



Nursing Care of the Family during Pregnancy

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LEARNING OBJECTIVES

- Describe the process of confirming pregnancy and estimating the date of birth.
- Summarize the physical, psychosocial, and behavioral changes that usually occur as the mother and other family members adapt to pregnancy.
- Discuss the benefits of prenatal care and problems of accessibility for some women.
- Outline the patterns of health care used to assess maternal and fetal health status at the initial and follow-up visits during pregnancy.
- Identify the typical nursing assessments, diagnoses, interventions, and methods of evaluation in providing care for the pregnant woman.
- Discuss education needed by pregnant women to understand physical discomforts related to pregnancy and to recognize signs and symptoms of potential complications.
- Examine the impact of culture, age, parity, and number of fetuses on the response of the family to the pregnancy and on the prenatal care provided.

KEY TERMS AND DEFINITIONS

birth plan A tool by which parents can explore their childbirth options and choose those that are most important to them

couvade syndrome The phenomenon of expectant fathers' experiencing pregnancy-like symptoms

cultural prescriptions Practices that are expected or acceptable

cultural proscriptions Forbidden; taboo practices

doula Trained assistant hired to give the woman support during pregnancy, labor and birth, and postpartum

home birth Planned birth of the child at home, usually performed under the supervision of a midwife

morning sickness Nausea and vomiting that affect some women during the first few months of their pregnancy; may occur at any time of day

multifetal pregnancy Pregnancy in which more than one fetus is in the uterus at the same time; multiple gestation

Nägele's rule One method for calculating the estimated date of birth, or "due date"

pelvic tilt (rock) Exercise used to help relieve low back discomfort during menstruation and pregnancy

pinch test Determines whether nipples are everted or inverted by placing thumb and forefinger on areola and pressing inward; the nipple will stand erect or will invert

supine hypotension Drop in blood pressure caused by impaired venous return when the gravid uterus presses on the ascending vena cava, when woman is lying flat on her back; vena cava syndrome

trimesters One of three periods of approximately 3 months each into which pregnancy is divided

WEB RESOURCES

Additional related content can be found on the companion website at [evolve](http://evolve.elsevier.com/Lowdermilk/Maternity/)

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- NCLEX Review Questions
- Assessment Videos: Chest wall, breast, abdomen/fundal height, fetal heart rate
- Case Study: First Trimester
- Case Study: Second Trimester
- Case Study: Third Trimester
- Critical Thinking Exercise: Discomforts of Pregnancy
- Critical Thinking Exercise: Teenage Pregnancy
- Nursing Care Plan: Adolescent Pregnancy
- Nursing Care Plan: Discomforts of Pregnancy and Warning Signs
- Spanish Guidelines: Assessment of Respiratory Symptoms
- Spanish Guidelines: Prenatal Interview
- Spanish Guidelines: Prenatal Physical Examination

The prenatal period is a time of physical and psychologic preparation for birth and parenthood. Becoming a parent is one of the milestones of adult life, and as such, it is a time of intense learning for both parents and those close to them. The prenatal period provides a unique opportunity for nurses and other members of the health care team to influence family health. During this period, essentially healthy women seek regular care and guidance. The nurse's health-promotion interventions can affect the well-being of the woman, her unborn child, and the rest of her family for many years.

Regular prenatal visits, ideally beginning soon after the first missed menstrual period, offer opportunities to ensure the health of the expectant mother and her fetus. Prenatal health care permits diagnosis and treatment of preexisting maternal disorders and any disorder that may develop during the pregnancy. Prenatal care is designed to monitor the growth and development of the fetus and to identify any abnormalities that will interfere with the course of normal labor. Prenatal care also provides education and support for self-management and parenting.

Pregnancy spans 9 months, but health care providers do not use the familiar monthly calendar to determine fetal age or discuss the pregnancy. Instead, they use lunar months, which last 28 days, or 4 weeks. According to the lunar calendar, normal pregnancy lasts approximately 10 lunar months, which is the same as 40 weeks or 280 days. Health care providers also refer to early, middle, and late pregnancy as **trimesters**. The first trimester lasts from weeks 1 through 13; the second, from weeks 14 through 26; and the third, from weeks 27 through 40. A pregnancy is considered at term if it advances to the completion of 37 weeks.

The focus of this chapter is on meeting the health needs of the expectant family over the course of pregnancy, or the *prenatal period*.

DIAGNOSIS OF PREGNANCY

Women may suspect pregnancy when they miss a menstrual period. Many women come to the first prenatal visit

after a positive home pregnancy test; however, the clinical diagnosis of pregnancy before the second missed period is difficult in some women. Physical variations, obesity, or tumors, for example, may confuse even the experienced examiner. Accuracy is important, however, because emotional, social, medical, or legal consequences of an inaccurate diagnosis, either positive or negative, can be extremely serious. A correct date for the *last (normal) menstrual period* (LMP or LNMP) and for the date of intercourse and a basal body temperature (BBT) record are of great value in the accurate diagnosis of pregnancy (see Chapter 4).

Signs and Symptoms

Great variability is possible in the subjective and objective signs and symptoms of pregnancy; therefore the diagnosis of pregnancy is often uncertain for a time. Many of the indicators of pregnancy are clinically useful in the diagnosis of pregnancy. They are classified as presumptive, probable, or positive (see Table 6-2).

The presumptive indicators of pregnancy can be caused by conditions other than gestation. For example, illness or excessive exercise can cause amenorrhea, anemia or infection can be the cause of fatigue, a tumor may cause enlargement of the abdomen, and a gastrointestinal (GI) upset or food allergy may cause nausea or vomiting. Therefore these signs alone are not reliable for diagnosis.

Estimating Date of Birth

After the diagnosis of pregnancy, the woman's first question usually concerns when she will give birth. This date has traditionally been termed the *estimated date of confinement* (EDC), although *estimated date of delivery* (EDD) is also used. However, the term *estimated date of birth* (EDB) promotes a more positive perception of both pregnancy and birth. Because the precise date of conception is generally unknown, several formulas can be used for calculating the EDB. None of these guides is infallible, but Nägele's rule is reasonably accurate and is usually used (Johnson, Gregory, & Niebyl, 2007).

BOX 7-1

Use of Nägele's Rule

July 10, 2009, is the first day of the last menstrual period (LMP).

	Month	Day	Year
LMP	7	10	2009
	-3	+7	
Estimated day of birth:	4	17	2010

The estimated date of birth (EDB) is April 17, 2010.

Nägele's rule is as follows: After determining the first day of the LMP, subtract 3 calendar months and add 7 days; or alternatively, add 7 days to the LMP and count forward 9 calendar months. Box 7-1 demonstrates use of Nägele's rule. Nägele's rule assumes that the woman has a 28-day menstrual cycle and that pregnancy occurred on the fourteenth day. Obtaining an accurate menstrual history is important as well in using this method of dating.

ADAPTATION TO PREGNANCY

Case Study: First Trimester

Pregnancy affects all family members, and each family member must adapt to the pregnancy and interpret its meaning in light of his or her own needs. This process of family adaptation to pregnancy takes place within a cultural environment influenced by societal trends. Dramatic changes have occurred in Western society in recent years, and the nurse needs to be prepared to support single-parent families, reconstituted families, dual-career families, and alternative families, as well as traditional families, in the childbirth experience.

Much of the research on family dynamics during pregnancy in the United States and Canada has focused on Caucasian, middle-class nuclear families. Hence the findings do not always apply to families that do not fit the traditional North American model. Adaptation of terms is appropriate to avoid embarrassment to the nurse and offense to the family. Additional research is needed on a variety of families to determine if study findings generated in traditional families are applicable to others.

Maternal Adaptation

Women of all ages use the months of pregnancy to adapt to the maternal role, a complex process of social and cognitive learning. Early in pregnancy, nothing seems to be happening, and a woman may spend much time sleeping. With the perception of fetal movement in the second trimester, the woman turns her attention inward to her pregnancy and to relationships with her mother and other women who have been or who are pregnant.

Pregnancy is a maturational milestone that is often stressful but also rewarding as the woman prepares for a new level of caring and responsibility. Her self-concept

changes in readiness for parenthood as she prepares for her new role. She moves gradually from being self-contained and independent to being committed to a lifelong concern for another human being. This growth requires mastery of certain developmental tasks: accepting the pregnancy, identifying with the role of mother, reordering the relationships between herself and her mother and between herself and her partner, establishing a relationship with the unborn child, and preparing for the birth experience (Lederman, 1996). The partner's emotional support is an important factor in the successful accomplishment of these developmental tasks. Single women with limited support may have difficulty making this adaptation.

Accepting the Pregnancy

The first step in adapting to the maternal role is accepting the idea of pregnancy and assimilating the pregnant state into the woman's way of life. Mercer (1995) described this process as *cognitive restructuring* and credited Reva Rubin (1984) as the nurse theorist who pioneered our understanding of maternal role attainment. The degree of acceptance is reflected in the woman's emotional responses. Many women are upset initially at finding themselves pregnant, especially if the pregnancy is unintended. Eventual acceptance of pregnancy parallels the growing acceptance of the reality of a child. However, do not equate nonacceptance of the pregnancy with rejection of the child; a woman may dislike being pregnant but feel love for the unborn child.

Women who are happy and pleased about their pregnancy often view it as biologic fulfillment and part of their life plan. They have high self-esteem and tend to be confident about outcomes for themselves, their babies, and other family members. Despite a general feeling of well-being, many women are surprised to experience emotional lability, or rapid and unpredictable changes in mood. These swings in emotions and increased sensitivity to others are disconcerting to the expectant mother and those around her. Increased irritability, explosions of tears and anger, and feelings of great joy and cheerfulness alternate, apparently with little or no provocation.

Profound hormonal changes that are part of the maternal response to pregnancy are responsible for mood changes. Other reasons such as concerns about finances and changed lifestyle contribute to this seemingly erratic behavior.

Most women have ambivalent feelings during pregnancy whether the pregnancy was intended or not. Ambivalence—having conflicting feelings simultaneously—is a normal response for people preparing for a new role. For example, during pregnancy, some women feel great pleasure that they are fulfilling a lifelong dream, but they also feel great regret that life as they now know it is ending.

Even women who are pleased to be pregnant may experience feelings of hostility toward the pregnancy or unborn child from time to time. Such incidents as a partner's

chance remark about the attractiveness of a slim, nonpregnant woman or news of a colleague's promotion can give rise to ambivalent feelings. Body sensations, feelings of dependence, or the realization of the responsibilities of child care also can generate such feelings.

Intense feelings of ambivalence that persist through the third trimester may indicate an unresolved conflict with the motherhood role (Mercer, 1995). After the birth of a healthy child, memories of these ambivalent feelings are usually dismissed. If the child is born with a defect, however, a woman may look back at the times when she did not want the pregnancy and feel intensely guilty. She may believe that her ambivalence caused the birth defect. She will then need assurance that her feelings were not responsible for the problem.

Identifying with the mother role

The process of identifying with the mother role begins early in each woman's life when she is being mothered as a child. Her social group's perception of the feminine role can subsequently influence her toward choosing between motherhood or a career, being married or single, being independent rather than interdependent, or being able to manage multiple roles. Practice roles, such as playing with dolls, baby-sitting, and taking care of siblings, increase her understanding of what being a mother involves.

Many women have always wanted a baby, liked children, and looked forward to motherhood. Their high motivation to become a parent promotes acceptance of pregnancy and eventual prenatal and parental adaptation. Other women apparently have not considered in any detail what motherhood means to them. During pregnancy, these women must resolve conflicts such as not wanting the pregnancy and child-related or career-related decisions.

Reordering personal relationships

Close relationships of the pregnant woman undergo change during pregnancy as she prepares emotionally for the new role of mother. As family members learn their new roles, periods of tension and conflict may occur. An understanding of the typical patterns of adjustment can help the nurse to reassure the pregnant woman and explore issues related to social support. Promoting effective communication patterns between the expectant mother and her own mother and between the expectant mother and her partner are common nursing interventions provided during the prenatal visits.

The woman's own relationship with her mother is significant in adaptation to pregnancy and motherhood. Important components in the pregnant woman's relationship with her mother are the mother's availability (past and present), her reactions to the daughter's pregnancy, respect for her daughter's autonomy, and the willingness to reminisce (Mercer, 1995).

The mother's reaction to the daughter's pregnancy signifies her acceptance of the grandchild and of her daugh-



Fig. 7-1 A pregnant woman and her mother enjoying their walk together. (Courtesy Michael S. Clement, MD, Mesa, AZ.)

ter. If the mother is supportive, the daughter has an opportunity to discuss pregnancy, labor, and her feelings with a knowledgeable and accepting woman (Fig. 7-1). Reminiscing about the pregnant woman's early childhood and sharing the prospective grandmother's account of her childbirth experience help the daughter to anticipate and prepare for labor and birth.

Although the woman's relationship with her mother is significant in considering her adaptation in pregnancy, the most important person to the pregnant woman is usually the father of her child. Women express two major needs within this relationship during pregnancy: feeling loved and valued and having the child accepted by the partner.

The marital or committed relationship is not static but evolves over time. The addition of a child changes forever the nature of the bond between partners. This is often a time when couples grow closer, and the pregnancy has a maturing effect on the partners' relationship as they assume new roles and discover new aspects of one another. Partners who trust and support each other are able to share mutual-dependency needs (Mercer, 1995).

Sexual expression during pregnancy is highly individualized. Physical, emotional, and interactional factors, including misinformation about sex during pregnancy, sexual dysfunction, and physical changes in the woman, affect the sexual relationship. Many women and their partners express anxiety about the presence of the fetus as a third party in lovemaking. An individual may also believe that anomalies, mental retardation, and other injuries to the fetus and mother occur during sexual relations in pregnancy. Some couples fear that the birth process will

drastically change the woman's genitals. Some couples do not express their concerns to the health care provider because of embarrassment or because they do not want to appear foolish.

As pregnancy progresses, changes in body shape, body image, and levels of discomfort influence both partners' desire for sexual expression. During the first trimester, the woman's sexual desire often decreases, especially if she has breast tenderness, nausea, fatigue, or sleepiness. As she progresses into the second trimester, however, her sense of well-being combined with the increased pelvic congestion that occurs at this time may increase her desire for sexual release. In the third trimester, somatic complaints and physical bulkiness increase physical discomfort and again diminish interest in sex. As a woman's pregnancy progresses, her enlarging gravid abdomen may limit the use of the man-on-top position for intercourse. Therefore other positions (e.g., side to side or the woman on top) may allow intercourse and minimize pressure on the woman's abdomen (Westheimer & Lopater, 2005).

Partners need to feel free to discuss their sexual responses during pregnancy with each other and with their health care provider. Their sensitivity to each other and willingness to share concerns can strengthen their sexual relationship. Partners who do not understand the rapid physiologic and emotional changes of pregnancy can become confused by the other's behavior. By talking to each other about the changes they are experiencing, couples can define problems and then offer the needed support. Nurses can facilitate communication between partners by talking to expectant couples about possible changes in feelings and behaviors they will experience as pregnancy progresses (see later discussion).

Establishing a relationship with the fetus

Emotional attachment—feelings of being tied by affection or love—begins during the prenatal period as women use fantasizing and daydreaming to prepare themselves for motherhood (Rubin, 1975). They think of themselves as mothers and imagine maternal qualities they would like to possess. Expectant parents desire to be warm, loving, and close to their child. They try to anticipate changes that the child will bring in their lives and wonder how they will react to noise, disorder, reduced freedom, and caregiving activities. The mother-child relationship progresses through pregnancy as a developmental process that unfolds in three phases.

In phase 1 the woman accepts the biologic fact of pregnancy. She needs to be able to state, "I am pregnant" and incorporate the idea of a child into her body and self-image. The woman's thoughts center on herself and the reality of her pregnancy. The child is viewed as part of herself, not a separate and unique person.

In phase 2 the woman accepts the growing fetus as distinct from herself, usually accomplished by the fifth

month. She can now say, "I am going to have a baby." This differentiation of the child from the woman's self permits the beginning of the mother-child relationship that involves not only caring, but also responsibility. Planned pregnancies usually enhance attachment of a mother to her child, and the attachment increases when ultrasound examination and quickening confirm the reality of the fetus.

With acceptance of the reality of the child (hearing the heartbeat and feeling the child move) and an overall feeling of well-being the woman enters a quiet period and becomes more introspective. Fantasies about the child become precious to the woman. As the woman seems to withdraw and to concentrate her interest on the unborn child, her partner sometimes feels left out. If other children are in the family, they may become more demanding in their efforts to redirect the mother's attention to themselves.

During phase 3 of the attachment process, the woman prepares realistically for the birth and parenting of the child. She expresses the thought, "I am going to be a mother" and defines the nature and characteristics of the child. She may, for example, speculate about the child's personality traits based on patterns of fetal activity.

Although the mother alone experiences the child within, both parents and siblings believe the unborn child responds in a very individualized, personal manner. Family members may interact a great deal with the unborn child by talking to the fetus and stroking the mother's abdomen, especially when the fetus shifts position (Fig. 7-2). The fetus may even have a nickname used by family members.

Preparing for childbirth

Many women actively prepare for birth by reading books, viewing films, attending parenting classes, and talking to other women. They seek the best caregiver possible for advice, monitoring, and caring. The multiparous woman has her own history of labor and birth, which influences her approach to preparation for this childbirth experience.

Anxiety can arise from concern about a safe passage for herself and her child during the birth process (Mercer, 1995; Rubin, 1975). Some women do not express this concern overtly, but they give cues to the nurse by making plans for care of the new baby and other children in case "anything should happen." These feelings persist despite statistical evidence about the safe outcome of pregnancy for mothers and their infants. Many women fear the pain of childbirth or mutilation because they do not understand anatomy and the birth process. Education can alleviate many of these fears. Women also express concern over what behaviors are appropriate during the birth process and whether caregivers will accept them and their actions.

Toward the end of the third trimester, breathing is difficult, and fetal movements become vigorous enough to disturb the woman's sleep. Backaches, frequency and



Fig. 7-2 Sibling feeling movement of fetus. (Courtesy Kim Molloy, Knoxville, IA.)

urgency of urination, constipation, and varicose veins are often troublesome. The bulkiness and awkwardness of her body makes caring for other children, routine work-related duties, and sleep difficult. By this time, most women become impatient for labor to begin, whether the birth is anticipated with joy, dread, or a mixture of both. A strong desire to see the end of pregnancy, to be over and done with it, makes women at this stage ready to move on to childbirth.

Paternal Adaptation

The father's beliefs and feelings about the ideal mother and father and his cultural expectation of appropriate behavior during pregnancy affect his response to his partner's need for him. One man may engage in nurturing behavior. Another may feel lonely and alienated as the woman focuses her physical and emotional attention on the unborn child. He may seek comfort and understanding outside the home or become interested in a new hobby or involved with his work. Some men view pregnancy as proof of their masculinity and their dominant role. To others, pregnancy has no meaning in terms of responsibility to either mother or child. However, for most men, pregnancy is a time of preparation for the parental role with intense learning.

Accepting the pregnancy

The ways fathers adjust to the parental role has been the subject of considerable research. In older societies the



Fig. 7-3 Father participating in prenatal visit. Nurse-midwife discusses feeling fetal movement while father puts hand on mother's abdomen. (Courtesy Shannon Perry, Phoenix, AZ.)

man enacted the ritual *couvade*; that is, he behaved in specific ways and respected taboos associated with pregnancy and giving birth so the man's new status was recognized and endorsed. Now, some men experience pregnancy-like symptoms, such as nausea, weight gain, and other physical symptoms. This phenomenon is known as the **couvade syndrome**. Changing cultural and professional attitudes have encouraged fathers' participation in the birth experience in the last 30 years (Fig. 7-3).

The man's emotional responses to becoming a father, his concerns, and his informational needs change during the course of pregnancy. Phases of the developmental pattern become apparent. May (1982) described three phases characterizing the developmental tasks experienced by the expectant father:

- The announcement phase may last from a few hours to a few weeks. The developmental task is to accept the biologic fact of pregnancy. Men react to the confirmation of pregnancy with joy or sadness, depending on whether the pregnancy is desired or unplanned or unwanted. Ambivalence in the early stages of pregnancy is common.
- If pregnancy is unplanned or unwanted, some men find the alterations in life plans and lifestyles difficult to accept. Some men engage in extramarital affairs for the first time during their partner's pregnancy. Others batter their wives for the first time or escalate the frequency of battering episodes (Krieger, 2008). Chapter 2 provides information about violence against women and offers guidance on assessment and intervention.
- The second phase, the moratorium phase, is the period when he adjusts to the reality of pregnancy. The developmental task is to accept the pregnancy. Men appear to put conscious thought of the pregnancy aside for a time. They become more introspective and engage in many discussions about their philosophy of life,

religion, childbearing, and childrearing practices and their relationships with family members, particularly with their father. Depending on the man's readiness for the pregnancy, this phase may be relatively short or persist until the last trimester.

- The third phase, the focusing phase, begins in the last trimester and is characterized by the father's active involvement in both the pregnancy and his relationship with his child. The developmental task is to negotiate with his partner the role he is to play in labor and to prepare for parenthood. In this phase the man concentrates on his experience of the pregnancy and begins to think of himself as a father.

Identifying with the father role

Each man brings to pregnancy attitudes that affect the way in which he adjusts to the pregnancy and parental role. His memories of the fathering he received from his own father, the experiences he has had with child care, and the perceptions of the male and father roles within his social group will guide his selection of the tasks and responsibilities he will assume. Some men are highly motivated to nurture and love a child. Some are excited and pleased about the anticipated role of father. Others are more detached or even hostile to the idea of fatherhood.

Reordering personal relationships

The partner's main role in pregnancy is to nurture and respond to the pregnant woman's feelings of vulnerability. The partner must also deal with the reality of the pregnancy. The partner's support indicates involvement in the pregnancy and preparation for attachment to the child.

Some aspects of a partner's behavior indicate rivalry, and it is especially evident during sexual activity. For example, men may protest that fetal movements prevent sexual gratification or that they are being watched by the fetus during sexual activity. However, feelings of rivalry are often unconscious and not verbalized, but they are expressed in subtle behaviors.

The woman's increased introspection may cause her partner to feel uneasy as she becomes preoccupied with thoughts of the child and of her motherhood, with her growing dependence on her physician or midwife, and with her reevaluation of the couple's relationship.

