosa of the vaginal wall.

##### Cervix

Tears in the cervix may be a source of significant bleeding after birth.

veins), which are pushed out of the rectum during the second stage of labor.

**Nursing Considerations.** Hemorrhoids, as well as perineal trauma, episiotomy, or lacerations, can make physical activity or bowel elimination difficult during the postpartum period. Relief of perineal discomfort is a nursing priority that may include teaching self-care measures such as applying ice, taking sitz baths, performing perineal care, using topical anesthetics and cooling astringent pads, and taking ordered analgesics.



### CHECK YOUR READING

1. Which three processes are involved in involution of the uterus?
2. How is the fundus expected to descend after childbirth?
3. Which mothers are most likely to experience afterpains? How are they treated?
4. What are the differences among lochia rubra, lochia serosa, and lochia alba in appearance and expected duration?

## CARDIOVASCULAR SYSTEM

Hypervolemia, which produces a 30% to 45% increase in blood volume at term, allows the woman to tolerate a substantial blood loss during childbirth without ill effect. Up to 500 mL of blood is lost in vaginal deliveries and up to 1000 mL is lost in cesarean births (Blackburn, 2007).

### Cardiac Output

Despite the blood loss, a transient increase in maternal cardiac output occurs after childbirth. This increase is caused by (1) an increased flow of blood back to the heart when blood from the uteroplacental unit returns to the central circulation, (2) decreased pressure from the pregnant uterus on the vessels, and (3) the mobilization of excess extracellular fluid into the vascular compartment.

The rise in cardiac output, caused by an increase in stroke volume, persists for about 48 hours after childbirth. Gradually, cardiac output returns to normal nonpregnant levels in most women by 6 to 12 weeks after childbirth (Blackburn, 2007).

### Plasma Volume

The body rids itself of the excess plasma volume needed during pregnancy by diuresis and diaphoresis.

- Diuresis (increased excretion of urine) is facilitated by a decline in the adrenal hormone aldosterone, which is increased during pregnancy to counteract the salt-wasting effect of progesterone. As aldosterone production decreases, sodium retention declines and fluid excretion accelerates. A decrease in oxytocin level, which promotes reabsorption of fluid, also contributes to diuresis. A urinary output of 3000 mL per day is common, especially on days 2 through 5 postpartum (Blackburn, 2007).
- Diaphoresis (profuse perspiration) also rids the body of excess fluid. Although not clinically significant,

diaphoresis can be uncomfortable and unsettling for the mother who is not prepared for it. Explanations of the cause and provision of comfort measures, such as showers and dry clothing, are generally sufficient.

## Coagulation

Significant changes that occur during pregnancy also affect the body's ability to coagulate blood and form clots. During pregnancy, levels of plasma fibrinogen and other factors necessary for coagulation increase as a protection against postpartum hemorrhage. As a result the mother's body has a greater ability to form clots and thus prevent excessive bleeding. Fibrinolytic activity (ability to break down clots) is decreased during pregnancy. Although fibrinolysis increases shortly after delivery, elevations in levels of clotting factors continue for several days or longer, causing a continued risk of thrombus formation. It takes 4 to 6 weeks before the hemostasis returns to normal nonpregnant levels (Blackburn, 2007).

Although the incidence of thrombophlebitis has declined greatly as a result of early postpartum ambulation, new mothers are still at increased risk for thrombus formation. Women who have varicose veins, a history of thrombophlebitis, or a cesarean birth are at further risk, and the lower extremities should be monitored closely. Sequential compression devices are often applied before a cesarean birth or if the mother is at particular risk because of a history of previous thrombus or the presence of varicosities (see Chapter 28).

## Blood Values

Besides clotting factors, other components of the blood change during the postpartum period. Marked leukocytosis occurs, with the white blood cell (WBC) count increasing to as high as 30,000/mm<sup>3</sup> during labor and the immediate postpartum period (Blackburn, 2007; Cunningham et al., 2005). The average increase is to 14,000 to 16,000/mm<sup>3</sup> (Scoggin, 2004). The white blood count (WBC) falls to normal values by 6 days after birth (Blackburn, 2007). Neutrophils, which increase in response to inflammation, pain, and stress to protect against invading organisms, account for the major increase in WBCs.

Maternal hemoglobin and hematocrit values are difficult to interpret during the first few days after birth because of the remobilization and rapid excretion of excess body fluid. The hematocrit is low when plasma increases and dilutes the concentration of blood cells and other substances carried by the plasma. As excess fluid is excreted, the dilution gradually is reduced. Hematocrit should return to normal limits within 4 to 6 weeks unless excessive blood loss has occurred (Blackburn, 2007).

## GASTROINTESTINAL SYSTEM

Soon after childbirth, digestion begins to be active. The new mother usually is hungry because of the energy expended in labor. She is thirsty because of the decreased oral intake dur-

**TABLE 17-2** Commonly Recommended Laxatives for the Postpartum Period

Types	Examples	Comments
All laxatives		Teach clients to increase fluid intake. Prolonged use may result in dependence. Encourage ambulation and dietary fiber intake.
Fecal wetting agents	Docusate calcium (Surfak), docusate sodium (Colace)	Detergent-like action; permit easier mixing of fats and fluids with fecal mass; produce softer, more easily passed stools.
Saline laxatives	Magnesium hydroxide (Milk of Magnesia)	Work by osmotic action, drawing water through intestinal wall to soften stool. May decrease absorption of some medications.
Osmotic laxatives	Polyethylene glycol (MiraLAX)	Dissolve powder in water. Do not give within 1 hour after taking medications.
Stimulant laxatives	Bisacodyl (Dulcolax), senna (Senokot)	Increase fluid and electrolyte accumulation in colon to promote peristalsis. Should not be taken within 1 hour of taking other medications (may decrease effectiveness), antacids, or milk products. Do not chew or crush.
Bulk-forming laxatives	Polycarbophil (FiberCon), psyllium (Metamucil)	Absorb water to provide bulk to stools. Mix Metamucil with 8 oz of water and take at least 2 hours before or after medications.
Suppositories	Glycerin, bisacodyl	Chill and moisten with water or water-soluble lubricant before insertion.

Data from Hodgson, B.B., & Kizior, R.J. (2008). *Saunders nursing drug handbook 2008*. St. Louis: Saunders.

ing labor and the fluid loss from exertion, mouth breathing, and early diaphoresis. Nurses anticipate the mother's needs and provide food and fluids soon after childbirth.

Constipation is a common problem during the postpartum period for a variety of reasons. Bowel tone and gastric motility, which were diminished during pregnancy as a result of progesterone, remain sluggish for several days. In addition, relaxation of the abdominal wall increases constipation and distention with gas. Restricted food and fluid intake during labor often results in small, hard stools. Perineal trauma, episiotomy, and hemorrhoids cause discomfort and interfere with effective bowel elimination. In addition, many women anticipate pain when they attempt to defecate and are unwilling to exert pressure on the perineum. Women who are taking iron have an added cause of constipation.

Temporary constipation is not harmful, although it can cause a feeling of abdominal fullness and flatulence. Many women become extremely concerned about constipation, and stool softeners and laxatives frequently are prescribed to prevent or treat constipation (Table 17-2). The first stool usually occurs within 2 to 3 days postpartum. Normal patterns of bowel elimination usually resume by 8 to 14 days after birth (Blackburn, 2007).

## URINARY SYSTEM

### Physical Changes

The kidneys return to normal function by 2 to 3 months after delivery. The dilation of the renal pelvis, calyces, and the ureters ends by 6 to 8 weeks for most women although it may continue as long as 16 weeks for some (Blackburn, 2007). Both protein and acetone may be present in the urine in the first few postpartum days. Acetone suggests dehydration that often occurs during the exertion of labor. Mild

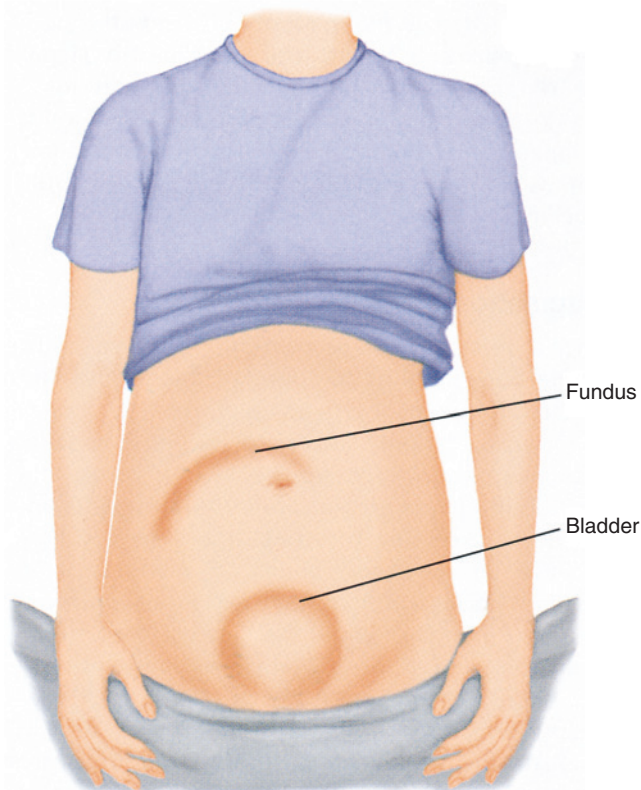
proteinuria usually is the result of the catabolic processes involved in uterine involution. Sugar in the form of lactose is sometimes also present.

Changes during pregnancy cause the bladder of postpartum women to have increased capacity and decreased muscle tone. During childbirth, the urethra, bladder, and tissue around the urinary meatus may become edematous and traumatized as the fetal head passes beneath the bladder. The result is often diminished sensitivity to fluid pressure, and many new mothers have little or no sensation of needing to void even when the bladder is distended.

The bladder fills rapidly because of the diuresis that follows childbirth. As a consequence the mother is at risk for overdistention of the bladder, incomplete emptying of the bladder, and retention of residual urine. Women who have received regional anesthesia are at particular risk for bladder distention and difficulty in voiding until sensation returns fully.

Urinary retention and overdistention of the bladder may cause two complications: urinary tract infection and postpartum hemorrhage. Urinary tract infection occurs when urinary stasis allows time for bacteria to multiply. Risk of postpartum hemorrhage increases because uterine ligaments, which were stretched during pregnancy, allow the uterus to be displaced upward and laterally by the full bladder (Figure 17-4). The displacement results in an inability of the uterine muscles to contract (uterine atony), a primary cause of excessive bleeding. The dilation of the bladder, ureters, and kidney pelvis improves by the end of the first week. The structures generally regain their non-pregnant state by 6 to 8 weeks after delivery (Blackburn, 2007).

Stress incontinence occurring during pregnancy usually improves within 3 months after birth (Beckmann et al., 2006; James, 2008). For some women the problem resolves



**Figure 17-4** ■ A full bladder displaces and prevents contraction of the uterus.

with exercises (for example, Kegel exercises) and time for healing. Others have continued problems. Approximately one third of women have urinary incontinence at 8 weeks postpartum. The number drops to 15% at 12 weeks (Katz, 2007). (See Chapter 34 for more information.)

## MUSCULOSKELETAL SYSTEM

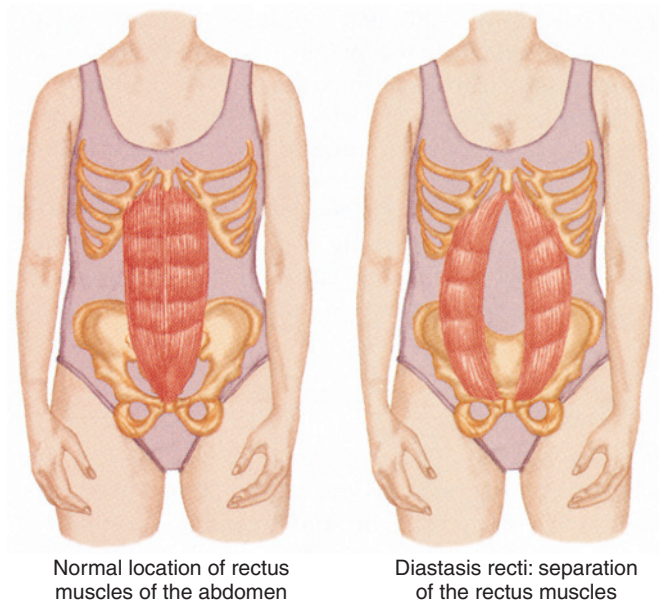
### Muscles and Joints

In the first 1 to 2 days after childbirth, many women experience muscle fatigue and aches, particularly of the shoulders, neck, and arms, because of exertion during labor. Warmth and gentle massage increase circulation to the area and provide comfort and relaxation.

During the first few days, levels of the hormone relaxin gradually subside, and ligaments and cartilage of the pelvis begin to return to their prepregnancy positions. These changes can cause hip and joint pain that interferes with ambulation and exercise. The mother should be told that the discomfort is temporary and does not indicate a medical problem. Good body mechanics and correct posture are extremely important during this time to help prevent low back pain and injury to the joints (see Figures 7-12 and 7-13 on p. 137).

### Abdominal Wall

During pregnancy the abdominal walls stretch to accommodate the growing fetus, and muscle tone is diminished. Many women, expecting the abdominal muscles to return



**Figure 17-5** ■ Diastasis recti occurs when the longitudinal muscles of the abdomen separate during pregnancy.



**Figure 17-6** ■ Abdominal exercises for diastasis recti. **A**, The woman inhales and supports the abdominal wall firmly with her hands. **B**, Exhaling, the woman raises her head as she pulls the abdominal muscles together.

to the prepregnancy condition immediately after childbirth, are dismayed to find the abdominal muscles weak, soft, and flabby.

