HE prenatal period is a time of physical and psychologic preparation for birth and parenthood. Becoming a parent is considered one of the maturational milestones of adult life. 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 infant. Prenatal health care permits diagnosis and treatment of maternal disorders that may have preexisted or may develop during the pregnancy. Care is designed to monitor the growth and development of the fetus and to identify abnormalities that may interfere with the course of normal labor. Education and support for self-care and parenting can be provided.

Pregnancy spans 9 months, but health care providers, in contrast to using the familiar monthly calendar to ascertain fetal age or discuss the pregnancy, use the concept of lunar months, which last 28 days, or 4 weeks. Normal pregnancy, then, lasts about 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 to be at term if it advances to 38 to 40 weeks. The focus of this chapter is on meeting

**Electronic resources**

Additional information related to the content in Chapter 16 can be found on the companion website at [http://evolve.elsevier.com/Lowdermilk/MWHC/](http://evolve.elsevier.com/Lowdermilk/MWHC/)

- NCLEX Review Questions
- Case Study: First Trimester
- Case Study: Second Trimester
- Case Study: Third Trimester
- WebLinks

**Learning objectives**

1. Describe the process of confirming pregnancy and estimating the date of birth.
2. Summarize the physical, psychosocial, and behavioral changes that usually occur as the mother and other family members adapt to pregnancy.
3. Discuss the benefits of prenatal care and problems of accessibility for some women.
4. Outline the patterns of health care used to assess maternal and fetal health status at the initial and follow-up visits during pregnancy.
5. Identify the typical nursing assessments, diagnoses, interventions, and methods of evaluation in providing care for the pregnant woman.
6. Discuss education needed by pregnant women to understand physical discomforts related to pregnancy and to recognize signs and symptoms of potential complications.
7. 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.

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the health needs of the expectant family over the course of pregnancy, which is known as 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 may be difficult in some women. Physical variations, obesity, or tumors, for example, may confound 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 may be of great value in the accurate diagnosis of pregnancy (see Chapter 9).

**Signs and Symptoms**

Great variability is possible in the subjective and objective symptoms of pregnancy; therefore the diagnosis of pregnancy may be uncertain for a time. Many of the indicators of pregnancy are clinically useful in the diagnosis of pregnancy, and they are classified as presumptive, probable, or positive.

**Presumptive indicators** of pregnancy include subjective symptoms and objective signs. Subjective symptoms are reported by the woman and may include amenorrhea, nausea and vomiting (morning sickness), breast tenderness, urinary frequency, and fatigue. **Quickening**, the mother’s first perception of fetal movement, may be noted between weeks 16 and 20. Objective signs that may be validated by the examiner include elevation of BBT, breast and abdominal enlargement, and changes in the uterus and vagina. Other visible changes occur in the skin, such as striae gravidarum, deeper pigmentation of the areola, chloasma (mask of pregnancy), and linea nigra (pigmented line on the abdomen) (see Table 14-2).

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

**Probable indicators** of pregnancy are detected by an examiner and are related mainly to physical changes in the uterus. Objective signs include uterine enlargement, Braxton Hicks contractions, uterine souffle, ballottement, and a positive pregnancy test. When combined with presumptive signs and symptoms, they strongly suggest pregnancy, but they are not conclusive. For example, uterine enlargement may be due to the presence of tumors; unusual bowel sounds may be misinterpreted; or positive results on a pregnancy test may be due to a malignant tumor that secretes the hormone human chorionic gonadotropin (hCG).

**Box 16-1 Use of Nägele’s Rule**

<table>
<thead>
<tr>
<th>LMP</th>
<th>LNMP</th>
<th>LNMP + 1 year or LNMP + 7 days</th>
<th>LMP - 3 months or LMP - 3 calendar months</th>
<th>EDB</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 10, 2006</td>
<td></td>
<td></td>
<td></td>
<td>April 17, 2007</td>
</tr>
</tbody>
</table>

The **positive indicators** of pregnancy are directly attributed to the fetus and include the presence of a fetal heartbeat distinct from that of the mother, fetal movement felt by someone other than the mother, and visualization of the fetus with a technique such as ultrasound examination. The fetal heartbeat can be detected as early as 6 weeks of gestation with Doppler techniques, but ultrasound examination becomes 100% reliable only at 8 to 9 weeks of gestation. However, the fetal heartbeat usually cannot be detected with a fetoscope until weeks 16 to 20. An examiner may palpate fetal movements with increasing reliability after 20 to 24 weeks.

**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) also has been used (Katz, Farmer, Tufariello, & Carpenter, 2001). To promote a more positive perception of both pregnancy and birth, however, the term estimated date of birth (EDB) is suggested. Because the precise date of conception generally is unknown, several formulas have been suggested for calculating the EDB. None of these guides is infallible, but Nägele’s rule is reasonably accurate and is usually used.

**Nägele’s rule** is as follows: After determining the first day of the LMP, subtract 3 calendar months, add 7 days and 1 year; or alternatively, add 7 days to the LMP and count forward 9 calendar months. Box 16-1 demonstrates use of Nägele’s rule.

Nägele’s rule assumes that the woman has a 28-day menstrual cycle and that pregnancy commenced on the fourteenth day. An adjustment is in order if the woman’s cycle is longer or shorter than 28 days. With the use of Nägele’s rule, only about 5% of pregnant women give birth spontaneously on the EDB (Katz et al., 2001). Most women give birth during the period extending from 7 days before to 7 days after the EDB.

**ADAPTATION TO PREGNANCY**

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 must be prepared to support not only
traditional families in the childbirth experience but also single-parent families, reconstituted families, dual-career families, and alternative families.

Much of the investigation of family dynamics in pregnancy by scholars in the United States and Canada has been done with Caucasian, middle-class nuclear families, and findings may not apply to families who 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 secondary to the increased fatigue of this stage. 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 can be 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. 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 dismayed 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. Nonacceptance of the pregnancy, however, should not be equated with rejection of the child, for a woman may dislike being pregnant but feel love for the child to be born.

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, that is, 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 may be responsible for mood changes. Other reasons such as concerns about finances and changed lifestyle contribute to this seemingly erratic behavior.

Pregnant women are affected emotionally by changes that occur in the physical contours and functions of their bodies. During the first trimester, body shape changes little, but by the second trimester, obvious bulging of the abdomen, thickening of the waist, and enlargement of the breasts proclaim the state of pregnancy. A feeling develops of an overall increase in the size of her body and occupying more space.

The woman’s attitude about her body is influenced by her values, weight before pregnancy and ethnicity. This attitude often changes as pregnancy progresses and may fluctuate throughout pregnancy (Johnson, Burrows, & Williamson, 2004; Schmied & Lupton, 2001). A positive body image usually is expressed during the first trimester. As the pregnancy advances, however, the feelings may become more negative. For most women, the feeling of liking or not liking their bodies in the pregnant state is temporary and does not cause permanent changes in their self-perceptions (Schmied & Lupton).

Most women have ambivalent feelings during pregnancy whether the pregnancy was intended or not. Ambivalence—having conflicting feelings simultaneously—is considered a normal response for people preparing for a new role. During pregnancy, women may, for example, feel great pleasure that they are fulfilling a lifelong dream, but they also may 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 usually are 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 then will 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 what constitutes 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, babysitting, and taking care of siblings, may increase her understanding of what being a mother entails.

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, conflicts such as not wanting the pregnancy and child-related or career-related decisions must be resolved.

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 daughter. If the mother is supportive, the daughter has an opportunity to discuss pregnancy and labor and her feelings of joy or ambivalence with a knowledgeable and accepting woman (Fig. 16-1). 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. The support and concern of a partner during pregnancy have positive consequences for a woman’s desire to carry out the pregnancy (Kroelinger & Oths, 2000), and she has fewer emotional and physical symptoms, fewer labor and childbirth complications, and an easier postpartum adjustment. Women express two major needs within this relationship during pregnancy: feeling loved and valued and having the child accepted by the partner.

FIG. 16-1 A pregnant woman and her mother enjoying their walk together. (Courtesy Michael S. Clement, MD, Mesa, AZ.)

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 may be 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 individual. The sexual relationship is affected by physical, emotional, and interactional factors, including myths about sex during pregnancy, sexual dysfunction, and physical changes in the woman. Myths about body functions and fantasies about the influence of the fetus as a third party in lovemaking are commonly expressed. An individual may also inaccurately attribute anomalies, mental retardation, and other injuries to the fetus and mother to sexual relations during pregnancy. Some couples fear that the woman’s genitals will be drastically changed by the birth process. Couples may 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 may decrease, 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 may increase her physical discomfort and again diminish her 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 may experience as pregnancy progresses.

**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 around 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. Attachment of a mother to her child is enhanced by experiencing a planned pregnancy and it increases when ultrasound examination and quickening confirm the reality of the fetus.

With acceptance of the reality of the child (hearing the heart beat and feeling the child move) and an overall feeling of well-being, the woman enters a quiet period and becomes more introspective. A fantasy child becomes 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 there are children 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 sex (if she has not had an ultrasound that confirms the sex) and 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. The fetus may 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 multipara 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). This concern may not be expressed overtly, but cues are given as the nurse listens to plans women make 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 by the nurse 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.

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**CRITICAL THINKING EXERCISE**

**Deciding About a Home Birth**

Millie, 28 years old and gravida 1, para 0, is interested in having a home birth. She is currently 14 weeks pregnant, and her pregnancy is progressing normally. According to an ultrasound examination she has one fetus, which is of appropriate size for gestational age with no detectable anomalies. She asks a nurse in the obstetric clinic how to find a midwife who will attend a home birth.

1. **Evidence**—Is there sufficient evidence to draw conclusions about the safety of a home birth for Millie?
2. **Assumptions**—Describe the underlying assumptions for each of the following issues:
   a. Assessments that are necessary to identify whether it is feasible and safe for Millie to have a home birth
   b. Supports necessary for a home birth
   c. How to identify providers who are willing to attend a home birth
   d. Ethics of the nurse assisting Millie to find a midwife who will attend a home birth
3. **What implications and priorities for nursing care can be made at this time?**
4. **Does the evidence objectively support your conclusion?**
5. **Are there alternative perspectives to your conclusion?**
and their actions. The best preparation for childbirth is “a healthy sense of the realistic—an awareness of work, pain, and risk balanced by a sense of excitement and expectation of the final reward” (Lederman, 1996). Childbirth education is further discussed in Chapter 17.

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 urgency of urination, constipation, and varicose veins can become troublesome. The bulkiness and awkwardness of her body interfere with the woman’s ability to care for other children, perform routine work-related duties, and assume a comfortable position for sleep and rest. 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 becomes physically and emotionally engrossed in the unborn child. He may seek friends and relationships 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 can be 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 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. Today, 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 in the past 30 years in North America have encouraged fathers’ participation in the birth experience.

A man’s readiness for fatherhood may be reflected in the way he views the couple’s relative financial security and the stability of the couple relationship and in the way he deals with the realization that the upcoming birth marks the end of the childless period. Many men express concern for the family’s economic security. Today, most women are employed outside the home but have a period of unemployment for childbearing and child care. The length of unemployment is determined by the couple’s economic status, the policies of the woman’s employer, and the couple’s value system. Some men compensate for anticipated needs by keeping their current jobs even though they had planned a change, by working overtime, or by taking on extra work. Some men acquire new or additional insurance at this time.

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 dismay, 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 (Martin, Mackie, Kupper, Buescher, & Moracco, 2001). Chapter 6 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. They may be excited and pleased about the anticipated role of father (Fig. 16-2). Others may be 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 also must 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 may indicate rivalry, and it may be 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 may be unconscious and not verbalized, but 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. Couples who are told early in the pregnancy that ambivalence, anxiety, and increased tensions are common experiences for expectant couples then can devote energy to managing the changes. Perinatal educators are in an especially favorable position to incorporate needs of prospective fathers as well as mothers in their class presentations and discussions.

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; however, men rarely describe their thoughts unless they are reassured that such daydreams are normal.

Nurses can help fathers identify concerns and prepare for the reality of a baby by asking questions such as the following:

- What do you expect the baby to look and act like?
- What do you think being a father will be like?
- Have you thought about the baby’s crying? Changing diapers? Burping the baby? Being awakened at night? Sharing your partner with the baby?