Establishing a relationship with the fetus

The father-child attachment can be as strong as the mother-child relationship, and fathers can be as competent as mothers in nurturing their infants. The father-child attachment also begins during pregnancy. A father may rub or kiss the maternal abdomen, try to listen, talk, or sing to the fetus, or play with the fetus as he notes movement. Calling the unborn child by name or nickname helps to confirm the reality of pregnancy and promote attachment.

Men prepare for fatherhood in many of the same ways as women do for motherhood—by reading and by fantasizing about the baby. Daydreaming about their role as father is common in the last weeks before the birth; men rarely describe their thoughts unless they are reassured that such daydreams are normal.

Preparing for childbirth

The days and weeks immediately before the expected day of birth are full of anticipation and anxiety. Boredom and restlessness are common as the couple focuses on the birth process. However, during the last 2 months of pregnancy, many expectant fathers experience a surge of creative energy at home and on the job. They may become dissatisfied with their present living space. If possible, they tend to act on the need to alter the environment (remodeling, painting, etc.). This activity is their way of sharing in the childbearing experience. They are able to channel the anxiety and other feelings experienced during the final weeks before birth into productive activities. This behavior earns recognition and compliments from friends, relatives, and their partners.

Major concerns for the man are getting the woman to a medical facility in time for the birth and not appearing ignorant. Many men want to be able to recognize labor and determine when it is appropriate to leave for the hospital or call the physician or nurse-midwife. They may fantasize different situations and plan what they will do in response to them, or they may rehearse taking various routes to the hospital, timing each route at different times of the day.

Some prospective fathers have questions about the labor suite's furniture, nursing staff, and location, as well as the availability of the physician and anesthesiologist. Others want to know what is expected of them when their partners are in labor. The man may also have fears concerning safe passage of his child and partner and the possible death or complications of his partner and child. He should verbalize these fears, otherwise he cannot help his mate deal with her own unspoken or spoken apprehension.

With the exception of childbirth preparation classes, a man has few opportunities to learn ways to be an involved and active partner in this rite of passage into parenthood. Mothers often sense the tensions and apprehensions of the unprepared, unsupportive father, and it often increases their fears.

The same fears, questions, and concerns may affect birth partners who are not the biologic fathers. Nurses need to keep birth partners informed, supported, and included in all activities in which the mother desires their participation. The nurse can do much to promote pregnancy and birth as a family experience.

Sibling Adaptation

Sharing the spotlight with a new brother or sister may be the first major crisis for a child. The older child often



Fig. 7-4 A sibling class of preschoolers learns infant care using dolls. (Courtesy Marjorie Pyle, RNC, Lifecircle, Costa Mesa, CA.)

experiences a sense of loss or feels jealous at being “replaced” by the new sibling. Some of the factors that influence the child’s response are age, the parents’ attitudes, the role of the father, the length of separation from the mother, the hospital’s visitation policy, and the way the child has been prepared for the change.

A mother with other children must devote time and effort to reorganizing her relationships with them. She needs to prepare siblings for the birth of the child (Fig. 7-4 and Box 7-2) and begin the process of role transition in the family by including the children in the pregnancy and being sympathetic to older children’s concerns about losing their places in the family hierarchy. No child willingly gives up a familiar position.

Siblings’ responses to pregnancy vary with their age and dependency needs. The 1-year-old infant seems largely unaware of the process, but the 2-year-old child notices the change in his or her mother’s appearance and may comment that “Mommy’s fat.” The toddlers’ need for sameness in the environment makes the children aware of any change. They may exhibit more clinging behavior and sometime regress in toilet training or eating.

By age 3 or 4 years, children like to hear the story of their own beginning and to hear how their development compares with that of the present pregnancy. They like to listen to the fetal heartbeat and feel the baby moving in utero (see Fig. 7-2). Sometimes they worry about how the baby is being fed and what it wears.

School-age children take a more clinical interest in their mother’s pregnancy. They may want to know in more detail, “How did the baby get in there?” and “How will it get out?” Children in this age group notice pregnant women in stores, churches, and schools and sometimes seem shy if they need to approach a pregnant woman directly. On the whole, they look forward to the new baby, see themselves as “mothers” or “fathers,” and enjoy buying baby supplies and preparing a place for the baby. Because they still think in concrete terms and base judgments on the here and now, they respond positively to their mother’s current good health.

Early and middle adolescents preoccupied with the establishment of their own sexual identity may have dif-

BOX 7-2

Tips for Sibling Preparation

PRENATAL

- Take your child on a prenatal visit. Let the child listen to the fetal heartbeat and feel the baby move.
- Involve the child in preparations for the baby, such as helping decorate the baby’s room.
- Move the child to a bed (if still sleeping in a crib) at least 2 months before the baby is due.
- Read books, show videos, and take child to sibling preparation classes, including a hospital tour.
- Answer your child’s questions about the coming birth, what babies are like, and any other questions.
- Take your child to the homes of friends who have babies so that the child has realistic expectations of what babies are like.

DURING THE HOSPITAL STAY

- Have someone bring the child to the hospital to visit you and the baby (unless you plan to have the child attend the birth).
- Do not force interactions between the child and the baby. The child will often be more interested in seeing you and being reassured of your love.
- Help the child explore the infant by showing how and where to touch the baby.
- Give the child a gift (from you or you, the father, and baby).

GOING HOME

- Leave the child at home with a relative or baby-sitter.
- Have someone else carry the baby from the car so that you can hug the child first.

ADJUSTMENT AFTER THE BABY IS HOME

- Arrange for a special time with the child alone with each parent.
- Do not exclude the child during infant feeding times. The child can sit with you and the baby and feed a doll or drink juice or milk with you or sit quietly with a game.
- Prepare small gifts for the child so that when the baby gets gifts the sibling will not feel left out. The child can also help open the baby gifts.
- Praise the child for acting age appropriately (so that being a baby does not seem better than being older).

ficulty accepting the overwhelming evidence of the sexual activity of their parents. They reason that if they are too young for such activity, certainly their parents are too old. They seem to take on a critical parental role and may ask, “What will people think?” or “How can you let yourself get so fat?” or “How can you let yourself get pregnant?” Many pregnant women with teenage children will confess that the attitudes of their teenagers are the most difficult aspect of their current pregnancy.

Late adolescents do not appear to be unduly disturbed. They are busy making plans for their own lives and realize that they will soon be gone from home. Parents usually

report they are comforting and act more as other adults than as children.

Grandparent Adaptation

Every pregnancy affects all family relationships. For expectant grandparents, a first pregnancy in a child is undeniable evidence that they are growing older. Many think of a grandparent as old, white-haired, and becoming feeble of mind and body; however, some people face grandparenthood while still in their thirties or forties. Some individuals react negatively to the news that they will be grandparents, indicating that they are not ready for the new role.

In some family units, expectant grandparents are non-supportive and inadvertently decrease the self-esteem of the parents-to-be. Mothers may talk about their terrible pregnancies, fathers may discuss the endless cost of rearing children, and mothers-in-law may complain that their sons are neglecting them because their concern is now directed toward the pregnant daughters-in-law.

However, most grandparents are delighted at the prospect of a new baby in the family. It reawakens the feelings of their own youth, the excitement of giving birth, and their delight in the behavior of the parents-to-be when they were infants. They set up a memory store of the child's first smiles, first words, and first steps, which they can use later for "claiming" the newborn as a member of the family. These behaviors provide a link between the past and present for the parents- and grandparents-to-be.

In addition, the grandparent is the historian who transmits the family history, a resource who shares knowledge based on experience, a role model, and a support person. The grandparent's presence and support can strengthen family systems by widening the circle of support and nurturance (Fig. 7-5).



Fig. 7-5 Grandfather getting to know his grandson. (Courtesy Sharon Johnson, Petaluma, CA.)

CARE MANAGEMENT

The purpose of prenatal care is to identify existing risk factors and other deviations from normal in order to enhance pregnancy outcomes (Johnson, Gregory, & Niebyl, 2007). Major emphasis is placed on preventive aspects of care, primarily to motivate the pregnant woman to practice optimal self-management and to report unusual changes early so as to minimize or prevent problems. In holistic care, nurses provide information and guidance about not only the physical changes, but also the psychosocial impact of pregnancy on the woman and members of her family. The goals of prenatal nursing care, therefore, are to foster a safe birth for the infant and to promote satisfaction of the mother and family with pregnancy and the birth experience.

Advances have occurred in the number of women in the United States who receive adequate prenatal care. In 2005, almost 84% of all women received care in the first trimester. African-American, Hispanic, and Native-American women were two times as likely to get late prenatal care or no care at all than Caucasian women (Martin et al., 2008). Although women of middle or high socioeconomic status routinely seek prenatal care, women living in poverty or who lack health insurance are not always able to use public medical services or gain access to private care. Lack of culturally sensitive care providers and barriers in communication resulting from differences in language also interfere with access to care (Darby, 2007). Similarly, immigrant women who come from cultures in which prenatal care is not emphasized may not know to seek routine prenatal care. Birth outcomes in these populations are less positive, with higher rates of maternal and fetal or newborn complications. Problems with low birth weight (LBW; less than 2500 g) and infant mortality have in particular been associated with lack of adequate prenatal care.

Barriers to obtaining health care during pregnancy include lack of transportation, unpleasant clinic facilities or procedures, inconvenient clinic hours, child care problems and personal attitudes (American College of Obstetricians and Gynecologists Committee on Health Care for Underserved Women, 2006; Daniels, Noe, & Mayberry, 2006; Johnson, Hatcher, et al., 2007). The increasing use of advanced practice nurses in collaborative practice with physicians can help improve the availability and accessibility of prenatal care. A regular schedule of home visiting by nurses during pregnancy has also proven effective (Dawley & Beam, 2005).

The current model for provision of prenatal care has been used for more than a century. The initial visit usually occurs in the first trimester, with visits every four weeks through week 28 of pregnancy. Thereafter, visits are scheduled every 2 weeks until week 36 and then every week until birth (American Academy of Pediatrics and American College of Obstetricians and Gynecologists [2007])

BOX 7-3**Prenatal Visit Schedule**

TRADITIONAL*	CENTERINGPREGNANCY®†
First visit within the first trimester (12 weeks)	First visit within the first trimester (12 weeks)
Every 4 weeks from week 16-28	Every 4 weeks—week 16-28
Every two weeks from week 29-36	Every 2 weeks—week 29-40
Weekly visits week 36 to birth	

*Frequency of visits may be decreased in low risk women and increased in women with high risk pregnancies.

†Additional individual visits may be added as needed.

(Box 7-3). Research supports a model of fewer prenatal visits, and in some practices there is a growing tendency to have fewer visits with women who are at low risk for complications (Villar, Carroli, Khan-Neelofur, Piaggio, & Gulmezoglu, 2001; Walker, McCully, & Vest, 2001).

CenteringPregnancy® is a care model that is gaining in popularity. This model is one of group prenatal care in which authority is shifted from the provider to the woman and other women who have similar due dates. The model creates an atmosphere that facilitates learning, encourages discussion, and develops mutual support. Most care takes place in the group setting after the first visit and continues for 10 2-hour sessions scheduled throughout the pregnancy (Moos, 2006) (see Box 7-3). At each meeting the first 30 minutes is spent in completing assessments (by self and by provider), and the rest of the time is spent in group discussion of specific issues such as discomforts of pregnancy and preparation for labor and birth. Families and partners are encouraged to participate (Massey, Rising, & Ickovics, 2006; Reid, 2007).

Prenatal care is ideally a multidisciplinary activity in which nurses work with physicians or midwives, nutritionists, social workers, and others. Collaboration among these individuals is necessary to provide holistic care. The case management model, which makes use of care maps and critical pathways, is one system that promotes comprehensive care with limited overlap in services. To emphasize the nursing role, care management for the initial visit and follow-up visits is organized around the central elements of the nursing process: assessment, nursing diagnoses, expected outcomes, plan of care and interventions, and evaluation (see Nursing Process box).

Initial Assessment

The initial evaluation includes a comprehensive health history emphasizing the current pregnancy, previous pregnancies, the family, a psychosocial profile, a physical assessment, diagnostic testing, and an overall risk assessment. A prenatal history form (paper or electronic) is often

used to document information obtained. The pregnant woman and family members who may accompany the woman for her care need to know that the first prenatal visit is more lengthy and detailed than future visits. In some clinics and offices, women may have the diagnostic tests done first and have the prenatal history and physical examination at the next visit.

Interview

The therapeutic relationship between the nurse and the woman is established during the initial assessment interview. Two types of data are collected: the woman's subjective appraisal of her health status and the nurse's objective observations.

One or more family members will often accompany the pregnant woman. With her permission, include those accompanying the woman in the initial prenatal interview. The observations and information about the woman's family are then included in the database. For example, if the woman has small children with her the nurse can ask about her plans for child care during the time of labor and birth. Note any special needs at this time (e.g., wheelchair access, assistance in getting on and off the examining table, and cognitive deficits).

Reason for seeking care

Although pregnant women are scheduled for "routine" prenatal visits, they often come to the health care provider seeking information or reassurance about a particular concern. The woman's chief concerns are recorded in her own words; this helps other personnel identify the priority of needs as identified by the woman. At the initial visit the desire for information about what is normal in the course of pregnancy is typical.

Current pregnancy

The presumptive signs of pregnancy may be of great concern to the woman. A review of symptoms she is experiencing and how she is coping with them helps to establish a database to develop a plan of care. The nurse can provide some early teaching at this time.

Obstetric and gynecologic history

Data are gathered on the woman's age at menarche, menstrual history, and contraceptive history; the nature of any infertility or gynecologic conditions; her history of any sexually transmitted infections (STIs); her sexual history; and a detailed history of all her pregnancies, including the present pregnancy, and their outcomes. Note the date of the last Papanicolaou (Pap) test and the result. Obtain the date of her LMP to establish the EDB.

Medical history

The medical history includes specific medical or surgical conditions that may affect the pregnancy or that may be affected by the pregnancy. For example, a pregnant

NURSING PROCESS *Prenatal Care*

ASSESSMENT

The assessment process begins at the initial prenatal visit and continues throughout the pregnancy. Assessment techniques include the interview, physical examination, and laboratory tests. Because the initial visit and follow-up visits are distinctly different in content and process, they are described separately (see text).

NURSING DIAGNOSES

The following are examples of the nursing diagnoses that may be appropriate in the prenatal period:

- *Anxiety* related to:
 - Physical discomforts of pregnancy
 - Ambivalent and labile emotions
 - Changes in family dynamics
 - Fetal well-being
 - Ability to manage anticipated labor
- *Constipation* related to:
 - Progesterone relaxation of gastrointestinal smooth muscle
 - Dietary behaviors
- *Imbalanced nutrition: less than body requirements* related to:
 - Morning sickness (nausea and vomiting)
 - Fatigue
- *Disturbed body image* related to:
 - Anatomic and physiologic changes of pregnancy
 - Changes in the couple relationship
- *Disturbed sleep patterns* related to:
 - Discomforts of late pregnancy
 - Anxiety about approaching labor

EXPECTED OUTCOMES OF CARE

Measured outcomes of prenatal care include not only physical outcomes, but also developmental and psycho-

social outcomes. Examples of expected outcomes are that the pregnant woman will achieve the following:

- Verbalize decreased anxiety about the health of her fetus and herself.
- Verbalize improved family dynamics.
- Show appropriate weight gain patterns per trimester.
- Report increasing acceptance of changes in body image.
- Demonstrate knowledge for self-management.
- Seek clarification of information about pregnancy and birth.
- Report signs and symptoms of complications.
- Describe appropriate measures taken to relieve physical discomforts.
- Develop a realistic birth plan.

PLAN OF CARE AND INTERVENTIONS

A variety of educational materials are available to enhance the learning of the pregnant woman and her family. The following four topics are discussed in detail in the text (see detailed discussion starting on p. 208).

- Education about maternal and fetal changes
- Education for self-management
- Sexual counseling
- Psychosocial support

EVALUATION

Evaluation of the effectiveness of care of the woman during pregnancy is based on the previously stated outcomes (see Nursing Care Plan on pp. 222 and 223).

woman who has diabetes, hypertension, or epilepsy requires special care. Because most women are anxious during the initial interview, pay attention to cues, such as a MedicAlert bracelet, and prompt the woman to explain allergies, chronic diseases, or medications being taken (e.g., cortisone, insulin, anticonvulsants).

The woman should also describe the nature of previous surgical procedures. If a woman has undergone uterine surgery or extensive repair of the pelvic floor, then a cesarean birth may be necessary; appendectomy rules out appendicitis as a cause of right lower quadrant pain in pregnancy; and spinal surgery may contraindicate the use of spinal or epidural anesthesia. Note any injury involving the pelvis.

Women who have chronic or handicapping conditions often forget to mention them during the initial assessment because they have become so adapted to them. Special shoes or a limp may indicate the existence of a pelvic structural defect, which is an important consideration in pregnant women. The nurse who observes these special

characteristics and inquires about them sensitively can obtain individualized data that will provide the basis for a comprehensive nursing care plan (Smeltzer, 2007).

Nutritional history

The woman's nutritional history is an important component of the prenatal history because her nutritional status has a direct effect on the growth and development of the fetus. A dietary assessment will reveal special diet practices, food allergies, eating behaviors, the practice of pica, and other factors related to her nutritional status. Pregnant women are usually motivated to learn about good nutrition and respond well to nutritional advice generated by this assessment. (See Chapter 8 for further discussion.)

History of drug and herbal preparations use

A woman's past and present use of legal (over-the-counter [OTC] and prescription medications, herbal

preparations, caffeine, alcohol, nicotine) and illegal (marijuana, cocaine, heroin) drugs is assessed. This assessment is needed because many substances cross the placenta and may harm the developing fetus. Periodic urine toxicologic screening tests are often recommended during the pregnancies of women who have a history of illegal drug use. In some states of the United States, these test results have been used for criminal prosecution, which violates the patient-provider relationship and ethical responsibilities to the patient (Harris & Paltrow, 2003). To preserve constitutional rights and the ethical patient-provider relationship, drug-testing policies should encourage open communication between patient and physician, emphasize the availability of treatment options, and advocate for the health of woman and child.

LEGAL TIP Informed Consent for Drug Testing

Hospitals must obtain informed consent from a pregnant woman before she can be tested for drug use (Kehring, 2003).

Family history

The family history provides information about the woman's immediate family, including her parents, siblings, and children. Information about the immediate family of the father of the baby is also important. These data help identify familial or genetic disorders or conditions that could affect the present health status of the woman or her fetus.

Social, experiential, and occupational history

Situational factors such as the family's ethnic and cultural background and socioeconomic status can be assessed over several encounters. Explore the woman's perception of this pregnancy by asking her questions such as the following:

- Is this pregnancy planned or not, wanted or not?
- Is the woman pleased, displeased, accepting, or nonaccepting?
- What problems related to finances, career, or living accommodations will occur as a result of the pregnancy?

Determine the family support system by asking:

- What primary support is available to her?
- Are changes needed to promote adequate support?
- What are the existing relationships among the mother, father or partner, siblings, and in-laws?
- What preparations is she making for her care and that of dependent family members during labor and for the care of the infant after birth?
- Does she need financial, educational, or other support from the community?
- What are the woman's ideas about childbearing, her expectations of the infant's behavior, and her outlook on life and the female role?

Other such questions to ask include the following:

- What does the woman think it will be like to have a baby in the home?
- How is her life going to change by having a baby?
- What plans does having a baby interrupt?

During interviews throughout the pregnancy the nurse should remain alert to the appearance of potential parenting problems, such as depression, lack of family support, and inadequate living conditions. The nurse needs to assess the woman's attitude toward health care, particularly during childbearing, her expectations of health care providers, and her view of the relationship between herself and the nurse.

Coping mechanisms and patterns of interacting are identified. Early in the pregnancy the nurse should determine the woman's knowledge of pregnancy, maternal changes, fetal growth, self-management, and care of the newborn, including feeding. Asking about attitudes toward unmedicated or medicated childbirth and about her knowledge of the availability of parenting skills classes is important. Before planning for nursing care the nurse needs information about the woman's decision-making abilities and living habits (e.g., exercise, sleep, diet, diversional interests, personal hygiene, clothing). Common stressors during childbearing include the baby's welfare, labor and birth process, behaviors of the newborn, the woman's relationship with the baby's father and her family, changes in body image, and physical symptoms.

Explore attitudes concerning the range of acceptable sexual behavior during pregnancy by asking questions such as the following: What has your family (partner, friends) told you about sex during pregnancy? Give more emphasis to the woman's sexual self-concept by asking questions such as the following: How do you feel about the changes in your appearance? How does your partner feel about your body now? How do you feel about wearing maternity clothes?

History of physical abuse

All women should be assessed for a history or risk of physical abuse, particularly because the likelihood of abuse increases during pregnancy. Although a woman's appearance or behavior may suggest the possibility of abuse, do not limit questioning to only those women who fit the supposed profile of the battered woman. Identification of abuse and immediate clinical intervention that includes information about safety will help prevent future abuse and increase the safety and well-being of the woman and her infant (Krieger, 2008) (see Fig. 2-11).

During pregnancy the target body parts change during abusive episodes. Women report physical blows directed to the head, breasts, abdomen, and genitalia. Sexual assault is common.

Battering and pregnancy in teenagers constitute a particularly difficult situation. Some adolescents are trapped in the abusive relationship because of their inexperience.

Many professionals and the adolescents themselves ignore the violence because it may not be believable, because relationships are transient, and because the jealous and controlling behavior is interpreted as love and devotion. Routine screening for abuse and sexual assault is recommended for pregnant adolescents. (Family Violence Prevention Fund, 2009). Because pregnancy in young adolescent girls is commonly the result of sexual abuse, assess the desire to maintain the pregnancy.

Review of systems

During this portion of the interview, ask the woman to identify and describe preexisting or concurrent problems in any of the body systems. Assess her mental status as well. Question the woman about physical symptoms she has experienced, such as shortness of breath or pain. Pregnancy affects and is affected by all body systems; therefore information on the present status of the body systems is important in planning care. For each sign or symptom described, obtain the following additional data: body location, quality, quantity, chronology, aggravating or alleviating factors, and associated manifestations (onset, character, course) (Seidel, Ball, Dains, & Benedict, 2006).