In addition, the longitudinal muscles of the abdomen may separate (diastasis recti) during pregnancy (Figure 17-5). The separation may be minimal or extensive. The mother can determine the amount of separation by placing the fingertips at the umbilicus and raising the head and shoulders while in a supine position. She may benefit from gentle exercises to strengthen the abdominal wall, which usually returns to normal position by 6 weeks after birth (Scoggin, 2004; Figure 17-6).

**EVIDENCE-BASED PRACTICE**

The 6 weeks after childbirth have traditionally been considered the time during which women healed and their bodies returned to normal. However, studies have shown that more time is required for women to fully recover from childbirth.

Declercq et al. (2008) analyzed results of the Listening to Mothers II Survey. This Internet and telephone survey of 1573 women asked about women's experiences during pregnancy and postpartum. The survey questions regarding postpartum focused on identifying problems the women had experienced since giving birth.

The most frequently identified problem for all mothers was pain. Of the mothers who had cesarean births 79% reported pain from the incision as a problem in the first 2 months postpartum and 33% of them felt this was a major problem. At 6 months after cesarean birth, 17% of primiparas and multiparas who had repeat cesareans and 22% of multiparas who had their first cesarean birth reported incisional pain as a continuing problem.

Perineal pain in the first 2 months after spontaneous vaginal birth was identified as a problem by 73% of primiparas and as a major problem by 28%. If vaginal delivery was assisted by vacuum extraction or forceps, 77% of primiparas and 52% of multiparas

reported pain in the first 2 months. At 6 months postpartum, 17% of women with assisted births still had perineal pain but only 1% of women with spontaneous vaginal deliveries reported perineal pain.

Dyspareunia (painful intercourse) in the first 2 months was described by 56% of primiparas who had an assisted birth and 48% of women with spontaneous vaginal births. Multiparas cited this as a problem less often (36% and 27%, respectively).

Women who had an episiotomy experienced pain more often than those without an episiotomy. Episiotomy pain in the first 2 months was reported by 82% of primiparas and 49% of multiparas. Women without an episiotomy were less likely to have perineal pain during the first 2 months: 67% of primiparas and 34% of multiparas cited perineal pain as a problem during the first 2 months after giving birth.

Think about how these findings might be used in clinical practice. Do women expect pain that may last 2 months or more after childbirth? Elective cesarean births are increasing. Do you think women should know that some women have pain lasting 6 months after cesarean birth? How should women be prepared for pain after childbirth and what can be done to help them?

Reference: Declercq, E., Cunningham, D.K., Johnson, C., & Sakala, C. (2008). Mothers' reports of postpartum pain associated with vaginal and cesarean deliveries: Results of a national survey. *Birth, 35*(1), 16-30.

**INTEGUMENTARY SYSTEM**

Many skin changes that occur during pregnancy are caused by an increase in levels of hormones. When the hormone levels decline after childbirth, the skin gradually reverts to the nonpregnant state. For example, levels of estrogen, progesterone, and melanocyte-stimulating hormone, which caused hyperpigmentation during pregnancy, decrease rapidly after childbirth, and pigmentation begins to recede. This change is particularly noticeable when melasma, the "mask of pregnancy," and linea nigra fade and disappear for most women. In addition, spider nevi and palmar erythema, which may develop during pregnancy as a result of increased estrogen level, gradually disappear.

Striae gravidarum (stretch marks), which develop during pregnancy when connective tissues in the abdomen and breasts are stretched, gradually fade to silvery lines but do not disappear. Loss of hair may especially concern the woman. This is a normal response to the hormonal changes that caused decreased hair loss during pregnancy. Hair loss begins at 4 to 20 weeks after delivery and is regrown in 4 to 6 months for two thirds of women and by 15 months for the remainder of women (Blackburn, 2007).

**NEUROLOGIC SYSTEM**

In the early period after delivery, the woman may have temporary neurologic changes such as lack of feeling in the legs and dizziness from anesthesia or analgesia. During this time, prevention of injury from falling is a priority.

Discomfort and fatigue after childbirth are common. Afterpains, discomfort from episiotomy or incisions, muscle

aches, and breast engorgement may increase a woman's discomfort and inability to sleep.

Complaints of headache require careful assessment. Frontal and bilateral headaches are not unusual in the first week postpartum and may be a result of changes in fluid and electrolyte balance (Blackburn, 2007). Severe headaches are not common, but may be postpuncture headaches resulting from regional anesthesia (see Chapter 15). They may be most severe when the woman is in an upright position and are relieved by assuming a supine position. They should be reported to the appropriate health care provider, usually an anesthesiologist. Headache, along with blurred vision, photophobia, proteinuria, and abdominal pain, also may indicate development or worsening of preeclampsia (see Chapter 25).

Pain continues after discharge. Mothers report being surprised at the amount of pain they experience when they go home. Some mothers feel the pain interferes with their ability to care for themselves and their infants (Declercq et al., 2008; George, 2005). (See Evidence-Based Practice feature for more information.)

**ENDOCRINE SYSTEM**

After expulsion of the placenta, levels of placental hormones such as estrogen, progesterone, and human placental lactogen decline fairly rapidly. Human chorionic gonadotropin is present for 3 to 4 weeks. If the mother is not breastfeeding, the pituitary hormone prolactin, which stimulates milk secretion, returns to nonpregnant levels in about 1 to 2 weeks (Blackburn, 2007).



## Resumption of Ovulation and Menstruation

The average time for non-nursing mothers to resume menstruation is 7 to 9 weeks after childbirth, although this varies widely. Menstruation that takes place in the first 6 weeks occurs without ovulation, but ovulation occurs before 25% of women have their first cycle (Blackburn, 2007). Therefore contraceptive measures are important considerations when sexual relations are resumed for both lactating and nonlactating women.

Breastfeeding delays the return of both ovulation and menstruation. Menses while lactating may resume as early as 12 weeks or as late as 18 months (Cunningham et al., 2005). The length of the delay depends on several factors including the frequency of breastfeeding, use of supplements, and duration of lactation. Generally, women who breastfeed more often and use fewer supplements are likely to ovulate and menstruate later than women who breastfeed less often, use more supplements, and wean earlier (Kennedy, 2005; Kennedy & Trussell, 2007). For the woman who is breastfeeding frequently and without supplements, contraception should be used by the time the infant is 6 months old or earlier because ovulation and menses are increasingly likely by that time.

## Lactation

During pregnancy, estrogen and progesterone prepare the breasts for lactation. Although prolactin level also rises during pregnancy, lactation is inhibited at this time by the high level of estrogen and progesterone. After expulsion of the placenta, estrogen and progesterone levels decline rapidly, and prolactin initiates milk production within 2 to 3 days after childbirth. Once milk production is established, it continues because of frequent suckling by the infant and removal of milk from the breast. That is, the more the infant nurses, the more milk the mother produces.

Oxytocin is necessary for milk ejection or “let-down.” This hormone, which is secreted by the posterior pituitary gland, causes milk to be expressed from the alveoli into the lactiferous ducts during suckling (see Chapter 22).

## Weight Loss

Approximately 4.5 to 5.8 kg (10 to 13 lb) are lost during childbirth. This includes the weight of the fetus, placenta, and amniotic fluid and blood lost during the birth. An additional 2.3 to 3.6 kg (5 to 8 lb) are lost as a result of diuresis and 0.9 kg to 1.4 kg (2 to 3 lb) from involution and lochia by the end of the first week. Younger women with lower prepregnant weight lose more weight and lose it sooner than other women (Blackburn, 2007).

Adipose (fatty) tissue that was gained during pregnancy to meet the energy requirements of labor and breastfeeding is not lost initially, and the usual rate of loss is slow. Most women have a steady weight loss over the first 3 to 6 months after childbirth, but many retain an average of 1 kg (2.2 lb) with each pregnancy (Blackburn, 2007). Many mothers are frustrated during this time because they desire an immediate return to prepregnancy weight. Nurses can

provide information about diet and exercise that will produce an acceptable weight loss without depleting the mother’s energy or impairing her health.

Adequate sleep may also be important for weight loss. One large study found an association between sleeping 5 or fewer hours daily and retaining 5 kg (11 lb) at 1 year postpartum (Gunderson et al., 2008).



## CHECK YOUR READING

- Why is the mother at risk for urinary retention? Which two complications may result?
- Why does hyperpigmentation decrease after childbirth?
- How does breastfeeding affect the resumption of ovulation and menstruation?
- Should the nurse be concerned if a woman who delivered a baby yesterday has a WBC count of 16,000/mm<sup>3</sup>? Why or why not?
- When should a woman who is formula feeding her infant expect her menses to resume? When should a woman who is breastfeeding expect her menses to resume?
- How much weight will the woman lose during childbirth? How much can she expect to lose by the end of the first week after childbirth?

## POSTPARTUM ASSESSMENTS

Providing essential, cost-effective postpartum care to new families is a challenge for maternity nurses. Legislation allows women and their health care providers to determine the length of stay and provides for insurance payments for covered care. This allows most women to stay in the birth facility for 48 hours after an uncomplicated vaginal birth and 96 hours after a cesarean birth. Some women choose to go home at an earlier time.

Although the length of stay is short, the family’s need for care and information is extensive. This need causes nurses a great deal of concern for families who are discharged without adequate preparation or support. Nurses are actively involved in developing ways to provide continuing care in the home. They use measures such as clinical pathways to structure assessments, care, and teaching during the birth facility stay.

## Clinical Pathways

Some institutions use clinical pathways (also called *critical pathways*, *care maps*, *care paths*, or *multidisciplinary action plans*) to guide necessary care while reducing the length of stay. Clinical pathways identify expected outcomes and establish time frames for specific assessments and interventions that prepare the mother and infant for discharge. The clinical pathway is a guideline and documentation tool. It may be used as part of shift report so all staff are aware of the client’s expected outcomes and progress.

## Initial Assessments

Caring for postpartum clients exposes the nurse to the risk of contact with body fluids such as colostrum, breast milk,

amniotic fluid, and lochia from the mother as well as urine, stool, and blood from the infant. Therefore the recommendations of the Centers for Disease Control and Prevention (CDC) for standard blood and body fluid precautions must be followed diligently.

Postpartum assessments begin during the fourth stage of labor (the first 1 to 2 hours after childbirth). The mother is examined to determine whether she is physically stable. Initial assessments include:

- Vital signs
- Skin color
- Location and firmness of the fundus
- Amount and color of lochia
- Perineum (edema, episiotomy, lacerations, hematoma)
- Presence and location of pain
- Intravenous (IV) infusions: type of fluid, rate of fluid administration, type and amount of added medications, patency of the IV line, and redness, pain, or edema of the site
- Urinary output: time and amount of last void or catheterization, presence of a catheter, color and character of urine
- Status of abdominal incision and dressing, if present
- Level of feeling and ability to move if regional anesthesia was administered

### Chart Review

When the initial assessments confirm the mother's physical condition is stable, nurses should review the chart to obtain pertinent information and determine if there are factors that increase the risk of complications during the postpartum period. Relevant information includes:

- Gravida, para
- Time and type of delivery (use of vacuum extractor, forceps)
- Presence and degree of episiotomy or lacerations
- Anesthesia or medications administered
- Significant medical and surgical history, such as diabetes, hypertension, heart disease
- Medications given during labor or delivery or routinely taken and the reasons for their use
- Food and drug allergies
- Chosen method of infant feeding
- Condition of the baby

Laboratory data also are examined. Of particular interest are the prenatal hemoglobin and hematocrit values, blood type and Rh factor, hepatitis B surface antigen, rubella immune status, syphilis screen, and group B streptococcus status (see Chapter 26).

### Need for Rh<sub>0</sub>(D) Immune Globulin

Prenatal and neonatal records are checked to determine whether Rh<sub>0</sub>(D) immune globulin should be administered. Rh<sub>0</sub>(D) immune globulin may be necessary if the mother is Rh-negative, the newborn is Rh-positive, and the mother is not already sensitized. Rh<sub>0</sub>(D) immune

globulin should be administered within 72 hours after childbirth to prevent the development of maternal antibodies that would affect subsequent pregnancies (see Chapter 25 for Rh incompatibility and Rh<sub>0</sub>[D] immune globulin drug guide).

### Need for Rubella Vaccine

A prenatal rubella antibody screen is performed on each pregnant woman to determine whether she is immune to rubella. If she is not immune, rubella vaccine is recommended after childbirth to prevent her from acquiring rubella during subsequent pregnancies, when it can cause serious fetal anomalies. Although defects in infants born to mothers who received rubella vaccine during pregnancy have not been reported, the vaccine is a live virus and there is a theoretic risk of fetal defects if the mother becomes pregnant soon after it is administered. Women are advised not to become pregnant for at least 28 days after receiving the vaccine (Atkinson et al., 2007).

Before administration, some agencies require a woman to sign a statement giving permission to receive the vaccine as well as indicating she understands the risks of becoming pregnant again too soon after the injection. If a written statement from the mother is not required, the nurse should document in the chart that the risk has been explained and that the parents have verbalized their understanding (see Drug Guide).

### Risk Factors for Hemorrhage and Infection

Nurses must be aware of conditions that increase the risk of hemorrhage and infection, the two most common complications of the puerperium.



#### CRITICAL TO REMEMBER

### Postpartum Risk Factors

#### Hemorrhage

- Grand multiparity (five or more)
- Overdistention of the uterus (large baby, twins, hydramnios)
- Precipitous labor (less than 3 hours)
- Prolonged labor
- Retained placenta
- Placenta previa or abruptio placentae
- Induction or augmentation of labor
- Administration of tocolytics to stop uterine contractions
- Operative procedures (cesarean birth, vacuum extraction, forceps-assisted delivery)

#### Infection

- Operative procedures (cesarean birth, vacuum extraction, forceps-assisted delivery)
- Multiple cervical examinations
- Prolonged labor
- Prolonged rupture of membranes
- Manual extraction of placenta
- Diabetes
- Catheterization
- Anemia

## DRUG GUIDE

## RUBELLA VACCINE

**Classification:** Attenuated live virus vaccine

**Action:** Vaccination produces a modified rubella (German measles) infection that is not communicable, causing the formation of antibodies against rubella virus.