The father may not wish to answer such questions when he is asked but may need time to think them through or discuss them with his partner.

As the birth date approaches, men have more questions about fetal and newborn behaviors. Some men are shocked or amazed at the smallness of clothes and furniture for the baby. If an expectant father can imagine only an older child and has difficulty visualizing or talking about an infant, this situation must be explored. The nurse can tell the father about the unborn child’s ability to respond to light, sound, and touch and encourage him to feel and talk to the fetus. A tour of a newborn nursery or discussions with new fathers, as in childbirth classes, may be welcomed.

Some men become involved by picking the child’s name and anticipating the child’s sex, if it is not already known. Some couples select the name of the child as early as the first month of pregnancy. Family tradition, religious customs and the continuation of the parent’s name or names of relatives or friends are important in the selection process.

Parents may occasionally show or voice disappointment over the sex of the child. The parents may experience grief and a sense of loss at birth as they release their fantasized image of the child and begin to accept the real child. However, these negative responses are usually temporary. Providing an accepting environment for parental reactions facilitates the parent’s ability to move beyond disappointment to acceptance.

Preparing for Childbirth

The days and weeks immediately before the expected day of birth are characterized by 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 may be overt evidence of their 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 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 and equipment, 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 also may have fears concerning safe passage of his child and partner and the possible death or complications of his partner and child. It is important he verbalize these fears, otherwise he cannot help his mate deal with her own unspoken or overt 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. The tensions and apprehensions of the unprepared, unsupportive father are readily transmitted to the mother and may increase her fears.

The same fears, questions, and concerns may affect birth partners who are not the biologic fathers. Birth partners need to be kept 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 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 baby (see Fig. 17-4 and Box 17-4) 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.” Toddlers’ need for sameness in the environment makes children aware of any change. They may exhibit more clinging behavior and revert to dependent behaviors in toilet training or eating.

By age 3 or 4 years, children like to be told the story of their own beginning and accept its being compared with the present pregnancy. They like to listen to the fetal heart beat and feel the baby moving in utero (Fig. 16-3). 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 readying 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 difficulty 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 soon will 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 30s or 40s. Parents-to-be announcing their pregnancy to their parents may be greeted by a negative response, indicating that they are not ready to be grandparents. The parents-to-be may be hurt by this initial response.

In some family units, expectant grandparents are non-supportive and may also 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 person 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. 16-4).

Many women report that their pregnancies bridged the final gap between them and their own mothers. The estrangement that began in adolescence disappears as the now-pregnant daughter experiences joys, concerns, and anxieties similar to those felt by her mother before her.

Expectant grandparenthood also can represent a maturation milestone for the parent of an expectant parent. To be truly family oriented, maternity care must include the grandparent in the implementation of the nursing process with the whole childbearing family. A class for grandparents is one method of incorporating the grandparents into the family system and encouraging communication between the generations.

Grandparents’ anxieties and concerns and their relationships with expectant parents and grandchildren should be discussed during courses for expectant parents. The expectant parents may use this opportunity to begin to resolve conflicts and perceived differences with their parents, a task that can also enhance their ability to relate to their own children.

### CARE MANAGEMENT

The purpose of prenatal care is to identify existing risk factors and other deviations from normal so that pregnancy outcomes may be enhanced (Johnson & Niebyl, 2002). Major emphasis is placed on preventive aspects of care, primarily to motivate the pregnant woman to practice optimal self-care and to report unusual changes early so that problems can be prevented or minimized. If health behaviors must be modified in early pregnancy, nurses need to understand psychosocial factors that may influence the woman. 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 the pregnancy and birth experience.

Advances have been made in the number of women in the United States who receive adequate prenatal care. In 2003, 84% of all women received care in the first trimester and 3.5% had late or no prenatal care. There is disparity in use of prenatal care in the first trimester by race and ethnicity: 89% of non-Hispanic whites, 76% of non-Hispanic blacks, and 78% of Hispanic women receive care in the first trimester (Hoyert, Mathews, Menacker, Strobino, & Guyer, 2006). Although prenatal care is sought routinely by women of middle or high socioeconomic status, women living in poverty or who lack health insurance may have difficulty using public medical services or gaining 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 (Shaffer, 2002). Likewise, 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 therefore 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, and personal

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**FIG. 16-4** Grandfather getting to know his grandson. (Courtesy Nicole Larson, Eden Prairie, MN.)
attitudes (Boyle, Banks, Petrizzi, & Larimore, 2003; Chandler, 2002; Handler, Rosenberg, Raube, & Lyons, 2003; Sword, 2003). The availability and accessibility of prenatal care may be improved by the increasing use of advanced practice nurses in collaborative practice with physicians (Boyle et al.). The effectiveness of a regular schedule of home visiting by nurses during pregnancy also has been validated (Petrick, Christensen, & Mitchell, 2003).

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 monthly visits through week 28 of pregnancy. Thereafter, visits are scheduled every 2 weeks until week 36, and then every week until birth (see Box 16-3). This model is currently being questioned, and in some practices there is a growing tendency to have fewer visits with women who are at low risk for complications (Villar, Carrol, Khan-Neelofur, Piaggio, & Gulmezoglu, 2001). Health care providers are challenged to create a system of prenatal care that has minimal barriers and a focus on individualized care.

In response to the call of the United States Public Health Service (1989) to develop new models of prenatal care, Rising (1998), a certified nurse-midwife, developed an innovative approach that emphasizes the assessment of risk, education, and support in a group setting using a holistic and comprehensive focus. In this centering pregnancy (CP) approach, women have over 20 contact hours with a health care provider during pregnancy and postpartum. Eight to 12 women are placed in gestational age cohort groups; group sessions begin at 12 to 16 weeks of gestation and end with an early postpartum meeting (Carlson & Lowe, 2006).

Before groups begin, each woman has an individual assessment, physical examination, and history. At the beginning of the group meeting, women measure their own blood pressure, weigh themselves, and test their own urine using dipsticks, and record the results. Fundal height and the fetal heart rate are assessed individually and privately. Individual follow-up is scheduled as needed (Carlson & Lowe, 2006).

Results assessing the effectiveness of this approach have been promising; in a study of adolescents, the incidence of low birth weight was reduced and rates of breastfeeding were increased (Grady & Bloom, 2004). Other studies of CP are ongoing.

In recent years the concept of preconception care has been recognized as an important contributor to good pregnancy outcomes (see Chapter 17). If women can be taught and demonstrate healthy lifestyle behaviors preconceptionally—specifically good nutrition, adequate intake of folic acid, avoidance of alcohol and tobacco use, prevention of sexually transmitted infections (STIs) and other health hazards—a healthier pregnancy may result. Likewise, women who have health problems related to chronic diseases such as diabetes mellitus can be counseled regarding their special needs, with the intent to minimize maternal and fetal complications.

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 here is organized around the central elements of the nursing process: assessment, nursing diagnoses, expected outcomes, plan of care and interventions, and evaluation.

Assessment and Nursing Diagnoses

Once the presence of pregnancy has been confirmed and the woman’s desire to continue the pregnancy has been validated, prenatal care is begun. The assessment process begins at the initial prenatal visit and is continued 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.

Initial Visit

The pregnant woman and family members who may be present should be told that the first prenatal visit is more lengthy and detailed than future visits. 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 (Fig. 16-5) is the best way to document information obtained.

Interview. The therapeutic relationship between the nurse and the woman is established during the initial assessment interview. It is a time for planned, purposeful communication that focuses on specific content. The data collected are of two types: the woman’s subjective appraisal of her health status and the nurse’s objective observations. During the interview the nurse observes the woman’s affect, posture, body language, skin color, and other physical and emotional signs.

Often the pregnant woman is accompanied by one or more family members. The nurse needs to build a relationship with these people as part of the social context of the client. With her permission, those accompanying the woman can be included in the initial prenatal interview, and the observations and information about the woman’s family form part of the database (Fig. 16-6, p. 394.). For example, if the woman is accompanied by small children, the nurse can ask about her plans for child care during the time of labor and birth. Special needs are noted 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
# UNIT THREE PREGNANCY

## Menstrual History

<table>
<thead>
<tr>
<th>Menstrual History</th>
<th>O Neg</th>
<th>Detail Positive Remarks Include Date &amp; Treatment</th>
<th>O Neg</th>
<th>Detail Positive Remarks Include Date &amp; Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Diabetes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Hypertension</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>3. Heart Disease</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Autoimmune Disorder</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Kidney Disease</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Neurologic/ Epilepsy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Psychiatric</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Depression/Postpartum Depression</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Hepatitis/Liver Disease</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Varicostes/Phlebitis</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>11. Thyroid Dysfunction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Trauma/Violence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Tobacco</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Alcohol</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Illicit/Recreational Drugs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Comments

**FIG. 16-5** A sample prenatal history form. (Copyright © 2003 The American College of Obstetricians and Gynecologists, 409 12th Street, SW, PO Box 96920, Washington, DC, 20090-6920.)
### SYMPTOMS SINCE LMP

<table>
<thead>
<tr>
<th>Date</th>
<th>Symptom</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### GENETIC SCREENING/TERATOLOGY COUNSELING

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Patient's age ≥35 years as of estimated date of delivery</td>
<td>12. Huntington's chorea</td>
</tr>
<tr>
<td>2. Thalassemia (Italian, Greek, Mediterranean; or Asian background; MCV &lt;80)</td>
<td>13. Mental retardation/autism</td>
</tr>
<tr>
<td>3. Neural tube defect (encephalocele, spina bifida, or anencephaly)</td>
<td>14. Other inherited genetic or chromosomal disorder</td>
</tr>
<tr>
<td>4. Congenital heart defect</td>
<td>15. Maternal metabolic disorder (eg, type 1 diabetes, PKU)</td>
</tr>
<tr>
<td>5. Down syndrome</td>
<td>16. Patient or baby's father had a child with birth defects not listed above</td>
</tr>
<tr>
<td>6. Tay-Sachs (eg, Jewish, Cajun, French Canadian)</td>
<td>17. Recurrent pregnancy loss, or a stillbirth</td>
</tr>
<tr>
<td>7. Canavan disease</td>
<td>18. Medications (including supplements, vitamins, herbs or OTC drugs/recreational drugs/alcohol since last menstrual period)</td>
</tr>
<tr>
<td>8. Sickle cell disease or trait (African)</td>
<td>19. Any other</td>
</tr>
<tr>
<td>9. Cystic fibrosis</td>
<td></td>
</tr>
</tbody>
</table>

**COMMENTS/COUNSELING**

[Blank space for comments]

### INFECTION HISTORY

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Live with someone with TB or exposed to TB</td>
<td>4. History of STD, gonorrhea, chlamydia, HPV, syphilis</td>
</tr>
<tr>
<td>2. Patient or partner has history of genital herpes</td>
<td>5. Other (See Comments)</td>
</tr>
<tr>
<td>3. Rash or viral illness since last menstrual period</td>
<td></td>
</tr>
</tbody>
</table>

**COMMENTS**

[Blank space for comments]

### INITIAL PHYSICAL EXAMINATION

<table>
<thead>
<tr>
<th>Date</th>
<th>Height</th>
<th>BP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. HEAD</td>
<td>NORMAL</td>
<td>ABNORMAL</td>
</tr>
<tr>
<td>2. FUNDI</td>
<td>NORMAL</td>
<td>ABNORMAL</td>
</tr>
<tr>
<td>3. TEETH</td>
<td>NORMAL</td>
<td>ABNORMAL</td>
</tr>
<tr>
<td>4. THYROID</td>
<td>NORMAL</td>
<td>ABNORMAL</td>
</tr>
<tr>
<td>5. BREASTS</td>
<td>NORMAL</td>
<td>ABNORMAL</td>
</tr>
<tr>
<td>6. LUNGS</td>
<td>NORMAL</td>
<td>ABNORMAL</td>
</tr>
<tr>
<td>7. HEART</td>
<td>NORMAL</td>
<td>ABNORMAL</td>
</tr>
<tr>
<td>8. ABDOMEN</td>
<td>NORMAL</td>
<td>ABNORMAL</td>
</tr>
<tr>
<td>9. EXTREMITIES</td>
<td>NORMAL</td>
<td>ABNORMAL</td>
</tr>
<tr>
<td>10. SKIN</td>
<td>NORMAL</td>
<td>ABNORMAL</td>
</tr>
<tr>
<td>11. LYMPH NODES</td>
<td>NORMAL</td>
<td>ABNORMAL</td>
</tr>
</tbody>
</table>