Physical examination

The initial physical examination provides the baseline for assessing subsequent changes. The examiner should determine the woman's needs for basic information regarding reproductive anatomy and provide this information, along with a demonstration of the equipment that may be used and an explanation of the procedure itself. The interaction requires an unhurried, sensitive, and gentle approach with a straightforward attitude.

The physical examination begins with assessment of vital signs, including height and weight (for calculation of body mass index [BMI]) and blood pressure (BP). The bladder should be empty before pelvic examination. A urine specimen may be obtained to test for protein, glucose, or leukocytes or for other urine tests.

Each examiner develops a routine for proceeding with the physical examination; most choose the head-to-toe progression. The examiner evaluates heart and lung sounds, and examines extremities. Distribution, amount, and quality of body hair are of particular importance because the findings reflect nutritional status, endocrine function, and attention to hygiene. The examiner assesses the thyroid gland thoroughly. The height of the fundus is noted if the first examination is performed after the first trimester of pregnancy. During the examination the examiner needs to remain alert to cues that indicate a potential threatening condition, such as **supine hypotension**—low BP that occurs while the woman is lying on her back, causing feelings of faintness. See Chapter 2 for a detailed description of the physical examination.

Whenever a pelvic examination is performed, the examiner assesses the tone of the pelvic musculature and the

woman's knowledge of Kegel exercises. Particular attention is paid to the size of the uterus because this assessment provides useful information on gestational age. One vaginal examination during early pregnancy is recommended, but another is usually not performed unless medically indicated.

Laboratory tests

The laboratory data yielded by the analysis of the specimens obtained during the examination provide important information concerning the symptoms of pregnancy and the woman's health status.

Specimens are collected at the initial visit so that the cause of any abnormal findings can be treated. Blood is drawn for a variety of tests (Table 7-1). A sickle cell screen is recommended for women of African, Asian, or Middle Eastern descent, and testing for antibody to the human immunodeficiency virus (HIV) is strongly recommended for all pregnant women (Box 7-4). In addition, pregnant women and fathers with a family history of cystic fibrosis and of Caucasian ethnicity may want to have blood drawn for testing to determine if they are a cystic fibrosis carrier (Fries, Bashford, & Nunes (2005). Urine specimens are usually tested by dipstick; culture and sensitivity tests are ordered as necessary. During the pelvic examination, cervical and vaginal smears may be obtained for cytologic studies and for diagnosis of infection (e.g., *Chlamydia*, gonorrhea, group B *Streptococcus* [GBS]).

The finding of risk factors during pregnancy may indicate the need to repeat some tests at other times. For example, exposure to tuberculosis or an STI would necessitate repeat testing. STIs are common in pregnancy and may have negative effects on mother and fetus. Thorough assessment and screening are essential.

Follow-Up Visits

In traditional prenatal care, monthly visits are scheduled routinely during the first and second trimesters, although patients can make additional appointments as the need arises. During the third trimester, however, the possibility for complications increases, and closer monitoring is necessary. Starting with week 28, maternity visits are scheduled every 2 weeks until week 36 and then every week until birth, unless the health care provider individualizes the schedule. Visits can occur more or less frequently, often depending on individual needs, complications, and risks of the pregnant woman. The pattern of interviewing the woman first and then assessing physical changes and performing laboratory tests continues.

In prenatal care models that use a reduced frequency screening schedule or in CenteringPregnancy®, the timing of follow-up visits will be different, but assessments and care will be similar.

Interview

Follow-up visits are less intensive than the initial prenatal visit. At each of these follow-up visits, ask the woman

TABLE 7-1

Recommended Laboratory Tests in Prenatal Period

LABORATORY TEST	PURPOSE
Hemoglobin, hematocrit, WBC, differential Hemoglobin electrophoresis	Detects anemia; detects infection Identifies women with hemoglobinopathies (e.g., sickle cell anemia, thalassemia)
Blood type, Rh, and irregular antibody	Identifies fetuses at risk for developing erythroblastosis fetalis or hyperbilirubinemia in neonatal period
Rubella titer	Determines immunity to rubella
Tuberculin skin testing; chest film after 20 weeks of gestation in women with reactive tuberculin tests	Screens for exposure to tuberculosis
Urinalysis, including microscopic examination of urinary sediment; pH, specific gravity, color, glucose, albumin, protein, RBCs, WBCs, casts, acetone; hCG	Identifies women with unsuspected diabetes mellitus, renal disease, hypertensive disease of pregnancy, infection, occult hematuria
Urine culture	Identifies women with asymptomatic bacteriuria
Renal function tests: BUN, creatinine, electrolytes, creatinine clearance, total protein excretion	Evaluates level of possible renal compromise in women with a history of diabetes, hypertension, or renal disease
Pap test	Screens for cervical intraepithelial neoplasia, herpes simplex type 2, and HPV
Vaginal or rectal smear for <i>Neisseria gonorrhoeae</i> , <i>Chlamydia</i> , HPV, GBS	Screens high risk population for asymptomatic infection; GBS test performed at 35-37 weeks
RPR, VDRL, or FTA-ABS	Identifies women with untreated syphilis
HIV antibody, hepatitis B surface antigen, toxoplasmosis	Screen for infections
MSAFP/Quad Screen	Screen for Down syndrome, NTDs; performed at 15 to 20 weeks
1-hr glucose tolerance	Screens for gestational diabetes; performed at initial visit for women with risk factors; performed at 24-28 weeks for all pregnant women who are not already known to be diabetic
3-hr glucose tolerance	Screens for diabetes in women with elevated glucose level after 1-hr test; must have two elevated readings for diagnosis of gestational diabetes
Cardiac evaluation: ECG, chest x-ray film, and echocardiogram	Evaluates cardiac function in women with a history of hypertension or cardiac disease

BUN, Blood urea nitrogen; ECG, electrocardiogram; FTA-ABS, fluorescent treponemal antibody absorption test; GBS, group B *Streptococcus*; hCG, human chorionic gonadotropin; HIV, human immunodeficiency virus; HPV, human papillomavirus; NTD, neural tube defects; RBC, red blood cell; RPR, rapid plasma reagin; VDRL, Venereal Disease Research Laboratory; WBC, white blood cell.

BOX 7-4

HIV Screening

Pregnant women are ethically obligated to seek reasonable care during pregnancy and to avoid causing harm to the fetus. Maternity nurses should be advocates for the fetus while accepting of the pregnant woman's decision regarding testing or treatment for HIV.

The incidence of perinatal transmission from an HIV-positive mother to her fetus is approximately 25%. Triple-drug antiviral or highly active antiretroviral therapy (HAART) during pregnancy decreases perinatal transmission and the risk of infant death. Elective cesarean birth and avoidance of breastfeeding combined with HAART reduces transmission to the neonate to less than 2%.

Testing has the potential to identify HIV-positive women who can then be treated. Health care providers

have an obligation to ensure that pregnant women are well informed about HIV symptoms, testing, and methods of decreasing maternal-fetal transmission. The Centers for Disease Control and Prevention and the American College of Obstetricians and Gynecologists recommend universal opt-out screening, which means that all pregnant women are offered HIV screening but have the opportunity to opt-out if desired (ACOG Committee on Obstetric Practice, 2004; Branson, et al., 2006). The Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN) supports this system of HIV screening that allows all pregnant women to be offered screening (AWHONN, 2008).

Sources: American College of Obstetricians and Gynecologists Committee on Obstetric Practice. (2004). Prenatal and perinatal human immunodeficiency virus testing: expanded recommendations. ACOG Committee Opinion No. 304. *Obstetrics and Gynecology*, 104(5 Part 1), 1119-1124; Branson, B., Handsfield, H., Lampe, M., Janssen, R., Taylor, A., Lyss, S., Clark, J., Centers for Disease Control and Prevention. (2006). Revised recommendations for HIV testing of adults, adolescents, and pregnant women in health-care settings. *Morbidity and Mortality Weekly Report*, 55(RR-14), 1-17.
HIV, Human immunodeficiency virus.



Fig. 7-6 Prenatal interview. (Courtesy Dee Lowdermilk, Chapel Hill, NC.)

Spanish Guidelines: Prenatal Interview

to summarize relevant events that have occurred since the previous visit (Fig. 7-6). Also inquire about her general emotional and physiologic well-being, complaints or problems, and questions she may have. Identify and explore any personal and family needs.

Emotional changes are common during pregnancy, and therefore asking whether the woman has experienced any mood swings, reactions to changes in her body image, bad dreams, or worries is reasonable. Note any positive feelings (her own and those of her family). Record the reactions of family members to the pregnancy and the woman's emotional changes.

During the third trimester, assess current family situations and their effect on the woman. For example, assess siblings' and grandparents' responses to the pregnancy and the coming child. In addition, make the following assessments of the woman and her family: warning signs of emergencies, signs of preterm and term labor, the labor process and concerns about labor, and fetal development and methods to assess fetal well-being. The nurse should ask if the woman is planning to attend childbirth preparation classes and what she knows about pain management during labor.

A review of the woman's physical systems is appropriate at each prenatal visit, and any suspicious signs or symptoms are assessed in depth. Identify any discomforts reflecting adaptations to pregnancy.

Physical examination

Reevaluation is a constant aspect of a pregnant woman's care. Each woman reacts differently to pregnancy. As a result, careful monitoring of the pregnancy and her reactions to care is vital. The database is updated at each time of contact with the pregnant woman. Physiologic changes are documented as the pregnancy progresses and reviewed for possible deviations from normal progress.

At each visit, physical parameters are measured. Ideally the BP is taken by using the same arm at every visit, with

Spanish Guidelines: Prenatal Physical Examination

EMERGENCY

Supine Hypotension

SIGNS AND SYMPTOMS

- Pallor
- Dizziness, faintness, breathlessness
- Tachycardia
- Nausea
- Clammy (damp, cool) skin; sweating

INTERVENTIONS

- Position woman on her side until her signs and symptoms subside and vital signs stabilize within normal limits (WNL).

the woman sitting, using a cuff of appropriate size (which is noted on her chart). Her weight is assessed, and the appropriateness of the gestational weight gain is evaluated in relationship to her BMI. Urine may be checked by dipstick, and the presence and degree of edema are noted. For examination of the abdomen, the woman lies on her back with her arms by her side and head supported by a pillow. The bladder should be empty. First an abdominal inspection is performed, followed by a measurement of the height of the fundus. While the woman lies on her back, be alert for the occurrence of supine hypotension (see Emergency box). When a woman is lying in this position, the weight of abdominal contents may compress the vena cava and aorta, causing a decrease in BP and a feeling of faintness.

The findings revealed during the interview and physical examination reflect the status of maternal adaptations. When any of the findings is suspicious, perform an in-depth examination. For example, careful interpretation of BP is important in the risk factor analysis of all pregnant women. BP is evaluated based on absolute values and the length of gestation and is interpreted in consideration of modifying factors.

NURSING ALERT Individuals whose systolic BP (SBP) is 120 to 139 mmHg or whose diastolic BP (DBP) is 80 to 89 mmHg are considered prehypertensive. To prevent cardiovascular disease, they require health-promoting lifestyle modifications (National High Blood Pressure Education Program, 2003).

An absolute SBP of 140 to 159 mmHg and a DBP of 90 to 99 mmHg suggests the presence of stage 1 hypertension. An SBP at or above 160 mmHg or a DBP at or above 100 mmHg is indicative of stage 2 hypertension (National High Blood Pressure Education Program, 2003). See Chapter 21 for an in-depth discussion of problems associated with hypertension.

Monitor the pregnant woman at each visit for a range of signs and symptoms that indicate potential complications in addition to hypertension (see Signs of Potential Complications box).

signs of

POTENTIAL COMPLICATIONS**First, Second, and Third Trimesters****Signs and Symptoms****FIRST TRIMESTER**

Severe vomiting
Chills, fever
Burning on urination
Diarrhea
Abdominal cramping; vaginal bleeding

SECOND AND THIRD TRIMESTERS

Persistent, severe vomiting
Sudden discharge of fluid from vagina before 37 wk
Vaginal bleeding, severe abdominal pain
Chills, fever, burning on urination, diarrhea
Severe backache or flank pain
Change in fetal movements: absence of fetal movements after quickening, any unusual change in pattern or amount
Uterine contractions; pressure; cramping before 37 wk
Visual disturbances: blurring, double vision, or spots
Swelling of face or fingers and over sacrum
Headaches: severe, frequent, or continuous
Muscular irritability or convulsions
Epigastric or abdominal pain (perceived as severe stomachache, heartburn)
Glycosuria, positive glucose tolerance test reaction

Possible Causes

Hyperemesis gravidarum
Infection
Infection
Miscarriage, ectopic pregnancy

Hyperemesis gravidarum, hypertension, preeclampsia
Premature rupture of membranes (PROM)
Miscarriage, placenta previa, abruptio placentae
Infection
Kidney infection or stones; preterm labor
Fetal jeopardy or intrauterine fetal death

Preterm labor
Hypertensive conditions, preeclampsia
Hypertensive conditions, preeclampsia
Hypertensive conditions, preeclampsia
Hypertensive conditions, eclampsia
Hypertensive conditions, preeclampsia, abruptio placentae
Gestational diabetes mellitus

Fetal assessment

Toward the end of the first trimester, before the uterus is an abdominal organ, the fetal heart tones (FHTs) are audible with an ultrasound fetoscope or an ultrasound stethoscope. To hear the FHTs, place the instrument in the midline, just above the symphysis pubis, and apply firm pressure. Offer the woman and her family the opportunity to listen to the FHTs (see Fig. 7-8, *A*). Assess the health status of the fetus at each visit for the remainder of the pregnancy.

Fundal height

During the second trimester, the uterus becomes an abdominal organ. The fundal height, measurement of the height of the uterus above the symphysis pubis, is one indicator of fetal growth. The measurement also provides a gross estimate of the duration of pregnancy. From approximately gestational weeks (GWs) 18 to 32, the height of the fundus in centimeters is approximately the same as the number of weeks of gestation (± 2 GWs), with an empty bladder at the time of measurement (Cunningham, Leveno, Bloom, Hauth, Gilstrap, & Wenstrom, 2005). For example, a woman of 28 GWs, with an empty bladder would measure from 26 to 30 cm. In addition, fundal height measurement may aid in the identification of high risk factors. A stable or decreased fundal height may indicate the presence of intrauterine growth restriction (IUGR); an excessive increase could indicate the pres-

ence of multifetal gestation (more than one fetus) or hydramnios.

Typically a paper tape is used to measure fundal height. To increase the reliability of the measurement the same person examines the pregnant woman at each of her prenatal visits, but this is often not possible. All clinicians who examine a particular pregnant woman should be consistent in their measurement technique. Ideally, an established method should be used for the health care setting in which the measurement technique is explicitly set forth, and the woman's position on the examining table, the measuring device, and method of measurement used are specified. Also describe conditions under which the measurements are taken in the woman's records, including whether the bladder was empty and whether the uterus was relaxed or contracted at the time of measurement.

Various positions for measuring fundal height have been described. The woman can be supine, have her head elevated, have her knees flexed, or have both her head elevated and knees flexed. Measurements obtained with the woman in the various positions differ, making the task of standardizing the fundal height measurement technique even more important.

Placement of the tape measure also can vary. The tape can be placed in the middle of the woman's abdomen and the measurement made from the upper border of the symphysis pubis to the upper border of the fundus with the tape measure held in contact with the skin for the

entire length of the uterus (Fig. 7-7, *A*). In another measurement technique the upper curve of the fundus is not included in the measurement. Instead, hold one end of the tape measure at the upper border of the symphysis pubis with one hand, and place the other hand at the upper border of the fundus. The tape is placed between the middle and index fingers of the other hand, and the point where these fingers intercept the tape measure is taken as the measurement (Fig. 7-7, *B*).

Gestational age

In an uncomplicated pregnancy, fetal gestational age is estimated after determining the duration of pregnancy and the EDB. Fetal gestational age is determined from the menstrual history, contraceptive history, pregnancy test result, and the following findings obtained during the clinical evaluation:

- First uterine evaluation: date, size
- Fetal heart (FH) first heard: date, method (Doppler stethoscope, fetoscope)
- Date of quickening
- Current fundal height, estimated fetal weight (EFW)
- Current week of gestation by history of LMP or ultrasound examination or both
- Ultrasound examination: date, week of gestation, biparietal diameter (BPD)
- Reliability of dates

Quickening (“feeling of life”) refers to the mother’s first perception of fetal movement. It usually occurs between weeks 16 and 20 of gestation and is initially experienced as a fluttering sensation. Record the mother’s report. Multiparas often perceive fetal movement earlier than primigravidas.

Routine use of ultrasound examination (also called a *sonogram*) in early pregnancy has been recommended, and many health care providers have this equipment available in the office. This procedure may be used to establish the duration of pregnancy if the woman cannot give a precise

date for her LMP or if the size of the uterus does not conform to the EDB as calculated by Nägele’s rule. Ultrasound also provides information about the well-being of the fetus (see Chapter 19 for further discussion).

Health status

The assessment of fetal health status includes consideration of fetal movement. The nurse instructs the mother to note the extent and timing of fetal movements and to report immediately if the pattern changes or if movement ceases. Regular movement has been found to be a reliable indicator of fetal health (Cunningham et al., 2005). There are numerous methods for assessing fetal movement. One method is for the woman to count fetal movements after a meal. Four or more kick counts in an hour is reassuring. See Chapter 19 for further discussion.

Once the FHR is audible, it is checked on routine visits (Fig. 7-8). Early in the second trimester the heartbeat may be heard with the Doppler stethoscope (Fig. 7-8, *B*). To detect the heartbeat before the fetus can be palpated by Leopold maneuvers (see procedure, p. 347), move the scope around the abdomen until the heartbeat is heard. Each nurse develops a set pattern for searching the abdomen for the heartbeat—for example, starting first in the midline approximately 2 to 3 cm above the symphysis, then moving to the left lower quadrant, and so on. You count the heartbeat for 1 minute and note the quality and rhythm. Later in the second trimester, you can determine the FHR with the fetoscope or Pinard fetoscope (Fig. 7-8, *A* and *C*). A normal rate and rhythm are other good indicators of fetal health. Once the heartbeat is heard, its absence is cause for immediate investigation.

Investigate fetal health status intensively if any maternal or fetal complications arise (e.g., gestational hypertension, IUGR, premature rupture of membranes [PROM], irregular or absent FHR, absence of fetal movements after quickening). Careful, precise, and concise recording of patient responses and laboratory results contributes to the

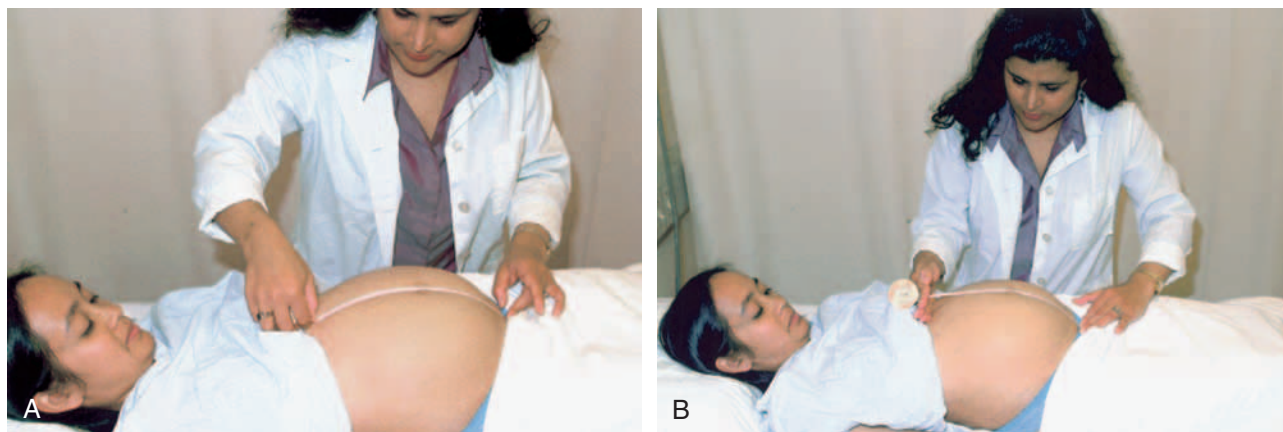


Fig. 7-7 Measurement of fundal height from symphysis that (A) includes the upper curve of the fundus and (B) does not include the upper curve of the fundus. Note position of hands and measuring tape. (Courtesy Chris Rozales, San Francisco, CA.)

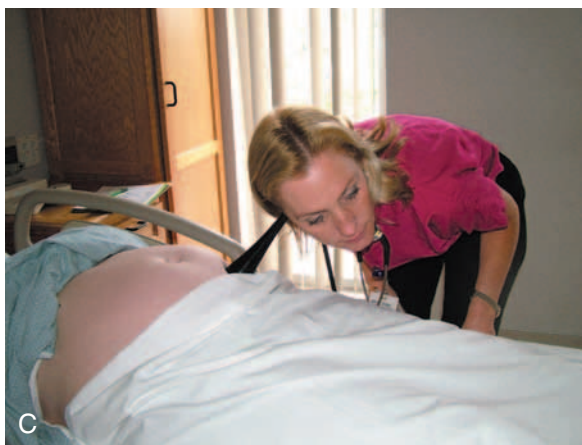


Fig. 7-8 Detecting fetal heart rate. **A**, Father can listen to the fetal heart with a fetoscope (first detectable around 18 to 20 weeks). **B**, Doppler ultrasound stethoscope (fetal heartbeat detectable at 12 weeks). **C**, Pinard fetoscope. Note: Hands should not touch fetoscope while listening. (A, Courtesy Shannon Perry, Phoenix, AZ. B, Courtesy Dee Lowdermilk, Chapel Hill, NC. C, Courtesy Julie Perry Nelson, Loveland, CO.)

continuous supervision vital to ensuring the well-being of the mother and fetus.

Laboratory tests

The number of routine laboratory tests performed during follow-up visits in pregnancy is limited for the low-risk pregnant woman. A clean-catch urine specimen may be obtained to test for glucose, protein, nitrites, and leukocytes at each visit; however, urine dips for glycosuria and proteinuria are not supported by evidence (Alto, 2005). Urine specimens for culture and sensitivity, as well as blood samples, are obtained only if signs and symptoms warrant.

