EARLY PRENATAL care is crucial to the health of the woman and her unborn baby. In fact, the best strategy is for the woman to seek care before she conceives. A recent study found that birth outcomes for women who receive no prenatal care are two to four times worse than outcomes for the general population (Taylor, Alexander, & Hepworth, 2005). According to the National Center for Health Statistics (2007), 84% of mothers received prenatal care in the first trimester in 2004. Although this statistic falls short of the Healthy People 2010 goal that 90% of pregnant women will begin care in the first trimester, it does show a significant increase compared with 1990, when only 75.8% of women received early prenatal care (Women’s Health USA, 2005).

The goal of early prenatal care is to optimize the health of the woman and the fetus and to increase the odds that the fetus will be born healthy to a healthy mother. Early prenatal care allows for the initiation of strategies to promote good health and for early intervention in the event a complication develops. As a nurse and trusted health care provider, you play a large role in teaching women about the importance of early and continued prenatal care.

Assessment of maternal and fetal well-being is the focus of prenatal care. Nursing responsibilities include a heavy emphasis on teaching throughout the pregnancy. At each prenatal visit, it is the role of the nurse to screen the woman, monitor vital signs, perform other assessments as delegated by the primary care provider (PCP), answer questions, and provide appropriate teaching.

ASSESSMENT OF MATERNAL WELL-BEING DURING PREGNANCY
First Prenatal Visit

Ideally, the first prenatal visit occurs as soon as the woman thinks she might be pregnant. Often, the event that signals the woman to seek care is a missed or late menstrual period. She also may be experiencing some of the signs associated with pregnancy, such as nausea, fatigue, frequent urination, or tingling and fullness of the breasts. The utmost question on the woman’s mind, regardless of whether the pregnancy was planned or not, is “Am I pregnant?” If the woman obtained a positive pregnancy test at home, she will want to confirm the results. If she did not, then she may feel anxious, nervous, excited, or any number of emotions until the practitioner confirms the diagnosis of pregnancy.

The first prenatal visit is usually the longest because the baseline data to which all subsequent assessments are
compared are obtained at this visit. The woman may not be mentally prepared for all the questions and tests that must be done, particularly because her main goal at the first visit is to determine whether she is, in fact, pregnant. The major objectives of this visit are to confirm or rule out a diagnosis of pregnancy, ascertain risk factors, determine the due date, and provide education on maintaining a healthy pregnancy. These objectives are met through history taking, a physical examination, laboratory work, and teaching. Refer to The Nursing Process for Prenatal Care at the end of the chapter for discussion of teaching topics.

### History
The history is one of the most important elements of the first prenatal visit. The woman may fill out a written questionnaire, and the nurse or physician will then confirm the answers. Some practitioners prefer to obtain the history exclusively by face-to-face interview. Whatever method is chosen, review the history thoroughly and report any abnormal or unusual details. There are several parts to the history, including chief complaint, reproductive history, medical-surgical history, family history, and social history.

#### Chief Complaint
The chief complaint is usually a missed menstrual period. Ask the woman about presumptive and probable signs of pregnancy.

#### Reproductive History
Note the time of menarche, as well as a summary of the characteristics of the woman’s normal menstrual cycles. Common questions include, “Are your periods regular?” “How frequently do your periods occur?” Note the first day of the last menstrual period (LMP) if the woman knows this information.

The obstetric history is a part of the reproductive history. Review details of each pregnancy, including history of miscarriages or abortions and the outcome of each pregnancy (i.e., how many weeks the pregnancy lasted and whether or not the pregnancy ended with a living child). The obstetric history is recorded in a specific format that is a type of medical shorthand. The word “gravid” means pregnant. **Gravida** refers to the number of pregnancies the woman has had (regardless of the outcome). For example, a woman who has had one pregnancy is a gravida 1, whereas a woman who has had five pregnancies is a gravida 5. A woman who has never been pregnant is a **nulligravida**, whereas a woman who has had more than one pregnancy is a **multigravida**.