**COMMENTS** (Number and explain abnormals)

[Blank space for comments]
### FIG. 16-5, cont'd  A sample prenatal history form. (Copyright © 2003 The American College of Obstetricians and Gynecologists, 409 12th Street, SW, P.O. Box 96920, Washington, DC, 20090-6920.)
### CHAPTER 16  NURSING CARE DURING PREGNANCY

**LABORATORY AND EDUCATION**

<table>
<thead>
<tr>
<th>INITIAL LABS</th>
<th>DATE</th>
<th>RESULT</th>
<th>REVIEWED</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLOOD TYPE</td>
<td>/</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>D (Rh) TYPE</td>
<td>/</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>ANTIBODY SCREEN</td>
<td>/</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>HCT/HGB</td>
<td>/</td>
<td>______ % ______ g/dL</td>
<td></td>
</tr>
<tr>
<td>PAP TEST</td>
<td>/</td>
<td>NORMAL/ABNORMAL ______</td>
<td></td>
</tr>
<tr>
<td>RUBELLA</td>
<td>/</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>VDRL</td>
<td>/</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>URINE CULTURE/SCREEN</td>
<td>/</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>HBsAg</td>
<td>/</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>HIV COUNSELING/TESTING*</td>
<td>/</td>
<td>/</td>
<td>POS  NEG  DECLINED</td>
</tr>
</tbody>
</table>

**OPTIONAL LABS**

<table>
<thead>
<tr>
<th>DATE</th>
<th>RESULT</th>
<th>REVIEWED</th>
</tr>
</thead>
<tbody>
<tr>
<td>HGB ELECTROPHORESIS</td>
<td>/</td>
<td>AA, AS, SS, AC, SC, AF, T, A2</td>
</tr>
<tr>
<td>PPD</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>CHLAMYDIA</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>GONORRHEA</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>GENETIC SCREENING TESTS (SEE FORM B)</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>OTHER</td>
<td>/</td>
<td>/</td>
</tr>
</tbody>
</table>

**8–18-WEEK LABS (WHEN INDICATED/ELECTED)**

<table>
<thead>
<tr>
<th>DATE</th>
<th>RESULT</th>
</tr>
</thead>
<tbody>
<tr>
<td>ULTRASOUND</td>
<td>/</td>
</tr>
<tr>
<td>MSAFP/MULTIPLE MARKERS</td>
<td>/</td>
</tr>
<tr>
<td>AMNIO/CVS</td>
<td>/</td>
</tr>
<tr>
<td>KARYOTYPE</td>
<td>/</td>
</tr>
<tr>
<td>AMNIOTIC FLUID [AFP]</td>
<td>/</td>
</tr>
</tbody>
</table>

**24–26-WEEK LABS (WHEN INDICATED)**

<table>
<thead>
<tr>
<th>DATE</th>
<th>RESULT</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCT/HGB</td>
<td>/</td>
</tr>
<tr>
<td>DIABETES SCREEN</td>
<td>/</td>
</tr>
<tr>
<td>GTT (IF SCREEN ABNORMAL)</td>
<td>/</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>D (Rh) ANTIBODY SCREEN</td>
<td>/</td>
</tr>
<tr>
<td>ANTI-D IMMUNE GLOBULIN (RhIG) GIVEN (28 WKS)</td>
<td>/</td>
</tr>
</tbody>
</table>

**32–36-WEEK LABS**

<table>
<thead>
<tr>
<th>DATE</th>
<th>RESULT</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCT/HGB</td>
<td>/</td>
</tr>
<tr>
<td>ULTRASOUND (WHEN INDICATED)</td>
<td>/</td>
</tr>
<tr>
<td>VDRL (WHEN INDICATED)</td>
<td>/</td>
</tr>
<tr>
<td>GONORRHEA (WHEN INDICATED)</td>
<td>/</td>
</tr>
<tr>
<td>CHLAMYDIA (WHEN INDICATED)</td>
<td>/</td>
</tr>
<tr>
<td>GROUP B STREP</td>
<td>/</td>
</tr>
</tbody>
</table>

*Check state requirements before recording results.

**FIG. 16-5, cont’d** A sample prenatal history form. (Copyright © 2003 The American College of Obstetricians and Gynecologists, 409 12th Street, SW, P.O. Box 96920, Washington, DC, 20090-6920.)
reassurance about a particular concern. When the client is asked a broad, open-ended question such as, “How have you been feeling?” she may reveal problems that could otherwise be overlooked. The woman’s chief concerns should be recorded in her own words to alert other personnel to the priority of needs as identified by her. 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. Some early teaching may be provided 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 STIs; her sexual history; and a detailed history of all her pregnancies, including the present pregnancy, and their outcomes. The date of the last Papanicolaou (Pap) test and the result are noted. The date of her LMP is obtained to establish the EDB.

Prenatal Interview

Medical History. The medical history includes those medical or surgical conditions that may affect the pregnancy or that may be affected by the pregnancy. For example, a pregnant woman who has diabetes, hypertension, or epilepsy requires special care. Because most women are anxious during the initial interview, the nurse’s reference to cues, such as a MedicAlert bracelet, prompts the woman to explain allergies, chronic diseases, or medications being taken (e.g., cortisone, insulin, or anticonvulsants).

The nature of previous surgical procedures also should be described. If a woman has undergone uterine surgery or extensive repair of the pelvic floor, 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. Any injury involving the pelvis is noted.

Often women who have chronic or handicapping conditions 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. Observations are vital components of the interview process because they prompt the nurse and woman to focus on the specific needs of the woman and her family.

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 can reveal special dietary practices, food allergies, eating behaviors, the practice of pica (Corbett, Ryan, & Weinrich, 2003), and other factors related to her nutritional status (see Box 15-5). Pregnant women are usually motivated to learn about good nutrition and respond well to nutritional advice generated by this assessment.

History of Drug and Herbal Preparations Use. A woman’s past and present use of drugs, both legal (over-the-counter [OTC] and prescription medications; herbal preparations; caffeine; alcohol; nicotine) and illegal (e.g., marijuana, cocaine, heroin), must be assessed because many substances cross the placenta and may therefore harm the developing fetus. Periodic urine toxicology screening tests are often recommended during the pregnancies of women who have a history of illegal drug use. Results of such tests have been used for criminal prosecution, which results in a breach in client-provider relationship and in ethical responsibilities to the client (Foley, 2002; Harris & Paltrow, 2003). Nurses may have ethical concerns if pregnant women are not informed of the possibility of random urine testing for presence of drugs. The other side of this concern is the unborn child and whether the mother has a duty not to harm him or her. Today, increased numbers of individuals are using herbal preparations, and this usage includes pregnant women. Therefore, it is important for health care providers to question prenatal women regarding the use of herbal preparations and document the woman’s responses. Further investigation in this area is needed.

LENGAL TIP Screening for Drug Use

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

Family History. The family history provides information about the woman’s immediate family, including parents, siblings, and children. 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 are assessed while the history is obtained. The following information may be obtained in several encounters. The woman’s perception
of this pregnancy is explored by asking questions such as the following: Is this pregnancy planned or not, wanted or not? Is the woman pleased, displeased, accepting, or non-accepting? What problems related to finances, career, or living accommodations may arise as a result of the pregnancy? The family support system is determined by asking the following questions: 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 are being made for her care and that of dependent family members during labor and for the care of the infant after birth? Is financial, educational, or other support needed 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 questions that should be asked 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 are interrupted by having a baby? 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 must 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.

Cop ing mechanisms and patterns of interacting also are identified. Early in the pregnancy the nurse should determine the woman’s knowledge in various areas: of pregnancy, maternal changes, fetal growth, self-care, 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.

Attitudes concerning the range of acceptable sexual behavior during pregnancy also should be explored by asking questions such as the following: What has your family (partner, friends) told you about sex during pregnancy? The woman’s sexual self-concept is given more emphasis 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?

Women should be questioned regarding their occupation—past and present, since this may adversely affect maternal and fetal health. For some women, heavy lifting and exposure to chemicals and radiation may be part of their daily work, and these activities may negatively affect the pregnancy.

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 visual cues from the woman’s appearance or behavior may suggest the possibility, if questioning is limited to those women who fit the supposed profile of the battered woman, many women will be missed. Identification of abuse and immediate clinical intervention that includes information about safety can result in behaviors that may prevent future abuse and increase the safety and well-being of the woman and her infant (McFarlane, Parker, & Cross, 2001). 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 constitutes a particularly difficult situation. Adolescents may be 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. Because pregnancy in young adolescent girls is commonly the result of sexual abuse, the nurse should assess the desire to maintain the pregnancy (see Chapter 6 for further discussion).

Review of Systems. During this portion of the interview, the woman is asked to identify and describe preexisting or concurrent problems in any of the body systems, and her mental status is assessed. The woman is questioned 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, the following additional data should be obtained: 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 matter-of-fact attitude.

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

Each examiner develops a routine for proceeding with the physical examination; most choose the head-to-toe progression. Heart and lung sounds are evaluated, and
extremities are examined. Distribution, amount, and quality of body hair are of particular importance because the findings reflect nutritional status, endocrine function, and attention to hygiene. The thyroid gland is assessed carefully. The height of the fundus is noted if the first examination is done after the first trimester of pregnancy. During the examination the examiner must remain alert to the woman’s cues that give direction to the remainder of the assessment and that indicate imminent untoward response such as supine hypotension—low blood pressure (BP) that occurs while the woman is lying on her back, causing feelings of faintness. See Chapter 5 for a detailed description of the physical examination.

Whenever a pelvic examination is performed, the tone of the pelvic musculature and the woman’s knowledge of Kegel exercises are assessed. Particular attention is paid to the size of the uterus because this is an indication of the duration of gestation. The nurse present during the examination can coach the woman in breathing and relaxation techniques at this time, as needed. One vaginal examination during pregnancy is recommended, but another is usually not done 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.

### Table 16-1 Laboratory Tests in Prenatal Period

<table>
<thead>
<tr>
<th>LABORATORY TEST</th>
<th>PURPOSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemoglobin, hematocrit, WBC, differential</td>
<td>Detects anemia; detects infection</td>
</tr>
<tr>
<td>Hemoglobin electrophoresis</td>
<td>Identifies women with hemoglobinopathies (e.g., sickle cell anemia, thalassemia)</td>
</tr>
<tr>
<td>Blood type, Rh, and irregular antibody</td>
<td>Identifies those fetuses at risk for developing erythroblastosis fetalis or hyperbilirubinemia in neonatal period</td>
</tr>
<tr>
<td>Rubella titer</td>
<td>Determines immunity to rubella</td>
</tr>
<tr>
<td>Tuberculin skin testing; chest film after 20 weeks of gestation in women with reactive tuberculin tests</td>
<td>Screens for exposure to tuberculosis</td>
</tr>
<tr>
<td>Urinalysis, including microscopic examination of urinary sediment; pH, specific gravity, color, glucose, albumin, protein, RBCs, WBCs, casts, acetone; hCG</td>
<td>Identifies women with unsuspected diabetes mellitus, renal disease, hypertensive disease of pregnancy, infection; occult hematuria</td>
</tr>
<tr>
<td>Urine culture</td>
<td>Identifies women with asymptomatic bacteriuria</td>
</tr>
<tr>
<td>Renal function tests: BUN, creatinine, electrolytes, creatinine clearance, total protein excretion</td>
<td>Evaluates level of possible renal compromise in women with a history of diabetes, hypertension, or renal disease</td>
</tr>
<tr>
<td>Pap test</td>
<td>Screens for cervical intraepithelial neoplasia, herpes simplex type 2, and HPV</td>
</tr>
<tr>
<td>Vaginal or rectal smear for Neisseria gonorrhoeae, Chlamydia, HPV, GBS</td>
<td>Screens high risk population for asymptomatic infection; GBS done at 35-37 weeks</td>
</tr>
<tr>
<td>RPR, VDRL, or FTA-ABS</td>
<td>Identifies women with untreated syphilis</td>
</tr>
<tr>
<td>HIV* antibody, hepatitis B surface antigen, toxoplasmosis</td>
<td>Screens for specific infections</td>
</tr>
<tr>
<td>1-hr glucose tolerance</td>
<td>Screens for gestational diabetes; done at initial visit for women with risk factors; done at 24-28 weeks for all pregnant women</td>
</tr>
<tr>
<td>3-hr glucose tolerance</td>
<td>Screens for diabetes in women with elevated glucose level after 1-hr test; must have two elevated readings for diagnosis</td>
</tr>
<tr>
<td>Cardiac evaluation: ECG, chest x-ray film, and echocardiogram</td>
<td>Evaluates cardiac function in women with a history of hypertension or cardiac disease</td>
</tr>
</tbody>
</table>

*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; RBC, red blood cell; RPR, rapid plasma reagin; VDRL, Venereal Disease Research Laboratory; WBC, white blood cell.