First-trimester screening for chromosomal abnormalities is offered as an option between 11 and 14 weeks. This multiple marker screen includes sonographic evaluation of nuchal translucency (NT) and biochemical markers—pregnancy-associated placental protein (PAPP-A) and free beta-human chorionic gonadotropin (β -hCG).

The maternal serum alpha-fetoprotein (MSAFP) screening or quadruple screening (MSAFP, hCG, unconjugated estriol, and inhibin-A) is recommended between 15 and 20 weeks of gestation, ideally between 16 and 18 weeks. These tests screen for neural tube defects, Down syndrome, and other chromosomal abnormalities. Abnormal levels are followed by ultrasonography for more in-depth inves-

tigation (Johnson, Gregory, & Niebyl, 2007). See Chapter 19 for further discussion. A glucose challenge is usually performed between 24 and 28 weeks of gestation. GBS testing is performed between 35 and 37 weeks of gestation; cultures collected earlier will not accurately predict GBS status at time of birth (Himmelberger, 2002).

Other diagnostic tests are available to assess the health status of both the pregnant woman and the fetus. Ultrasonography, for example, helps determine the status of the pregnancy and confirm gestational age of the fetus. Amniocentesis, a procedure used to obtain amniotic fluid for analysis, is necessary to evaluate the fetus for genetic disorders or gestational maturity. Chapter 19 describes these and other tests that determine health risks for the mother and infant.

Collaborative Care Care Paths

Because a large number of health care professionals are often involved in care of the expectant mother, unintentional gaps or overlaps in care may occur. Care paths help improve the consistency of care and reduce costs. Although the Care Path on p. 208 focuses only on prenatal education, it is one example of the type of form developed to guide health care providers in carrying out the appropriate assess-

CARE PATH Prenatal Care Pathway

PRENATAL EDUCATION CLINICAL PATHWAY

INITIAL VISIT AND ORIENTATION: _____ SOCIAL SERVICE: _____ DIETITIAN: _____

I. EARLY PREGNANCY (WEEKS 1-20) (INITIAL AND DATE AFTER EDUCATION GIVEN)

Fetal growth and development _____	Testing: Labs _____	Ultrasound: _____
Maternal changes _____	Possible complications:	
Lifestyle:	a. Threatened miscarriage _____	
Exercise/stress/nutrition _____	b. Diabetes _____	
Drugs, OTC, tobacco, alcohol _____	c. _____ _____	
STIs _____	Introduction to breastfeeding _____	
Psychologic/social adjustments: _____	Acceptance of pregnancy and childbirth preparation _____	
FOB involved/accepts baby for adoption _____	Dietary follow-up _____	

II. MIDPREGNANCY (WEEKS 21-27) (INITIAL AND DATE AFTER EDUCATION GIVEN)

Fetal growth and development _____	Breastfeeding or bottle feeding _____
Maternal changes _____	Birth plan initiated _____
Daily fetal movement _____	Childbirth preparation _____
Possible complications:	
a. Preterm labor prevention _____	Dietary follow-up _____
b. Preeclampsia symptoms _____	
c. _____ _____	

III. LATE PREGNANCY (WEEKS 28-40) (INITIAL AND DATE AFTER EDUCATION GIVEN)

Fetal growth and development _____	Childbirth preparation:	
Fetal evaluation:	S/S of labor; labor process _____	
Daily movement _____	Pain management: natural childbirth, medications, epidural _____	
Kick counts _____	Cesarean; VBAC _____	
Maternal changes _____	Birth plan complete _____	
Possible complications:	Review hospital policies _____	
a. Preterm labor prevention _____	Parenting preparation:	
b. Preeclampsia symptoms _____	Pediatrician _____	Childcare _____
c. _____ _____	Siblings _____	Immunizations _____
Breastfeeding preparation:	Car seat/safety _____	
Nipple assessment _____	Postpartum	
Dietary follow-up _____	PP care and checkup _____	
	Emotional changes _____	
	BC options _____	
	Safer sex and STIs _____	

Signature: _____

BC, Birth control; BPP, biophysical profile; FOB, father of baby; NST, nonstress test; OTC, over the counter; PP, postpartum; S/S, signs and symptoms; STI, sexually transmitted infection; VBAC, vaginal birth after cesarean.

ments and interventions in a timely way. Use of care paths also may contribute to improved satisfaction of families with the prenatal care provided, and members of the health care team may function more efficiently and effectively.

Education about maternal and fetal changes

Expectant parents are typically curious about the growth and development of the fetus and the subsequent changes that occur in the mother’s body. Mothers in particular are sometimes more tolerant of the discomforts related to the

continuing pregnancy if they understand the underlying causes. Educational literature that describes the fetal and maternal changes is available and can be used in explaining changes as they occur. The nurse’s familiarity with any material shared with pregnant families is essential to effective patient education. Educational material includes electronic and written materials appropriate to the pregnant woman’s or couple’s literacy level and experience and the agency’s resources. Available educational materials should reflect the pregnant woman’s or couple’s ethnicity, culture, and literacy level to be most effective.

COMMUNITY ACTIVITY

Interview both a pregnant woman and a nurse in a community clinic to determine what is perceived as significant physical and psychologic changes that happen during pregnancy. Discuss these changes in relation to each trimester. Describe what teaching and support is available to assist women in adapting to these changes. Share this information in a clinical post-conference.

The expectant mother needs information about many subjects. Many times, printed literature can supplement the individualized teaching the nurse provides, and women often avidly read books and pamphlets related to their own experience. In addition, the pregnant woman or couple may have questions from their Internet reviews. Nurses may also share recommended electronic sites from reliable sources. The following sections discuss selected topics that cause concerns in pregnant women.

Nutrition. Good nutrition is important for the maintenance of maternal health during pregnancy and the provision of adequate nutrients for embryonic and fetal development (American Dietetic Association [ADA], 2008). Assessing a woman's nutritional status and providing information on nutrition are part of the nurse's responsibilities in providing prenatal care. This includes assessment of weight gain during pregnancy as well as prenatal nutrition. Teaching may include discussion about foods high in iron, encouragement to take prenatal vitamins, and recommendations to limit caffeine intake. In some settings a registered dietitian conducts classes for pregnant women on the topics of nutritional status and nutrition during pregnancy or interviews them to assess their knowledge of these topics. Nurses can refer women to a registered dietitian if a need is revealed during the nursing assessment. (For detailed information concerning maternal and fetal nutritional needs and related nursing care, see Chapter 8.)

Personal hygiene. During pregnancy the sebaceous (sweat) glands are highly active because of hormonal influences, and women often perspire freely. Reassure them that the increase is normal and that their previous patterns of perspiration will return after the postpartum period. Baths and warm showers are therapeutic because they relax tense and tired muscles, help counter insomnia, and make the pregnant woman feel fresh. Tub bathing is permitted even in late pregnancy because little water enters the vagina unless under pressure. However, late in pregnancy, when the woman's center of gravity lowers, she is at risk for falling. Tub bathing is contraindicated after rupture of the membranes.

Prevention of urinary tract infections. Because of physiologic changes that occur in the renal system during pregnancy (see Chapter 6), urinary tract infections are common, but they may be asymptomatic.

Instruct women to inform their health care provider if blood or pain occurs with urination. These infections pose a risk to the mother and fetus; therefore the prevention or early treatment of these infections is essential.

Assess the woman's understanding and use of good handwashing techniques before and after urinating and of the importance of wiping the perineum from front to back. Soft, absorbent toilet tissue that is white and unscented is suggested for use; harsh, scented, or printed toilet paper may cause irritation. Women should avoid bubble bath or other bath oils because these may irritate the urethra. Women should wear cotton crotch underpants and panty hose and avoid wearing tight-fitting slacks or jeans for long periods; anything that allows a buildup of heat and moisture in the genital area may foster the growth of bacteria.

Some women do not consume enough fluid. After discovering her preferences, advise the woman to drink at least 2 L (eight glasses) of liquid, preferably water, a day to maintain an adequate fluid intake that ensures frequent urination. Pregnant women should not limit fluids in an effort to reduce the frequency of urination. Women need to know that if urine appears dark (concentrated), they must increase their fluid intake. The consumption of yogurt and acidophilus milk may also help prevent urinary tract and vaginal infections. The nurse should review healthy urination practices with the woman. Tell women not to ignore the urge to urinate because holding urine lengthens the time bacteria are in the bladder and allows them to multiply. Women should plan ahead when they are faced with situations that may normally require them to delay urination (e.g., a long car ride). They always should urinate before going to bed at night. Bacteria can be introduced during intercourse; therefore advise women to urinate before and after intercourse, and then drink a large glass of water to promote additional urination. Although frequently recommended, evidence is conflicting regarding the effectiveness of cranberry juice and in particular the effective dose in the prevention of urinary tract infections (Jepson & Craig, 2008).

Kegel exercises. Kegel exercises, deliberate contraction and relaxation of the pubococcygeus muscle, strengthen the muscles around the reproductive organs and improve muscle tone. Many women are not aware of the muscles of the pelvic floor and that these muscles used during urination and sexual intercourse can be consciously controlled. The muscles of the pelvic floor encircle the vaginal outlet, and they need to be exercised because an exercised muscle can then stretch and contract readily at the time of birth. Practice of pelvic muscle exercises during pregnancy also results in fewer complaints of urinary incontinence in late pregnancy and postpartum (see Teaching Guidelines on p. 55 in Chapter 2).

Preparation for breastfeeding. Pregnant women are usually eager to discuss their plans for feeding the newborn. Breast milk is the food of choice, in part because breastfeeding is associated with a decreased inci-

dence of perinatal morbidity and mortality. The American Academy of Pediatrics recommends breastfeeding for at least a year. However, an intense dislike for breastfeeding on the part of the woman or partner, the woman's need for certain medications or use of street drugs, and certain life-threatening illnesses and medical complications, such as HIV infection, are contraindications to breastfeeding (Lawrence & Lawrence, 2005).

Many women make the decision about the method of infant feeding before pregnancy; therefore the education of women of childbearing age about the benefits of breastfeeding is essential. If the pregnant woman is undecided, she and her partner are given information about the advantages and disadvantages of bottle feeding and breastfeeding so they can make an informed choice. Health care providers support their decisions and provide any needed teaching; see Chapter 18 for further discussion.

Women with inverted nipples need special consideration if they are planning to breastfeed. A **pinch test** is performed to determine whether the nipple is everted or inverted (Fig. 7-9). The woman is shown how to perform the pinch test. It involves having the woman place her thumb and forefinger on her areola and gently press inward. This action will cause her nipple either to stand erect or to invert. Most nipples will stand erect.

Exercises to break the adhesions that cause the nipple to invert do not work and may cause uterine contractions (Lawrence & Lawrence, 2005). The use of breast shells, small plastic devices that fit over the nipples, is recommended for women who have flat or inverted nipples (Fig. 7-10). Breast shells work by exerting a continuous, gentle pressure around the areola that pushes the nipple through a central opening in the inner shield. The woman should wear breast shells for 1 to 2 hours daily during the last trimester of pregnancy. They should be worn for gradually increasing lengths of time (Lawrence & Lawrence). Breast stimulation is contraindicated in women at risk for preterm labor; therefore the

decision to suggest the use of breast shells to women with flat or inverted nipples must be made judiciously.

Teach the woman to cleanse the nipples with warm water to keep the ducts from being blocked with dried colostrum. She should not apply soap, ointments, alcohol, and tinctures because they remove protective oils that keep the nipples supple. The use of these substances may cause the nipples to crack during early lactation (Lawrence & Lawrence, 2005).

The woman who plans to breastfeed should purchase a nursing bra that will accommodate her increased breast size during the last few months of pregnancy and during lactation. If her breasts are very heavy, or if the woman feels uncomfortable with the weight unsupported, she should wear the bra day and night.

Dental care. Dental care during pregnancy is especially important because nausea during pregnancy may lead to poor oral hygiene, allowing dental caries to develop. The woman should use a fluoride toothpaste daily. Inflammation and infection of the gingival and periodontal tissues may occur (Russell & Mayberry, 2008). Research links periodontal disease with preterm births and LBW and an increased risk for preeclampsia (Bogess & Edelstein, 2006; Dasanayake, Gennaro, Hendricks-Munoz, & Chhun, 2008).

Because calcium and phosphorus in the teeth are fixed in enamel, the old adage “for every child a tooth” is not true. No scientific evidence has been found to support the belief that filling teeth or even dental extraction involving the administration of local or nitrous oxide–oxygen anesthesia precipitates miscarriage or premature labor. Emergency dental surgery is not contraindicated during pregnancy. However, explain the risks and benefits of dental surgery to the woman. The American Dental Association (2009) recommends that elective dental treatment not be scheduled in the first trimester or last half of the third trimester. The woman will be most comfortable during the second trimester because the uterus is now

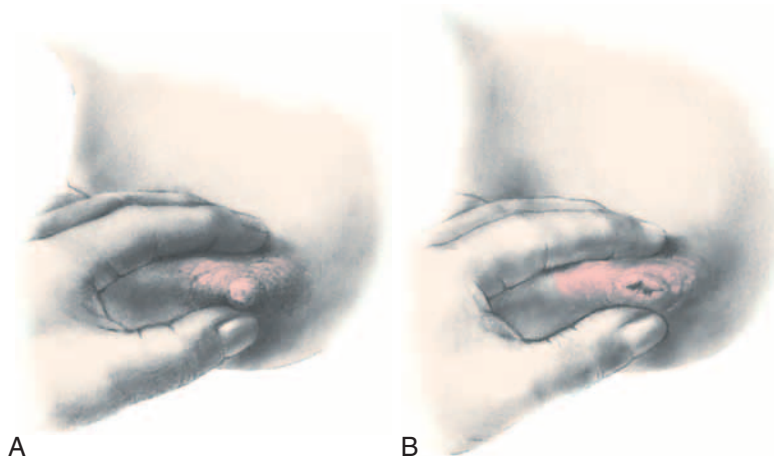


Fig. 7-9 A, Normal nipple everts with gentle pressure. B, Inverted nipple inverts with gentle pressure. (Modified from Lawrence, R. & Lawrence, R. [2005]. *Breastfeeding: A guide for the medical profession* [6th ed.]. Philadelphia: Mosby.)

outside the pelvis but not so large as to cause discomfort while she sits in a dental chair (Russell & Mayberry, 2008).

Physical activity. Physical activity promotes a feeling of well-being in the pregnant woman. It improves circulation, promotes relaxation and rest, and counteracts boredom, as it does in the nonpregnant woman (American College of Obstetricians and Gynecologists [ACOG], 2002). The Patient Instructions for Self-Management box (p. 212) presents detailed exercise tips for pregnancy. Fig. 7-11 demonstrates exercises that help relieve the low back pain that often arises during the second trimester because of the increased weight of the fetus.

Posture and body mechanics. Skeletal and musculature changes and hormonal changes (relaxin) in pregnancy may predispose the woman to backache and possible injury. As pregnancy progresses the pregnant woman's center of gravity changes, pelvic joints soften and relax, and stress is placed on abdominal musculature. Poor



Fig. 7-10 Breast shell in place inside bra to evert nipple. (Courtesy Michael S. Clement, MD, Mesa, AZ.)

posture and body mechanics contribute to the discomfort and potential for injury. To minimize these problems, women can learn good body posture and body mechanics (Fig. 7-12). The Patient Instructions for Self-Management box on p. 213 presents strategies to prevent or relieve backache.

Rest and relaxation. The nurse encourages the pregnant woman to plan regular rest periods, particularly as pregnancy advances. The side-lying position is recommended because it promotes uterine perfusion and fetoplacental oxygenation by eliminating pressure on the ascending vena cava and descending aorta, which can lead to supine hypotension (Fig. 7-13). Show the mother how to rise slowly from a side-lying position to prevent placing strain on the back and to minimize the orthostatic hypotension caused by changes in position common in the latter part of pregnancy. To stretch and rest back muscles at home or work the nurse can show the woman the way to perform the following exercises:

- Stand behind a chair. Support and balance self by using the back of the chair (Fig. 7-14). Squat for 30 seconds; stand for 15 seconds. Repeat six times, several times per day, as needed.
- While sitting in a chair, lower head to knees for 30 seconds. Raise head. Repeat six times, several times per day, as needed.

Conscious relaxation is the process of releasing tension from the mind and body through deliberate effort and practice. The ability to relax consciously and intentionally is beneficial for the following reasons:

- To relieve the normal discomforts related to pregnancy
- To reduce stress and therefore diminish pain perception during the childbearing cycle
- To heighten self-awareness and trust in one's own ability to control responses and functions
- To help cope with stress in everyday life situations, whether the woman is pregnant or not

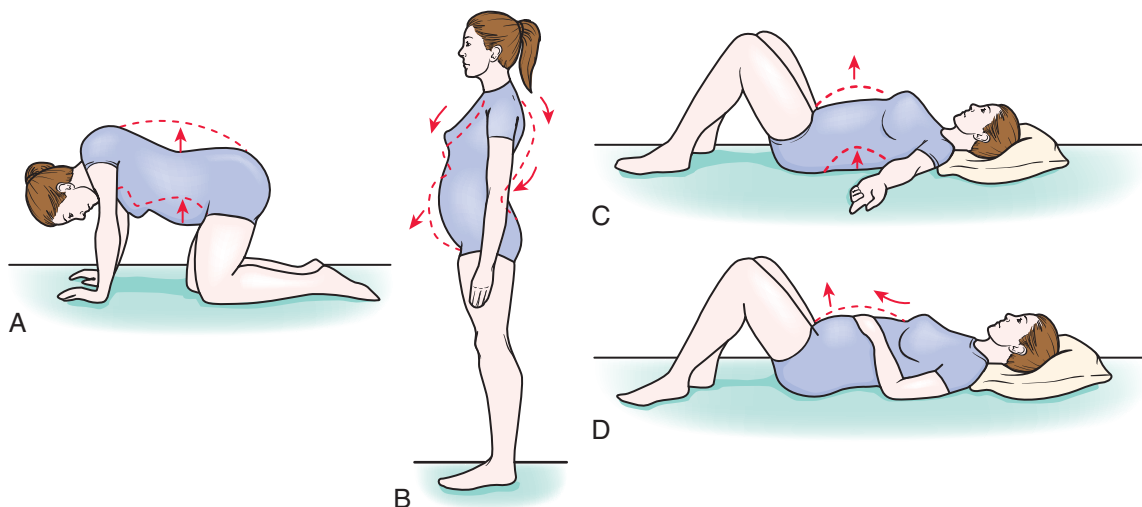


Fig. 7-11 Exercises. **A-C**, Pelvic rocking relieves low backache (excellent for relief of menstrual cramps as well). **D**, Abdominal breathing aids relaxation and lifts abdominal wall off uterus.

PATIENT INSTRUCTIONS FOR SELF-MANAGEMENT

Exercise Tips for Pregnant Women

Consult your health care provider when you know or suspect you are pregnant. Discuss your medical and obstetric history, your current exercise regimen, and the exercises you would like to continue throughout pregnancy.

Seek help in determining an exercise routine that is well within your limit of tolerance, especially if you have not been exercising regularly.

Consider decreasing weight-bearing exercises (jogging, running) and concentrating on non-weight-bearing activities such as swimming, cycling, or stretching. If you are a runner, starting in your seventh month, you may wish to walk instead.

Avoid risky activities such as surfing, mountain climbing, skydiving, and racquetball because such activities that require precise balance and coordination may be dangerous. Avoid activities that require holding your breath and bearing down (Valsalva maneuver). Avoid jerky, bouncy motions as well.

Exercise regularly every day if possible, as long as you are healthy, to improve muscle tone and increase or maintain your stamina. Exercising sporadically may put undue strain on your muscles. Thirty minutes of moderate physical exercise is recommended. This activity can be broken up into shorter segments with rest in between. For example, exercise for 10 to 15 minutes, rest for 2 to 3 minutes, then exercise for another 10 to 15 minutes.

Decrease your exercise level as your pregnancy progresses. The normal alterations of advancing pregnancy, such as decreased cardiac reserve and increased respiratory effort, may produce physiologic stress if you exercise strenuously for a long time.

Take your pulse every 10 to 15 minutes while you are exercising. If it is more than 140 beats/min, slow down until it returns to a maximum of 90 beats/min. You should be able to converse easily while exercising. If you cannot, then you need to slow down.

Avoid becoming overheated for extended periods. Avoid exercising for more than 35 minutes, especially in hot, humid weather. As your body temperature rises, the heat is transmitted to your fetus. Prolonged or repeated elevation of fetal temperature may result in birth defects, especially during the first 3 months. Your temperature should not exceed 38°C.

Avoid the use of hot tubs and saunas.

Warm-up and stretching exercises prepare your joints for more strenuous exercise and lessen the likelihood of strain or injury to your joints. After the fourth month of gestation, you should not perform exercises flat on your back.

A *cool-down period* of mild activity involving your legs after an exercise period will help bring your respiration, heart, and metabolic rates back to normal

and prevent the pooling of blood in the exercised muscles.

Rest for 10 minutes after exercising, lying on your side.

As the uterus grows, it puts pressure on a major vein in your abdomen, which carries blood to your heart. Lying on your side removes the pressure and promotes return circulation from your extremities and muscles to your heart, thereby increasing blood flow to your placenta and fetus. You should rise gradually from the floor to prevent dizziness or fainting (orthostatic hypotension).

Drink two or three 8-oz glasses of water after you exercise to replace the body fluids lost through perspiration. While exercising, drink water whenever you feel the need.

Increase your caloric intake to replace the calories burned during exercise and provide the extra energy needs of pregnancy. (Pregnancy alone requires an additional 300 kcal/day.) Choose such high-protein foods as fish, milk, cheese, eggs, and meat.

Take your time. This is not the time to be competitive or train for activities requiring speed or long endurance.

Wear a supportive bra. Your increased breast weight may cause changes in posture and put pressure on the ulnar nerve.

Wear supportive shoes. As your uterus grows, your center of gravity shifts and you compensate for this by arching your back. These natural changes may make you feel off balance and more likely to fall.

Stop exercising immediately if you experience shortness of breath, dizziness, numbness, tingling, pain of any kind, more than four uterine contractions per hour, decreased fetal activity, or vaginal bleeding, and consult your health care provider.



Riding a recumbent bicycle provides exercise while supplying back support. (Courtesy Shannon Perry, Phoenix, AZ.)