**Indications:** The vaccine is administered after childbirth or abortion or at least 4 weeks before pregnancy to women whose antibody screen shows they are not immune to rubella. Vaccination prevents rubella infection and possible severe congenital defects in the fetus during a subsequent pregnancy.

**Dosage and Route:** 0.5 mL subcutaneously

**Absorption:** Well absorbed

**Contraindications and Precautions:** The vaccine is contraindicated in women who are immunosuppressed, pregnant, or sensitive to neomycin or eggs and in women who have a respiratory tract or febrile infection, active untreated tuberculosis, or conditions that affect the bone marrow or lymphatic system. The attenuated virus may appear in breast milk and some infants de-

velop a rash, but this is not a contraindication to vaccination of lactating women. Although it can be given near the time that Rh<sub>o</sub>(D) immune globulin is administered, women receiving the vaccine should be tested for immune status at 6 to 8 weeks to be sure they are immune (Atkinson et al., 2007).

**Adverse Reactions:** Transient stinging at site, fever, lymphadenopathy, arthralgia, and transient arthritis are most common.

**Nursing Implications:** Previously, the woman and her partner were warned to avoid pregnancy for at least 3 months after vaccination because of the possibility that a fetus might be affected by the live virus in the vaccine. The CDC has changed this time period to 4 weeks. Signed informed consent is usually required.

Vials should be refrigerated. Reconstitute only with diluent supplied with the vial. Use immediately after reconstitution and discard if not used within 8 hours. Protect from light. Check with health care provider before giving near the time of Rh<sub>o</sub>(D) immune globulin administration. Birth of infants with congenital rubella syndrome has not been documented when the vaccine is inadvertently given during pregnancy. However, advise the woman to avoid pregnancy for at least 4 weeks after receiving the vaccine.

### Focused Assessments after Vaginal Birth

Nurses perform postpartum assessments according to facility protocol. For example, a protocol might require the following assessments:

- Every 15 minutes for the first hour
- Every 30 minutes for the second hour
- Every 4 hours for the first 24 hours
- Every 8 hours thereafter

Although assessments vary depending on the particular problems presented by the mother, a focused assessment for a vaginal delivery generally includes the vital signs, fundus, lochia, perineum, bladder elimination, breasts, and lower extremities. The assessment for women whose infants were born vaginally differs from that performed for postcesarean mothers (see p. 409).

### Vital Signs

**Blood Pressure.** Blood pressure (BP) varies with client position and the arm used for its measurement. To obtain accurate results BP should be measured on the same arm and with the mother in the same position each time and these should be documented along with the results. Postpartum BP should be compared with that of the predelivery period so that deviations from what is normal for the mother can be quickly identified. An increase from the baseline may be caused by pain or anxiety. If the BP is 140/90 mm Hg or higher, preeclampsia may be present. A decrease may indicate dehydration or hypovolemia resulting from excessive bleeding.

**Orthostatic Hypotension.** After birth a rapid decrease in intraabdominal pressure results in dilation of blood vessels supplying the viscera. The resulting engorgement of

abdominal blood vessels contributes to a rapid fall in BP of 20 mm Hg systolic when the woman moves from a recumbent to a sitting position. As a result of the sudden drop in BP, mothers feel dizzy or lightheaded and may faint when they stand. The nursing diagnosis “Risk for Injury” applies to women with orthostatic hypotension (Nursing Care Plan 17-1).

Hypotension may also indicate hypovolemia. Careful assessments for hemorrhage (location and firmness of the fundus, amount of lochia, pulse rate for tachycardia) should be made if the postpartum BP is significantly less than the prenatal baseline BP.

**Pulse.** Bradycardia, defined as a pulse rate of 40 to 50 bpm, may occur (James, 2008). The lower pulse rate may reflect the large amount of blood that returns to the central circulation after delivery of the placenta. The increase in central circulation results in increased stroke volume and allows a slower heart rate to provide adequate maternal circulation.

Tachycardia may indicate excitement, pain, anxiety, fatigue, dehydration, hypovolemia, anemia, or infection. If tachycardia is noted, additional assessments should include level of pain, BP, location and firmness of the uterus, amount of lochia, estimated blood loss at delivery, and hemoglobin and hematocrit values. The objective of the additional assessments is to rule out excessive bleeding and intervene at once if hemorrhage is suspected.

**Respirations.** A normal respiratory rate of 12 to 20 breaths per minute should be maintained. Assessing breath sounds is not as important if the mother has had a normal vaginal delivery, is ambulatory, and is without signs of respiratory distress. Breath sounds always should be aus-

**NURSING  
CARE PLAN****17-1****Postpartum Hypotension, Fatigue, and Pain**

**ASSESSMENT:** Lani, gravida 2, para 2, gave birth vaginally to a baby girl weighing 3400 g (7.5 lb) 4 hours ago. She became weak and dizzy and said, “Everything is going black” when she attempted to ambulate the first time. Her gait was unsteady, and the nurse had to lower her back to bed to prevent her from fainting. Her color was pale, and her pulse rate was rapid.

**NURSING DIAGNOSIS:** Risk for Injury related to physiologic effects of orthostatic hypotension

**CRITICAL THINKING:** Does the nurse have enough data to make this diagnosis? If not, what other data are necessary? Why?

**ANSWER:** Although dizziness and feeling faint may indicate orthostatic hypotension, they may also indicate hypovolemia. The nurse must also assess Lani for signs of excessive blood loss, such as evidenced by the location and firmness of the uterine fundus, the amount of lochia, the pulse rate at rest, BP, and hemoglobin and hematocrit levels. Current hemoglobin and hematocrit levels should be compared with those before delivery and the estimated blood loss during delivery should be noted. If these data are within expected levels, a diagnosis of “Risk for Injury related to the effects of orthostatic hypotension” is appropriate.

**EXPECTED OUTCOME:** Lani will remain free of injury caused by fainting and falling during the postpartum period.

**INTERVENTION****RATIONALE**

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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| <ol style="list-style-type: none"> <li>1. Obtain the assistance of another staff person each time ambulation is attempted until Lani is able to ambulate without dizziness or feeling faint.</li> <li>2. Check Lani’s blood pressure while she is in a supine position and in a sitting position before getting her out of bed again. Use the same arm each time the BP is taken.</li> <li>3. Elevate the head of the bed for a few minutes before Lani attempts to stand. Help her to sit on the edge of the bed for several minutes before standing, and help her to stand slowly.</li> <li>4. Instruct Lani to bend her knees and move her feet constantly when she first stands.</li> <li>5. Suggest that she take brief, tepid (not hot) showers and that she bend her knees and “march” during the shower. Provide a chair for her to use if she feels weak or faint while in the shower.</li> <li>6. Initiate measures to prevent injuries that could be sustained if she fainted:               <ol style="list-style-type: none"> <li>a. Stay with Lani when she ambulates, and be prepared to assist her in sitting down and lowering her head or to lower her gently to the floor if she becomes faint.</li> <li>b. Call for additional assistance, if needed, before attempting to return her to bed.</li> <li>c. Remind her to call for assistance before trying to ambulate. Check to see that the call light is conveniently located.</li> </ol> </li> </ol> | <ol style="list-style-type: none"> <li>1. A second person is necessary to help prevent injury to the client and the staff if Lani should start to fall.</li> <li>2. A decrease of 20 mm Hg in systolic pressure in the upright position indicates orthostatic hypotension. Measuring from the same arm provides more accurate information because the reading may differ slightly in each arm.</li> <li>3. Sitting and standing slowly allow time for the blood pressure to stabilize before she is fully upright, thus maintaining circulation to the brain.</li> <li>4. Moving the feet increases venous return from the lower extremities to maintain cardiac output and increase cerebral circulation.</li> <li>5. Hot water dilates peripheral blood vessels, allowing additional blood to remain in the vessels of the legs. Moving the feet and legs increases blood return from the legs and increases blood to the brain. Sitting takes less energy if she is feeling weak.</li> <li>6. Gravity increases blood flow to the brain when the head is lowered and helps prevent fainting. Adequate assistance prevents falling and possible injury during a fainting episode.</li> </ol> |
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**EVALUATION:** Lani has participated in self-care and has sustained no injury during her hospital stay.

**ASSESSMENT:** On the second day after delivery Lani demonstrates skill in breastfeeding but wonders how she will be able to care for her baby girl and her 18-month-old boy when she gets home. She states that he “is busy every minute.” She has a third-degree episiotomy and asks what she can do to prevent the pain she experienced during intercourse for several months after the last child was born.

**NURSING DIAGNOSIS:** Anxiety related to anticipated fatigue and discomfort

**CRITICAL THINKING:** What assumption is the nurse making? How might the nurse validate the assumption? Can you identify another diagnosis that is more specific?

**ANSWER:** The nurse assumes the client is anxious. Neither signs nor symptoms of anxiety are part of the assessment data. The nurse can validate the assumption by asking Lani if she is anxious. “Anxiety” is a very broad diagnostic category. Based on data available, a more specific and therefore more helpful nursing diagnosis might be “Risk for Ineffective Sexuality Patterns related to fatigue and pain.”

NURSING  
CARE PLAN

## 17-1

## Postpartum Hypotension, Fatigue, and Pain—cont'd

**EXPECTED OUTCOMES:** Before discharge the couple will:

1. Verbalize measures to promote comfort during sexual activity.
2. Verbalize a plan to reduce fatigue, which interferes with interest in and energy for sexual activity.

**INTERVENTION**

1. Recommend that the parents postpone vaginal intercourse until the perineum is well healed, usually 2 to 4 weeks, or longer if significant perineal trauma occurred. Suggest that the mother continue perineal care and the use of topical agents until the perineum is healed.
2. Suggest that Lani breastfeed the infant shortly before the parents initiate sexual activity.
3. Explain the need for a water-soluble vaginal lubricant (K-Y Jelly, Lubrin, Replens).
4. Before vaginal intercourse, as part of foreplay, suggest that one finger be inserted into the vaginal introitus to determine areas of tenderness or pain.
5. Explain that sexual arousal may be slower because of decreased hormone levels and fatigue. More stimulation may be required before the mother is sexually aroused.
6. Suggest that the woman assume the superior position during intercourse.
7. Remind the mother to perform Kegel exercises until she can comfortably do 30 contraction-relaxation cycles each day.
8. Suggest measures that may lessen fatigue:
  - a. Recommend a 30-minute nap for each partner during the day or evening.
  - b. Suggest that sexual activity be resumed in the morning or afternoon rather than at the end of a tiring day.
  - c. Suggest that parents rest when the infant sleeps and that they postpone major home projects that will increase fatigue until the infant is sleeping through the night.
9. Discuss the need for frank communication between partners about measures that reduce discomfort as well as specific concerns and needs.

**RATIONALE**

1. These measures promote rapid healing and reduce pain or fear of pain when sexual activity is resumed.
2. Breastfeeding reduces the chance of leaking milk, which interferes with sexual pleasure for some couples. Feeding the infant may also allow uninterrupted time while the infant sleeps.
3. Breastfeeding decreases estrogen level and may result in vaginal dryness. A water-soluble lubricant increases comfort.
4. Locating areas of discomfort and stretching the perineal scar gently help increase comfort.
5. Knowledge of the physiologic changes reduces the anxiety and tension that occur if the parents are unprepared for them.
6. In the superior position, the woman controls the depth and location of penetration and can reduce her discomfort.
7. Kegel exercises strengthen the muscles around the vagina and promote increased sexual satisfaction.
8. Fatigue is a major cause of decreased interest in sexual activity after childbirth for both mothers and fathers.
9. Communication facilitates understanding and fosters a feeling of closeness that can enhance sexual interest.

**EVALUATION:** Before discharge the parents express interest in trying various measures to reduce fatigue and discomfort. They discuss a plan to provide rest for Lani.

cultured if the birth was cesarean or the mother is receiving magnesium sulfate (see Chapter 25), is a smoker, or has a history of frequent or recent upper respiratory tract infections, or asthma.

**Temperature.** A temperature of up to 38° C (100.4° F) is common during the first 24 hours after childbirth and may be caused by dehydration or normal postpartum leukocytosis. If the elevated temperature persists for longer than 24 hours or if it exceeds 38° C (100.4° F) or the woman shows other signs of infection, the nurse should report it to the physician or nurse-midwife (see Chapter 28).

**Pain.** Pain, the fifth vital sign, should be assessed along with other vital signs to determine the type, location, and severity on a pain scale. Some new mothers are too excited

by the birth of their child to complain of discomfort. Others do not want to “bother the nurse” or may be from cultures in which complaining is not acceptable. Nurses must remain alert to signs of afterpains, perineal discomfort, and breast tenderness. Signs of discomfort include an inability to relax or sleep, a change in vital signs, restlessness, irritability, and facial grimaces. Women should be encouraged to take prescribed medications for afterpains and perineal discomfort. The nurse should also assess the effectiveness of pain-relief measures.