*With client permission.*
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 the pregnant woman’s decision regarding testing and/or treatment for HIV.

- The incidence of perinatal transmission from an HIV-positive mother to her fetus ranges from 25% to 35%. Zidovudine decreases perinatal transmission and the risk of infant death. Elective cesarean birth significantly reduces the risk of transmission from the mother to child. 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. However, mandatory HIV screening involves ethical issues related to privacy invasion, discrimination, social stigma, and reproductive risks to the pregnant woman.


(PPD) tuberculin test may be administered to assess exposure to tuberculosis. 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. Careful assessment and screening are essential.

Follow-Up Visits

Monthly visits are scheduled routinely during the first and second trimesters, although additional appointments may be made as the need arises. During the third trimester, however, the possibility for complications increases, and closer monitoring is warranted. 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. Individual needs, complications, and risks of the pregnant woman may warrant visits more or less often. The pattern of interviewing the woman first and then assessing physical changes and performing laboratory tests is maintained.

Interview. Follow-up visits are less intensive than the initial prenatal visit. At each of these follow-up visits, the woman is asked to summarize relevant events that have occurred since the previous visit. She is asked about her general emotional and physiologic well-being, complaints, problems, and questions she may have. Personal and family needs also are identified and explored.

Because the woman’s emotional state affects her and her family’s general well-being, the emotional adjustment for all is assessed at each visit. Because emotional changes are expected during pregnancy, the nurse logically asks whether the woman has had any mood swings; reactions to changes in her body image, bad dreams, or worries. Positive feelings (her own and those of her family) are also noted. The reactions of family members to the pregnancy and the woman’s progression through the developmental tasks of pregnancy also are assessed and recorded.

During the third trimester, current family situations and their effect on the woman are assessed (e.g., partners’, siblings’, and grandparents’ responses to the pregnancy and the coming child). In addition, the following questions are addressed:

- What anticipatory planning is in progress concerning new parenting responsibilities, sibling rivalry, recuperation from pregnancy and birth, and fertility management?
- What successes or frustrations with diet, rest and relaxation, sexuality, and emotional support is the woman experiencing?
- What is the woman’s understanding of her family’s needs in relation to the pregnancy and the unborn child?
- How well prepared are the parents for coping with an emergency? That is, does the woman know the warning signs (e.g., bleeding, abdominal pain, signs of pre-eclampsia), understand what they represent, and know how and to whom to report them?
- Does the woman know the signs of preterm and term labor?
- What is the woman’s understanding of the labor process and expectations of herself and others during labor?
- Does she know when to come and what to bring to the hospital or birthing center?
- What plans have the woman and her family made for labor?
- What anxieties are the woman or her family experiencing regarding labor or the unborn child?
- What does the woman wish to know about the control of discomfort during labor?
- Is the woman (and her partner or support person) planning to attend any parent education classes?
- Does the woman have questions about fetal development and methods to assess fetal well-being?

A review of the woman’s physical systems is appropriate at each prenatal visit, and any suspicious signs or symptoms are assessed in depth. Discomforts reflecting adaptations to pregnancy are identified. Special inquiries are made about possible infections (e.g., genitourinary tract, respiratory tract). The woman’s knowledge of and success with self-care measures are assessed, as well as outcomes of prescribed therapy.

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, BP is taken by using the same arm at every visit, with 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. Abdominal inspection is followed by measurement of the height of the fundus. While the woman lies on her back, the nurse should be alert for the occurrence of supine hypotension (see Emergency box).

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

Individuals whose systolic BP (SBP) is 120 to 139 mm Hg or whose diastolic BP (DBP) is 80 to 89 mm Hg are viewed as prehypertensive (National High Blood Pressure Education Program [NHBPEP], 2003). Hypertension is defined by the NHBPEP Working Groups as a systolic BP of 140 mm Hg or more and a diastolic BP of 90 mm Hg or more after 20 weeks of gestation in women with previously normal blood pressure (American College of Obstetricians and Gynecologists [ACOG], 2002a).

An absolute SBP of 140 mm Hg or more and a DBP of 90 mm Hg or more suggests the presence of hypertension. An SBP ≥125 mm Hg or a DBP ≥75 mm Hg in midpregnancy or an SBP ≥130 mm Hg or DBP ≥85 in later pregnancy are indicative of problems and should be reported to the primary health care provider immediately (Peters & Flack, 2004).

A rise in SBP of 30 mm Hg or more over the baseline pressure, or rise in the DBP of 15 mm Hg more than the baseline pressure, is also a significant finding regardless of the absolute values and should be closely monitored (ACOG, 2002a). To prevent chronic health problems such as cardiovascular disease, elevated BP readings require health-promoting lifestyle modifications (NHBPEP, 2003). See Chapter 30 for an in-depth discussion of problems associated with hypertension.

The pregnant woman is monitored continuously for a range of signs and symptoms that indicate potential complications in addition to hypertension. For example, persistent and excessive vomiting and symptoms of infection. Discharge from the vagina may be amniotic fluid or may be associated with infection (see Signs of Potential Complications box).

Fetal Assessment. Toward the end of the first trimester, before the uterus is an abdominal organ, the fetal heart tones (FHTs) can be heard 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. The woman and her family should be offered the opportunity to listen to the FHTs. The health status of the fetus is assessed at each visit for the remainder of the pregnancy by assessing FHT and fetal movement. One method for assessment of fetal movement is to count kicks for one hour following a meal, with a minimum number of 4 fetal movements being indicative of fetal well-being.

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 used as one indicator of fetal growth. The measurement also provides a gross estimate of the duration of pregnancy. From gestational weeks (GW) 18 to 32, the height of the fundus in centimeters is approximately the same as the number of weeks of gestation (±2 GW), with an empty bladder at the time of measurement (Cunningham, Leveno, Bloom, Hauth, Gilstrap, & Wenstrom, 2005). For example, a woman of 28 weeks of gestation, with an empty bladder, would measure from 26 to 30 cm. In addition, the 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 presence of multifetal gestation (more than one fetus) or hydramnios.

A paper tape typically 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 often this is not possible. All clinicians who examine a particular pregnant woman should be consistent in their measurement technique. Ideally, a protocol should be established 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. Conditions under which the measurements are taken also can be

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**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).
described 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 it even more important to standardize the fundal height measurement technique. The bladder must be empty before the measurement is taken. As much as a 3-cm variation is possible if the bladder is full (Cunningham et al., 2005).

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. 16-7, A). In another measurement technique, the upper curve of the fundus is not included in the measurement. Instead, one end of the tape measure is held at the upper border of the symphysis pubis with one hand, and the other hand is placed 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. 16-7, B).

**Gestational Age.** In an uncomplicated pregnancy, fetal gestational age is estimated after the duration of pregnancy and the EDB are determined. 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 and/or ultrasound examination
- 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 16 and 20 weeks of gestation and is initially experienced as a fluttering sensation. The mother’s report should be recorded. 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. However, the routine use of ultrasound has not been found to substantively improve fetal outcome (Neilson, 2002). Nurses performing ultrasound have a valuable opportunity to provide both education and support to the pregnant woman and her family.

**Health Status.** The assessment of fetal health status includes consideration of fetal movement. The mother is instructed 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).

The fetal heart rate (FHR) is checked on routine visits once it has been heard (Fig. 16-8, A). Early in the second trimester, the heartbeat may be heard with a Doppler stethoscope (Fig. 16-8, B). To detect the heartbeat before the fetal position can be palpated by Leopold maneuvers (see Fig. 27-5), the scope is moved 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 about 2 to 3 cm above the symphysis, then moving to the left lower quadrant, and so on. The heartbeat is counted for 1 minute, and the quality and rhythm noted. Later in the second trimester, the

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**FIG. 16-8** Detecting fetal heart rate. **A,** Father listens 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, Gilbert, AZ.)
FHR can be determined with a fetoscope or a Pinard fetoscope (Fig. 16-8, A and C). A normal rate and rhythm are other good indicators of fetal health. Once the heart beat is noted, its absence is cause for immediate investigation.

Fetal health status is investigated intensively if any maternal or fetal complications arise (e.g., gestational hypertension, IUGR, premature rupture of membranes [PROM], irregular or absent FHR, or absence of fetal movements after quickening). Careful, precise, and concise recording of client responses and laboratory results contributes to the continuous supervision vital to ensuring the well-being of the mother and fetus.

**Laboratory Tests.** The number of routine laboratory tests done during follow-up visits in pregnancy is limited. A clean-catch urine specimen is obtained to test for glucose, protein, nitrites, and leukocytes at each visit. Urine specimens for culture and sensitivity, as well as blood samples, are obtained only if signs and symptoms warrant.

It is recommended that the maternal serum alpha-fetoprotein (MSAFP) screening be done between 15 and 22 GW, ideally between 16 and 18 weeks of gestation (Jenkins & Wapner, 2004). Elevated levels are associated with open neural tube defects and multiple gestations, whereas low levels are associated with Down syndrome. Abnormal levels are followed by second trimester ultrasonography for a more in-depth investigation (Benn, Egan, Fang, & Smith-Bindman, 2004). The multiple-marker, or triple-screen, blood test is also recommended (Graves, Miller, & Sellers, 2002). Done between 16 and 18 weeks of gestation, it measures the MSAFP, hCG, and unconjugated estriol, the levels of which are combined to yield one value. Low levels may be associated with Down syndrome and other chromosomal abnormalities (Cunningham et al., 2005). Other blood tests are repeated as necessary: RPR/VDRL test for syphilis; CBC with hematocrit, hemoglobin, and differential values; antibody screen, rubella, toxoplasmosis, anti-Rh, HIV; sickle cell; and level of folate when indicated. Cervical and vaginal smears are repeated as necessary.

If not done earlier in pregnancy, a glucose screen is obtained. A glucose challenge is usually done between 24 and 28 weeks of gestation. GBS testing is done between 35 and 37 weeks of gestation; cultures collected earlier will not accurately predict GBS status at time of birth (Box 16-3) (Himmelberger, 2002). GBS testing may be done also at the initial physical to identify and treat women who are GBS positive who may give birth before 35 weeks of gestation.

**Risk Factors Indicating Need for GBS Prophylaxis**

- Previous infant with a group B streptococcus infection
- GBS bacteriuria during this pregnancy
- Membranes ruptured or onset of labor before 37 wk of gestation


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**Other Tests.** Other diagnostic tests are available to assess the health status of both the pregnant woman and the fetus. Ultrasonography, for example, may be performed to determine the status of the pregnancy and to confirm gestational age of the fetus. Amniocentesis, a procedure used to obtain amniotic fluid for analysis, may be needed to evaluate the fetus for genetic disorders or gestational maturity. These and other tests that are used to determine health risks for the mother and infant are described in Chapter 29.