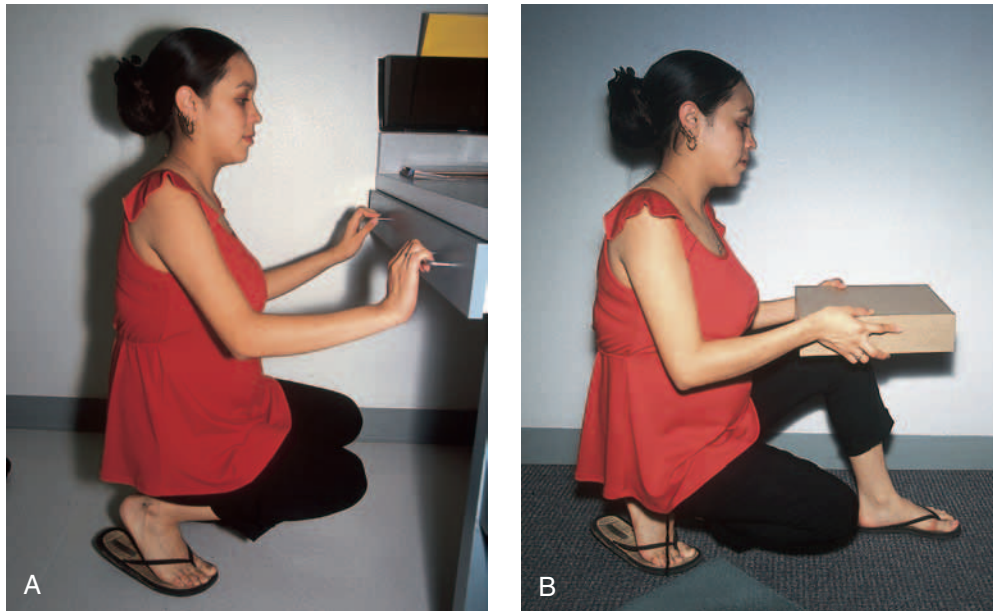


Fig. 7-12 Correct body mechanics. **A**, Squatting. **B**, Lifting. (Courtesy Michael S. Clement, MD, Mesa, AZ.)

PATIENT INSTRUCTIONS FOR SELF-MANAGEMENT

Posture and Body Mechanics

TO PREVENT OR RELIEVE BACKACHE

Do pelvic tilt:

- **Pelvic tilt (rock)** on hands and knees (see Fig. 7-11, *A*) and while sitting in straight-back chair.
- Pelvic tilt (rock) in standing position against a wall, or lying on floor (see Fig. 7-11, *B* and *C*).
- Perform abdominal muscle contractions during pelvic tilt while standing, lying, or sitting to help strengthen rectus abdominis muscle (see Fig. 7-11, *D*).
- Use good body mechanics.
- Use leg muscles to reach objects on or near floor. Bend at the knees, not from the back. Bend knees to lower body to squatting position. Keep feet 12 to 18 inches apart to provide a solid base to maintain balance (see Fig. 7-12, *A*).
- Lift with the legs. To lift heavy objects (e.g., young child), place one foot slightly in front of the other, and keep it flat as you lower yourself onto one knee. Lift the

weight holding it close to your body and never higher than the chest. To stand up or sit down, place one leg slightly behind the other as you raise or lower yourself (see Fig. 7-12, *B*).

TO RESTRICT THE LUMBAR CURVE

- For prolonged standing (e.g., ironing, employment), place one foot on low footstool or box; change positions often.
- Move car seat forward so that knees are bent and higher than hips. If needed, use a small pillow to support low back area.
- Sit in chairs low enough to allow both feet to be placed on floor, preferably with knees higher than hips.

TO PREVENT ROUND LIGAMENT PAIN AND STRAIN ON ABDOMINAL MUSCLES

Implement suggestions given in Table 7-2.

The techniques for conscious relaxation are numerous and varied. Box 7-5 gives some guidelines.

Employment. Employment of pregnant women usually has no adverse effects on pregnancy outcomes. Job discrimination that is based strictly on pregnancy is illegal. However, some job environments pose potential risk to the fetus (e.g., dry-cleaning plants, chemistry laboratories, parking garages). Excessive fatigue is usually the deciding factor in the termination of employment. The Patient Instructions for Self-Management box on p. 214 describes strategies to improve safety during pregnancy.

Women with sedentary jobs need to walk around at intervals to counter the usual sluggish circulation in the legs. They also should neither sit nor stand in one position for long periods, and they should avoid crossing their legs at the knees because all these activities can foster the development of varices and thrombophlebitis. Standing for long periods also increases the risk of preterm labor. The pregnant woman's chair should provide adequate back support. Use of a footstool can prevent pressure on veins, relieve strain on varicosities, minimize edema of feet, and prevent backache.



Fig. 7-13 Side-lying position for rest and relaxation. Some women prefer to support upper part of leg with pillows. (Courtesy Julie Perry Nelson, Loveland, CO.)

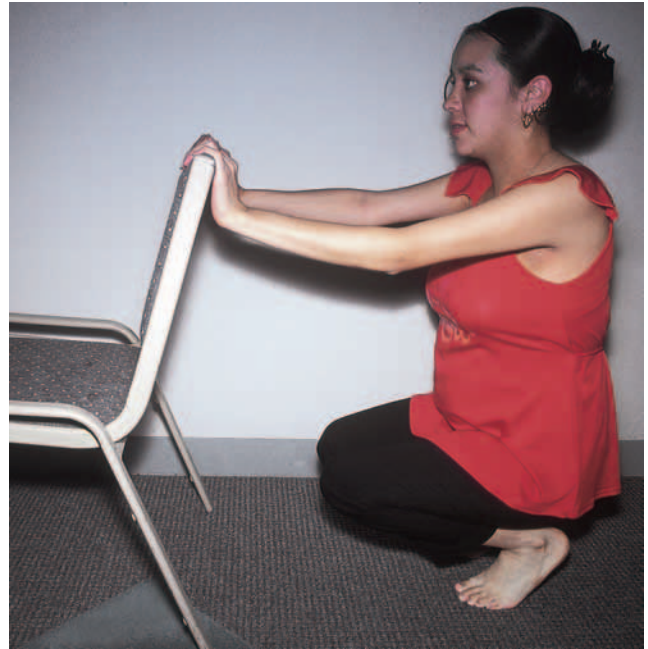


Fig. 7-14 Squatting for muscle relaxation and strengthening and for keeping leg and hip joints flexible. (Courtesy Michael S. Clement, MD, Mesa, AZ.)

BOX 7-5

Conscious Relaxation Tips

Preparation: Loosen clothing, assume a comfortable sitting or side-lying position, with all parts of body well supported with pillows.

Beginning: Allow yourself to feel warm and comfortable. Inhale and exhale slowly, and imagine peaceful relaxation coming over each part of the body, starting with the neck and working down to the toes. People who learn conscious relaxation often speak of feeling relaxed even if some discomfort is present.

Maintenance: Use imagery (fantasy or daydream) to maintain the state of relaxation. Using active imagery,

imagine yourself moving or doing some activity and experiencing its sensations. Using passive imagery, imagine yourself watching a scene, such as a lovely sunset.

Awakening: Return to the wakeful state gradually. Slowly begin to take in stimuli from the surrounding environment.

Further retention and development of the skill: Practice regularly for some periods each day, for example, at the same hour for 10 to 15 minutes each day, to feel refreshed, revitalized, and invigorated.

PATIENT INSTRUCTIONS FOR SELF-MANAGEMENT

Safety during Pregnancy

Changes in the body resulting from pregnancy include relaxation of joints, alteration to center of gravity, faintness, and discomforts. Problems with coordination and balance are common. Therefore the woman should follow these guidelines:

- Use good body mechanics.
- Use safety features on tools and vehicles (seat belts, shoulder harnesses, headrests, goggles, helmets) as specified.
- Avoid activities requiring coordination, balance, and concentration.
- Take rest periods; reschedule daily activities to meet rest and relaxation needs.

Embryonic and fetal development is vulnerable to environmental teratogens. Many potentially dangerous chemicals are present in the home, yard, and workplace: cleaning agents, paints, sprays, herbicides, and pesticides. The soil and water supply may be unsafe. Therefore the woman should follow these guidelines:

- Read all labels for ingredients and proper use of product.
- Ensure adequate ventilation with clean air.
- Dispose of wastes appropriately.
- Wear gloves when handling chemicals.
- Change job assignments or workplace as necessary.
- Avoid high altitudes (not in pressurized aircraft), which could jeopardize oxygen intake.

EVIDENCE-BASED PRACTICE

Exercise and Work in Pregnancy

Pat Gingrich

ASK THE QUESTION

What sorts of work and leisure activities are safe for pregnant women?

SEARCH FOR EVIDENCE

Search Strategies: Professional organization guidelines, meta-analyses, systematic reviews, randomized controlled trials, nonrandomized prospective studies, and retrospective studies since 2006.

Databases Searched: CINAHL, Cochrane, Medline, National Guideline Clearinghouse, TRIP Database Plus, and the websites for American College of Gynecologists; Association of Women's Health, Obstetric, and Neonatal Nurses; and the Centers for Disease Control and Prevention.

CRITICALLY ANALYZE THE EVIDENCE

Historically, health care providers worried that exercise during pregnancy might lead to poor uteroplacental perfusion or increased inflammatory response, resulting in low birth weight, gestational hypertension, or prematurity. These concerns lead to restrictions on activity. However, exercise has been shown to have many physiologic and psychologic benefits. For example, in a randomized clinical trial of women with prior preeclampsia, walking and stretching promoted antioxidants and decreased recurrence of gestational hypertension (Yeo, Davidge, Ronis, Antonakos, Hayashi, & O'Leary; 2008).

In a review, Gavard and Artal (2008) found that healthy women benefited from exercising, with no difference in birth weights or gestational age at birth when compared with sedentary women. Moderate leisure and work activity conferred a protective effect against preeclampsia and gestational diabetes, especially if the exercise predated the pregnancy. Even vigorous exercise such as running, bicycling, lap swimming, or racquetball did not show any change in the outcomes of birthweight nor gestational age. For a small group of very intense exercisers, birth weight decreased 200 to 400 grams, which may reflect insufficient calories. Even previously sedentary women initiated exercise during pregnancy, with no change in gestational age (Barakat, Stirling, & Lucia, 2008).

Occupational activities of prolonged hours, shift work, lifting, standing and heavy physical work are not statistically associated with the outcomes of preterm birth: low birth weight, or gestational hypertension, according to a systematic review by Bonzini, Coggon, and Palmer (2007). The authors caution, however, that this activity does not confer any protective benefits, and they recommend decreasing work hours, standing time, and physical labor in the third trimester.

IMPLICATIONS FOR PRACTICE

- The nurse can encourage healthy pregnant and non-pregnant patients to incorporate moderate exercise, such as brisk walking, for 30 minutes a day, most days of the week. Benefits of regular exercise in pregnancy include weight control, psychologic well-being, and a protective effect against gestational hypertension and diabetes. The benefits are greater if she begins exercise before pregnancy, but even sedentary women can safely take up exercise during pregnancy. No evidence has been found to suggest that moderate cardiovascular exercise leads to prematurity or low birth weight.
- Women who exercise strenuously or those whose job requires heavy labor, prolonged hours, and shift work may need to consider modifying their activity in late pregnancy. This precaution might be of particular interest to pregnant nurses, whose jobs can involve long hours and physical labor.

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Clothing. Some women continue to wear their usual clothes during pregnancy as long as they fit and feel comfortable. If a woman needs maternity clothing, outfits may be purchased new or found at thrift shops or garage sales in good condition. Comfortable, loose clothing is recommended. Women should avoid tight bras and belts, stretch pants, garters, tight-top knee socks, panty girdles, and other constrictive clothing because tight clothing over the perineum encourages vaginitis and miliaria (heat rash), and impaired circulation in the legs can cause varicosities.

Maternity bras accommodate the increased breast weight, chest circumference, and the size of breast tail tissue (under the arm). These bras also have drop-flaps over

the nipples to facilitate breastfeeding. A good bra can help prevent neck ache and backache.

Maternal support hose give considerable comfort and promote greater venous emptying in women with large varicose veins. Ideally, women should put on support stockings before getting out of bed in the morning. Fig. 7-15 demonstrates a position for resting the legs and reducing swelling and varicosities.

Comfortable shoes that provide firm support and promote good posture and balance are also advisable. Very high heels and platform shoes are not recommended because of the changes in the pregnant woman's center of gravity, and the hormone relaxin, which softens pelvic joints in later pregnancy, all of which can cause her to lose



Fig. 7-15 Position for resting legs and for reducing edema and varicosities. Encourage woman with vulvar varicosities to include pillow under her hips. (Courtesy Dale Ikuta, San Jose, CA.)

her balance. In addition, in the third trimester the woman's pelvis tilts forward, and her lumbar curve increases. Non-supportive shoes will aggravate the resulting leg aches and cramps (Fig. 7-16).

Travel. Travel is not contraindicated in low risk pregnant women. However, women with high risk pregnancies are advised to avoid long-distance travel in the later months of the pregnancy to prevent possible economic and psychologic consequences of giving birth to a preterm infant far from home. These women should avoid travel to areas in which medical care is poor, water is untreated, or malaria is prevalent. Women who contemplate foreign travel should be aware that many health insurance carriers do not cover a birth in a foreign setting or even hospitalization for preterm labor. In addition, some vaccinations for foreign travel are contraindicated during pregnancy.

Pregnant women who travel for long distances should schedule periods of activity and rest. While sitting, the woman can practice deep breathing, foot circling, and alternately contracting and relaxing different muscle groups. She should avoid becoming fatigued. Although travel in itself is not a cause of adverse outcomes such as miscarriage or preterm labor, certain precautions should be kept in mind while traveling in a car. For example, women riding in a car should wear automobile restraints and stop and walk every hour. A combination lap belt and shoulder harness is the most effective automobile restraint (Fig. 7-17). The woman should wear the lap belt worn low across the pelvic bones and as snug as is comfortable. The shoulder harness should be above the pregnant abdomen and crossing the body between the breasts. The pregnant woman should sit upright. The headrest should be used to prevent a whiplash injury. Airbags, if present, should remain engaged, but the steering wheel should be tilted upwards away from the abdomen and the seat moved back

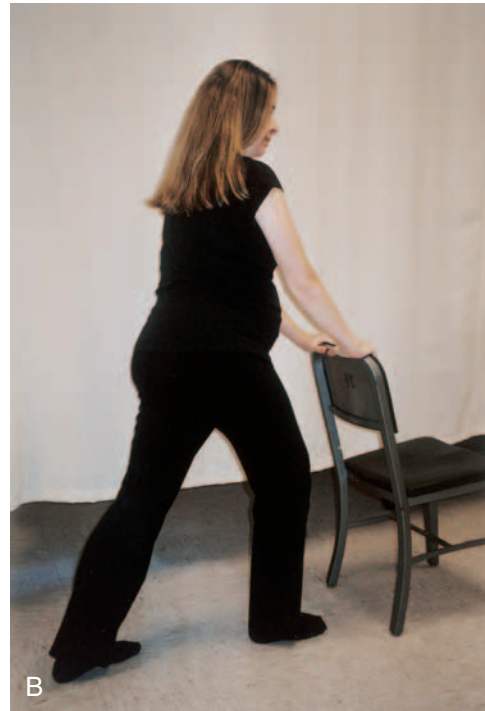


Fig. 7-16 Relief of muscle spasm (leg cramps). **A**, Another person dorsiflexes foot with knee extended. **B**, Woman stands and leans forward, thereby dorsiflexing foot of affected leg. (Courtesy Shannon Perry, Phoenix, AZ.)

way from the steering wheel as much as possible (Cesario, 2007).

Pregnant women traveling in high-altitude regions have lowered oxygen levels that may cause fetal hypoxia, especially if the pregnant woman is anemic. However, the current information on this condition is limited, and recommendations are not standardized.

Airline travel in large commercial jets usually poses little risk to the pregnant woman, but policies vary from airline to airline. The pregnant woman should inquire about restrictions or recommendations from her carrier. Most health care providers allow air travel up to 36 weeks of gestation in women without medical or pregnancy complications. Because the cabins of commercial airlines maintain



Fig. 7-17 Proper use of seat belt and headrest. (Courtesy Brian and Mayannyn Sallee, Las Vegas, NV.)

humidity at 8%, the woman may have some water loss; she should therefore drink plenty of water under these conditions. Sitting in the cramped seat of an airliner for prolonged periods may increase the risk of superficial and deep thrombophlebitis; therefore encourage pregnant women to take a 15-minute walk around the aircraft during each hour of travel to minimize this risk. Metal detectors used at airport security checkpoints are not harmful to the fetus.

Medications and herbal preparations.

Although research has revealed much in recent years about fetal drug toxicity the possible teratogenicity of many medications, both prescription and OTC, is still unknown. This fact is especially true for new medications and combinations of drugs. Moreover, certain subclinical errors or deficiencies in intermediate metabolism in the fetus may cause an otherwise harmless drug to be converted into a hazardous one. The greatest danger of drug-caused developmental defects in the fetus extends from the time of fertilization through the first trimester, a time when the woman may not realize she is pregnant. The use of all drugs, including OTC medications, herbs, and vitamins, should be limited, and a record should be kept and discussed with the health care provider.

NURSING ALERT Although complementary and alternative medications (CAM) may benefit the woman during pregnancy, some practices should be avoided because they may cause miscarriage or preterm labor. Asking the woman what therapies she may be using is important.

Immunizations. Some individuals have raised concern over the safety of various immunization practices during pregnancy. Immunization with live or attenuated live viruses is contraindicated during pregnancy because of its potential teratogenicity but should be part of postpartum care. Live-virus vaccines include those for measles (rubeola and rubella), chickenpox, and mumps, as well as the Sabin (oral) poliomyelitis vaccine (no longer used in the United

States). Vaccines consisting of killed viruses may be used. Vaccines that can be administered during pregnancy include tetanus, diphtheria, recombinant hepatitis B, and influenza (inactivated) vaccines (Centers for Disease Control and Prevention, 2008, www.cdc.gov/vaccines).

Alcohol, cigarette smoke, caffeine, and drugs. A safe level of alcohol consumption during pregnancy has not been established. Although the consumption of occasional alcoholic beverages is not always harmful to the mother or her developing embryo or fetus, complete abstinence is best. Maternal alcoholism is associated with high rates of miscarriage and fetal alcohol syndrome (March of Dimes Birth Defects Foundation, 2008). Considerably less alcohol use is reported among pregnant women than in nonpregnant women, but a high prevalence of some alcohol use among pregnant women still exists. Such a finding underscores the need for more systematic public health efforts to educate women about the hazards of alcohol consumption during pregnancy.

Cigarette smoking or continued exposure to secondhand smoke (even if the mother does not smoke) is associated with intrauterine fetal growth restriction and an increase in perinatal and infant morbidity and mortality. Smoking is associated with an increased frequency of preterm labor, PROM, abruptio placentae, placenta previa, and fetal death, possibly resulting from decreased placental perfusion. Smoking cessation activities should be incorporated into routine prenatal care (ACOG, 2005) (see Box 2-3).

Strongly encourage all women who smoke to quit or at least reduce the number of cigarettes they smoke. Pregnant women need to know about the negative effects of even secondhand smoke on the fetus and be encouraged to avoid such environments (Kleigman, 2006).

Most studies of human pregnancy have revealed no association between caffeine consumption and birth defects or LBW, but an increased risk for miscarriage with caffeine intake greater than 200 mg/day has been reported (Weng, Odouli, & Li, 2008). Because other effects are unknown, however, pregnant women need to limit their caffeine intake, particularly coffee intake, because it has a high caffeine content per unit of measure.

Any drug or environmental agent that enters the pregnant woman's bloodstream has the potential to cross the placenta and harm the fetus. Marijuana, heroin, and cocaine are common examples of such substances. Although the problem of substance abuse in pregnancy is a major public health concern, comprehensive care of drug-addicted women improves maternal and neonatal outcomes (see Chapters 20 and 24).