**Fundus**

The fundus should be assessed for consistency and location (Procedure 17-1). It should be firmly contracted and at or near the level of the umbilicus. If the uterus is above the

**PROCEDURE****17-1** Assessing the Uterine Fundus**PURPOSE:** To determine the location and firmness of the uterus

1. Explain the procedure and rationale for each step before beginning the procedure. *Explanations reduce anxiety and elicit cooperation.*
2. Ask the mother to empty her bladder if she has not voided recently. *A distended bladder lifts and displaces the uterus.*
3. Place the mother in a supine position with her knees slightly flexed. *This relaxes the abdominal muscles and permits accurate location of the fundus.*
4. Put on clean gloves and lower the perineal pads to observe lochia as the fundus is palpated. *Gloves are recommended whenever contact with body fluids may occur.*
5. Place your nondominant hand above the woman's symphysis pubis. This supports and anchors the lower uterine segment during palpation or massage of the fundus.
6. Use the flat part of your fingers (not the fingertips) for palpation. The larger surface provides more comfort. Palpation may be painful, particularly for the mother who had a cesarean birth.
7. Begin palpation at the umbilicus, and palpate gently until the fundus is located. Determine the firmness and location of the fundus. *The fundus should be firm, in the midline, and approximately at the level of the umbilicus. Locating the fundus is more difficult if the woman is obese or if the abdomen is distended.*
8. If the fundus is difficult to locate or is soft or "boggy," keep the nondominant hand above the woman's symphysis pubis and massage the fundus with the dominant hand until the fundus is firm. *The nondominant hand anchors the lower segment of the uterus and prevents trauma while the uterus is massaged. The uterus contracts in response to tactile stimulation, and this helps control excessive bleeding.*
9. After the boggy fundus is massaged until it is firm, press firmly to expel clots. Do not attempt to expel clots before the fundus is firm. Keep one hand pressed just above the symphysis (over the lower uterine segment) throughout. *Removing clots allows the uterus to contract properly. Attempting to expel clots on a boggy uterus might result in uterine inversion. A firm fundus and pressure over the lower uterine segment help prevent uterine inversion.*
10. If the fundus is above or below the umbilicus, use your fingers to determine the number of fingerbreadths between the fundus and the umbilicus. *Using the fingers to measure allows an approximation of the number of centimeters.*
11. Document the consistency and location of the fundus. Consistency is recorded as "fundus firm," "firm with massage," or "boggy." Fundal height is recorded in fingerbreadths or centimeters above or below the umbilicus. For example, "fundus firm, midline, ↓ 1" (one fingerbreadth or 1 cm below the umbilicus). As another example, "fundus firm with light massage, U + 2 (two fingerbreadths or 2 cm above the umbilicus), displaced to right." *This promotes accurate communication and identifies deviations from expected so that potential problems can be identified early.*



expected level or shifted from the middle of the abdomen or midline position (usually to the right), the bladder may be distended. The location of the fundus should be rechecked after the woman has emptied her bladder.

If the fundus is difficult to locate or is soft or "boggy," the nurse stimulates the uterine muscle to contract by gently massaging the uterus. The nondominant hand must support and anchor the lower uterine segment if massaging an uncontracted uterus is necessary. Uterine massage is not necessary if the uterus is firmly contracted.

The uterus can continue to contract only if it is free of intrauterine clots. To expel clots, the nurse should massage

the fundus until firm and then support the lower uterine segment as illustrated in Procedure 17-1. This helps prevent inversion of the uterus (turning inside out) when the nurse applies firm pressure downward toward the vagina to express clots that have collected in the uterus. Nurses should observe the perineum for the number and size of clots expelled. (Table 17-3 describes normal and abnormal findings of the uterine fundus and includes follow-up nursing actions for abnormal findings.)

Drugs sometimes are needed to maintain contraction of the uterus and thus prevent postpartum hemorrhage. The most commonly used drug is oxytocin (Pitocin) (see Drug

**TABLE 17-3** Assessments of the Uterine Fundus and Nursing Actions

Normal Findings	Abnormal Findings	Nursing Actions
Fundus firmly contracted	Fundus is soft, “boggy,” uncontracted, or difficult to locate.	Support lower uterine segment. Massage until firm.
Fundus remains contracted when massage is discontinued	Fundus becomes soft and uncontracted when massage is stopped.	Continue to support lower uterine segment. Massage fundus until firm; then apply pressure to fundus to express clots. Notify health care provider and begin oxytocin or other drug administration, as prescribed, to maintain a firm fundus.
Fundus located at level of umbilicus and midline	Fundus is above umbilicus and/or displaced from midline.	Assess bladder elimination. Assist mother in urinating or catheterize, if necessary, to empty bladder. Recheck position and consistency of fundus after bladder is empty.

Guide, p. 366). Other drugs for excessive postpartum bleeding are discussed in Chapter 28.

### Lochia

Important assessments include the amount, color, and odor of lochia. Nurses observe the amount and color of lochia on peripads and while checking the perineum. They also assess vaginal discharge while palpating or massaging the fundus to determine the amount of lochia and the number and size of any clots expressed during these procedures. Important guidelines include:

- A constant trickle, dribble, or oozing of lochia indicates excessive bleeding and requires immediate attention.
- Excessive lochia in the presence of a contracted uterus suggests lacerations of the birth canal. The health care provider must be notified so that lacerations can be located and repaired.

The odor of lochia is usually described as fleshy, earthy, and musty. A foul odor suggests endometrial infection, and assessments should be made for additional signs of infection. These signs include maternal fever, tachycardia, and uterine tenderness and pain.

Absence of lochia, like the presence of a foul odor, may also indicate infection. If the birth was cesarean, lochia may be scant because the uterine cavity was wiped by sponges, removing some of the endometrial lining. Lochia should not be entirely absent, however.

### CRITICAL THINKING EXERCISE 17-1

Jenny, a 27-year-old gravida 4, para 4, was admitted from the labor, delivery, and recovery unit 2 hours after the birth of a 3628 g (8 lb) baby boy. An hour later her fundus is boggy, located three fingerbreadths above the umbilicus, and displaced to the right. Her perineal pads, which were changed just before transfer, are saturated.

#### Questions

1. What do these data suggest? Why?
2. What nursing actions should be taken first? What follow-up assessments are necessary?
3. Why is it necessary to remind and assist Jenny to void?

### Perineum

The acronym *REEDA* is used as a reminder that the site of an episiotomy or a perineal laceration should be assessed for five signs: redness (R), edema (E), ecchymosis (E) (bruising), discharge (D), and approximation (A) (the edges of the wound should be close, as though stuck or glued together).

Redness of the wound may indicate the usual inflammatory response to injury. If accompanied by excessive pain or tenderness, however, it may indicate the beginning of localized infection. Ecchymosis or edema indicates soft tissue damage that can delay healing. No discharge should come from the wound. Rapid healing necessitates that the edges of the wound be closely approximated. (Procedure 17-2 describes the perineal examination.)

### Bladder Elimination

Because the mother may not experience the urge to void even if the bladder is full, nurses must rely on physical assessment to determine whether the bladder is distended. Bladder distention often produces an obvious or palpable bulge that feels like a soft, movable mass above the symphysis pubis. Other signs include an upward and lateral displacement of the uterine fundus and increased lochia. Frequent voidings of less than 150 mL suggest urinary retention with overflow. Signs of an empty bladder include a firm fundus in the midline and a nonpalpable bladder.

Two to three voidings should be measured after birth or the removal of a catheter to determine whether normal bladder function has returned. When the mother can void at least 300 to 400 mL, the bladder usually is empty. If the fundus was displaced when assessed, it must be assessed after the woman voids. Subjective symptoms of urgency, frequency, or dysuria suggest urinary tract infection and should be reported to the health care provider.

### Breasts

For the first day or two after delivery, the breasts should be soft and nontender. After that, breast changes depend largely on whether the mother is breastfeeding. The breasts

**PROCEDURE****17-2** Assessing the Perineum**PURPOSE:** To observe perineal trauma and the state of healing

1. Provide privacy, and explain the purpose of the procedure. *This elicits cooperation and reduces anxiety.*
2. Put on clean gloves. *Implements standard precautions to provide protection from possible contact with body fluids.*
3. Ask the mother to assume a Sims (side-lying) position and flex her upper leg. Lower the perineal pads and lift her superior buttock. If necessary, use a flashlight to inspect the perineal area. *Position provides an unobstructed view of the perineum; light allows better visualization.*
4. Note the extent and location of edema or bruising. *Extensive bruising or asymmetric edema may indicate formation of a hematoma (see Chapter 28).*
5. Examine the episiotomy or laceration for redness, ecchymosis, edema, discharge, and approximation (“REEDA”). *Redness, edema, or discharge may indicate infection of the wound; extensive bruising may delay healing; wound edges must be in direct contact for uncomplicated healing to occur.*



6. Note the number and size of hemorrhoids. *Swollen, painful hemorrhoids interfere with activity and bowel elimination.*

should be examined even if she chooses formula feeding because engorgement may occur despite preventive measures. The size, symmetry, and shape of the breasts should be observed. Some mothers need reassurance that breast size has no relationship to successful breastfeeding. The skin should be inspected for dimpling or thickening, which, although rare, can indicate a breast tumor.

The areola and nipple should be carefully examined for potential problems such as flat or retracted nipples, which may make breastfeeding more difficult. Signs of nipple trauma (redness, blisters, or fissures) may be noted during the first days of breastfeeding, especially if the mother needs assistance in positioning the infant correctly (see Chapter 22).

The breasts should be palpated for firmness and tenderness, which indicate increased vascular and lymphatic circulation that may precede milk production. The breasts may feel “lumpy” as various lobes begin to produce milk.

The breast assessment is an excellent opportunity to provide information or reassurance about breast care and breastfeeding techniques. It is also an opportunity to teach the mother how to assess her own breasts so she can continue after discharge.

**Lower Extremities**

The legs are examined for varicosities and signs and symptoms of thrombophlebitis. Indications of thrombophlebitis include localized areas of redness, heat, edema, and tenderness. Pedal pulses may be obstructed by thrombophlebitis and should be palpated with each assessment (see Chapter 28).

**Homans' Sign**

Discomfort in the calf with sharp dorsiflexion of the foot is a positive Homans' sign (Figure 17-7) and may indicate deep vein thrombosis. Absence of discomfort indicates a negative Homans' sign. A positive Homans' sign (presence of discomfort) or redness, tenderness, or warmth of the leg should be reported to the health care provider. Confusion arises because a deep venous thrombosis may not produce calf pain with dorsiflexion. In addition, women may report pain that is caused by strained muscles from positioning and pushing during delivery.

**Edema and Deep Tendon Reflexes**

Pedal or pretibial edema may be present for the first day or two, until excess interstitial fluid is remobilized and excreted. (Figure 17-8 shows how to assess for pitting edema.) Diuresis is highest between the second and fifth days after birth and should be complete by 21 days (Blackburn, 2007).

Deep tendon reflexes should be 1+ to 2+. Report brisker-than-average and hyperactive reflexes (3+ to 4+), which suggest preeclampsia (see p. 639 for a description of assessing deep tendon reflexes).

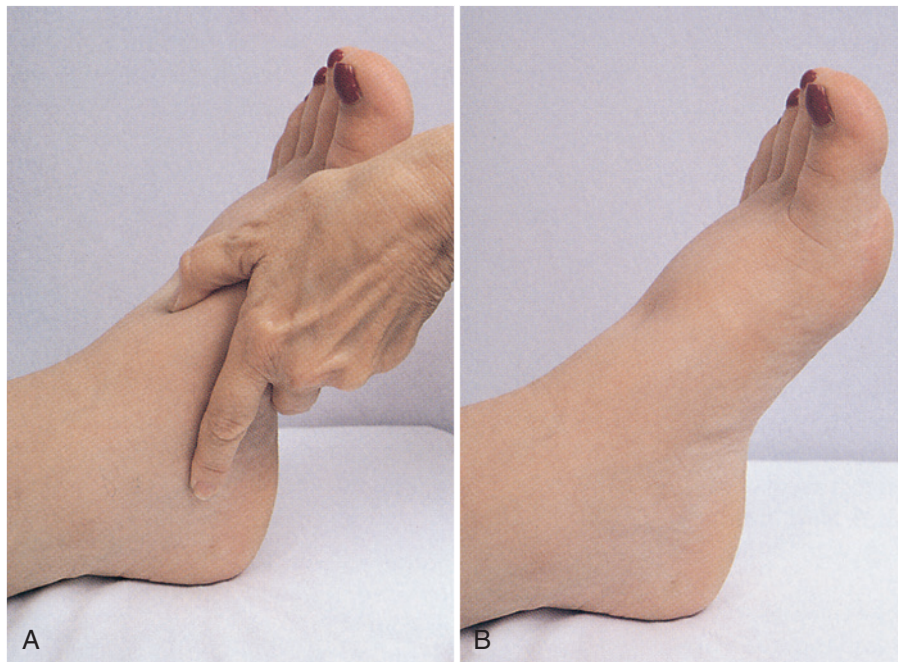
**CHECK YOUR READING**

11. What additional assessments are necessary when tachycardia is noted? Why?
12. What causes orthostatic hypotension? What are the typical signs and symptoms of orthostatic hypotension?
13. When is uterine massage necessary? How is the uterus supported during massage?
14. What does excessive bleeding suggest when the uterus is firmly contracted?





**Figure 17-7** ■ Homans' sign is positive when the mother experiences discomfort in the calf on sharp dorsiflexion of the foot.



**Figure 17-8** ■ Pedal edema. **A**, Apply pressure to foot. **B**, "Pit" appears when fluid moves into adjacent tissue and away from point of pressure.

## CARE IN THE IMMEDIATE POSTPARTUM PERIOD

The postpartum period often is divided into three periods. The first 24 hours is the immediate postpartum period, the first week is the early postpartum period, and the second to the sixth weeks are the late postpartum period. Care of the mother during the immediate postpartum period focuses on maintaining physiologic safety of the mother through frequent assessments (discussed previously), providing comfort

measures, establishing bladder elimination, and providing health education.

### Providing Comfort Measures

#### Ice Packs

Both cold and warmth are used to alleviate perineal pain after childbirth. Ice causes vasoconstriction and is most effective if applied soon after the birth to prevent edema and to numb the area. Chemical ice packs and plastic bags or non-latex gloves filled with ice may be used during the first 12 to

24 hours after a vaginal birth. The ice pack is wrapped in a washcloth or paper before it is applied to the perineum. It should be left in place until the ice melts. It is removed for 10 minutes before a fresh pack is applied. Some peripads have cold packs incorporated in them. Condensation from ice may dilute lochia and make it appear heavier than it actually is.

Some women have varicosities of the vulva and wish to use ice packs at home. An inexpensive way for women to apply cold to the perineum is to freeze a wet washcloth placed in a plastic bag and wrap it in a paper towel before applying it to the perineum.