After obtaining information through the assessment process, the data are analyzed to identify deviations from the norm and unique needs of the pregnant woman and her family. Although comprehensive health care requires collaboration among professionals from several disciplines, nurses are in an excellent position to formulate diagnoses that can be used to guide independent interventions. 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 GI 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

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**Expected Outcomes of Care**

The plan of nursing care for women and their families during pregnancy is guided by the diagnoses that have been formulated during prenatal visits. Individualized plans that are developed mutually with the pregnant woman or couple are more likely to result in desirable outcomes than are those developed by the nurse for the woman. Measured outcomes of prenatal care include not only physical outcomes but also developmental and psychosocial outcomes.

The following are examples of outcomes that the pregnant woman may be expected to achieve:

- 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.
Evolve/CD: Case Study: Second Trimester

I’ve ever had!”

the pregnancy and birth, “You’re the best nerve medicine remarked to the nurse who had provided support during the period was elated when such a state did not materialize. She had predicted a severe depressive state in the postbirth period. For example, a woman who early in her pregnancy was concerned about her fear of pain, of hating to wear maternity clothes, and of bringing their own love. Over time, as our relationship developed to one of mutual trust, she complained increasingly of her fear of pain, of hating to wear maternity clothes, and of having to give up helping the family. Finally I ventured to say, “Sometimes when a pregnancy is unplanned, women resent it and are angry about it.” Her relief was evident. She said, “You don’t know how angry I’ve been.” As a result, the whole tenor of support being offered changed, and the plan was adjusted to meet her real needs.

Keisha has been very forthright in saying that this pregnancy was unplanned but had countered this observation with comments such as, “All things happen for the best,” and “Children bring their own love.” Over time, as our relationship developed to one of mutual trust, she complained increasingly of her fear of pain, of hating to wear maternity clothes, and of having to give up helping the family. Finally I ventured to say, “Sometimes when a pregnancy is unplanned, women resent it and are angry about it.” Her relief was evident. She said, “You don’t know how angry I’ve been.” As a result, the whole tenor of support being offered changed, and the plan was adjusted to meet her real needs.

The nurse also must accept that the woman must be a willing partner in a purely voluntary relationship. As such, the relationship can be refused or terminated at any time by the pregnant woman or her family. Supportive care involves developing, augmenting, or changing the mechanisms used by women and their families in coping with stress. The nurse tries to promote active participation by the people in the solution of their own problems. The nurse can help a woman gather pertinent information, explore options, decide on a course of action, and assume responsibility for the outcomes. These outcomes may include living with a problem as it is, easing the effects of a problem so that it can be accepted more readily, or eliminating the problem by effecting change.

At other times a successful outcome can be documented readily. For example, a woman who early in her pregnancy had predicted a severe depressive state in the postbirth period was elated when such a state did not materialize. She remarked to the nurse who had provided support during the pregnancy and birth, “You’re the best nerve medicine I’ve ever had!”

Plan of Care and Interventions

The nurse-client relationship is critical in setting the tone for further interaction. The techniques of listening with an attentive expression, touching, and using eye contact have their place, as does recognizing the woman’s feelings and her right to express these feelings. The interaction may occur in various formal or informal settings. The clinic, home visits, or telephone conversations all provide opportunities for contact and can be used effectively.

In supporting a woman, the nurse must remember that both the nurse and the woman are contributing to the relationship. The nurse has to accept the woman’s responses as a factor in trying to be of help. An example of one nurse-client relationship is as follows:

Education for Self-Care

The expectant mother needs information about many subjects. The nurse who is observant, listens, and knows typical concerns of expectant parents can anticipate questions that will be asked and prompt mothers and partners to discuss what is on their minds. Many times, printed literature can be given to supplement the individualized teaching the nurse provides, and women often avidly read books and pamphlets related to their own experience. When nurses read the literature before they distribute it, they have an opportunity to point out areas that may not correspond with local health care practices. Since family members are common sources for health information, it is also important to include them in the health education endeavors (Lewallen, 2004). In addition, as more individuals use the computer for information, the pregnant woman or couple may have questions from their Internet reviews. Nurses may also share recommended electronic sites from reliable sources.

Care Paths

Better coordination of prenatal care services for childbearing families is emphasized in current health care systems. Because a large number of health care professionals can be involved in care of the expectant mother, unintentional gaps or overlaps in care may occur. Care paths can be used to improve the consistency of care and to reduce costs. Although the Care Path on p. 403 focuses only on prenatal education, it is one example of the type of form that might be developed to guide health care providers in carrying out the appropriate assessments 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.

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 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 client education. Educational material may include electronic and written materials appropriate to the pregnant woman’s or couple’s literacy level and experience and the agency’s resources. It is important that available educational materials reflect the pregnant woman’s or couple’s ethnicity, culture, and literacy level to be most effective.

Education About Maternal and Fetal Changes

The expectant mother needs information about many subjects. The nurse who is observant, listens, and knows typical concerns of expectant parents can anticipate questions that will be asked and prompt mothers and partners to discuss what is on their minds. Many times, printed literature can be given to supplement the individualized teaching the nurse provides, and women often avidly read books and pamphlets related to their own experience. When nurses read the literature before they distribute it, they have an opportunity to point out areas that may not correspond with local health care practices. Since family members are common sources for health information, it is also important to include them in the health education endeavors (Lewallen, 2004). In addition, as more individuals use the computer for information, the pregnant woman or couple may have questions from their Internet reviews. Nurses may also share recommended electronic sites from reliable sources.

Pregnant women who receive conflicting advice or instruction are likely to grow increasingly frustrated with members of the health care team and the care provided. Several topics that may cause concerns in pregnant women are discussed in the following sections.
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], 2002). 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 moderate or 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

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**Prenatal Care Pathway**

<table>
<thead>
<tr>
<th>INITIAL VISIT AND ORIENTATION:</th>
<th>SOCIAL SERVICE:</th>
<th>DIETITIAN:</th>
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<tbody>
<tr>
<td>I. EARLY PREGNANCY (WEEKS 1-20) (Initial and date after education given)</td>
<td>Testing; Labs</td>
<td>Ultrasound</td>
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<tr>
<td>Fetal growth and development</td>
<td>Possible Complications:</td>
<td></td>
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<tr>
<td>Maternal changes</td>
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<td>Lifestyle: Exercise/stress/nutrition</td>
<td>b. Diabetes</td>
<td></td>
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<tr>
<td>Drugs, OTC, tobacco, alcohol</td>
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<td>Psychologic/social adjustments:</td>
<td>Introduction to breastfeeding</td>
<td></td>
</tr>
<tr>
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<td>Acceptance of pregnancy and childbirth</td>
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<td>Baby for adoption</td>
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<td></td>
<td>Dietary follow-up</td>
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</tbody>
</table>

| II. MIDPREGNANCY (WEEKS 21-27) (Initial and date after education given) | Breastfeeding or bottle feeding | |
| Fetal growth and development | | |
| 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) | Childbirth preparation: |
| Fetal growth and development | S/S of labor; labor process |
| Fetal evaluation: | Pain management: natural childbirth, |
| Daily movement | medications, epidural |
| NSTs | Cesarean; VBAC |
| Kick counts | Birth plan complete |
| BPPs | Review hospital policies |
| Maternal changes | |
| Possible complications: | Parenting preparation: |
| a. Preterm labor prevention | Pediatrician |
| b. Preeclampsia symptoms | Siblings |
| c. | Immunizations |
| Breastfeeding preparation: | Car seat/safety |
| Nipple assessment | Postpartum |
| | PP care and checkup |
| Dietary follow-up | 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 preparations; PP, postpartum; S/S, signs and symptoms; STI, sexually transmitted infection; VBAC, vaginal birth after cesarean.
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 15.)

**Personal Hygiene.** During pregnancy, the sebaceous (sweat) glands are highly active because of hormonal influences, and women often perspire freely. They may be reassured that the increase is normal and that their previous patterns of perspiration will return after the postpartum period. Baths and warm showers can be therapeutic because they relax tense, 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 14), urinary tract infections are common but they may be asymptomatic. Women should be instructed 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.

The nurse can assess the woman’s understanding and use of good handwashing techniques before and after urinating and the importance of wiping the perineum from front to back. Soft, absorbent toilet tissue, preferably white and unscented, should be used; harsh, scented, or printed toilet paper may cause irritation. Bubble bath or other bath oils should be avoided 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 and food. After discovering the woman’s food preferences, the nurse should advise her to drink at least 2 L (eight glasses) of liquid a day, preferably water, 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 looks dark (concentrated), they must increase their fluid intake. The consumption of yogurt and acidophilus milk also may help prevent urinary tract and vaginal infections. The nurse should review healthy urination practices with the woman. Women are told not to ignore the urge to urinate because holding urine lengths 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, women are advised to urinate before and after intercourse, and then drink a large glass of water to promote additional urination. Although frequently recommended, there is conflicting evidence regarding the effectiveness of cranberry juice and, in particular, the effective dosage in the prevention of urinary tract infections (Jepson, Mihaljevic, & Craig, 2004; Kiel, Nashelsky, Robbins, & Bondi, 2003; Raz, Chazan, & Dan, 2004).

**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 until it is pointed out that these are the muscles used during urination and sexual intercourse that 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 (Sampselle, 2003).

Several ways of performing Kegel exercises have been described. The method described in the Teaching for Self-Care box in Chapter 5 demonstrates evidence-based nursing care. This method was developed by nurses involved in a research utilization project for continence in women. Teaching has been effective if the woman reports an increased ability to control urine flow and greater muscular control during sexual intercourse.

**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 incidence of perinatal morbidity and mortality. The American Academy of Pediatrics recommends breastfeeding for at least a year. However, a deep-seated aversion to 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). Although hepatitis B antigen has not been shown to be transmitted through breast milk, as an added precaution, it is recommended that infants born to HBsAg-positive women receive the hepatitis B vaccine and hepatitis B immune globulin (HBIG) immediately after birth. Women who are HIV positive are discouraged from nursing because the risk of HIV transmission outweighs the risk of the infant dying from another cause (Lawrence & Lawrence).

A woman’s decision about the method of infant feeding often is made before pregnancy; therefore the education of women of childbearing age about the benefits of breastfeeding is essential. If undecided, the pregnant woman and her partner are encouraged to choose which method of feeding is suitable for them (Pavill, 2002). Once the couple has been given information about the advantages and
disadvantages of bottle feeding and breastfeeding, they can make an informed choice. Health care providers support their decisions and provide any needed assistance.

Women with inverted nipples need special consideration if they are planning to breastfeed. The pinch test is done to determine whether the nipple is everted or inverted (Fig. 16-9). The nurse shows the woman the way 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 precipitate uterine contractions (Lawrence & Lawrence, 2005). The use of breast shells, small plastic devices that fit over the nipples, may be recommended for women who have flat or inverted nipples (Fig. 16-10). Breast shells work by exerting a continuous, gentle pressure around the areola that pushes the nipple through a central opening in the inner shield. Breast shells should be worn 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. Continuous support and guidance must be given to the woman as part of the nursing plan of care.

The woman is taught to cleanse the nipples with warm water to keep the ducts from being blocked with dried colostrum. Soap, ointments, alcohol, and tinctures should not be applied 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, the bra can be worn 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. A fluoride toothpaste should be used daily. Inflammation and infection of the gingival and periodontal tissues may occur (Carl, Roux, & Matacle, 2000). Research links periodontal disease with preterm births and LBW (Lopez, 2005) and an increased risk for preeclampsia (Boggess, Lieff, Murtha, Moss, Beck, & Offenbacher, 2003).

Because calcium and phosphorus in the teeth are fixed in enamel, the old adage “for every child a tooth” is not true. There is no scientific evidence 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. However, antibacterial therapy should be considered for sepsis, especially in pregnant women who have had rheumatic heart disease or nephritis. Emergency dental surgery is not contraindicated during pregnancy. However, the risks
and benefits of dental surgery must be explained. If dental treatment is necessary, the woman will be most comfortable during the second trimester because the uterus is now outside the pelvis but not so large as to cause discomfort while she sits in a dental chair (Carl et al., 2000).

**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 (ACOG, 2002b). Detailed exercise tips for pregnancy are presented in the Teaching for Self-Care box. Exercises that help relieve the low back pain that often arises during the second trimester because of the increased weight of the fetus are demonstrated in Fig. 16-11.

**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 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. 16-12). Strategies to prevent or relieve backache are presented in the Teaching for Self-Care box.