Normal discomforts. Pregnant women have physical symptoms that would be abnormal in the nonpregnant state. Women pregnant for the first time have an increased need for explanations of the causes of the discomforts and for advice on ways to relieve the discomforts. The discomforts of the first trimester are fairly specific. Table 7-2 gives information about the physiology

TABLE 7-2

Discomforts Related to Pregnancy

DISCOMFORT	PHYSIOLOGY	EDUCATION FOR SELF-MANAGEMENT
FIRST TRIMESTER		
Breast changes, new sensation: pain, tingling, tenderness	Hypertrophy of mammary glandular tissue and increased vascularization, pigmentation, and size and prominence of nipples and areolae caused by hormonal stimulation	Wear supportive maternity bras with pads to absorb discharge during the day and at night; wash with warm water and keep dry; breast tenderness may interfere with sexual expression or foreplay but is temporary
Urgency and frequency of urination	Vascular engorgement and altered bladder function caused by hormones; bladder capacity reduced by enlarging uterus and fetal presenting part	Empty bladder regularly; perform Kegel exercises; limit fluid intake before bedtime; wear perineal pad; report pain or burning sensation to primary health care provider
Languor and malaise; fatigue (early pregnancy, most commonly)	Unexplained; may be caused by increasing levels of estrogen, progesterone, and hCG or by elevated BBT; psychologic response to pregnancy and its required physical and psychologic adaptations	Rest as needed; eat well-balanced diet to prevent anemia
Nausea and vomiting, morning sickness —occurs in 50%-75% of pregnant women; starts between first and second missed periods and lasts until approximately fourth missed period; may occur any time during day; fathers also may have symptoms	Cause unknown; may result from hormonal changes, possibly hCG; may be partly emotional, reflecting pride in, ambivalence about, or rejection of pregnant state	Avoid empty or overloaded stomach; maintain good posture—give stomach ample room; stop smoking; eat dry carbohydrate on awakening; remain in bed until feeling subsides, or alternate dry carbohydrate every other hour with fluids such as hot herbal decaffeinated tea, milk, or clear coffee until feeling subsides; eat five to six small meals per day; avoid fried, odorous, spicy, greasy, or gas-forming foods; consult primary health care provider if intractable vomiting occurs
Ptyalism (excessive salivation) may occur starting 2 to 3 weeks after first missed period	Possibly caused by elevated estrogen levels; may be related to reluctance to swallow because of nausea	Use astringent mouth wash, chew gum, eat hard candy as comfort measures
Gingivitis and epulis (hyperemia, hypertrophy, bleeding, tenderness of the gums); condition will disappear spontaneously 1 to 2 months after birth	Increased vascularity and proliferation of connective tissue from estrogen stimulation	Eat well-balanced diet with adequate protein and fresh fruits and vegetables; brush teeth gently, and observe good dental hygiene; avoid infection; see dentist
Nasal stuffiness; epistaxis (nosebleed)	Hyperemia of mucous membranes related to high estrogen levels	Use humidifier; avoid trauma; normal saline nose drops or spray may be used
Leukorrhea: often noted throughout pregnancy	Hormonally stimulated cervix becomes hypertrophic and hyperactive, producing abundant amount of mucus	Not preventable; do not douche; wear perineal pads; perform hygienic practices such as wiping front to back; report to primary health care provider if accompanied by pruritus, foul odor, or change in character or color
Psychosocial dynamics, mood swings, mixed feelings	Hormonal and metabolic adaptations; feelings about female role, sexuality, timing of pregnancy, and resultant changes in life and lifestyle	Participate in pregnancy support group; communicate concerns to partner, family, and health care provider; request referral for supportive services if needed

TABLE 7-2

Discomforts Related to Pregnancy—cont'd

DISCOMFORT	PHYSIOLOGY	EDUCATION FOR SELF-MANAGEMENT
SECOND TRIMESTER		
Pigmentation deepens; acne, oily skin	Melanocyte-stimulating hormone (from anterior pituitary)	Not preventable; usually resolves during puerperium
Spider nevi (angiomas) appear over neck, thorax, face, and arms during second or third trimester	Focal networks of dilated arterioles (end arteries) from increased concentration of estrogens	Not preventable; they fade slowly during late puerperium; rarely disappear completely
Pruritus (noninflammatory)	Unknown cause; various types as follows: nonpapular; closely aggregated pruritic papules Increased excretory function of skin and stretching of skin possible factors	Keep fingernails short and clean; contact primary health care provider for diagnosis of cause Not preventable; use comfort measures for symptoms such as Keri baths; distraction; tepid baths with sodium bicarbonate or oatmeal added to water; lotions and oils; change of soaps or reduction in use of soap; loose clothing; see health care provider if mild sedation is needed
Palpitations	Unknown; should not be accompanied by persistent cardiac irregularity	Not preventable; contact primary health care provider if accompanied by symptoms of cardiac decompensation
Supine hypotension (vena cava syndrome) and bradycardia	Induced by pressure of gravid uterus on ascending vena cava when woman is supine; reduces uteroplacental and renal perfusion	Side-lying position or semisitting posture, with knees slightly flexed (see supine hypotension, p. 204)
Faintness and, rarely, syncope (orthostatic hypotension) may persist throughout pregnancy	Vasomotor lability or postural hypotension from hormones; in late pregnancy may be caused by venous stasis in lower extremities	Moderate exercise, deep breathing, vigorous leg movement; avoid sudden changes in position and warm crowded areas; move slowly and deliberately; keep environment cool; avoid hypoglycemia by eating five or six small meals per day; wear support hose; sit as necessary; if symptoms are serious, contact primary health care provider
Food cravings	Cause unknown; craving influenced by culture or geographic area	Not preventable; satisfy craving unless it interferes with well-balanced diet; report unusual cravings to primary health care provider
Heartburn (pyrosis or acid indigestion): burning sensation, occasionally with burping and regurgitation of a little sour-tasting fluid	Progesterone slows GI tract motility and digestion, reverses peristalsis, relaxes cardiac sphincter, and delays emptying time of stomach; stomach displaced upward and compressed by enlarging uterus	Limit or avoid gas-producing or fatty foods and large meals; maintain good posture; sip milk for temporary relief; hot herbal tea; primary health care provider may prescribe antacid between meals; contact primary health care provider for persistent symptoms
Constipation	GI tract motility slowed because of progesterone, resulting in increased resorption of water and drying of stool; intestines compressed by enlarging uterus; predisposition to constipation because of oral iron supplementation	Drink six to eight glasses of water per day; include roughage in diet; moderate exercise; maintain regular schedule for bowel movements; use relaxation techniques and deep breathing; do not take stool softener, laxatives, mineral oil, other drugs, or enemas without first consulting primary health care provider
Flatulence with bloating and belching	Reduced GI motility because of hormones, allowing time for bacterial action that produces gas; swallowing air	Chew foods slowly and thoroughly; avoid gas-producing foods, fatty foods, large meals; exercise; maintain regular bowel habits

Continued

TABLE 7-2

Discomforts Related to Pregnancy—cont'd

DISCOMFORT	PHYSIOLOGY	EDUCATION FOR SELF-MANAGEMENT
Varicose veins (varicosities): may be associated with aching legs and tenderness; may be present in legs and vulva; hemorrhoids are varicosities in perianal area	Hereditary predisposition; relaxation of smooth-muscle walls of veins because of hormones, causing tortuous dilated veins in legs and pelvic vasocongestion; condition aggravated by enlarging uterus, gravity, and bearing down for bowel movements; thrombi from leg varices rare but may occur in hemorrhoids	Avoid obesity, lengthy standing or sitting, constrictive clothing, and constipation and bearing down with bowel movements; moderate exercise; rest with legs and hips elevated (see Fig. 7-15); wear support stockings; thrombosed hemorrhoid may be evacuated; relieve swelling and pain with warm sitz baths, local application of astringent compresses
Leukorrhea: often noted throughout pregnancy	Hormonally stimulated cervix becomes hypertrophic and hyperactive, producing abundant amount of mucus	Not preventable; do not douche; maintain good hygiene; wear perineal pads; report to primary health care provider if accompanied by pruritus, foul odor, or change in character or color
Headaches (through week 26)	Emotional tension (more common than vascular migraine headache); eye strain (refractory errors); vascular engorgement and congestion of sinuses resulting from hormone stimulation	Conscious relaxation; contact primary health care provider for constant “splitting” headache, to assess for preeclampsia
Carpal tunnel syndrome (involves thumb, second, and third fingers, lateral side of little finger)	Compression of median nerve resulting from changes in surrounding tissues; pain, numbness, tingling, burning; loss of skilled movements (typing); dropping of objects	Not preventable; elevate affected arms; splinting of affected hand may help; regressive after pregnancy; surgery is curative
Periodic numbness, tingling of fingers (acrodysesthesia); occurs in 5% of pregnant women	Brachial plexus traction syndrome resulting from drooping of shoulders during pregnancy; occurs especially at night and early morning	Maintain good posture; wear supportive maternity bra; condition will disappear if lifting and carrying baby does not aggravate it
Round ligament pain (tenderness)	Stretching of ligament caused by enlarging uterus	Not preventable; rest, maintain good body mechanics to prevent overstretching ligament; relieve cramping by squatting or bringing knees to chest; sometimes heat helps
Joint pain, backache, and pelvic pressure; hypermobility of joints	Relaxation of symphyseal and sacroiliac joints because of hormones, resulting in unstable pelvis; exaggerated lumbar and cervicothoracic curves caused by change in center of gravity resulting from enlarging abdomen	Maintain good posture and body mechanics; avoid fatigue; wear low-heeled shoes; abdominal supports may be useful; conscious relaxation; sleep on firm mattress; apply local heat or ice; get back rubs; perform pelvic tilt exercises; rest; condition will disappear 6 to 8 wk after birth
THIRD TRIMESTER		
Shortness of breath and dyspnea occur in 60% of pregnant women	Expansion of diaphragm limited by enlarging uterus; diaphragm is elevated about 4 cm; some relief after lightening	Good posture; sleep with extra pillows; avoid overloading stomach; stop smoking; contact health care provider if symptoms worsen to rule out anemia, emphysema, and asthma
Insomnia (later weeks of pregnancy)	Fetal movements, muscle cramping, urinary frequency, shortness of breath, or other discomforts	Reassurance; conscious relaxation; back massage or effleurage; support of body parts with pillows; warm milk or warm shower before retiring

TABLE 7-2

Discomforts Related to Pregnancy—cont'd

DISCOMFORT	PHYSIOLOGY	EDUCATION FOR SELF-MANAGEMENT
Psychosocial responses: mood swings, mixed feelings, increased anxiety	Hormonal and metabolic adaptations; feelings about impending labor, birth, and parenthood	Reassurance and support from significant other and health care providers; improved communication with partner, family, and others
Urinary frequency and urgency return	Vascular engorgement and altered bladder function caused by hormones; bladder capacity reduced by enlarging uterus and fetal presenting part	Empty bladder regularly, Kegel exercises; limit fluid intake before bedtime; reassurance; wear perineal pad; contact health care provider for pain or burning sensation
Perineal discomfort and pressure	Pressure from enlarging uterus, especially when standing or walking; multifetal gestation	Rest, conscious relaxation, and good posture; contact health care provider for assessment and treatment if pain is present
Braxton Hicks contractions	Intensification of uterine contractions in preparation for work of labor	Reassurance; rest; change of position; practice breathing techniques when contractions are bothersome; effleurage; before 37 weeks it is important to contact health care provider to differentiate from preterm labor
Leg cramps (gastrocnemius spasm), especially when reclining	Compression of nerves supplying lower extremities because of enlarging uterus; reduced level of diffusible serum calcium or elevation of serum phosphorus; aggravating factors: fatigue, poor peripheral circulation, pointing toes when stretching legs or when walking, drinking more than 1 L (1 qt) of milk per day	Check for Homans sign; if negative, use massage and heat over affected muscle; dorsiflex foot until spasm relaxes (see Fig. 7-16, A); stand on cold surface; oral supplementation with calcium carbonate or calcium lactate tablets; aluminum hydroxide gel, 30 ml, with each meal removes phosphorus by absorbing it (consult primary health care provider before taking these remedies)
Ankle edema (nonpitting) to lower extremities	Edema aggravated by prolonged standing, sitting, poor posture, lack of exercise, constrictive clothing, or hot weather	Ample fluid intake for natural diuretic effect; put on support stockings before arising; rest periodically with legs and hips elevated (see Fig. 7-15), exercise moderately; contact health care provider if generalized edema develops; diuretics are contraindicated

BBT, Basal body temperature; *GI*, gastrointestinal; *hCG*, human chorionic gonadotropin.

and prevention of and self-management for discomforts experienced during the three trimesters. Box 7-6 lists alternative and complementary therapies and why a woman would use these in pregnancy (Fig. 7-18). Nurses can do much to allay a first-time mother's anxiety about such symptoms by telling her about them in advance and using terminology that the woman (or couple) can understand. Understanding the rationale for treatment promotes their participation in their care. Nurses should individualize interventions, with attention given to the woman's lifestyle and culture. See the Nursing Care Plan: Discomforts of Pregnancy and Warning Signs.

Recognizing potential complications. One of the most important responsibilities of care providers is to alert the pregnant woman to signs and symptoms that indicate a potential complication of pregnancy. The woman needs to know how and to whom to report such warning signs. Therefore reassure the pregnant woman and

Critical Thinking/Clinical Decision Making**Nausea in Pregnancy**

Meka is 10 weeks pregnant with her first baby. She is complaining of nausea every morning. She has heard that ginger is good for nausea and want to know if she should take it. What is your response?

1. Evidence—Is evidence sufficient to draw conclusions about the effectiveness of ginger on nausea and vomiting of pregnancy?
2. Assumptions—Describe the underlying assumptions for each of the following issues:
 - a. Causes of nausea and vomiting of pregnancy
 - b. Self-medicating during pregnancy
 - c. Evidence for herbal use in pregnancy
3. What implications and priorities for nursing care can be drawn at this time?
4. Does the evidence objectively support your conclusion?
5. Do alternative perspectives to your conclusion exist?

NURSING CARE PLAN *Discomforts of Pregnancy and Warning Signs*

FIRST TRIMESTER

NURSING DIAGNOSIS Anxiety related to deficient knowledge about schedule of prenatal visits throughout pregnancy, as evidenced by woman's questions and concerns

Expected Outcome Woman will verbalize correct appointment schedule for the duration of the pregnancy and feelings of being "in control."

Nursing Interventions/Rationales

- Provide information regarding schedule of visits, tests, and other assessments and interventions that will be provided throughout the pregnancy to empower the patient to function in collaboration with the caregiver and diminish anxiety.
- Allow woman time to describe level of anxiety to establish a basis for care.
- Provide information to woman regarding prenatal classes and labor area tours to decrease feelings of anxiety about the unknown.

NURSING DIAGNOSIS Imbalanced nutrition: less than body requirements, related to nausea and vomiting, as evidenced by woman's report and weight loss

Expected Outcome Woman will gain 1 to 2.5 kg during the first trimester.

Nursing Interventions/Rationales

- Verify prepregnant weight to plan a realistic diet according to individual woman's nutritional needs.
- Obtain diet history to identify current meal patterns and foods that may be implicated in nausea.
- Advise the woman to consume small frequent meals and avoid having an empty stomach to prevent further nausea episodes.
- Suggest that woman eat a simple carbohydrate such as dry crackers before arising in the morning to avoid an empty stomach and decrease the incidence of nausea and vomiting.
- Advise the woman to call health care provider if vomiting is persistent and severe to identify the possible incidence of hyperemesis gravidarum.

NURSING DIAGNOSIS Fatigue related to hormonal changes in the first trimester as evidenced by woman's complaints

Expected Outcome Woman will report a decreased number of episodes of fatigue.

Nursing Interventions/Rationales

- Rest as needed to avoid increasing feeling of fatigue.
- Eat a well-balanced diet to meet increased metabolic demands and avoid anemia.
- Discuss the use of support systems to help with household responsibilities to decrease workload at home and decrease fatigue.
- Reinforce to the woman the transitory nature of first trimester fatigue to provide emotional support.
- Explore with the woman a variety of techniques to prioritize roles to decrease family expectations.

SECOND TRIMESTER

NURSING DIAGNOSIS Constipation related to progesterone influence on gastrointestinal tract, as evidenced by the woman's report of altered patterns of elimination

Expected Outcome Woman will report a return to normal bowel elimination pattern after implementation of interventions.

Nursing Interventions/Rationales

- Provide information to woman regarding pregnancy-related causes—progesterone slowing gastrointestinal motility, growing uterus compressing intestines, and influence of iron supplementation—to provide basic information for self-management during pregnancy.
- Assist woman to plan a diet that will promote regular bowel movements, such as increasing amount of oral fluid intake to at least six to eight glasses of water a day, increasing the amount of fiber in daily diet, and maintaining moderate exercise program to promote self-management.
- Reinforce for the woman that she should avoid taking any laxatives, stool softeners, or enemas without first consulting the health care provider to prevent any injuries to the woman or fetus.

NURSING DIAGNOSIS Anxiety related to deficient knowledge about the course of the first pregnancy, as evidenced by woman's questions regarding possible complications of second and third trimesters

Expected Outcome Woman will correctly list signs of potential complications that can occur during the second and third trimesters and exhibit no overt signs of stress.

Nursing Interventions/Rationales

- Provide information concerning the potential complications or warning signs that can occur during the second and third trimesters, including possible causes of signs and the importance of calling the health care provider immediately to ensure identification and treatment of problems in a timely manner.
- Provide a written list of complications to have a reference list for emergencies.

THIRD TRIMESTER

NURSING DIAGNOSIS Fear related to deficient knowledge regarding the onset of labor and the processes of labor related to inexperience, as evidenced by woman's questions and statement of concerns

Expected Outcome Woman will verbalize basic understanding of signs of labor onset and when to call the health care provider, identify resources for childbirth education, and express increasing confidence in readiness to cope with labor.

Nursing Interventions/Rationales

- Provide information regarding signs of labor onset, when to call the health care provider, and give written

NURSING CARE PLAN

Discomforts of Pregnancy and Warning Signs—
cont'd

information regarding local childbirth education classes to *empower and promote self-management*.

- Promote ongoing effective communication with health care provider to *promote trust and decrease fear of the unknown*.
- Provide the woman with decision-making opportunities to *promote effective coping*.
- Provide opportunity for woman to verbalize fears regarding childbirth to *assist in decreasing fear through discussion*.

NURSING DIAGNOSIS Disturbed sleep patterns related to discomforts or insomnia of third trimester, as evidenced by the woman's report of inadequate rest

Expected Outcome The woman will report an improvement of quality and quantity of rest and sleep.

Nursing Interventions/Rationales

- Assess current sleep pattern and review need for increased requirement during pregnancy to *identify the need for change in sleep patterns*.
- Suggest change of position to side-lying with pillows between legs or to semi-Fowler position to *increase support and decrease any problems with dyspnea or heartburn*.

- Reinforce the possibility of the use of various sleep aides such as relaxation techniques, reading, and decreased activity before bedtime to *decrease the possibility of anxiety or physical discomforts before bedtime*.

NURSING DIAGNOSIS Ineffective sexuality patterns related to changes in comfort level and fatigue

Expected Outcome Woman will verbalize feelings regarding changes in sexual desire.

Nursing Interventions/Rationales

- Assess couple's usual sexuality patterns to determine how patterns have been altered by pregnancy.
- Provide information regarding expected changes in sexuality patterns during pregnancy to *correct any misconceptions*.
- Allow the couple to express feelings in a nonjudgmental atmosphere to *promote trust*.
- Refer the couple for counseling as appropriate to *assist the couple in coping with sexuality pattern changes*.
- Suggest alternative sexual positions to *decrease pressure on enlarging abdomen of woman and increase sexual comfort and satisfaction of couple*.

GI, Gastrointestinal.

BOX 7-6

Complementary and Alternative Therapies Used in Pregnancy

MORNING SICKNESS AND HYPEREMESIS

- Acupuncture
- Acupressure (see Fig. 7-18)
- Shiatzu
- Herbal remedies*
 - Peppermint
 - Spearmint
 - Ginger root

RELAXATION AND MUSCLE-ACHE RELIEF

- Yoga
- Biofeedback
- Reflexology
- Therapeutic touch
- Massage

Sources: Born, D., & Barron, M. (2005). Herb use in pregnancy: What nurses should know. *MCN-American Journal of Maternal/Child Nursing*, 30(3), 201-208; Smith, C., Crowther, C., Willson, K., Hotham, N., & McMillian, V. (2004). A randomized controlled trial of ginger to treat nausea and vomiting in pregnancy. *Obstetrics & Gynecology*, 103(4), 639-645; Tiran, D. & Mack, S. (2000). *Complementary therapies for pregnancy and childbirth* (2nd ed.). Edinburgh: Baillière Tindall.

*Some herbs can cause miscarriage, preterm labor, or fetal or maternal injury. Pregnant women should discuss use with pregnancy health care provider, as well as an expert qualified in the use of the herb.

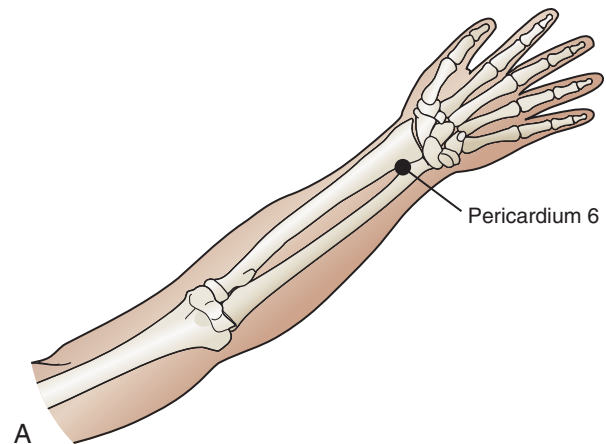


Fig. 7-18 A, Pericardium 6 (p6) acupressure point for nausea. B, Sea-Bands used for stimulation of acupressure point p6. (B, Courtesy Sea-Band International, Newport, RI.)

her family by giving them a printed form, listing the signs and symptoms that necessitate an investigation and the telephone numbers to call with questions or in an emergency. Make sure the form is appropriate for the patient's literacy level, language, and culture.

The nurse must answer questions honestly as they arise during pregnancy. Pregnant women often have difficulty deciding when to report signs and symptoms. Encourage the mother to refer to the printed list of potential complications and to listen to her body. If she senses that something is wrong, she should call her care provider. Several signs and symptoms must be discussed more extensively, including vaginal bleeding, alteration in fetal movements, symptoms of gestational hypertension, rupture of membranes, and preterm labor (see Signs of Potential Complications box on p. 205). See Chapters 20 and 21 for further discussion of complications of pregnancy.

Recognizing preterm labor. Teaching each expectant mother to recognize preterm labor is necessary for early diagnosis and treatment. Preterm labor occurs after the twentieth week but before the thirty-seventh week of pregnancy and consists of uterine contractions that, if untreated, cause the cervix to open earlier than normal and result in preterm birth. Warning signs and symptoms of preterm labor are discussed in Chapter 22.

Sexual counseling. Sexual counseling of expectant couples includes countering misinformation, providing reassurance of normality, and suggesting alternative behaviors. Consider the uniqueness of each couple within a biopsychosocial framework (see the Patient Instructions for Self-Management box). Nurses can initiate discussion about sexual adaptations to make during pregnancy, but they themselves need a sound knowledge base about the physical, social, and emotional responses to sex during pregnancy. Not all maternity nurses are comfortable dealing with the sexual concerns of their patients. Be aware of your personal strengths and limitations in dealing with sexual content, and be prepared to make referrals if necessary (Westheimer & Lopater, 2005).

Many women merely need permission to be sexually active during pregnancy. Many other women, however, need information about the physiologic changes that occur during pregnancy and to have the myths that are associated with sex during pregnancy dispelled. Many women also need to participate in open discussions of intercourse positions that decrease pressure on the gravid abdomen (Westheimer & Lopater, 2005). These tasks are the nurse's responsibility and are an integral part of health care.

Some couples will need a referral for sex therapy or family therapy. Couples with long-standing problems with sexual dysfunction that are intensified by pregnancy are candidates for sex therapy. Whenever a sexual problem is a symptom of a more serious relationship problem the couple would benefit from family therapy.

Countering misinformation. Many myths and much of the misinformation related to sex and pregnancy are masked by seemingly unrelated issues. For example, a discussion about the baby's ability to hear and see in utero may be prompted by questions about the baby being an "unseen observer" of the couple's lovemaking. Be extremely sensitive to the questions behind such questions when counseling in this highly charged emotional area.