### Perineal Care

Perineal care consists of squirting warm water over the perineum after each voiding or bowel movement. This is important for all postpartum women whether the birth was vaginal or by cesarean. Perineal care cleanses, provides comfort, and prevents infection of an area that often has an episiotomy or lacerations. The perineum is gently patted rather than wiped dry.

### Topical Medications

Anesthetic sprays decrease surface discomfort and allow more comfortable ambulation. The mother is instructed to hold the nozzle of the spray 6 to 12 inches from her body and direct it toward the perineum. The spray should be used after perineal care and before clean pads are applied. Astringent compresses should be placed directly over the hemorrhoids to relieve pain. Hydrocortisone ointments may also be applied over hemorrhoids to increase comfort.

### Sitting Measures

The mother should be advised to squeeze her buttocks together before sitting and lower her weight slowly onto her buttocks. This measure prevents stretching of the perineal tissue and avoids sharp impact on the traumatized area. Sitting slightly on the side is also helpful to prevent the full weight from resting on the episiotomy site.

### Sitz Baths

In some facilities, sitz baths may be offered two to three times a day to women with episiotomies, painful hemorrhoids, or perineal edema. Sitz baths provide continuous circulation of water, cleansing and comforting the traumatized perineum. Cool water reduces pain caused by edema and may be most effective within the first 24 hours. Warm water increases circulation, promotes healing, and may be most effective after 24 hours. Nurses must be sure that the emergency bell is within easy reach in case the mother feels faint during the sitz bath. Women often take the disposable sitz bath container home. They should be instructed to clean it well between uses.

### Analgesics

Mothers should be encouraged to take prescribed medications for afterpains and perineal discomfort. Many analgesics are combinations that include acetaminophen. The nurse should be careful that the woman receives no more



### CRITICAL THINKING EXERCISE 17-2

Elizabeth has made good progress since she delivered her first baby yesterday morning by cesarean. Her Foley catheter was removed 3 hours ago, and she was medicated with two Percocet (325 mg of acetaminophen and 5 mg of oxycodone) tablets for pain 1 hour ago. Her patient-controlled analgesia was discontinued 4 hours ago. Now she is wincing and moaning with pain and asking for more pain medication. She says she ambulated to the bathroom with her husband's help a short time after her catheter was removed; she urinated but did not measure it. Her fundus is slightly above the umbilicus and slightly to the right. A thick pressure dressing covers the lower abdomen making it difficult to palpate the bladder. Elizabeth says she does not have to urinate.

#### Questions

1. What other assessments should the nurse make?
2. What should the nurse do?
3. What are possible causes of Elizabeth's pain?



### CRITICAL TO REMEMBER

#### Signs of a Distended Bladder

Location of fundus above the baseline level (determined when the bladder is empty)  
 Fundus displaced to the side from midline  
 Excessive lochia  
 Bladder discomfort  
 Bulge of bladder above symphysis  
 Frequent voidings of less than 150 mL of urine, which may indicate urinary retention with overflow

than 4 g of acetaminophen in a 24-hour period. Nonsteroidal antiinflammatory drugs (NSAIDs) such as ibuprofen are often prescribed because of their antiinflammatory effects (see Table 17-4).

### Promoting Bladder Elimination

Many new mothers have difficulty voiding because of edema and trauma of the perineum and diminished sensitivity to fluid pressure in the bladder. As soon as they are able to ambulate safely, mothers should be assisted to the bathroom. Providing privacy and allowing adequate time for the first voiding are important. Common measures to promote relaxation of the perineal muscles and stimulate the sensation of needing to void include:

- Medicating the woman for pain to help her relax
- Running water in the sink or shower, placing the mother's hands in warm water, and pouring water over the vulva
- Encouraging urination in the shower or sitz bath
- Providing hot tea or fluids of choice
- Asking the mother to blow bubbles through a straw

A nonpalpable bladder and firm fundus at or below the level of the umbilicus and in the midline confirm that the bladder is empty and rule out urinary retention with overflow.

**TABLE 17-4** Commonly Used Drugs during the Postpartum Period

Indications	Usual Dosage	Nursing Considerations
<b>Oxytocin (Pitocin, Syntocinon)</b> Reduction of bleeding after expulsion of placenta	10-40 units in 1000 mL of normal saline or 5% dextrose water IV* at a rate to control bleeding	Administer by infusion (diluted in solution), not by bolus (a concentrated mass). Monitor and record uterine contraction, heart rate, and BP. Assess and record amount of lochia.
<b>Simethicone (Mylicon)</b> Flatulence, abdominal distention	40- to 80-mg chewable tablet after meals and at bedtime	Assess for bowel activity, relief of distention. Encourage ambulation.
<b>Ibuprofen (Motrin, Advil)</b> Mild to moderate pain, inflammation	Analgesia: 200-400 mg PO q4-6h Inflammation: 400-800 mg q6-8h (max 3200 mg/day)	Assess for nausea, vomiting, diarrhea. Increases effects of anticoagulants. Take with food or milk.
<b>Ketorolac (Toradol)</b> Mild to moderate pain	30 mg IV or IM q6h 10 mg PO q4-6h	Assess for nausea, cramping, diarrhea. Increases effects of anticoagulants. Watch for bleeding. Take PO with food or milk.
<b>Acetaminophen (Tylenol, Panadol)</b> Mild to moderate pain	Analgesia: 325-650 mg PO q4-6h (max 4 g/day)	Side effects rare; assess for allergic reaction, such as skin rash.
<b>Acetaminophen 325 or 650 mg and propoxyphene 50 or 100 mg (Darvocet-N)</b> Mild to moderate pain	1 tablet q4h	Observe for signs of respiratory depression. Watch for nausea, vomiting, vertigo. Do not administer with sedatives.
<b>Acetaminophen 300 mg with codeine 30 mg (Tylenol with Codeine #3)</b> Moderate pain	Tylenol #3, 1-2 tablets q3-4h	Assess sensitivity to codeine. Do not give with sedatives.
<b>Acetaminophen 325 mg and oxycodone 5 mg (Percocet)</b> <b>Acetaminophen 500 mg and oxycodone 5 mg (Tylox)</b> Moderate pain	1-2 tablets PO q4h	Determine sensitivity to oxycodone. Others same as for Darvocet-N.
<b>Hydrocodone 5, 7.5, or 10 mg and acetaminophen 325 mg (Norco)</b> <b>Hydrocodone 2.5, 5, or 7.5 mg and acetaminophen 500 mg (Lortab)</b> <b>Hydrocodone 5 mg and acetaminophen 500 mg (Vicodin)</b> <b>Hydrocodone 7.5 mg and acetaminophen 750 mg (Vicodin ES)</b> Moderate to moderately severe pain	1-2 tablets PO q4-6h	Assess sensitivity to hydrocodone. Others same as for Darvocet-N.
<b>Diphenhydramine (Benadryl)</b> Itching after epidural opioids	25 mg IV or IM 25-50 mg PO	May cause dry mouth, drowsiness, dizziness
<b>Ondansetron (Zofran)</b> Postoperative nausea and vomiting	4 mg IV or IM	Give slowly over 2-5 minutes if IV push; give IM into large muscle.
<b>Rh<sub>0</sub>(D) Immune globulin (RhoGAM, Rhophylac, BayRHo-D)</b> See drug guide, p. 649		
<b>Rubella virus vaccine, live (Meruvax II)</b> See drug guide, p. 400		

Data from Hodgson, B.B., & Kizior, R.J. (2008). *Saunders nursing drug handbook 2008*. St. Louis: Saunders.

\*BP, Blood pressure; IM, intramuscularly; IV, intravenously; PO, by mouth.

A distended bladder lifts and displaces the uterus, making it difficult for it to remain contracted. Thus urinary retention is a major cause of uterine atony (loss of tone), which permits excessive bleeding. In addition, stasis of urine in the bladder predisposes the woman to urinary tract infection. Therefore the mother must be catheterized if:

- She is unable to void.
- The amount voided is less than 150 mL, and the bladder can be palpated.
- The fundus is elevated or displaced from the midline.

Repeated catheterizations increase the chance of urinary tract infection because bacteria may be pushed into the bladder despite scrupulous aseptic technique. An indwelling catheter may be inserted for 24 hours if catheterization is necessary more than once or twice.

### Providing Fluids and Food

Adequate fluids help restore the balance altered by fluid loss during labor and the birth process. Women should be encouraged to drink approximately 2500 mL of fluids each day. Offering ice water or cold drinks may be culturally in-

appropriate for some women. They may prefer hot or room-temperature water instead.

If a woman is unable to tolerate oral fluids, IV administration may be necessary. Women usually are able to have ice chips soon after cesarean birth, and, although protocols vary, most are able to progress to a regular diet in a short time.

New mothers generally have a hearty appetite, and nurses should encourage healthy food choices with respect for ethnic background. Meals and snacks should be available at all times.

### Preventing Thrombophlebitis

The mother should be assisted to ambulate early after childbirth to prevent the development of thrombi. Frequent trips to the bathroom will help accomplish this.

## NURSING CARE AFTER CESAREAN BIRTH

In 2006, 31.1% of births were by cesarean (Martin et al., 2009). These mothers must recover from childbirth as well as from major surgery and need special care. Figure 17-9 shows a clinical pathway for postcesarean mothers and their infants. Clinical pathways or care maps are guidelines only. If a problem, sometimes called a *variance*, arises, additional assessments and interventions are necessary. The usual length of stay for mothers after a cesarean birth is 72 to 96 hours after surgery.

### Assessment

In addition to the usual postpartum evaluation, the postcesarean mother must be assessed like any other postoperative client.

### Pain Relief

Assessment of pain and the effectiveness of pain relief is important to nursing care of postcesarean clients, who differ from typical postoperative clients in four important ways. First, they often are eager to be alert so that they can interact with their newborn infants. Second, they are concerned that the analgesics they receive may pass into their breast milk and potentially harm their infants. Third, compared with other postoperative clients, postcesarean clients want to have more input and control of their care. Fourth, they are often healthier than clients who had surgery to correct a problem.

Pain relief is provided in various ways. Patient-controlled analgesia (PCA) is administered by continuous intravenous infusion of a low-concentration narcotic solution using a pump specifically designed for that purpose. If analgesia is insufficient, the woman can self-administer intermittent small doses of narcotic from the infusion pump. The machine is programmed to administer only a certain amount of the narcotic within a specified time interval to prevent an overdose. This allows the woman to have pain relief immediately when she needs it without waiting for a nurse to administer it. Side effects include

respiratory depression, itching (pruritus), nausea and vomiting, and urinary retention.

A single dose of opioid (such as preservative-free morphine or fentanyl) injected into the epidural or subarachnoid space immediately after surgery provides 18 to 24 hours of postcesarean analgesia (see Chapter 15). Itching and nausea are the major side effects. Other side effects are the same as for PCA use. Oral analgesics usually are effective if women need additional pain-relief measures. Occasionally, intramuscular analgesics are needed for one or two doses.

### Respirations

When mothers receive epidural narcotics for postoperative pain relief, respirations must be assessed frequently because narcotics depress the respiratory center. In some facilities a pulse oximeter or apnea monitor is used for 18 to 24 hours to detect decreased oxygen saturation from a decreased respiratory rate or depth. The devices emit an alarm if respirations decrease. If these devices are not used, the respiratory rate and depth should be checked every 15 minutes for the first hour, every 30 minutes for 3 to 6 hours, and every 30 to 60 minutes for the remainder of the first 24 hours. Oxygen saturation or respiratory rate is documented hourly or according to facility policy.

If a woman receiving epidural narcotics has a respiratory rate of 12 to 14 breaths per minute or less, the nurse should:

- Notify the anesthesiologist immediately.
- Elevate the head of the bed to facilitate lung expansion, and instruct the woman to breathe deeply.
- Administer oxygen, and apply a pulse oximeter (if not already in place) to measure oxygen saturation.
- Follow facility protocol to administer narcotic antagonists, such as naloxone hydrochloride (Narcan).
- Observe for recurrence of respiratory depression because the duration of naloxone is only approximately 30 minutes.
- Recognize that naloxone reduces the level of pain relief.

In addition to observation of respiratory rate and depth, the mother's breath sounds should be auscultated because depressed respirations and a longer period of immobility allow secretions to pool in the bronchioles.

### Abdomen

Nurses assess gastrointestinal function by auscultating for bowel sounds until normal peristalsis is noted in all abdominal quadrants. Although paralytic ileus (lack of movement in the bowel) is rare after cesarean birth, nurses must be aware of the signs, which include abdominal distention, absent or decreased bowel sounds, and failure to pass flatus or stool.