**Rest and Relaxation.** The pregnant woman is encouraged 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. 16-13). The mother also should be shown the

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**FIG. 16-11**
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.

**FIG. 16-12**
Correct body mechanics. **A,** Squatting. **B,** Lifting. (Courtesy Michael S. Clement, MD, Mesa, AZ.)
TEACHING FOR SELF-CARE

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, which require precise balance and coordination, may be dangerous. Avoid activities that require holding your breath and bearing down (Valsalva maneuver). Jerky, bouncy motions also should be avoided.
- **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, you need to slow down.
- **Avoid becoming overheated** for extended periods. It is best not to exercise 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 340-452 kcal/day.) Choose 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.)

way 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 do the following exercises:

Stand behind a chair. Support and balance self by using the back of the chair (Fig. 16-14). Squat for 30 seconds; stand for 15 seconds. Repeat 6 times, several times per day, as needed. Then, while sitting in a chair, lower head to knees for 30 seconds. Raise head. Repeat 6 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 can be 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

The techniques for conscious relaxation are numerous and varied. Guidelines are given in Box 16-4.

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.

**TO PREVENT OR RELIEVE BACKACHE**

Do pelvic tilt:
- Pelvic tilt (rock) on hands and knees (see Fig. 16-11, A) and while sitting in straight-back chair.
- Pelvic tilt (rock) in standing position against a wall, or lying on floor (see Fig. 16-11, B and C).
- Perform abdominal muscle contractions during pelvic tilt while standing, lying, or sitting to help strengthen rectus abdominis muscle (see Fig. 16-11, D).
- Use good body mechanics.
- Use leg muscles to reach objects on or near floor. Bend at the knees, not from the back. Knees are bent to lower body to squatting position. Feet are kept 12 to 18 inches apart to provide a solid base to maintain balance (see Fig. 16-12, A).
- Lift with the legs. To lift heavy object (e.g., young child), one foot is placed slightly in front of the other and kept flat as woman lowers herself onto one knee. She lifts the weight holding it close to her body and never higher than the chest. To stand up or sit down, she places one leg slightly behind the other as she raises or lowers herself (see Fig. 16-12, 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 16-2.
CHAPTER 16  NURSING CARE DURING PREGNANCY

box 16-4 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. Often people who learn conscious relaxation 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.

TEACHING FOR SELF-CARE

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 (safety 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 travel to high-altitude regions, which could jeopardize oxygen intake.

for long periods, and they should avoid crossing their legs at the knees, because all of 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.

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

Maternity bras are constructed to 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 neckache and backache.

Maternal support hose give considerable comfort and promote greater venous emptying in women with large varicose veins. Ideally, support stockings should be put on before the woman gets out of bed in the morning. Figure 16-15 demonstrates a position for resting the legs and reducing swelling and varicosities.

Comfortable shoes that provide firm support and promote good posture and balance also are 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 her balance. In addition, in the third trimester, the woman’s pelvis tilts
forward, and her lumbar curve increases. The resulting leg aches and cramps are aggravated by nonsupportive shoes. Exercises to relieve legs cramps are depicted in Fig. 16-16.

**Travel.** Travel is not contraindicated in low risk pregnant women. However, women with high risk pregnancies are advised to avoid long-distance travel after fetal viability has been reached to avert possible economic and psychologic consequences of giving birth to a preterm infant far from home. Travel to areas in which medical care is poor, water is untreated, or malaria is prevalent should be avoided if possible. 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, vaccinations for foreign travel may be 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 are recommended while traveling in a car. For example, women riding in a car should wear automobile restraints and stop and walk every hour.

Maternal death as a result of injury is the most common cause of fetal death. The next most common cause is placental separation (abruptio placentae) that occurs because body contours change in reaction to the force of a collision. The uterus as a muscular organ can adapt its shape to that of the body, but the placenta is not resilient. At the impact of collision, placental separation can occur. A combination lap belt and shoulder harness is the most effective automobile restraint, and both should be used (Fig. 16-17). The lap belt should be worn low across the pelvic bones and as snug as is comfortable. The shoulder harness should be worn above the gravid uterus and below the neck to prevent chafing. The pregnant woman should sit upright. The headrest should be used to prevent whiplash injury.

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 is advised to 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. Metal detectors used at airport security checkpoints are not harmful to the fetus. The 8% humidity at which the cabins of commercial airlines are maintained may result in...

**FIG. 16-16** 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.)

**FIG. 16-17** Proper use of seat belt and headrest. (Courtesy Brian and Mayannyn Sallee, Las Vegas, NV.)
some water loss; hydration (with water) should therefore be maintained under these conditions. Sitting in the cramped seat of an airliner for prolonged periods may increase the risk of superficial and deep thrombophlebitis; therefore a pregnant woman is encouraged to take a 15-minute walk around the aircraft during each hour of travel to minimize this risk. However, women who are pilots, flight attendants, or frequent flyers expose themselves to in-flight radiation that exceeds recommended levels (Barish, 2004). Resources from the U.S. Federal Aviation Administration (www.faa.gov) will assist the health care provider in determining safe levels for those women at high risk for radiation exposure.

**Medications and Herbal Preparations.** Although much has been learned in recent years about fetal drug toxicity, the possible teratogenicity of many medications, both prescription and OTC, is still unknown. This 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. Self-treatment must be discouraged. The use of all drugs, including OTC medications, herbs, and vitamins, should be limited and a careful record kept of all therapeutic and nontherapeutic agents used.

**Immunizations.** Some concern has been raised 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 (ACOG, 2003). 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) (ACOG). Vaccines consisting of killed viruses may be used. Those that may be administered during pregnancy include tetanus, diphtheria, recombinant hepatitis B, and rabies vaccines.

**Alcohol, Cigarette Smoke, Caffeine, and Drugs.** A safe level of alcohol consumption during pregnancy has not yet been established. Although the consumption of occasional alcoholic beverages may not be harmful to the mother or her developing embryo or fetus, complete abstinence is strongly advised. Maternal alcoholism is associated with high rates of miscarriage and fetal alcohol syndrome; the risk for miscarriage in the first trimester is dose related (three or more drinks per day). Growing evidence indicates that the pattern of drinking (frequency, timing, and duration), especially in the first trimester, is more predictive of fetal damage than is the amount. 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 second-hand smoke (even if the mother does not smoke) is associated with IUGR and an increase in perinatal and infant morbidity and mortality. Smoking is associated with an increased frequency of preterm labor, PROM, abruptio placenta, placenta previa, and fetal death, possibly resulting from decreased placental perfusion. Smoking cessation activities should be incorporated into routine prenatal care (Todd, LaSala, & Neil-Urban, 2001; Yu, Park, & Schwalberg, 2002).

All women who smoke should be strongly encouraged to quit or at least reduce the number of cigarettes they smoke. Pregnant women need to be told about the negative effects of even second-hand smoke on the fetus and encouraged to avoid such environments (Andres, 2004). Efforts focused on preventing girls and women from beginning to smoke should be intensified.

Most studies of human pregnancy have revealed no association between caffeine consumption and birth defects or LBW (Andres, 2004). In contrast, some studies have documented an increased risk for miscarriage with caffeine intake greater than 300 mg/day (Giannelli, Doyle, Roman, Pelerin, & Hermon, 2003) or fetal growth restriction with caffeine intake greater than 223 mg/day (Vit, Bakkeiteig, Trygg, Lund-Larsen, & Jacobsen, 2003). Because other effects are unknown, however, pregnant women are advised to limit their caffeine intake, particularly coffee intake, as it has a high caffeine content per unit of measure. Therefore health care providers often encourage pregnant women to limit caffeine intake to no more than 3 cups of coffee or cola per day (ADA, 2002).

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 considered a major public health concern and comprehensive care of drug-addicted women improves maternal and neonatal outcomes, few facilities are available for treatment of these women (see Chapters 35 and 38).

**Normal Discomforts.** Pregnant women have physical symptoms that would be considered 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 them. The discomforts of the first trimester are fairly specific. Information about the physiology and prevention of and self-care for discomforts experienced during the three trimesters is given in Table 16-2. Box 16-5 on p. 416 lists alternative and complementary therapies and why they might be used in pregnancy (see also Figs. 4-4 and 4-5). 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. Interventions should be individualized, with attention given to the woman’s lifestyle and culture.

Text continued on p. 414.
<table>
<thead>
<tr>
<th>DISCOMFORT</th>
<th>PHYSIOLOGY</th>
<th>EDUCATION FOR SELF-CARE</th>
</tr>
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<tbody>
<tr>
<td><strong>FIRST TRIMESTER</strong></td>
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<tr>
<td>Breast changes, new sensation; pain, tingling, tenderness</td>
<td>Hypertrophy of mammary glandular tissue and increased vascularization, pigmentation, and size and prominence of nipples and areolae caused by hormonal stimulation</td>
<td>Wear supportive maternity bras with pads to absorb discharge, may be worn at night; wash with warm water and keep dry; breast tenderness may interfere with sexual expression or foreplay but is temporary</td>
</tr>
<tr>
<td>Urgency and frequency of urination</td>
<td>Vascular engorgement and altered bladder function caused by hormones; bladder capacity reduced by enlarging uterus and fetal presenting part</td>
<td>Empty bladder regularly; perform Kegel exercises; limit fluid intake before bedtime; wear perineal pad; report pain or burning sensation to primary health care provider</td>
</tr>
<tr>
<td>Languor and malaise; fatigue (early pregnancy, most commonly)</td>
<td>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</td>
<td>Rest as needed; eat well-balanced diet to prevent anemia</td>
</tr>
<tr>
<td>Nausea and vomiting, morning sickness—occurs in 50%-75% of pregnant women; starts between first and second missed periods and lasts until about fourth missed period; may occur any time during day; fathers also may have symptoms</td>
<td>Cause unknown; may result from hormonal changes, possibly hCG; may be partly emotional, reflecting pride in, ambivalence about, or rejection of pregnant state</td>
<td>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</td>
</tr>
<tr>
<td>Ptyalism (excessive salivation) may occur starting 2 to 3 weeks after first missed period</td>
<td>Possibly caused by elevated estrogen levels; may be related to reluctance to swallow because of nausea</td>
<td>Use astringent mouthwash, chew gum, eat hard candy as comfort measures</td>
</tr>
<tr>
<td>Gingivitis and epulis (hyperemia, hypertrophy, bleeding, tenderness of the gums); condition will disappear spontaneously 1 to 2 months after birth</td>
<td>Increased vascularity and proliferation of connective tissue from estrogen stimulation</td>
<td>Eat well-balanced diet with adequate protein and fresh fruits and vegetables; brush teeth gently and observe good dental hygiene; avoid infection; see dentist</td>
</tr>
<tr>
<td>Nasal stuffiness; epistaxis (nosebleed)</td>
<td>Hyperemia of mucous membranes related to high estrogen levels</td>
<td>Use humidifier; avoid trauma; normal saline nose drops or spray may be used</td>
</tr>
<tr>
<td>Leukorrhea: often noted throughout pregnancy</td>
<td>Hormonally stimulated cervix becomes hypertrophic and hyperactive, producing abundant amount of mucus</td>
<td>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</td>
</tr>
<tr>
<td>Psychosocial dynamics, mood swings, mixed feelings</td>
<td>Hormonal and metabolic adaptations; feelings about female role, sexuality, timing of pregnancy, and resultant changes in life and lifestyle</td>
<td>Participate in pregnancy support group; communicate concerns to partner, family, and health care provider; request referral for supportive services if needed (financial assistance)</td>
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</table>