Suggesting alternative behaviors. Research has not demonstrated conclusively that coitus and orgasm are contraindicated at any time during pregnancy for the obstetrically and medically healthy woman (Cunningham et al., 2005). However, a history of more than one miscarriage, a threatened miscarriage in the first trimester, impending miscarriage in the second trimester, and PROM, bleeding, or abdominal pain during the third trimester make caution necessary when coitus and orgasm are involved.

Couples can use solitary and mutual masturbation and oral-genital intercourse as alternatives to penile-vaginal intercourse. Partners who enjoy cunnilingus (oral stimulation of the clitoris or vagina) may feel "turned off" by the normal increase in the amount and odor of vaginal discharge during pregnancy. Caution couples who practice cunnilingus against the blowing of air into the vagina, particularly during the last few weeks of pregnancy when the cervix may be slightly open. An air embolism can occur if air is forced between the uterine wall and the fetal membranes and enters the maternal vascular system through the placenta.

Showing the woman or couple pictures of possible variations of coital position is often helpful (Fig. 7-19). The female-superior, side-by-side, rear-entry, and side-lying positions are possible alternative positions to the traditional male-superior position. The woman astride (superior position) allows her to control the angle and depth of penile penetration, as well as to protect her breasts and abdomen. Some women prefer the side-by-side position or any position that places less pressure on the pregnant abdomen and requires less energy during the third trimester.

Multiparous women sometimes have significant breast tenderness in the first trimester. Recommend a coital position that avoids direct pressure on the woman's breasts and decreased breast fondling during love play to such couples. Also, reassure the woman that this condition is normal and temporary.

Some women complain of lower abdominal cramping and backache after orgasm during the first and third trimesters. A back rub can often relieve some of the discomfort and provide a pleasant experience. A tonic uterine contraction, often lasting up to a minute, replaces the rhythmic contractions of orgasm during the third trimester. Changes in the FHR without fetal distress also have been reported.

PATIENT INSTRUCTIONS FOR SELF-MANAGEMENT

Sexuality in Pregnancy

- Be aware that maternal physiologic changes, such as breast enlargement, nausea, fatigue, abdominal changes, perineal enlargement, leukorrhea, pelvic vasocongestion, and orgasmic responses, may affect sexuality and sexual expression.
- Discuss responses to pregnancy with your partner.
- Keep in mind that cultural prescriptions (“dos”) and proscriptions (“don’ts”) may affect your responses.
- Although your libido may be depressed during the first trimester, it often increases during the second and third trimesters.
- Discuss and explore the following with your partner:
 - Alternative behaviors (e.g., mutual masturbation, foot massage, cuddling)
 - Alternative positions (e.g., female superior, side-lying) for sexual intercourse
- Intercourse is safe as long as it is not uncomfortable. No correlation exists between intercourse and miscarriage, but observe the following precautions:
 - Abstain from intercourse if you experience uterine cramping or vaginal bleeding; report the event to your caregiver as soon as possible.
 - Abstain from intercourse (or any activity that results in orgasm) if you have a history of cervical incompetence until the problem is corrected.
- Continue to use risk reducing behaviors. Women at risk for acquiring or conveying STIs are encouraged to use condoms during sexual intercourse throughout pregnancy.

STI, Sexually transmitted infection.

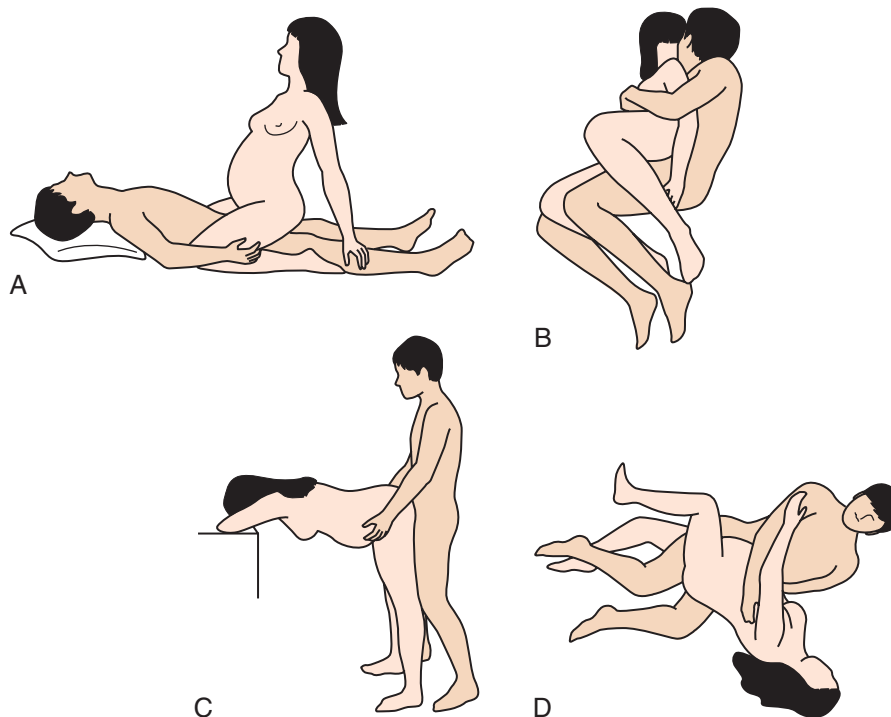


Fig. 7-19 Positions for sexual intercourse during pregnancy. **A**, Female superior. **B**, Side by side. **C**, Rear entry. **D**, Side-lying, facing each other.

The objective of risk-reduction measures is to provide prophylaxis against the acquisition and transmission of STIs (e.g., herpes simplex virus [HSV], HIV). Because these diseases may be transmitted to the woman and her fetus the use of condoms is recommended throughout pregnancy if the woman is at risk for acquiring an STI.

Well-informed nurses who are comfortable with their own sexuality and the sexual counseling needs of expectant couples can offer information and advice in this important but often neglected area. They can establish an open environment in which couples can feel free to introduce their

concerns about sexual adjustment and seek support and guidance.

Psychosocial support

Esteem, affection, trust, concern, consideration of cultural and religious responses, and listening are all components of the emotional support given to the pregnant woman and her family. The woman’s satisfaction with her relationships—partner and familial—and their support, her feeling of competence, and her sense of being in control are important issues to address in the third trimester. A

discussion of fetal responses to stimuli, such as sound and light, as well as patterns of sleeping and waking, is helpful. Other issues of concern that may arise for the pregnant woman and couple include fear of pain, loss of control, and possible birth of the infant before reaching the hospital. Couples often have anxieties about parenthood and parental concerns about the safety of the mother and unborn child or about siblings and their acceptance of the new baby. Some other parental concerns include social and economic responsibilities and parental concerns arising from conflicts in cultural, religious, or personal value systems. In addition, the father's or partner's commitment to the pregnancy and to the couple's relationship and concerns about sexuality and its expression are topics for discussion for many couples. Providing the prospective mother and father with an opportunity to discuss their concerns and validating the normality of their responses can meet their needs to varying degrees. Nurses must also recognize that men feel more vulnerable during their partner's pregnancy. Anticipatory guidance and health promotion strategies can help partners cope with their concerns. Health care providers can stimulate and encourage open dialogue between the expectant father and mother.

Variations in prenatal care

The course of prenatal care described thus far may seem to suggest that the experiences of childbearing women are similar and that nursing interventions are uniformly consistent across all populations. Although typical patterns of response to pregnancy are easy to recognize and many aspects of prenatal care indeed are consistent, pregnant women enter the health care system with individual concerns and needs. The nurse's ability to assess unique needs and to tailor interventions to the individual is key to providing quality care. Variations that influence prenatal care include culture, age, and number of fetuses.

Cultural Influences

Prenatal care as we know it is a phenomenon of Western medicine. In the U.S. biomedical model of care, women are encouraged to seek prenatal care as early as possible in their pregnancy by visiting a physician, a nurse-midwife, or both. Such visits are usually routine and follow a systematic sequence as previously described. This model not only is unfamiliar but also seems strange to women of other cultures.

Many cultural variations can be found in prenatal care. Even if the prenatal care described is familiar to a woman, some practices may conflict with the beliefs and practices of a subculture group to which she belongs. Because of these and other factors, such as lack of money, lack of transportation, and language barriers, women from diverse cultures do not participate in the prenatal care system, for instance, by keeping prenatal appointments.

A concern for modesty is also a reason why many women avoid prenatal care. For some women, exposing

body parts, especially to a man, is a major violation of their modesty. For many women, invasive procedures, such as a vaginal examination, are so threatening that they cannot even discuss them with their own husbands; therefore many women prefer a female health care provider. Too often, health care providers assume women lose this modesty during pregnancy and labor, but actually, most women value and appreciate efforts to maintain their modesty.

For many cultural groups a physician is appropriate only in times of illness. Because pregnancy is considered a normal process and the woman is in a state of health, the services of a physician are considered inappropriate. Even if what are considered problems with pregnancy by standards of Western medicine do develop, other cultural groups may not perceive these as problems.

Although many people consider pregnancy normal, certain practices are expected of women of all cultures to ensure a good outcome. **Cultural prescriptions** tell women what to do, and **cultural proscriptions** establish taboos. The purposes of these practices are to prevent maternal illness resulting from a pregnancy-induced imbalanced state and to protect the vulnerable fetus. Prescriptions and proscriptions regulate the woman's emotional response, clothing, activity and rest, sexual activity, and dietary practices. Exploration of the woman's beliefs, perceptions of the meaning of childbearing, and health care practices may help health care providers foster her self-actualization, promote attainment of the maternal role, and positively influence her relationship with her spouse.

To provide culturally sensitive care, you need to be knowledgeable about practices and customs, although knowing everything about every culture and subculture or the many lifestyles that exist is not possible. You should learn about the varied cultures in which specific nurses practice (Cooper, Grywalski, Lamp, Newhouse, & Studlien, 2007). When exploring cultural beliefs and practices related to childbearing, support and nurture those that promote physical or emotional adaptation. However, if you identify potentially harmful beliefs or activities, provide education and propose modifications.

Emotional responses

Virtually all cultures emphasize the importance of maintaining a socially harmonious and agreeable environment for a pregnant woman. An absence of stress is important in ensuring a successful outcome for the mother and baby. Harmony with other people must be fostered, and visits from extended family members may be required to demonstrate pleasant and noncontroversial relationships. If discord exists in a relationship, it is usually managed in culturally prescribed ways.

Besides proscriptions regarding food, other proscriptions involve forms of magic. For example, some Mexicans believe that pregnant women should not witness an eclipse of the moon because it may cause a cleft palate in the

infant. They also believe that exposure to an earthquake may precipitate preterm birth, miscarriage, or even a breech presentation. In some cultures a pregnant woman must not ridicule someone with an affliction for fear her child might be born with the same handicap. A mother should not hate a person lest her child resemble that person, and dental work should not be performed because it may cause a baby to have a “harelip.” A widely held folk belief in some cultures is that the pregnant woman should refrain from raising her arms above her head because such movement ties knots in the umbilical cord and may cause it to wrap around the baby’s neck. Another belief is that placing a knife under the bed of a laboring woman will “cut” her pain.

Clothing

Although most cultural groups do not prescribe specific clothing to wear during pregnancy, modesty is an expectation of many. Some Mexican women of the Southwest wear a cord beneath the breasts and knotted over the umbilicus. This cord, called a *muñeco*, is thought to prevent morning sickness and ensure a safe birth. Some wear amulets, medals, and beads as protection against evil spirits.

Physical activity and rest

Norms that regulate the physical activity of mothers during pregnancy vary tremendously. Many groups, including Native Americans and some Asian groups, encourage women to be active, to walk, and to engage in normal, although not strenuous, activities to ensure that the baby is healthy and not too large. Conversely, other groups such as Filipinos believe that any activity is dangerous, and others willingly take over the work of the pregnant woman. Some Filipinos believe that this inactivity protects the mother and child. The mother is encouraged only to produce the succeeding generation. If health care providers do not know of this belief, they could misinterpret this behavior as laziness or noncompliance with the desired prenatal health care regimen. The nurse needs to find out the way each pregnant woman views activity and rest.

Sexual activity

In most cultures, sexual activity is not prohibited until the end of pregnancy. Some Latinos view sexual activity as necessary to keep the birth canal lubricated. Conversely, some Vietnamese may have definite proscriptions against sexual intercourse, requiring abstinence throughout the pregnancy because they believe that sexual intercourse may harm the mother and fetus.

Diet

Nutritional information given by Western health care providers may also be a source of conflict for many cultural groups, but many health care providers do not know such a conflict exists unless they understand the dietary

beliefs and practices of the people for whom they are caring. For example, Muslims have strict regulations regarding preparation of food, and if meat cannot be prepared as prescribed, they may leave out meats from their diets. Many cultures permit pregnant women to eat only warm foods.

Age Differences

The age of the childbearing couple may have a significant influence on their physical and psychosocial adaptation to pregnancy. Normal developmental processes that occur in both very young and older mothers are interrupted by pregnancy and require a different type of adaptation to pregnancy than that of the woman of typical childbearing age. Although nurses need to recognize the individuality of each pregnant woman regardless of age, special needs exist for expectant mothers 15 years of age or younger or those 35 years of age or older.

Adolescents

Teenage pregnancy is a worldwide problem. Approximately 1 million adolescents in the United States, or 4 out of every 10 girls, become pregnant each year. Most of the pregnancies are unintended. Adolescents are responsible for almost 450,000 births in the United States annually. Hispanic adolescents currently have the highest birth rate, although the rate for African-American adolescents is also high (Martin et al., 2008). Most of these young women are unmarried, and many are not ready for the emotional, psychosocial, and financial responsibilities of parenthood.

Despite these alarming statistics and the fact that the United States has the highest adolescent birth rate in the industrialized world the birth rate for adolescents steadily declined from 1991 to 2005 but rose 3% in 2006 (Martin et al., 2008). Numerous adolescent pregnancy-prevention programs have had varying degrees of success. Characteristics of programs that make a difference are those that have sustained commitment to adolescents over a long time, involve the parents and other adults in the community, promote abstinence and personal responsibility, and assist adolescents to develop a clear strategy for reaching future goals such as a college education or a career.

When adolescents do become pregnant and decide to give birth, they are much less likely than older women to receive adequate prenatal care, with many receiving no care at all. These young women also are more likely to smoke and less likely to gain adequate weight during pregnancy. As a result of these and other factors, babies born to adolescents are at greatly increased risk of LBW, of serious and long-term disability, and of dying during the first year of life (Chedraui, 2008).

Delayed entry into prenatal care is often the result of late recognition of pregnancy, denial of pregnancy, or confusion about the available services. Such a delay in care may leave an inadequate time before birth to attend to correctable problems. The very young pregnant adolescent



Fig. 7-20 Pregnant adolescents reviewing fetal development. (Courtesy Marjorie Pyle, RNC, Lifecircle, Costa Mesa, CA.)

is at higher risk for each of the variables associated with poor pregnancy outcomes (e.g., socioeconomic factors) and for conditions associated with a first pregnancy regardless of age (e.g., gestational hypertension). The role of the nurse in reducing the risks and consequences of adolescent pregnancy is very important as adolescents often see the nurse as trustworthy and someone who will keep their confidence, as well as provide them with accurate information. Therefore effective communication is essential in providing care to the pregnant adolescent (King-Jones, 2008) (Fig. 7-20) (Nursing Care Plan).

Women older than 35 years

Two groups of older parents have emerged in the population of women having a child late in their childbearing years. One group consists of women who have many children or who have an additional child during the menopausal period. The other group consists of women who have deliberately delayed childbearing until their late thirties or early forties.

Multiparous women. Multiparous women may have never used contraceptives because of personal choice or lack of knowledge concerning contraceptives. They may also be women who have used contraceptives successfully during the childbearing years, but as menopause approaches, they may cease menstruating regularly or stop using contraceptives and consequently become pregnant. The older multiparous woman may believe that pregnancy separates her from her peer group and that her age is a hindrance to close associations with young mothers. Other parents welcome the unexpected infant as evidence of continuing maternal and paternal roles.

Primiparous women. The number of first-time pregnancies in women between the ages of 35 and 40 years has increased significantly over the last three decades (Martin et al., 2007). Seeing women in their late thirties or

forties during their first pregnancy is no longer unusual for health care providers. Reasons for delaying pregnancy include a desire to obtain advanced education, career priorities, and use of better contraceptive measures. Women who are infertile do not delay pregnancy deliberately but may become pregnant at a later age as a result of fertility studies and therapies.

These women choose parenthood. They are often successfully established in a career and a lifestyle with a partner that includes time for self-attention, the establishment of a home with accumulated possessions, and freedom to travel. When asked the reason they chose pregnancy later in life, many reply, “Because time is running out.”

The dilemma of choice includes the recognition that being a parent will have positive and negative consequences. Couples should discuss the consequences of childbearing and childrearing before committing themselves to this lifelong venture. Partners in this group seem to share the preparation for parenthood, planning for a family-centered birth, and desire to be loving and competent parents; however, the reality of child care may prove difficult for such parents.

First-time mothers older than 35 years select the “right time” for pregnancy. Their awareness of the increasing possibility of infertility or of genetic defects in the infants of older women often influence their timing. Such women seek information about pregnancy from books, friends, and electronic resources. They actively try to prevent fetal disorders and are careful in searching for the best possible maternity care. They identify sources of stress in their lives. They have concerns about having enough energy and stamina to meet the demands of parenting and their new roles and relationships.

If older women become pregnant after treatment for infertility, they may suddenly have negative or ambivalent feelings about the pregnancy. They may experience a multifetal pregnancy that may create emotional and physical problems. Adjusting to parenting two or more infants requires adaptability and additional resources.

During pregnancy, parents explore the possibilities and responsibilities of changing identities and new roles. They must prepare a safe and nurturing environment during pregnancy and after birth. They must integrate the child into an established family system and negotiate new roles (parent roles, sibling roles, grandparent roles) for family members.

Adverse perinatal outcomes are more common in older primiparas than in younger women, even when they receive good prenatal care. Suplee, Dawley, and Bloch (2007) reported that women aged 35 years and older are more likely than younger primiparas to have LBW infants, premature birth, and multiple births. The occurrence of these complications is quite stressful for the new parents, and nursing interventions that provide information and psychosocial support are needed, as well as care for physical needs. In addition, women age 35 years or older have

NURSING CARE PLAN *Pregnant Adolescent***NURSING DIAGNOSIS** Imbalanced nutrition: less than body requirements related to intake insufficient to meet metabolic needs of fetus and adolescent patient

Expected Outcomes *Pregnant adolescent will gain weight as prescribed by age, take prenatal vitamins and iron as prescribed, and maintain normal hematocrit and hemoglobin.*

Nursing Interventions/Rationales

- Assess current diet history and intake to determine prescriptions for additions or changes in present dietary pattern.
- Compare prepregnancy weight with current weight to determine if pattern is consistent with appropriate fetal growth and development.
- Provide information concerning food prescriptions for appropriate weight gain, considering preferences for “fast food” and peer influences to correct any misconceptions and increase chances for compliance with the diet.
- Include pregnant adolescent’s immediate family or support system during instruction to ensure that person preparing family meals receives information.

NURSING DIAGNOSIS Risk for injury, maternal or fetal, related to inadequate prenatal care and screening

Expected Outcomes *Pregnant adolescent will experience uncomplicated pregnancy and deliver a healthy fetus at term.*

Nursing Interventions/Rationales

- Provide information using therapeutic communication and confidentiality to establish a helpful relationship and build trust.
- Discuss importance of ongoing prenatal care and possible risks to adolescent patient and fetus to reinforce that ongoing assessment is crucial to health and well-being of patient and fetus, even if she feels well. The pregnant adolescent is at greater risk for certain complications that are manageable or preventable if prenatal visits are maintained.
- Discuss risks of alcohol, tobacco, and recreational drug use during pregnancy to minimize risks to pregnant adolescent and fetus, because adolescent patient has a higher abuse rate than the rest of the pregnant population.
- Assess for evidence of sexually transmitted infection (STI) and provide information regarding safer sexual practice to minimize the risk to the patient and fetus because the adolescent is at greater risk for STIs.
- Screen for preeclampsia on an ongoing basis to minimize risk because the adolescent population is at greater risk for preeclampsia.

NURSING DIAGNOSIS Social isolation related to body image changes of pregnant adolescent, as evidenced by patient statements and concerns

Expected Outcomes *Pregnant adolescent will identify support systems and report decreased feelings of social isolation.*

Nursing Interventions/Rationales

- Establish a therapeutic relationship to listen objectively and establish trust.

- Discuss with pregnant adolescent changes in relationships that have occurred as a result of the pregnancy to determine extent of isolation from family, peers, and father of the baby.
- Provide referrals and resources appropriate for developmental stage of adolescent to give information for patient support.
- Provide information regarding parenting classes, breastfeeding classes, and childbirth-preparation classes to give further information and group support, which lessens social isolation.

NURSING DIAGNOSIS Interrupted family processes related to adolescent pregnancy

Expected Outcome *Pregnant adolescent will reestablish relationship with her mother and the father of baby.*

Nursing Interventions/Rationales

- Encourage communication with mother to clarify roles and relationships related to birth of infant.
- Encourage communication with father of baby (if she desires continued contact) to determine the level of support to be expected of the father of the baby.
- Refer to support group to learn more effective ways of problem solving and reducing conflict within the family.

NURSING DIAGNOSIS Disturbed body image related to situational crisis of pregnancy

Expected Outcome *Pregnant adolescent will verbalize positive comments regarding her body image during the pregnancy.*

Nursing Interventions/Rationales

- Assess pregnant adolescent’s perception of self related to pregnancy to provide basis for further interventions.
- Give information regarding expected body changes occurring during pregnancy to provide a realistic view of these temporary changes.
- Provide opportunity to discuss personal feelings and concerns to promote trust and support.