If a surgical dressing is present, it should be observed for intactness and discharge. When the dressing is removed, nurses observe the incision, which should be approximated,

Clinical Path Day		Interdisciplinary Assessment	Nutrition	Activities/ Interventions	Tests
Phase	Date				
Day of Surgery		T, P, R, B/P q 4h × 6 Fundus, lochia, incision, breath sounds q 4h × 3 Bowel sounds, I & O's QS Level of comfort	Sips & chips to clears	Deep breathe q 2h Leg exercises q 2h Dangle then assist OOB × 1 I & O's, foley care Assist with hygiene	
	Date				
Post-op Day 1		T, P, R, B/P q 4h × 6 then BID Breasts, breath & bowel sounds, incision, fundus, lochia BID I & O's QS Level of comfort Knowledge of mother and newborn care	Advance diet as tolerated	D/C foley D/C IV Dressing removed Assist OOB to ambulate Assist with bath/shower	WCBC
	Date				
Post-op Day 2		T, P, R, B/P BID Breasts, bowel sounds, fundus, Incision, bladder, lochia BID Level of comfort Pt/SO/Family Knowledge of mother and newborn care	Regular	OOB ad lib Shower	
	Date				
Post-op Day 3		T, P, R, B/P BID Breasts, bowel sounds, fundus, Incision, bladder, lochia BID Level of comfort Pt/SO/Family knowledge of mother and newborn care	Regular	OOB ad lib Shower	
	Date				
Post-op Day 4		T, P, R, B/P BID Breasts, bowel sounds, fundus, Incision, bladder, lochia BID Level of comfort Knowledge of self & baby care	Regular	OOB ad lib Shower	
	Date				

**KEY: Patient/family potential problems related to expected outcomes:**

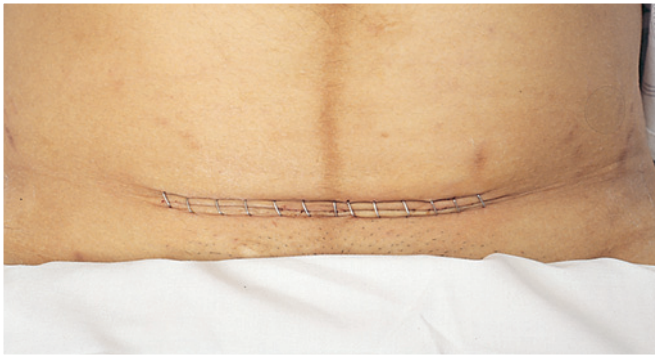
1. Pain
2. Anxiety
3. Knowledge deficit
4. Altered maternal/fetal homeostasis
5. Ineffective parenting skills
6. \_\_\_\_\_

**Figure 17-9** ■ Clinical pathway for cesarean birth. (Courtesy WellSpan Health, York Hospital, York, Pa.)

Clinical Path Day		Medications	Consults	Education & Discharge Planning	Expected Outcomes
Phase	Date				
Day of Surgery		IV with Pitocin Analgesia prn		Continue post-op teaching  Initiate/continue maternal-newborn education record	<input type="checkbox"/> Achieves desired level of pain relief (1) <input type="checkbox"/> >30cc/hr urine output (4) <input type="checkbox"/> Incision site clean, dry and intact (4) <input type="checkbox"/> Postpartum parameters stable (4)
	Date				
Post-op Day 1		Analgesia prn  Rhogam, if ordered, give within 72 hours of delivery		Continue maternal-newborn education record  Home support system	<input type="checkbox"/> Achieves desired level of pain relief (1) <input type="checkbox"/> >30cc/hr urine output (4) <input type="checkbox"/> Incision site clean, dry and intact (4) <input type="checkbox"/> Postpartum parameters stable (4) <input type="checkbox"/> Ambulate TID w/assist (4) <input type="checkbox"/> Pt verbalizes available home support (5)
	Date				
Post-op Day 2		Analgesia prn		Continue and reinforce maternal-newborn education record	<input type="checkbox"/> Achieves desired level of pain relief (1) <input type="checkbox"/> Voiding QS (4) <input type="checkbox"/> Postpartum parameters stable (4) <input type="checkbox"/> Cares for self & infant(3) <input type="checkbox"/> Incision clean & dry (4) <input type="checkbox"/> Verbalizes D/C plan (3)
	Date				
Post-op Day 3		Analgesia prn		Continue and reinforce maternal-newborn education record  Review and complete all discharge instructions with patient, SO & family	<input type="checkbox"/> Achieves desired level of pain relief (1) <input type="checkbox"/> Voiding QS (4) <input type="checkbox"/> Postpartum parameters stable (4) <input type="checkbox"/> Cares for self & infant(3) <input type="checkbox"/> Incision clean & dry (4) <input type="checkbox"/> Verbalizes D/C plan (3)
	Date				
Post-op Day 4		Analgesia prn  Rubella, if ordered  Depo Provera, if ordered		Completion of maternal-newborn education record  Discharge instructions given Support services initiated prn	<input type="checkbox"/> Achieves desired level of pain relief (1) <input type="checkbox"/> Postpartum physiologic parameters meet discharge guidelines (4) <input type="checkbox"/> Incision site clean, dry, intact (4) <input type="checkbox"/> PT/SO Fam verbalizes understanding of discharge instructions (3) <input type="checkbox"/> Discharge within 4 days after delivery <input type="checkbox"/> Support services initiated <ul style="list-style-type: none"> <li><input type="checkbox"/> Follow-up phone call</li> <li><input type="checkbox"/> Lactation Consult follow-up</li> <li><input type="checkbox"/> Perinatal Coaching</li> <li><input type="checkbox"/> City/State Health Department</li> <li><input type="checkbox"/> WIC</li> <li><input type="checkbox"/> Other _____</li> </ul>
	Date				

**York Hospital**  
York, PA  
**Cesarean Delivery - Clinical Pathing**

**Figure 17-9, cont'd** ■ Clinical pathway for cesarean birth. (Courtesy WellSpan Health, York Hospital, York, Pa.)



**Figure 17-10** ■ This cesarean incision is closed with staples. Note the absence of all signs of infection, such as redness, edema, bruising (ecchymosis), discharge, and loss of approximation.

and use the acronym REEDA to assess for signs of infection such as redness and edema (Figure 17-10). A topical skin adhesive may be used instead of staples. Assessment of the wound is the same.

It is just as important to assess the fundus after cesarean birth as it is with vaginal birth. However, palpation must be gentle because of increased discomfort caused by the uterine incision.

### Intake and Output

The IV infusion should be monitored for patency, the rate of flow, and the condition of the IV site. Any signs of infiltration (edema, coolness at the site, pain) or signs of infection (edema, redness, warmth, pain) should be reported. Ice chips and clear fluids are allowed soon after birth. The amount, color, and clarity of urine should be monitored.

## Interventions

### The First 24 Hours

Nursing care for the mother who gave birth by cesarean is similar to that for other postoperative clients.

**Providing Pain Relief.** The nurse should determine the need for pain medication on a regular basis. If a woman has a PCA, the nurse should check how often she is using it. The effectiveness of the analgesics should be evaluated. Relief of pain enhances the woman's ability to increase her activity, helps prevent thrombophlebitis, and promotes healing. For women with epidural or spinal opioids, the nurse should continue to assess the respiratory status.

**Overcoming Effects of Immobility.** The new mother is prescribed bed rest for the first 8 to 12 hours. To prevent pooling of secretions in the airways, she must be assisted to turn, cough, and to expand the lungs by breathing deeply at least every 2 hours while she is awake. Splinting the abdomen with a small pillow reduces incisional discomfort when the woman coughs. Incentive spirometers help expand the lungs to prevent hypostatic pneumonia that can result from immobility and shallow, slow respirations.

The woman should be encouraged to flex her knees and to move her feet frequently while she is resting in bed to

improve peripheral circulation and to prevent thrombi. Sequential compression devices may be used to prevent the pooling of blood in the lower extremities, especially for women who are obese or at high risk for thrombi.

Activity will be gradually increased. The woman needs assistance to sit and dangle her feet for the first few times before she gets out of bed. She should be helped to get out of bed and walk a short distance within 24 hours to decrease risk for thrombi. She will need support ambulating when the IV and catheter are still in place.

**Providing Comfort.** Placing a pillow behind her back and one between her knees prevents strain and discomfort when the woman is lying on her side. Excellent physical care (such as oral hygiene, perineal care, a sponge bath, clean linen) comforts and refreshes her.

### After 24 Hours

**Resuming Normal Activities.** After 24 hours several normal functions return and postcesarean women are able to participate more actively in their own care:

- Both the indwelling catheter and IV infusion are usually discontinued.
- The dressing, if present, is removed in 24 hours, and often staples (if present) are removed before discharge. Steri-Strips (small strips of adhesive), a small nonstick dressing, or a peripad may be placed over the incision to protect it from friction from clothing or adipose tissue, or the incision may be left open to air.
- The mother is helped to ambulate by the first postpartum day and is comfortable sitting in a chair for brief periods.
- Clear liquids may be changed to a soft or regular diet when bowel sounds are audible or the woman is passing flatus. In some agencies solids are provided earlier.

Nurses must encourage the woman to increase her activity and ambulation each postpartum day. By the second day she usually is allowed to shower, if she wishes. Some health care providers request that the incision be covered with plastic; others permit showering without covering the incision.

**Assisting the Mother with Infant Feeding.** Pain after cesarean may interfere with the mother's ability to breastfeed and care for her infant. In one study 30% of cesarean mothers felt pain seriously interfered with breastfeeding and 42% found it interfered with their ability to care for the infant on the first postoperative day. These numbers were 35% and 25%, respectively, on the second day after cesarean (Karlstrom et al., 2007). Ensuring adequate pain relief is important to help the mother breastfeed and care for her infant.

Helping the mother find a comfortable position for holding and feeding her infant is important. Some mothers prefer sitting with a pillow on the lap to protect the incisional area. A side-lying position or football hold may be more comfortable because the infant is not putting pressure against the incision and causing discomfort. In addition, the

side-lying position allows the mother to rest while feeding (see Chapter 22).

**Preventing Abdominal Distention.** Abdominal distention is a major source of discomfort. Measures to prevent and minimize it include:

- Early, frequent ambulation
- Tightening and relaxing of the abdominal muscles
- Avoidance of carbonated beverages and the use of straws, which increase the accumulation of intestinal gas
- Pelvic lifts—Lying supine with her knees bent, the woman lifts her pelvis from the bed and repeats the exercise up to 10 times, several times each day
- Simethicone, as ordered, to help disperse upper gastrointestinal flatulence
- Rectal suppositories, as ordered, to help stimulate peristalsis and passage of flatus



### CHECK YOUR READING

15. What additional assessments are necessary for the postcesarean mother?
16. How can hypostatic pneumonia be prevented?
17. Which nursing measures are used to prevent or minimize abdominal distention?

## Application of the Nursing Process

### Knowledge of Self-Care

#### Assessment

Nurses are responsible for providing health education about a long list of subjects before the family is discharged from the birth facility. This task causes concern because so much must be taught during this short time, which is not ideal for teaching mothers who are not fully recovered from the birth process. Some women feel they have difficulty concentrating during the first week postpartum.

Before beginning teaching, determine the learning needs and the major concerns of the family. Multiparas remember some aspects of self-care but often benefit from a review. Primiparas may be anxious about self-care measures and all aspects of infant care. They may require more thorough teaching and more time for practice. Identify the effects of the most common barriers to learning: age and developmental level, cultural factors, and difficulty understanding the language.

#### Analysis

In general, mothers adapt well to the physiologic changes after childbirth, and most nursing care is wellness oriented. Some new mothers, however, lack knowledge of self-care and therefore are at risk for a disruption in health. Because of the need for health education, a nursing diagnosis that applies to many women is “Risk for Ineffective Health Maintenance related to insufficient knowledge of self-care, signs of complications, and preventive measures.” (The diagnoses “Risk for Injury” and “Ineffective Sexuality Pat-

### BOX 17-2 Common Nursing Diagnoses for Postpartum Women

Anxiety  
 Risk for Ineffective Health Maintenance\*  
 Risk for Ineffective Sexuality Patterns\*  
 Risk for Injury\*  
 Imbalanced Nutrition: More (or Less) Than Body Requirements  
 Impaired Urinary Elimination  
 Urinary Retention  
 Constipation  
 Readiness for Enhanced Childbearing Process  
 Ineffective Breastfeeding  
 Parental Role Conflict  
 Sleep Deprivation

\*Nursing diagnoses discussed in this chapter.

terns” appear in Nursing Care Plan 17-1. Common nursing diagnoses are listed in Box 17-2.)

#### Planning

Expected outcomes for this nursing diagnosis include:

- The mother will verbalize or demonstrate understanding of self-care instructions by (date).
- The mother will verbalize understanding of practices that promote maternal health by discharge.
- The mother will describe plans for follow-up care and signs and symptoms that should be reported to the health care provider by discharge.

#### Interventions

##### Determining Teaching Topics

Make a teaching plan with the woman to include topics most important to her. Her perception of what is most important may differ from that of the nurse. Determining the mother’s educational needs ensures her interest in the subjects selected and makes best use of the short time available. Topics of less interest may require just a brief review. The review may elicit questions from the mother and interest in more in-depth information.

##### Teaching the Process of Involution

Provide the woman with basic information about involution, including how to assess lochia and how to locate and palpate the fundus. This information allows her to recognize abnormal signs such as prolonged lochia, reappearance of bright-red lochia after lochia rubra has ended, and uterine tenderness, which should be reported to the health care provider. If the mother is a young adolescent, another family member also may need the information.

##### Teaching Self-Care

**Handwashing.** Emphasize the importance of thoroughly washing her hands before the woman touches her breasts, after diaper changes, after bladder and bowel elimination, before and after handling peripads, and always before handling the infant. Observing nurses model this behavior reinforces this teaching for parents.



**Breast Care for Lactating Mothers.** Instruct the breastfeeding mother to avoid using soap on her nipples because it will remove the natural lubrication secreted by Montgomery's glands. Keeping the nipples dry between feedings helps prevent tissue damage, and wearing a good bra provides necessary support as breast size increases (see Chapter 22).

**Measures to Suppress Lactation.** If the mother chooses not to breastfeed, initiate measures to suppress lactation. Instruct the woman to wear a well-fitting bra or a sports bra 24 hours per day until the breasts become soft. Manage breast discomfort by application of ice, which reduces vasocongestion, and administration of analgesics. Advise the woman to refrain from allowing warm water to fall directly on the breasts during showers and pumping or massaging the breasts, as these actions will stimulate milk production. Tenderness and engorgement should return to normal in 48 to 72 hours (Janke, 2008).

**Care of the Cesarean Incision.** If the birth was by cesarean, the woman may have concerns about care of the incision. Staples, if used, are usually removed before the woman is discharged. The obese woman may go home with staples and have them removed by the health care provider after discharge. If adhesive strips have been applied, teach the woman that she can shower with them in place and that they will gradually detach.

If a topical skin adhesive was applied in surgery instead of staples or adhesive strips, there is no dressing and the woman is generally allowed to shower. For each method, explain that the incision is closed and is unlikely to come apart. There should be little or no drainage from the incision. Instruct her to call her provider if the incision separates or drainage increases or has a foul odor.