BBT, Basal body temperature; hCG, human chorionic gonadotropin.
<table>
<thead>
<tr>
<th>DISCOMFORT</th>
<th>PHYSIOLOGY</th>
<th>EDUCATION FOR SELF-CARE</th>
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<tbody>
<tr>
<td><strong>SECOND TRIMESTER</strong></td>
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<tr>
<td>Pigmentation deepens; acne, oily skin</td>
<td>Melanocyte-stimulating hormone (from anterior pituitary)</td>
<td>Not preventable; usually resolves during puerperium</td>
</tr>
<tr>
<td>Spider nevi (angiomas) appear over neck, thorax, face, and arms during second or third trimester</td>
<td>Focal networks of dilated arterioles (end arteries) from increased concentration of estrogens</td>
<td>Not preventable; they fade slowly during late puerperium; rarely disappear completely</td>
</tr>
<tr>
<td>Pruritus (noninflammatory)</td>
<td>Unknown cause; various types as follows: nonpapular; closely aggregated pruritic papules</td>
<td>Keep fingernails short and clean; contact primary health care provider for diagnosis of cause</td>
</tr>
<tr>
<td>Pigmentation deepens; acne, oily skin</td>
<td>Increased excretory function of skin and stretching of skin possible factors</td>
<td>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</td>
</tr>
<tr>
<td><strong>SECOND TRIMESTER</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Palpitations</td>
<td>Unknown; should not be accompanied by persistent cardiac irregularity</td>
<td>Not preventable; contact primary health care provider if accompanied by symptoms of cardiac decompensation</td>
</tr>
<tr>
<td>Supine hypotension (vena cava syndrome) and bradycardia</td>
<td>Induced by pressure of gravid uterus on ascending vena cava when woman is supine; reduces uteroplacental and renal perfusion</td>
<td>Side-lying position or semisitting posture, with knees slightly flexed (see supine hypotension, p. 398)</td>
</tr>
<tr>
<td>Faintness and, rarely, syncope (orthostatic hypotension) may persist throughout pregnancy</td>
<td>Vasomotor lability or postural hypotension from hormones; in late pregnancy may be caused by venous stasis in lower extremities</td>
<td>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 elastic hose; sit as necessary; if symptoms are serious, contact primary health care provider</td>
</tr>
<tr>
<td><strong>SECOND TRIMESTER</strong></td>
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<tr>
<td>Food cravings</td>
<td>Cause unknown; craving influenced by culture or geographic area</td>
<td>Not preventable; satisfy craving unless it interferes with well-balanced diet; report unusual cravings to primary health care provider</td>
</tr>
<tr>
<td>Heartburn (pyrosis or acid indigestion): burning sensation, occasionally with burping and regurgitation of a little sour-tasting fluid</td>
<td>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</td>
<td>Limit or avoid gas-producing or fatty foods and large meals; maintain good posture; sip milk for temporary relief; drink hot herbal tea; primary health care provider may prescribe antacid between meals; contact primary health care provider for persistent symptoms</td>
</tr>
<tr>
<td>Constipation</td>
<td>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</td>
<td>Drink 8 to 10 glasses of water per day; include roughage in diet; engage in 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</td>
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GI, Gastrointestinal.

Continued
**Table 16-2** Discomforts Related to Pregnancy—cont’d

<table>
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<th>DISCOMFORT</th>
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<tbody>
<tr>
<td><strong>SECOND TRIMESTER—cont’d</strong></td>
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<tr>
<td>Flatulence with bloating and belching</td>
<td>Reduced GI motility because of hormones, allowing time for bacterial action that produces gas; swallowing air</td>
<td>Chew foods slowly and thoroughly; avoid gas-producing foods, fatty foods, large meals; exercise; maintain regular bowel habits</td>
</tr>
<tr>
<td>Varicose veins (varicosities): may be associated with aching legs and tenderness; may be present in legs and vulva; hemorrhoids are varicosities in perianal area</td>
<td>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</td>
<td>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. 16-15); wear support stockings; thrombosed hemorrhoid may be evacuated; relieve swelling and pain with warm sitz baths, local application of astringent compresses</td>
</tr>
<tr>
<td>Leukorrhea: often noted throughout pregnancy</td>
<td>Hormonally stimulated cervix becomes hypertrophic and hyperactive, producing abundant amount of mucus</td>
<td>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</td>
</tr>
<tr>
<td>Headaches (through week 26)</td>
<td>Emotional tension (more common than vascular migraine headache); eye strain (refractory errors); vascular engorgement and congestion of sinuses resulting from hormone stimulation</td>
<td>Conscious relaxation; contact primary health care provider for constant “splitting” headache, to assess for preeclampsia</td>
</tr>
<tr>
<td>Carpal tunnel syndrome (involves thumb, second, and third fingers, lateral side of little finger)</td>
<td>Compression of median nerve resulting from changes in surrounding tissues; pain, numbness, tingling, burning; loss of skilled movements (typing); dropping of objects</td>
<td>Not preventable; elevate affected arms; splinting of affected hand may help; regressive after pregnancy; surgery is curative</td>
</tr>
<tr>
<td>Periodic numbness, tingling of fingers (acrodysesthesia) occurs in 5% of pregnant women</td>
<td>Brachial plexus traction syndrome resulting from drooping of shoulders during pregnancy (occurs especially at night and early morning)</td>
<td>Maintain good posture; wear supportive maternity bra; condition will disappear if lifting and carrying baby does not aggravate it</td>
</tr>
<tr>
<td>Round ligament pain (tenderness)</td>
<td>Stretching of ligament caused by enlarging uterus</td>
<td>Not preventable; rest, maintain good body mechanics to avoid overstretching ligament; relieve cramping by squatting or bringing knees to chest; sometimes heat helps 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; do pelvic tilt exercises; rest; condition will disappear 6 to 8 weeks after birth</td>
</tr>
<tr>
<td>Joint pain, backache, and pelvic pressure; hypermobility of joints</td>
<td>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</td>
<td>Maintain good posture; wear supportive maternity bra; condition will disappear if lifting and carrying baby does not aggravate it</td>
</tr>
</tbody>
</table>

**NURSE ALERT**

Although complementary and alternative medications (CAM) may benefit the woman during pregnancy, some practices should be avoided because they may cause miscarriage or pre-term labor. It is important to ask the woman what therapies she may be using.

**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 the pregnant woman and her family can be reassured if they receive and use a printed form written at the appropriate literacy level, in their language and reflective of their culture, listing the signs and symptoms that warrant an investigation and the telephone numbers to call with questions or in an emergency.

The nurse must answer questions honestly as they arise during pregnancy. Pregnant women often have difficulty
Table 16-2 Discomforts Related to Pregnancy—cont’d

<table>
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<tr>
<th>DISCOMFORT</th>
<th>PHYSIOLOGY</th>
<th>EDUCATION FOR SELF-CARE</th>
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<tbody>
<tr>
<td><strong>THIRD TRIMESTER</strong></td>
<td></td>
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</tr>
<tr>
<td>Shortness of breath and dyspnea occur</td>
<td>Expansion of diaphragm limited by enlarging uterus; diaphragm is elevated</td>
<td>Good posture; sleep with extra pillows;</td>
</tr>
<tr>
<td>in 60% of pregnant women</td>
<td>about 4 cm; some relief after lightening</td>
<td>avoid overloading stomach; stop smoking; contact health care provider if symptoms</td>
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<td></td>
<td></td>
<td>worsen to rule out anemia, emphysema, and asthma</td>
</tr>
<tr>
<td>Insomnia (later weeks of pregnancy)</td>
<td>Fetal movements, muscle cramping, urinary frequency, shortness of breath,</td>
<td>Reassurance; conscious relaxation; back massage or effl urege; support of body</td>
</tr>
<tr>
<td></td>
<td>or other discomforts</td>
<td>parts with pillows; warm milk or warm shower before retiring</td>
</tr>
<tr>
<td>Psychosocial responses: mood swings,</td>
<td>Hormonal and metabolic adaptations; feelings about impending labor; birth,</td>
<td>Reassurance and support from significant</td>
</tr>
<tr>
<td>mixed feelings, increased anxiety</td>
<td>and parenthood</td>
<td>other and health care providers; improved communication with partner, family, and</td>
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<tr>
<td></td>
<td></td>
<td>others</td>
</tr>
<tr>
<td>Urinary frequency and urgency return</td>
<td>Vascular engorgement and altered bladder function caused by hormones;</td>
<td>Empty bladder regularly, Kegel exercises;</td>
</tr>
<tr>
<td></td>
<td>bladder capacity reduced by enlarging uterus and fetal presenting part</td>
<td>limit fluid intake before bedtime; reasurrance; wear perineal pad; contact health</td>
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<tr>
<td></td>
<td></td>
<td>care provider for pain or burning sensation</td>
</tr>
<tr>
<td>Perineal discomfort and pressure</td>
<td>Pressure from enlarging uterus, especially when standing or walking; multifetal</td>
<td>Rest; conscious relaxation, and good</td>
</tr>
<tr>
<td></td>
<td>gestation</td>
<td>posture; contact health care provider for assessment and treatment if pain is present</td>
</tr>
<tr>
<td>Braxton Hicks contractions</td>
<td>Intensification of uterine contractions in preparation for work of labor</td>
<td>Reassurance; rest; change of position; practice breathing techniques when contractions</td>
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<tr>
<td></td>
<td></td>
<td>are bothersome; effl urege; differentiate from preterm labor</td>
</tr>
<tr>
<td>Leg cramps (gastrocnemius spasm),</td>
<td>Compression of nerves supplying lower extremities because of enlarging</td>
<td>Check for Homans sign; if negative, use massage and heat over affected muscle;</td>
</tr>
<tr>
<td>especially when reclining</td>
<td>uterus; reduced level of diffusible serum calcium or elevation of serum</td>
<td>dorsiflex foot until spasm relaxes (see Fig. 16-16); stand on cold surface; oral</td>
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<td></td>
<td>phosphorus; aggravating factors: fatigue, poor peripheral circulation,</td>
<td>supplementation with calcium carbonate or calcium lactate tablets; aluminum hydroxide</td>
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<td></td>
<td>pointing toes when stretching legs or when walking, drinking more than 1 L</td>
<td>gel, 30 ml, with each meal removes phosphorus by absorbing it (consult primary health</td>
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<tr>
<td></td>
<td>(1 qt) of milk per day</td>
<td>care provider before taking these remedies</td>
</tr>
<tr>
<td>Ankle edema (nonpitting) to lower</td>
<td>Edema aggravated by prolonged standing, sitting, poor posture, lack of</td>
<td>Ample fluid intake for natural diuretic effect; put on support stockings</td>
</tr>
<tr>
<td>extremities</td>
<td>exercise, constrictive clothing, or hot weather</td>
<td>before arising; rest periodically with legs and hips elevated (see Fig. 16-15);</td>
</tr>
<tr>
<td></td>
<td></td>
<td>exercise moderately; contact health care provider if generalized edema develops;</td>
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<td></td>
<td></td>
<td>diuretics are contraindicated</td>
</tr>
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</table>

Deciding when to report signs and symptoms. The mother is encouraged 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. These include vaginal bleeding, alteration in fetal movements, symptoms of gestational hypertension, rupture of membranes, and preterm labor (see Signs of Potential Complications box on p. 399).

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.

Although the exact etiology of preterm labor is unknown, it is assumed to have multiple causes. An increased
incidence of preterm birth is associated with sociodemographic factors such as poverty, low educational level, lack of social support, smoking, domestic violence, and stress (Freda, 2003; Freda & Patterson, 2003; Moos, 2004). Other risk factors include a previous preterm labor (McPheeters et al., 2005), current multifetal gestation, and some uterine and cervical variations (March of Dimes Birth Defects Foundation, 2005). The rate is almost twice as high in the African-American population as in Caucasians. The pathology associated with preterm labor also is unclear, and more research is necessary to identify the pathophysiology of preterm labor and effective treatment strategies.

Sexual Counseling

Sexual counseling of expectant couples includes countering misinformation, providing reassurance of normality, and suggesting alternative behaviors. The uniqueness of each couple is considered within a biopsychosocial framework (see the Teaching for Self-Care box on p. 418.). Nurses can initiate discussion about sexual adaptations...
that must be made 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 clients; therefore those nurses who are aware of their personal strengths and limitations in dealing with sexual content are better 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 to be given information about the physiologic changes that occur during pregnancy, have the myths that are associated with sex during pregnancy dispelled, and participate in open discussions of positions for intercourse that decrease pressure on the gravid abdomen (Westheimer & Lopater, 2005). Such tasks are within the purview of the nurse and should be an integral component of the health care rendered.