NURSING DIAGNOSIS Risk for impaired parenting related to immaturity and lack of experience in new role of adolescent mother

Expected Outcome *Parents will demonstrate parenting roles with confidence.*

Nursing Interventions/Rationales

- Provide information on growth and development to enhance knowledge so that adolescent mother can have basis for caring for her infant.
- Refer to parenting classes to enhance knowledge and obtain support for providing appropriate care to the newborn and infant.
- Initiate discussion of child care to assist adolescent in problem solving for future needs.
- Assess parenting abilities of the adolescent mother and father to provide a baseline for education.
- Provide information on parenting classes that are appropriate for parents’ developmental stage to give opportunity to share common feelings and concerns.
- Assist parents to identify pertinent support systems to give assistance with parenting as needed.

an increased risk of maternal mortality. Pregnancy-related deaths result from hemorrhage, infection, embolisms, hypertensive disorders of pregnancy, cardiomyopathy, and strokes (Johnson, Gregory, & Niebyl, 2007).

Multifetal pregnancy

When the pregnancy involves more than one fetus, **multifetal pregnancy**, both the mother and fetuses are at increased risk for adverse outcomes. The maternal blood volume increases, resulting in an increased strain on the maternal cardiovascular system. Anemia often develops because of a greater demand for iron by the fetuses. Marked uterine distention and increased pressure on the adjacent viscera and pelvic vasculature and diastasis of the two rectus abdominis muscles (see Fig. 6-13, *B*) may occur. Placenta previa develops more commonly in multifetal pregnancies because of the large size or placement of the placentas (Gilbert, 2007). Premature separation of the placenta may occur before the second and any subsequent fetuses are born.

Twin pregnancies often end in prematurity. Spontaneous rupture of membranes before term is common. Congenital malformations are twice as common in monozygotic twins as in singletons, although no increase has been noted in the incidence of congenital anomalies in dizygotic twins. In addition, two-vessel cords—that is, cords with a vein and a single umbilical artery instead of two—occur more often in twins than in singletons, but this abnormality is most common in monozygotic twins. The clinical diagnosis of multifetal pregnancy is accurate in approximately 90% of cases. The likelihood of a multifetal pregnancy increases if any one or a combination of the following factors is present:

- History of dizygous twins in the female lineage
- Use of fertility drugs
- More rapid uterine growth for the number of weeks of gestation
- Hydramnios
- Palpation of more than the expected number of small or large parts
- Asynchronous fetal heartbeats or more than one fetal electrocardiographic tracing
- Ultrasonographic evidence of more than one fetus

The diagnosis of multifetal pregnancy can come as a shock to many expectant parents, and many need additional support and education to help them cope with the changes they face. The mother needs nutrition counseling so that she gains more weight than that needed for a singleton birth, counseling that maternal adaptations will probably be more uncomfortable, and information about the possibility of a preterm birth.

If the presence of more than three fetuses is diagnosed, then the parents may receive counseling regarding selective reduction of the pregnancies to reduce the incidence of premature birth and improve the opportunities for the remaining fetuses to grow to term gestation (Cleary-

Goldman, Chitkara, & Berkowitz, 2007). This situation may pose an ethical dilemma for many couples, especially those who have worked hard to overcome problems with infertility and have strong values regarding right to life. Initiating a discussion to identify what resources can help the couple (e.g., a minister, priest, or mental health counselor) to make the decision is important because the decision-making process and the procedure itself may be stressful. Most women will have feelings of guilt anger and sadness but most will come to terms with the loss and will bond with the remaining fetus or fetuses (Cleary-Goldman et al.).

The prenatal care given to women with multifetal pregnancies includes changes in the pattern of care and modifications in other aspects such as the amount of weight gained and the nutritional intake necessary. These women often have prenatal visits at least every 2 weeks in the second trimester and weekly thereafter. Ultrasound evaluations are scheduled at 18 to 20 weeks and then every 3 to 4 weeks to monitor the fetal growth and amniotic fluid volume (Cleary-Goldman et al., 2007). In twin gestations the recommended weight gain is 16 to 20 kg. Iron and vitamin supplementation is desirable. As preeclampsia and eclampsia increase in multifetal pregnancies, nurses work intensively to prevent, identify, and treat these complications of pregnancy.

The considerable uterine distention involved can cause the backache commonly experienced by pregnant women to be even worse. Women can wear maternal support hose to control leg varicosities. If risk factors such as premature dilation of the cervix or bleeding are present, abstinence from orgasm and nipple stimulation during the last trimester helps prevent preterm labor. Some practitioners recommend bed rest beginning at 20 weeks in women carrying multiple fetuses to prevent preterm labor. Other practitioners question the value of prolonged bed rest. If bed rest is recommended, then the mother assumes a lateral position to promote increased placental perfusion. If birth is delayed until after the thirty-sixth week, the risk of morbidity and mortality decreases for the neonates.

Multiple newborns will likely place a strain on finances, space, workload, and the woman and family's coping capability. Lifestyle changes are often necessary. Parents will need assistance in making realistic plans for the care of the babies (e.g., whether to breastfeed and whether to raise them as "alike" or as separate persons). Refer parents to national and local organizations such as Parents of Twins and Triplets (www.potato.org), Mothers of Twins (www.nomot.org), and the La Leche League (lalecheleague.org) for further support.

CHILDBIRTH AND PERINATAL EDUCATION

The goal of childbirth and perinatal education is to assist individuals and their family members to make informed, safe decisions about pregnancy, birth, and early

parenthood. This objective is also intended to assist them in comprehending the long-lasting potential that empowering birth experiences have in the lives of women and that early experiences have on the development of children and the family. The perinatal education program is an expansion of the earlier childbirth education movement that originally offered a set of classes in the third trimester of pregnancy to prepare parents for birth. Today, perinatal education programs consist of a menu of class series and activities from preconception through the early months of parenting.

Health-promoting education should be provided in a context that emphasizes how a healthy body is best able to adapt to the changes that accompany pregnancy. Without this context of health, routine care and testing for risks may contribute to a mindset of families that pregnancy is a pathologic as opposed to a healthy mind-body-spirit event.

Some of the decisions the childbearing family must consider are the decision to have a baby, followed by choices of a care provider and type of care (a midwifery model [natural oriented] versus a medical [intervention oriented] model), the place for birth (hospital, birthing center, home), and the type of infant feeding (breast or bottle) and infant care. If a woman has had a previous cesarean birth, she may consider having a vaginal birth. Perinatal education can provide information to help childbearing families make informed decisions about these issues.

Previous pregnancy and childbirth experiences are important elements that influence current learning needs. The woman's (and the support person's) age, cultural background, personal philosophy with regard to childbirth, socioeconomic status, spiritual beliefs, and learning styles are assessed to develop the best plan to help the woman meet her needs.

For the most part, the pregnant woman and her partner attend childbirth education classes, although sometimes a friend, teenage daughter, or parent is the designated support person (Fig. 7-21). In addition, classes for grandparents and siblings can help to prepare them for their attendance at birth and the arrival of the baby (see Fig. 7-4). Siblings often see a film about birth and learn ways they can help welcome the baby. They also learn to cope with changes that include a reduction in parental time and attention. Grandparents learn about current child care practices and how to help their adult children adapt to parenting in a supportive way.

Childbirth Education Programs

Childbirth, when one is prepared and well supported, presents to women a unique and powerful opportunity to find their core strength in a manner that forever changes their self-perception. Expectant parents and their families have different interests and information needs as the pregnancy progresses.



Fig. 7-21 Learning relaxation exercises with the whole family. (Courtesy Marjorie Pyle, RNC, Lifecircle, Costa Mesa, CA.)

Early pregnancy (“early bird”) classes provide fundamental information. Classes are developed around the following areas: (1) early fetal development, (2) physiologic and emotional changes of pregnancy, (3) human sexuality, and (4) the nutritional needs of the mother and fetus. These classes often address environmental and workplace hazards. Exercises, nutrition, warning signs, drugs, and self-medication also are topics of interest and concern.

Midpregnancy classes emphasize the woman's participation in self-management. Classes provide information on preparation for breastfeeding and formula feeding, infant care, basic hygiene, common complaints and simple safe remedies, infant health, parenting, and updating and refining the birth plans.

Late pregnancy classes emphasize labor and birth. Different methods of coping with labor and birth can be used, and these methods are often the basis for various prenatal classes, including Lamaze, Bradley, and Dick-Read. These classes usually include a hospital tour.

Current practices in childbirth education

A variety of approaches to childbirth education have evolved as childbirth educators attempt to meet learning needs. In addition to classes designed specifically for pregnant adolescents, their partners, or parents, classes exist for other groups with special learning needs. These classes include those for first-time mothers over age 35, single women, adoptive parents, and parents of multiples or women with handicaps such as those who are visually impaired or deaf. Refresher classes for parents with children not only review coping techniques for labor and birth, but also help couples prepare for sibling reactions and adjustments to a new baby. Cesarean birth classes are available for couples that have this kind of birth scheduled because of breech position or other risk factors. Other classes focus on vaginal birth after cesarean (VBAC),

because many women can successfully give birth vaginally after previous cesarean birth.

Throughout the series of classes is a discussion of support systems that people can use during pregnancy and after birth. Such support systems help parents function independently and effectively. During all the classes the open expression of feelings and concerns about any aspect of pregnancy, birth, and parenting is welcomed.

Pain management

Fear of pain in labor is a key issue for pregnant women and the reason many give for attending childbirth education classes. Numerous studies show that women who have received childbirth preparation later report no less pain but do report greater ability to cope with the pain during labor and birth and increased birth satisfaction than unprepared women. Therefore, although pain-management strategies are an essential component of childbirth education, total pain eradication is neither the primary source of birth satisfaction nor a goal. Eliminating suffering is a realistic goal. Control in childbirth, meaning participation in decision making, has repeatedly been the primary source of birth satisfaction.

Couples need information about the advantages and disadvantages of pain medication and about other techniques for coping with labor. An emphasis on nonpharmacologic pain management strategies helps couples manage the labor and birth with dignity and increased comfort. Most instructors teach a flexible approach, which helps couples learn and master many techniques to use during labor. Couples learn techniques such as massage, pressure on the palms or soles of the feet, hot compresses to the perineum, perineal massage, applications of heat or cold, breathing patterns, and focusing of attention on visual or other stimuli as ways to increase coping and decrease the distress from labor pain (see Chapter 10 for further discussion).

Perinatal care choices

The first decision the woman makes often involves who will be her primary health care provider for the pregnancy and birth. This decision is doubly important because it usually affects where the birth will take place.

The Coalition to Improve Maternity Services (CIMS) (2000), a group of more than 50 nursing and maternity care-oriented organizations, produced a document to assist women in selecting their perinatal care. Women are encouraged to ask potential care providers the following questions:

- Who can be with me during labor and birth?
- What happens during a normal labor and birth in your setting?
- How do you allow for differences in culture and beliefs?
- Can I walk and move around during labor? What position do you suggest for birth?

- How do you make sure everything goes smoothly when my nurse, physician, nurse-midwife, or agency work with one another?
- What things do you normally do to a woman in labor?
- How do you help mothers stay as comfortable as they can be? Besides drugs, how do you help mothers relieve the pain of labor?
- What if my baby is born early or has special problems?
- Do you circumcise babies?
- How do you help mothers who want to breastfeed?

Options for care providers

Physicians. Physicians (obstetricians, family practice physicians) attend 91.6% of births in the United States and Canada (Martin et al., 2007). They see low and high risk patients. Care often includes pharmacologic and medical management of problems as well as use of technologic procedures. Family practice physicians may need backup by obstetricians if a specialist is needed for a problem (e.g., a cesarean birth). Most physicians manage births in a hospital setting.

Nurse-midwives. Nurse-midwives are registered nurses with advanced training in care of obstetric patients. They provide care for more than 8% of the births in the United States and Canada (Martin et al., 2007). Certified nurse-midwives (CNMs) may practice with physicians or independently with a contracted health care provider agency for physician backup. They usually see low risk obstetric patients. Care is often noninterventionist, and they often encourage the woman and her family to be active participants in the care. Nurse-midwives refer patients to physicians for complications. Most births (approximately 94%) are managed in hospital settings or alternative birth centers; a small number are managed in a home setting.

Direct-entry midwives. *Direct-entry midwives* (also called certified professional midwives) are trained through self-study, apprenticeship, midwifery schools, or universities as a profession distinct from nursing. However, their certification process is administered by the American College of Nurse-Midwives. They manage slightly less than 1% of births in the United States; they also refer the patients in whom problems develop to physicians. A majority (61%) of births attended by these midwives take place in the home setting. Because of underreporting of direct-entry midwife-attended births, these data should be considered lower estimates of actual numbers of midwife-attended births.

Independent midwives. Independent midwives, who may also be called *lay midwives*, are nonprofessional caregivers. Their training varies greatly, from formal training to self-teaching. Most births are managed in the home setting.

Doulas. A *doula* is professionally trained to provide labor support, including physical, emotional, and informa-

tional support to women and their partners during labor and birth. The doula does not become involved with clinical tasks (Doulas of North America [DONA], 2008). Today, many couples, no matter which type of childbirth classes they take, also employ a doula for labor support. A Cochrane synopsis of 16 trials involving 13,391 women found that “continuous labor support like that provided by doulas reduces a woman’s likelihood of having pain medication, increases her satisfaction and chances for spontaneous birth, and has no known risks” (Hodnett, Gates, Hofmeyr, & Sakala, 2007).

A doula typically meets with the woman and her husband or partner before labor. At this meeting, she ascertains the woman’s expectations and desires for the birth experience. With this information as her guide during labor and birth the doula focuses her efforts on assisting the woman to achieve her goals. Doulas work collaboratively with other health care providers and the husband or other supportive individuals, but their primary goal is assisting the woman.

Doulas may be found through community contacts, other health care providers, or childbirth educators; several organizations offer information or referral services. The expectant mother should be comfortable with the doula who will be attending her. Box 7-7 lists questions to ask when arranging for a doula. Doulas of North America (DONA) is an organization that certifies doulas (www.dona.com). Although the doula role originally developed as an assistant during labor, some women benefit from assistance during the postpartum period. The number of

BOX 7-7

Questions to Ask When Choosing a Doula

To discover the specific training, experience, and services offered by anyone who provides labor support, potential patients, nursing supervisors, physicians, midwives, and others should ask the following questions of that person:

- What training have you had?
- Tell me about your experience with birth, personally and as a doula.
- What is your philosophy about childbirth and supporting women and their partners through labor?
- May we meet to discuss our birth plans and the role you will play in supporting me through childbirth?
- May we call you with questions or concerns before and after the birth?
- When do you try to join women in labor? Do you come to our home or meet us at the hospital?
- Do you meet with us after the birth to review the labor and answer questions?
- Do you work with one or more backup doulas for times when you are not available? May we meet them?
- What is your fee?

Source: Doulas of North America (DONA). (2008). *Doulas of North America position paper: The doula’s contribution to modern maternity care*. Internet document available at www.dona.org/PDF/QuestionsToAskADoula.pdf (accessed May 20, 2009).

postnatal doulas who provide assistance to the new mother as she develops competence with infant care, feeding, and other maternal tasks is small but growing.

Birth plans

Once the maternity care provider is chosen, numerous other decisions must to be made over the course of the perinatal year. Many prenatal care providers and childbirth educators encourage expectant parents to develop a birth plan to identify their options and set priorities. The **birth plan** is a natural evolution of a contemporary wellness-oriented lifestyle in which patients assume a level of responsibility for their own health. For some people, beginning this approach to perinatal care will influence their approach to health care throughout their lives. The birth plan is a tool with which parents can explore their childbirth options and choose those that are most important to them. The plan must be viewed as tentative since the realities of what is feasible may change as the actual labor and birth unfold. It is understood to be a preference list based on a best-case scenario (see further discussion in Chapter 12).

Birth setting choices

With careful thought, the concept of natural or family- or woman-centered maternity care can be implemented in any setting. The three primary options for birth settings today are the hospital, birth center, and home. Women consider several factors in choosing a setting for childbirth, including the preference of their health care provider, characteristics of the birthing unit, and preference of their third-party payer. Approximately 99% of all births in the United States take place in a hospital setting (Martin et al., 2007). However, the types of labor and birth services vary greatly, from the traditional labor and delivery rooms with separate postpartum and newborn units to in-hospital birthing centers where all or almost all care takes place in a single unit.

Labor, delivery, recovery, and postpartum (birthing) rooms. Labor, delivery, and recovery (LDR) and labor, delivery, recovery, and postpartum (LDRP) rooms offer families a comfortable, private space for childbirth (Fig. 7-22). Women are admitted to LDR units, labor and give birth, and spend the first 1 to 2 hours postpartum there for immediate recovery and to have time with their families to bond with their newborns. After this period of recovery the mothers and newborns move to a postpartum unit and nursery or mother-baby unit for the duration of their stay.

In LDRP units the same nursing staff usually provides total care from admission through postpartum discharge. The woman and her family may stay in this unit for 6 to 48 hours after giving birth. The units are furnished to provide a homelike atmosphere, as LDR units are, but have accommodations for family members to stay overnight.



Fig. 7-22 **A**, Labor, delivery, and recovery (LDR) unit. **B**, Labor, delivery, recovery, and postpartum (LDRP) unit. Note sofa in background that converts to a bed. (**A**, Courtesy Julie Perry Nelson, Loveland, CO; **B**, courtesy Dee Lowdermilk, Chapel Hill, NC.)

Both units have fetal monitors, emergency resuscitation equipment for both mother and newborn, and heated cribs or warming units for the newborn. This equipment is often out of sight in cabinets or closets when it is not being used.

Birth centers. Freestanding birth centers are usually built in locations separate from the hospital but are often located nearby in case transfer of the woman or newborn is needed. These birth centers offer families a safe and cost-effective alternative to hospital or home birth. Approximately 27% of the out-of-hospital births are in birthing centers (Martin et al., 2007). The centers are usually staffed by nurse-midwives or physicians who also have privileges at the local hospital. Only women at low risk for complications are included for care. Attendance at childbirth and parenting classes is required of all patients. The family is admitted to the birth center for labor and birth and will remain there until discharge, which often takes place within 6 hours of the birth.



Fig. 7-23 Birth center. **A**, Note double bed, baby crib, and birthing stool. **B**, Lounge and kitchen. (**A**, Courtesy Dee Lowdermilk, Chapel Hill, NC. Photo location: The Women's Birth and Wellness Center; **B**, courtesy Michael S. Clement, MD, Mesa, AZ. Photo location: Bethany Birth Center, Phoenix, AZ.)

Birth centers typically have homelike accommodations, including a double bed for the couple and a crib for the newborn (Fig. 7-23, *A*). Emergency equipment and drugs are usually in cabinets, out of view but easily accessible. Private bathroom facilities are incorporated into each birth unit. The facility may have an early labor lounge or a living room and small kitchen (Fig. 7-23, *B*).

Services provided by the freestanding birth centers include those necessary for safe management during the childbearing cycle. Patients must understand that some situations require transfer to a hospital, and they must agree to abide by those guidelines.

Birth centers, as well as a hospital with a comprehensive birthing program, may have resources for parents such as a lending library that includes books and videotapes; reference files on related topics; recycled maternity clothes, baby clothes, and equipment; and supplies and reference materials for childbirth educators. The centers may also have referral files for community resources that offer services relating to childbirth and early parenting, including support groups (e.g., for single parents, for postbirth support, for parents of twins), genetic counseling, women's issues, and consumer action.

When birth occurs in a birth center or a home setting, it should be located close to a major hospital so that quick transfer to that institution is possible if necessary. Ambulance service and emergency procedures must be readily available. Fees vary with the services provided but are typically less than or equal to those charged by local hospitals. Some base fees on the ability of the family to pay (a reduced-fee sliding scale). Several third-party payers, as well as Medicaid and the Civilian Health and Medical Programs of the Uniformed Services (TRICARE/CHAMPUS), recognize and reimburse these centers.

Home birth. Home birth has always been popular in certain countries, such as Sweden and The Netherlands. In developing countries, hospitals or adequate lying-in facilities often are unavailable to most pregnant women, and home birth is a necessity. In North America, home births account for approximately 65% of the less than 1% of births outside of the hospital setting (Martin et al., 2007).



Although home births are considered countercultural by many people in the United States, no evidence base has been found to discourage low risk couples who desire a carefully planned out-of-the-hospital birth (Johnson &

Daviss, 2005). National groups supporting home birth are the Home Oriented Maternity Experience (HOME) and the National Association of Parents for Safe Alternatives in Childbirth (NAPSAC) (www.napsac.org). These groups work to foster more humane childbearing practices at all levels, integrating the alternatives for childbirth to meet the needs of the total population.

One advantage of home birth is that the family is in control of the experience. Another is that the birth may be more physiologically normal in familiar surroundings. The mother may be more relaxed than she would be in the hospital environment. Care providers who participate in home births tend to be more support oriented and less intervention oriented. The family can assist in and be a part of the happy event, and contact with the newborn is immediate and sustained. In addition, home birth may be less expensive than a hospital confinement. Serious infection may be less likely, assuming strict aseptic principles are followed, because people generally are relatively immune to their own home bacteria. A disadvantage of home birth is that if complications occur during labor or birth, timely transfer of care to a hospital setting may be problematic.

KEY POINTS

- The prenatal period is a preparatory one both physically, in terms of fetal growth and parental adaptations, and psychologically, in terms of anticipation of parenthood.
- Pregnancy affects parent-child, sibling-child, and grandparent-child relationships.
- Discomforts and changes of pregnancy can cause anxiety to the woman and her family and require sensitive attention and a plan for teaching self-management measures.
- Education about healthy ways of using the body (e.g., exercise, body mechanics) is essential given maternal anatomic and physiologic responses to pregnancy.
- Important components of the initial prenatal visit include detailed and carefully recorded findings from the interview, a comprehensive physical examination, and selected laboratory tests.
- Even in normal pregnancy the nurse must remain alert to hazards such as supine hypotension, warning signs and symptoms, and signs of family maladaptations.
- BP is evaluated based on absolute values and length of gestation and interpreted in light of modifying factors.
- Each pregnant woman needs to know how to recognize and report preterm labor.
- Childbirth education is a process designed to help parents make the transition from the role of expectant parents to the role and responsibilities of parents of a new baby.
- The likelihood of physical abuse increases during pregnancy.
- Nurses must be knowledgeable about practices and customs related to childbearing to provide culturally sensitive care.
- Cultural prescriptions and proscriptions influence responses to pregnancy and to the health care delivery system.
- Childbirth education teaches tuning into the body's inner wisdom and coping strategies that enhance women's ability to know how to give birth.
- Childbirth education strives to promote healthier pregnancies and family lifestyles.

 **Audio Chapter Summaries** Access an audio summary of these Key Points on 

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