**Perineal Care.** Teach the woman how to cleanse her perineum. The most common method is to fill a squeeze bottle with warm water and spray the perineal area from the front toward the back. Remind the new mother not to separate the labia during this procedure because that would allow water to enter the vagina. If a commercial product that includes a nozzle attached to the faucet is used, teach the mother that the nozzle should not touch the perineum during use.

Toilet paper or moist antiseptic towelettes are used in a patting motion to dry the perineum. Teach the mother to dry from front to back to prevent fecal contamination of the vaginal introitus from the anal area. She should perform perineal cleansing and change peripads after each voiding or defecation.

Some women do not use peripads for menstrual protection and must be taught how to use them correctly. Mesh panties and adhering pads are used in most facilities. Careful handling of the pads is important to prevent perineal infection.

- Thorough handwashing is important before and after changing pads.
- Unused pads should be stored inside their packages.
- Pads should be applied without touching the side that contacts the perineum.

- The pads should be applied and removed in a front-to-back direction to prevent contamination of the vagina and perineum.
- Used pads must be disposed of properly.

**Kegel Exercises.** All women should become familiar with Kegel exercises (see Chapter 34). These movements strengthen the muscles that surround the vagina and urinary meatus. This exercise helps prevent the loss of muscle tone that can occur after childbirth and that sometimes leads to urinary incontinence.

The Kegel exercise involves contracting muscles around the vagina (as though stopping the flow of urine), holding tightly for 10 seconds, and then relaxing for 10 seconds. Each contraction should be of moderate to near maximum intensity, and a full 10 seconds should be allowed for relaxation between each contraction. The woman should work up to 30 contraction-relaxation cycles or more each day.

### Promoting Rest and Sleep

Many women experience fatigue after childbirth that continues for weeks or months. More than 60% of women report exhaustion during the first 8 weeks after giving birth (Declercq et al., 2006). The extreme fatigue new mothers feel has a variety of causes. Women are often tired when they begin the postpartum period because they slept poorly during the third trimester, and they are further exhausted by the exertion of labor. Feelings of excitement and euphoria after childbirth interfere with their ability to rest. Periods of rest are interrupted by numerous visitors and phone calls, hospital routines, noise, and an unfamiliar environment. Afterpains, discomfort from an episiotomy or incision, muscle aches, and breast engorgement also contribute to a woman's discomfort and inability to sleep.

Most mothers are discharged from the facility within 24 to 48 hours after vaginal birth or 72 to 96 hours after cesarean birth, and they go home with a tremendous deficit in sleep and energy. Yet new parents may be unprepared for the conflict between their need for sleep and the infant's need for care and attention. The joys of parenting can easily be overshadowed by the exhaustion and frustration that result.

A telephone call to screen mothers for prolonged postpartum fatigue may be helpful 2 weeks after delivery. Anemia, infection, and thyroid dysfunction may be the cause of postpartum fatigue. Women at risk for these conditions or suffering postpartum fatigue after the first 2 weeks should be evaluated and treated, if necessary (Corwin & Arbour, 2007).

**Rest at the Birth Facility.** Hospital routines continue around the clock, making uninterrupted rest difficult and increasing the probability that the mother is fatigued when she is discharged. One study found that mothers experienced an average of 54 interruptions in 12 hours or 4.5 interruptions per hour. The majority of interruptions came from nurses and other staff, with fathers and visitors inter-

rupting less often. These interruptions interfered with breastfeeding and rest (Morrison et al., 2006).

Make every attempt to avoid interruptions to allow the mother adequate time for unbroken rest periods and relaxed time with their infants. Group assessments and care, and try to correlate them with times when the mother would be awake, such as just before or after meals, infant feeding times, and visiting hours. If the room is shared, providing care for both women at the same time also reduces activities that interrupt sleep.

Make plans with the mother for napping. Suggest she restrict phone calls and visitors during planned nap times. Encourage the mother to use a side-lying position for breastfeeding to allow her to rest during feedings. A quiet, softly lit environment also promotes sleep.

**Rest at Home.** Help the mother understand the impact her physical discomfort and the demands of the newborn and other family members will have on her energy during the first few weeks. If she understands that fatigue is common and will continue for some time, she can plan ways to obtain extra help and conserve her energy. Suggest the following energy-saving measures:

- Maintain a relaxed, flexible routine that focuses on care of the mother and infant.
- Nap or rest when the infant sleeps, if possible.
- Plan simple meals and flexible meal times.
- Limit visitors.
- Accept assistance with food shopping, meal preparation, laundry, and housework.
- Ask family or friends to care for the infant to provide nap times for the mother.
- Put off housework that is not absolutely necessary.
- Postpone major household projects.
- Involve friends and family to provide care for other children.
- Avoid heavy meals or vigorous exercise near bedtime.

Explain to the mother that she should delay her return to employment, if possible, until the infant sleeps through the night (usually by 3 to 4 months) or later. It takes time to recover from the birth, as well as to adjust to the changes that occur with a new baby. Advise the mother to restrict intake of caffeine or to use caffeine-free versions for the first few weeks. Suggest relaxation exercises (lying quietly, alternately tightening and relaxing the muscles of the neck, shoulders, arms, legs, and feet), which are helpful when a nap is not possible.

Emphasize to the mother the importance of asking for help when she begins to feel exhausted or overwhelmed. Encourage her to share these feelings with her partner, other family members, friends, and other new mothers.

**Infant Sleep and Feeding Schedules.** Many families require information about infant sleep cycles, frequency of feeding, and probable crying episodes during the first weeks. Although newborns sleep much of the time, they may awaken every 2 to 3 hours for feeding (see Chapter 22 regarding infant feeding and Chapter 23 regarding parenting

during the early weeks). If possible, having the father or another helper assist with nighttime care of the infant allows the mother longer sleep periods.

## Providing Nutrition Counseling

**Food Supply.** Determining the amount and type of food available to the mother and her family sometimes is appropriate. This is particularly true for families of low socioeconomic status, who might benefit from referral to government-sponsored programs, such as Temporary Assistance for Needy Families (TANF) or the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). Determining the facilities available for cooking and storing food also may be necessary. The new family may need referral to a social worker to identify the best solutions for their unique problems.

**Diet.** Although many women are unsatisfied with slow weight loss, they should avoid severe restriction of caloric intake. Advise the mother to select foods that provide adequate calories to meet her energy needs, taking into account the time and energy required to care for a newborn.

Women often lose weight by decreasing consumption of carbohydrates. However, their fat intake may increase if they skip meals and eat high-fat snacks or fast foods because of time constraints. A balanced, low-fat diet with adequate protein, complex carbohydrates, fruits, and vegetables provides the energy and nutrients needed (see Chapter 9).

## Promoting Regular Bowel Elimination

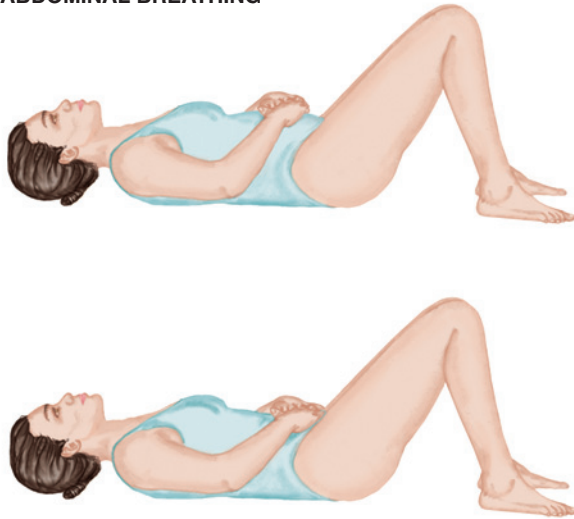
Explain the role of progressive exercise, adequate fluid, and dietary fiber in preventing constipation. Walking is an excellent exercise, and the distance can be increased as strength and endurance build. Drinking at least eight glasses of water daily helps maintain normal bowel elimination. Unpeeled fruits and vegetables are high in fiber and prunes are a natural laxative. Additional fiber is found in whole grain cereals, bread, and pasta.

A regular schedule of bowel elimination is important in overcoming constipation. For instance, bowel elimination after breakfast allows the mother to take advantage of the gastrocolic reflex (stimulation of peristalsis induced in the colon when food is consumed on an empty stomach). In addition, measures that reduce perineal and hemorrhoidal pain, such as witch hazel astringent compresses and hydrocortisone ointments, facilitate bowel elimination.

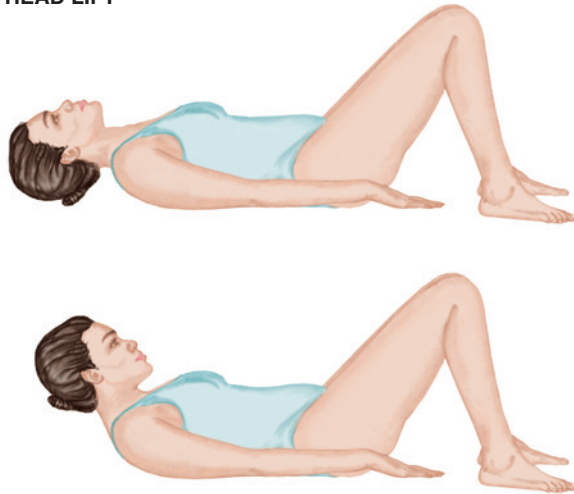
## Promoting Good Body Mechanics

**Exercise.** Exercise has beneficial physical and psychological effects during the postpartum period. Teach exercises in the early postpartum period to strengthen the abdominal muscles and firm the waist (Figure 17-11). These mild exercises can be started soon after childbirth. At first, each exercise should be repeated five times, twice each day. Gradually the number of exercises is increased as the mother gains strength.

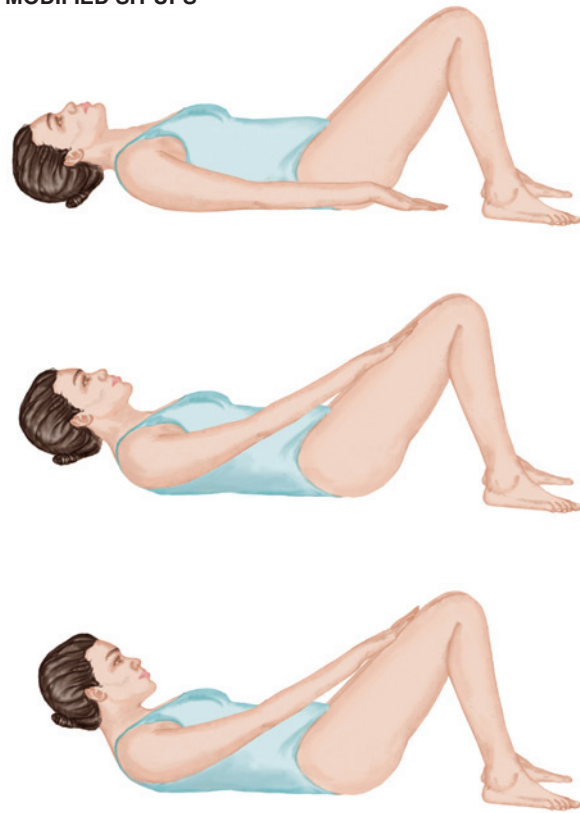
For women seeking weight loss, the nurse can reassure them that moderate exercise will not interfere with lactation

**ABDOMINAL BREATHING**

This is one of the simplest exercises and can be started on the first postpartum day. The woman assumes a supine position with knees bent. She inhales through the nose, keeps the rib cage as stationary as possible, and allows the abdomen to expand. She then contracts the abdominal muscles as she exhales slowly through the mouth.

**HEAD LIFT**

This exercise can be started within a few days after childbirth. The mother is supine with knees bent and arms outstretched at her side. She inhales deeply to begin, then exhales while lifting the head slowly; she holds the position for a few seconds and relaxes.

**MODIFIED SIT-UPS**

Head lifts may progress to modified sit-ups with the approval of the health care provider; the mother should follow the advice of the health care provider about the number of repetitions.

The exercise begins with the mother supine with arms outstretched and the knees bent. She raises her head and shoulders as her hands reach for her knees. She raises the shoulders only as far as the back will bend; her waist remains on the floor.

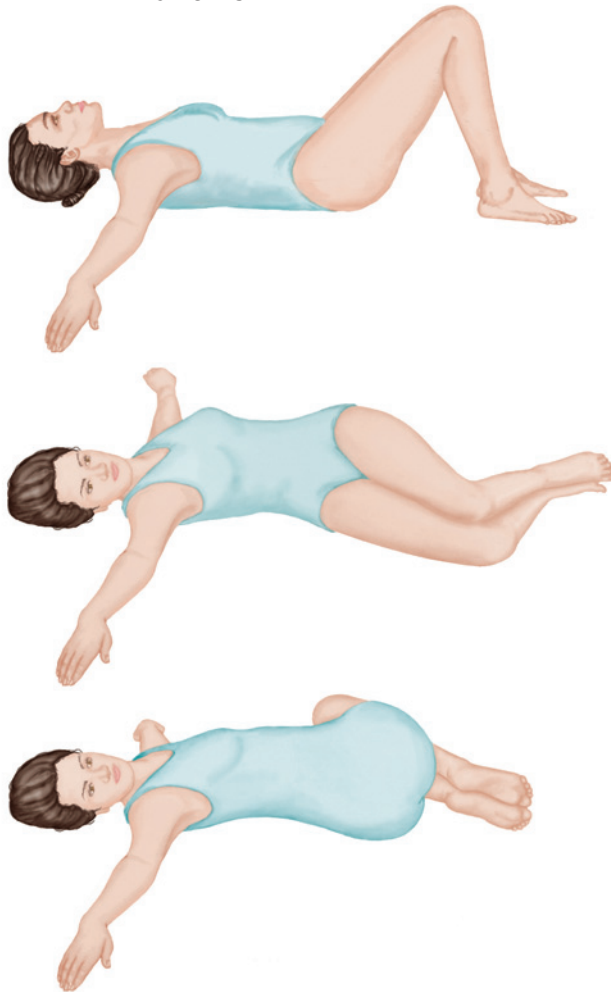
**Figure 17-11** ■ Postpartum exercises. Exercises should be approved by the woman's physician, nurse-midwife, or nurse practitioner before she begins them.

and will lead to more rapid weight reduction. Exercise classes that sometimes include the infant are often available for postpartum women. Common barriers to postpartum exercise are child care needs and lack of time. Walking is a common exercise, and women can take the infant with them on walks. Women who plan for exercise and do it with a friend are more likely to fit it into their schedules (Groth & David, 2008).