Some couples need to be referred 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
TEACHING FOR SELF-CARE

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 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. There is no correlation between intercourse and miscarriage, but observe the following precautions:
  - Abstain from intercourse if you experience uterine cramping or vaginal bleeding; report 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 “safer sex” behaviors. Women at risk for acquiring or conveying STIs are encouraged to use condoms during sexual intercourse throughout pregnancy.

STI, Sexually transmitted infection.

a symptom of a more serious relationship problem, the couple would benefit from family therapy.

Using the History. The couple’s sexual history provides a basis for counseling, but history taking also is an ongoing process. The couple’s receptivity to changes in attitudes, body image, partner relationships, and physical status are relevant topics throughout pregnancy. The history reveals the woman’s knowledge of female anatomy and physiology and her attitudes about sex during pregnancy, as well as her perceptions of the pregnancy, the health status of the couple, and the quality of their relationship.

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. The counselor must 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 warrant caution when it comes to coitus and orgasm.

Solitary and mutual masturbation and oral-genital intercourse may be used by couples 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. Couples who practice cunnilingus should be cautioned 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 often is helpful (Fig. 16-19). 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. The side-by-side position or any position that places less pressure on the pregnant abdomen and requires less energy

may be preferred during the third trimester (Westheimer & Lopater, 2005).

Multiparous women sometimes have significant breast tenderness in the first trimester. A coital position that avoids direct pressure on the woman’s breasts and decreased breast fondling during love play can be recommended to such couples. The woman also should be reassured 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.

The objective of “safer sex” 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 valuable 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 be addressed in the third trimester. A discussion of fetal responses to stimuli, such as sound and light, as well as patterns of sleeping and waking, can be 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; anxieties about parenthood; parental concerns about the safety of the mother and unborn child; siblings and their acceptance of the new baby; 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 also must 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.

**Evaluation**

Evaluation of the effectiveness of the care of the woman during pregnancy is based on the previously stated outcomes. More effort is needed in evaluating outcomes of nursing care during the prenatal period. A formal systematic follow-up on quality of care is not common but should be developed and incorporated in all settings (see Plan of Care).

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**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 woman to function in collaboration with the caregiver and diminish anxiety.
- Allow woman time to describe level of anxiety to establish 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**

- Advise woman to consume small, frequent meals and avoid having empty stomach to avoid further nausea episodes.
- Suggest that woman eat a simple carbohydrate such as dry crackers before arising in the morning to avoid empty stomach and decrease incidence of nausea and vomiting.
- Advise woman to call health care provider if vomiting is persistent and severe to identify possible incidence of hyperemesis gravidarum.
GI, Gastrointestinal.

**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 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 GI tract as evidenced by 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-care 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 8 glasses of water a day, increasing the amount of fiber in daily diet, and maintaining moderate exercise program to promote self-care.
- Reinforce for woman that she should not take any laxatives, stool softeners, or enemas without first consulting the health care provider to prevent any injuries to woman or fetus.

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

**Expected Outcomes** 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 onset of labor and the processes of labor related to inexperience as evidenced by woman's questions and statement of concerns

**Expected Outcomes** 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 information regarding local childbirth education classes to empower and promote self-care.
- Promote ongoing effective communication with health care provider to promote trust and decrease fear of 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 woman's report of inadequate rest

**Expected Outcome** 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 need for change in sleep patterns.
- Suggest change of position to side-lying with pillows between legs or to semi-Fowler's position to increase support and decrease any problems with dyspnea or heartburn.
- Reinforce the possibility of the use of various sleep aids 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 Outcomes** Woman will verbalize feelings regarding changes in sexual desire, and woman and her partner will express satisfaction with sexual activities.

**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 couple for counseling as appropriate to assist the couple to cope with sexuality pattern changes.
- Suggest alternative sexual positions to decrease pressure on enlarging abdomen of woman and increase sexual comfort and satisfaction of couple.
**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 easily recognized 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 the hallmark of expertise in providing 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, and/or a nurse-midwife. Such visits are usually routine and follow a systematic sequence, with the initial visit followed by monthly, then semimonthly, and then weekly visits. Monitoring weight and BP; testing blood and urine; teaching specific procedures, such as a vaginal examination, may be so threatening that they cannot be discussed even with their own husbands; therefore many women prefer a female health care provider. Too often, health care providers assume that they cannot be discussed even with their own spouses. Telling 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, the nurse must be knowledgeable about practices and customs, although it is not possible to know all there is to know about every culture and subculture or the many lifestyles that exist. It is important to learn about the varied cultures in which specific nurses practice. When exploring cultural beliefs and practices related to childbearing, the nurse can support and nurture those beliefs that promote physical or emotional adaptation. However, if potentially harmful beliefs or activities are identified, the nurse should carefully provide education and propose modifications.

**Emotional Response**

Virtually all cultures emphasize the importance of maintaining a socially harmonious and agreeable environment for a pregnant woman. A lifestyle with minimal 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 dealt with 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 done 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 be worn during pregnancy, modesty is an
expectation of many. Some Mexican women of the Southwest and women of Central America 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. Amulets, medals, and beads also may be worn to ward off 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 simply 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. It is important for the nurse 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 it is thought that sexual intercourse may harm the mother and fetus.

**Diet**

Nutritional information given by Western health care providers also may be a source of conflict for many cultural groups. Such a conflict commonly is not known by health care providers 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 omit 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 the individuality of each pregnant woman is recognized, special needs of expectant mothers 15 years of age or younger or those 35 years of age or older are summarized.

**Adolescents**

Teenage pregnancy is a worldwide problem (Cherry, Dillon, & Rugh, 2001). About 1 million adolescent females in the United States, or 4 out of every 10 girls, become pregnant each year. Most of the pregnancies are unintended; 56% end in live birth; 29% end in induced abortion; and 15% in miscarriage (Arias, MacDorman, Strobino, & Guyer, 2003). Adolescents are responsible for almost 500,000 births in the United States annually. Hispanic adolescents currently have the highest birth rate, although the rate for African-American adolescents also is high. Of girls who become pregnant, 21% are repeat pregnancies (Hoyert et al., 2006). 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 has steadily declined since 1991 (Hoyert et al., 2006). Concentrated national efforts have generated a host of adolescent pregnancy-prevention programs that have had varying degrees of success (Ford, Weglicki, Kershaw, Schram, Hoyer, & Jacobson, 2002). 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 (Ford et al., 2002). 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.

Delayed entry into prenatal care may be 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 is at higher risk for each of the confounding variables associated with poor pregnancy outcomes (e.g., socioeconomic factors) and for those conditions associated with a first pregnancy regardless of age (e.g., gestational hypertension). However, when prenatal care is initiated early and consistently, and confounding variables are controlled, very young pregnant adolescents are at no greater risk (nor are their infants) for an adverse outcome than are older pregnant women. The role of the nurse in reducing the risks and consequences of adolescent pregnancy is therefore twofold: first, to encourage early and continued prenatal care, and second, to refer the adolescent, if necessary, for appropriate social support services, which can help reverse the effects of a negative socioeconomic environment (Fig. 16-20) (see Plan of Care).
NURSING DIAGNOSIS Imbalanced nutrition: less than body requirements related to intake insufficient to meet metabolic needs of fetus and adolescent client

Expected Outcomes 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 diet.
- Include 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 Adolescent will experience uncomplicated pregnancy and give birth to a healthy fetus at term.

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

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

Expected Outcomes 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 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 and 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 Adolescent will reestablish relationship with her mother and father of baby.

Nursing Interventions/Rationales
- Assess parenting abilities of adolescent mother and father to determine extent of isolation from family, peers, and father of the baby.
- Refer to support group to learn more effective ways of problem solving and reduce 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
- Provide information on growth and development to reinforce self-related pregnancy to provide basis for further interventions.
- 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 newborn and infant.
- Initiate discussion of child care to assist adolescent in problem solving for future needs.
- Assess parenting abilities of adolescent mother and father to provide 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.
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 30s or early 40s.

Multiparous Women. Multiparous women may have never used contraceptives because of personal choice or lack of knowledge concerning contraceptives. They also may 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 feel 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 continued family system and set new roles (parent roles, sibling roles, grandparent roles) for family members. 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.

Primiparous Women. The number of first-time pregnancies in women between the ages of 35 and 40 years has increased significantly over the past three decades (Tough, Newburn-Cook, Johnston, Svenson, Rose, & Belik, 2002). Seeing women in their late 30s or 40s 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 often are 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; this time is influenced by their awareness of the increasing possibility of infertility or of genetic defects in the infants of older women. 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. Tough and colleagues (2002) reported that women aged 35 years and older are more likely than younger primiparas to have LBW infants, prematurity 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, in women aged 35 years or older there is an increased risk of maternal mortality. Pregnancy-related deaths are from hemorrhage, infection, embolisms, hypertensive disorders of pregnancy, cardiomyopathy, and strokes (Callaghan & Berg, 2003).

Multifetal Pregnancy

When the pregnancy involves more than one fetus, both the mother and fetuses are at increased risk for adverse outcomes. The maternal blood volume is increased, 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 vascular and diastasis of the two rectus abdominis muscles (see Fig. 14-13) may occur. Placenta previa develops more commonly in multifetal pregnancies because of the large
size or placement of the placentas (Clark, 2004). 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 there is no increase 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 about 90% of cases. The likelihood of a multifetal pregnancy is increased if any one or a combination of the following factors is noted during a careful assessment:

- 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 heart beats 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 they may 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, the parents may receive counseling regarding selective reduction of the pregnancies to reduce the incidence of prematurity and improve the opportunities for the remaining fetuses to grow to term gestation (Malone & D’Alton, 2004). This situation poses an ethical dilemma for many couples, especially those who have worked hard to overcome problems with infertility and those who harbor strong values regarding the right to life (Strong, 2003). Nurse-initiated discussions to identify what resources could help the couple (e.g., a minister, priest, or mental health counselor) can make the decision-making process somewhat less traumatic.

The prenatal care given 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. The prenatal visits of these women are scheduled at least every 2 weeks in the second trimester and weekly thereafter. In twin gestations the recommended weight gain is 16 to 20 kg. Iron and vitamin supplementation is desirable. Since preeclampsia and eclampsia are increased in multifetal pregnancies, nurses aggressively work 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. Maternal support hose may be worn 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 is recommended to help avert preterm labor. Frequent ultrasound examinations, nonstress tests, and FHR monitoring will be performed. 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, 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’s and family’s coping capability. Lifestyle changes may be 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). Parents should be referred to national organizations such as Parents of Twins and Triplets (www.potatonet.org), Mothers of Twins (www.nomotc.org), and the La Leche League (www.lalecheleague.org) for further support.

**Community Activity**

Select an immigrant or other minority group in your community and identify childbirth-related beliefs and practices that are unique to that group. Are there stores in the area that sell items that meet the needs of that group? Does the community center have activities or classes that are directed toward that group? Are there childbirth education programs available that provide essential information while incorporating cultural patterns? As a nurse, what could you contribute to the community that would help meet the needs of that group?

**Key Points**

- The prenatal period is a period of significant psychosocial adaptation for all members of the expectant family as they anticipate changes in roles and responsibilities.
- Prenatal care is common among women of middle and high socioeconomic status, but women living in poverty or those who lack health insurance may have difficulty using public medical services or gaining access to private care.
- Prenatal care is ideally a multidisciplinary activity that fosters a safe birth and promotes satisfaction of the woman and family with the pregnancy and birth experience.
- Important components of the initial prenatal visit include an in-depth interview to determine the presence of potential complications, a comprehensive physical examination, and selected laboratory tests.

Continued
UNIT THREE  PREGNANCY

**key points—cont’d**

- Follow-up visits are shorter than the initial visit but are important for monitoring the health of the mother and fetus and providing anticipatory guidance as needed.
- Individualized care may be implemented through the assessment process, the formulation of nursing diagnoses, and planning mutually derived outcomes with the woman and her family when appropriate; evaluation of care is an ongoing process.
- The nurse has an important role in teaching the pregnant woman and her family about the physical changes and discomforts of pregnancy and self-care measures that can be implemented.
- Each woman needs to know how to recognize and report preterm labor and other warning signs and symptoms.
- Culture, age, parity, and multiple pregnancy may have a significant impact on the course and outcome of the pregnancy.

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