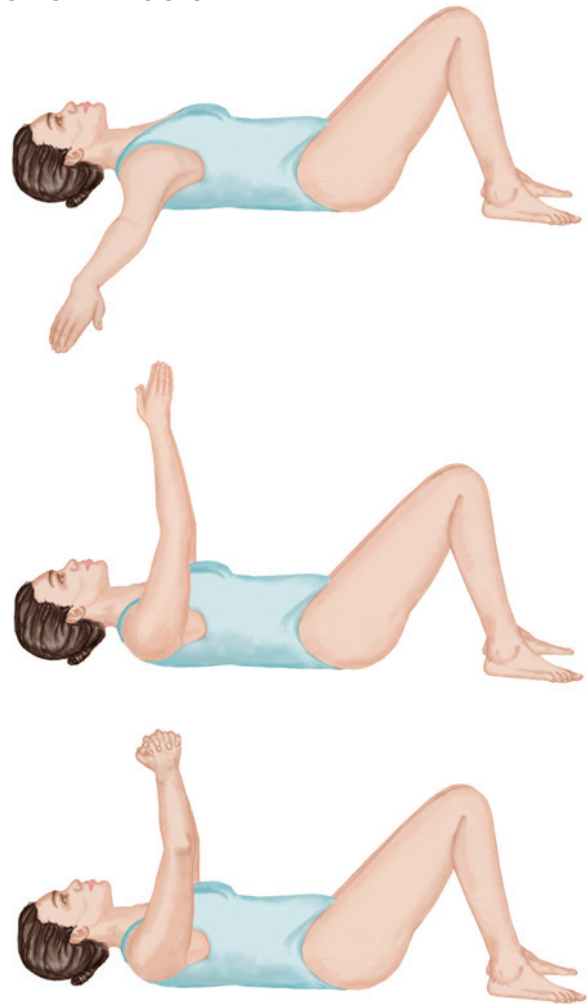
Postcesarean mothers should follow the instructions of their health care provider. Generally abdominal exercises

should not start until 4 weeks after a cesarean birth (James, 2008). However, less strenuous activities such as walking are beneficial. The woman should not exercise if it causes her pain.

**Prevention of Back Strain.** Back strain often can be prevented if the mother and father find a location for infant care, such as a kitchen table or bathroom counter, that does not require bending or leaning forward. For lifting objects, teach parents to hold the back straight as they

**KNEE AND LEG ROLLS**

This is an excellent exercise to begin firming the waist. The mother lies flat on her back with knees bent and feet flat on the floor or bed; she keeps the shoulders and feet stationary and rolls the knees to touch first one side of the bed, then the other. She maintains a smooth motion as the exercise is repeated five times. Later, as flexibility increases, the exercise can be varied by the rolling of one knee only. The mother rolls her left knee to touch the right side of the bed, returns to center, and rolls the right knee to touch the left side of the bed.

**CHEST EXERCISES**

This is an excellent exercise to strengthen the chest muscles. The mother lies flat with arms extended straight out to the side; she brings the hands together above the chest while keeping the arms straight; she holds for a few seconds and returns to the starting position. She repeats the exercise five times initially and follows the advice of the health care provider for increasing the number of repetitions.

Isometric exercises also increase strength and tone; the mother bends her elbows, clasps her hands together above her chest, and presses her hands together for a few seconds. This is repeated at least five times.

**Figure 17-11, cont'd** ■ Postpartum exercises.

squat and use their legs rather than bending at the waist (see Figure 7-13).

### Counseling About Sexual Activity

The couple may have concerns about resuming sexual intercourse and contraceptive choices. Fatigue, pain, fear of pregnancy, concerns about the baby, and a feeling of unattractiveness may interfere with a woman's sexual desire. Couples can begin intercourse when the woman has no perineal discomfort and all bleeding has ended. This is usually 2 to 4 weeks after giving birth (James, 2008; Lund

& McManaman, 2008). Breastfeeding women have low estrogen levels and may need to use a water-soluble gel for lubrication.

Women with third- or fourth-degree lacerations or episiotomies may need more time for healing to be complete. One study found that women frequently waited 3 to 6 months or longer after giving birth to resume intercourse if they had lacerations of the vagina, perineum, or involving the anal sphincter (Radestad et al., 2008).

Many new parents are reluctant to ask about when to resume sexual activity and potential changes in sexuality

resulting from pregnancy and childbirth. Nurses must be sensitive to unasked questions and should try to provide anticipatory guidance.

- If couples do not indicate such concerns, introduce the topic in a general, nonspecific manner, such as “You have an episiotomy that may cause some discomfort with intercourse until it is completely healed” or “Sometimes couples are not aware that some vaginal dryness occurs as a result of breastfeeding.” Such broad opening statements permit the couple to pursue the topic as they desire.

Interventions for parental concerns about sexual activity are discussed in Nursing Care Plan 17-1.

Cultural or religious convictions may restrict the choice of contraceptive method for some couples, whereas availability of health care or inadequate finances may dictate the choice for others. Discuss previous experience with contraceptives and the satisfaction with that method. Some women choose to have a tubal ligation before discharge (see Chapter 31).

### Instructing About Follow-Up Appointments

Remind the new mother to make an appointment with her physician or nurse-midwife for a postpartum examination at the time suggested by her provider. This is often 4 to 6 weeks after childbirth. Although one large study found that 89% of postpartum women receive a postpartum checkup, the rate is lower in some groups. Checkups were obtained by only 71.2% of women who had less than an eighth-grade education or received late prenatal care, 65.7% of women who had no prenatal care, and 59.5% of mothers whose infants did not receive well-baby checkups (Chu et al., 2007).

Emphasize the importance of the postpartum examination. It allows early assessment of postpartum healing and identification and treatment of problems that may develop. It also provides an opportunity for contraceptive counseling and planning for future pregnancies. Women who have had complications during the pregnancy or postpartum period may need to see their health care provider sooner or have more extensive follow-up than those without complications.

### Teaching About Signs and Symptoms That Should Be Reported

Teach new mothers and at least one family member which physical signs and symptoms should be reported to the health care provider immediately. These signs and symptoms include:

- Fever
- Localized area of redness, swelling, or pain in either breast
- Persistent abdominal tenderness
- Feelings of pelvic fullness or pelvic pressure
- Persistent perineal pain
- Frequency, urgency, or burning on urination
- Abnormal change in character of lochia (increased amount, resumption of bright red color, passage of clots, foul odor)

- Localized tenderness, redness, edema, or warmth of the legs
- Redness in, foul drainage from, or separation or edema of an abdominal incision

### Ensuring a Thorough Education

Before beginning teaching sessions, be sure the woman is comfortable. Give pain medication, if necessary, to prevent her being distracted by discomfort. Time teaching so that it does not interfere with meals, infant care needs, or visiting.

Although there are many topics to discuss in parent teaching, avoid covering too much information at a time. Interspersing small segments of teaching into normal care throughout the day will keep the woman from being overwhelmed and help her remember information better.

Organize information so it can be presented and absorbed in the time available. Group instruction and hospital classes, such as those that demonstrate infant care and provide breastfeeding instructions, make efficient use of the nurse's time. They provide an opportunity for mothers to ask questions about care needed by themselves and their infants that DVDs and television shows do not.

Individual instruction is also necessary. In some agencies, women are given some information pertaining to postpartum self-care during the prenatal period. During the hospital stay the nurse reviews and rechecks the mothers' understanding of previous teaching.

### Documenting Teaching

Documentation is an important aspect of teaching, just as it is for other aspects of nursing care. Documentation that discharge teaching was performed and that the client has indicated comprehension of teaching is required by accrediting agencies. To prevent omissions, many hospitals use teaching checklists to record topics that must be taught (Box 17-3) (see Chapter 21 for teaching about infant care).

#### BOX 17-3 Postpartum Discharge Teaching Topics

- Uterine massage
- Lochia norms
- Involution
- Episiotomy care
- Care of abdominal incisions
- Breast care for lactating and nonlactating women
- Bowel function
- Urinary function
- Nutrition
- Rest
- Exercise
- Sexual activity
- Contraception
- Postpartum danger signs
- Follow-up care
- Medications
- Emotional responses
- Infant care and feeding
- Family adjustment
- Available resources

## Evaluation

The mother's demonstration of correct breast and perineal hygiene provides evidence of her ability to perform self-care measures. Her ability to discuss practices that promote health in the areas of diet, exercise, rest, and sleep confirms her understanding of these measures. Her plan for future appointments with the health care provider for examinations or follow-up of complications increases the likelihood that she will experience an uncomplicated recovery.

## Postpartum Discharge and Community-Based Care

### Criteria for Discharge

Most women leave the hospital when they are just beginning to recover from giving birth and starting to learn how to care for themselves and their infants. Criteria for discharge of mothers have been developed by The American Academy of Pediatrics & American College of Obstetricians and Gynecologists (2007). Criteria include:

- The mother has no complications, and assessments (including vital signs, lochia, fundus, urinary output, incisions, ambulation, ability to eat and drink, and emotional status) are normal.
- Pertinent laboratory data including hemoglobin or hematocrit levels have been reviewed, and immune globulin has been administered, if necessary.
- The mother has received instructions on self-care, deviations from normal, and proper response to danger signs and symptoms.
- The mother demonstrates readiness to care for herself and her baby.
- The mother has received instructions on postpartum activity, exercises, and relief measures for common postpartum discomforts.
- Arrangements have been made for postpartum care.
- Family members or other support persons are available to the mother for the first few days after discharge.

### Community-Based Care

Many assessments and interventions of postpartum women occur in the clinic or outpatient setting. Mothers leave the birth facility when they are not fully recovered from the childbirth experience. New parents must be made aware of local community care services. Information lines, telephone calls from birth facility staff, nurse-managed postpartum outpatient clinics, and, in some areas, home visits provide information and guidance for postpartum families. Breastfeeding and parenting classes, "baby and me" walks or exercise sessions, and postpartum support groups may also be available. See Chapter 23 for information about community care.



### CHECK YOUR READING

18. How is lactation suppressed when the mother elects not to breastfeed?
19. What is the major challenge nurses have in preparing new mothers for discharge?
20. What are the criteria for discharge of the mother?

## SUMMARY CONCEPTS

- After childbirth the uterus returns to its nonpregnant size and condition by involution, which involves contraction of stretched muscle fibers, catabolic processes that reduce enlarged muscle cells, and regeneration of uterine epithelium.
- The site of placental attachment heals by a process of exfoliation, which leaves the endometrium smooth and without scars.
- Involution can be evaluated by measuring the descent of the fundus (about 1 cm/day). By about the 14th day after childbirth the fundus should be located in the pelvic cavity and should no longer be palpable abdominally.
- Afterpains, or intermittent uterine contractions, cause discomfort for many women, particularly multiparas who breastfeed.
- Vaginal discharge (lochia) progresses from lochia rubra (mostly blood) to lochia serosa (serous exudate, erythrocytes, and leukocytes) to lochia alba (increased amounts of leukocytes and decidual cells) in a predictable time frame. Lochia should be assessed for volume, type, and odor. Foul odor suggests endometrial infection.
- Although vaginal mucosa heals within 3 weeks, it takes 6 to 10 weeks for the vagina to regain its nonpregnant size and contour.
- Hemorrhoids and perineal trauma, including edema, bruising, episiotomy, and lacerations, can cause a great deal of discomfort and interfere with bladder and bowel elimination.
- Cardiac output increases when blood from the uterus and placenta returns to the central circulation and extracellular fluid moves into the vascular compartment. Excess fluid is excreted by diuresis and diaphoresis.
- Increased levels of clotting factors predispose the postpartum woman to thrombus formation. Early, frequent ambulation is the best method for preventing thrombophlebitis.
- Constipation may occur as a result of decreased food and fluid intake during labor, reduced activity, decreased muscle tone, diminished bowel tone, and fear of pain during defecation.
- Increased bladder capacity and decreased sensitivity to fluid pressure may result in urinary retention. Stasis of urine allows time for bacteria to grow and can lead to urinary tract infection.
- A distended bladder lifts and displaces the uterus and can interfere with uterine contraction and cause excessive bleeding.
- Exercises to strengthen the abdominal muscles and good posture and body mechanics may reduce musculoskeletal discomfort.
- As hormone levels decline, the skin gradually reverts to its nonpregnancy state.
- Breastfeeding may delay the return of ovulation and menstruation but ovulation may occur before the first menses. All mothers need information about family planning.
- Breastfeeding mothers are more likely to experience dyspareunia as a result of vaginal dryness that results from inadequate estrogen.
- Lactation may be suppressed by wearing a sports bra and avoiding stimulation of the breasts.
- The postpartum woman should be afebrile, but her temperature may be higher during the first 24 hours after delivery because of dehydration and leukocytosis.
- Tachycardia may be caused by excitement, pain, hypovolemia, infection, and dehydration. Additional assessments (for example, lochia, fundus) are required to determine whether excessive bleeding is the cause.
- Orthostatic hypotension occurs when the mother moves from a supine to standing position quickly.

- The postcesarean woman requires postoperative and postpartum assessments and care. She is at increased risk for problems associated with immobility and discomfort.
- Early discharge challenges nurses to streamline information and develop a plan for teaching self-care and infant care in a short time.

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