Once the total number of pregnancies has been determined and recorded, the next part of the obstetric history is parity. **Parity**, or para, communicates the outcome of previous pregnancies. If a gravida 1 delivers a live-born infant, or an infant who is past the age of viability (>20 weeks), her obstetric status is gravida 1, para 1. Nonviable fetuses that deliver before the end of 20 weeks’ gestation are abortions (either spontaneous or induced) and do not count in the parity. For example, if a woman had a pregnancy that ended at 17 weeks, another at 26 weeks, and another at 40 weeks, and she is currently pregnant, her obstetric status is gravida 4 para 2 abortus 1. Parity refers to the outcome of the pregnancy and is counted as 1, even if the woman delivers twins or triplets.

One of the most common methods of recording the obstetric history is to use the acronym GTPAL. “G” stands for gravida, the total number of pregnancies. “T” stands for term, the number of pregnancies that ended at term (at or beyond 38 weeks’ gestation); “P” is for preterm, the number of pregnancies that ended after 20 weeks and before the end of 37 weeks’ gestation. “A” represents abortions, the number of pregnancies that ended before 20 weeks’ gestation. “L” is for living, the number of children delivered who are alive at the time of history collection. Some PCPs further divide abortions into induced and spontaneous and note multiple births and ectopic pregnancies. Box 7-1 defines terms associated with the obstetric history.

It is important to obtain information regarding complications that may have occurred with other pregnancies. A problem the woman had in a previous pregnancy may manifest itself again in the current pregnancy or

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**Box 7-1 OBSTETRIC HISTORY TERMS**

- **Gravida**: Total number of pregnancies a woman has had, including the present pregnancy.
- **Para**: The number of fetuses delivered after the point of viability (20 weeks’ gestation), whether or not they are born alive.
- **Nulli** (null or none), **primi** (first or one), and **multi** (many): Prefixes used in front of the terms “gravida” and “para” to indicate whether or not the woman has had previous pregnancies and deliveries.
- **GTPAL**: Acronym that represents the obstetric history.
  - Gravida
  - Term deliveries
  - Preterm deliveries
  - Abortions
  - Living children
increase the chance that she will develop another type of complication. For example, if a woman hemorrhaged after a previous delivery, she has a higher risk of hemorrhaging after subsequent deliveries. If she develops gestational diabetes with a pregnancy, she will likely develop the condition again with subsequent pregnancies. If she has a history of preterm delivery, she is at increased risk to deliver another baby prematurely. Any abnormality that presented itself in a previous pregnancy is an important part of the history.

Medical–Surgical History
After eliciting a thorough reproductive history, the practitioner must obtain a detailed medical–surgical history. If the woman has any major medical problems, such as heart disease or diabetes, she will require closer surveillance throughout the pregnancy. The prenatal record should list all medications the woman is taking, including over-the-counter medications and herbal remedies.

Part of the medical history involves determining if there are risk factors for infectious diseases. If the woman has been exposed to anyone with tuberculosis, she needs additional screening to rule out the disease. Determine the woman’s immunization status. The woman who is nonimmune for a particular infection is at risk to contract that infection. Although most immunizations are contraindicated during pregnancy, the woman who is nonimmune can take precautions to decrease the chance she will contract infection during pregnancy. Determine risk factors for human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) and other sexually transmitted infections (Box 7-2).

Family History
A family history is important because it may highlight the need for genetic testing or counseling. Verify the health status of the father of the baby and any close relatives of the woman and her partner. If there is a family history for cystic fibrosis or hearing loss, the practitioner may recommend genetic screening. The ethnic background of the woman and relatives of the unborn child are important factors to consider. For instance, many people of African American descent are carriers for sickle cell anemia; people of Mediterranean descent are at increased risk for thalassemia. See Table 7-1 for examples of ethnic-related genetic diseases.

Social History
The social history focuses on environmental factors that may influence the pregnancy. A woman who has strong social support, adequate housing and nutrition, and greater than a high school education is less likely to develop complications of pregnancy than is a woman who lives with inadequate resources. The type of employment may influence the health of the pregnancy. A job that requires exposure to harmful chemicals is less safe for the woman and fetus than is a job that does not involve this type of exposure. Intimate partner violence can threaten the pregnancy; therefore, it is prudent to screen every woman for intimate partner violence.

Smoking, alcohol, and illicit and over-the-counter drug use can all potentially harm a growing fetus, so it is important to determine the woman’s consumption patterns, particularly since conception. If the woman owns a cat or likes to garden, she is at increased risk for contracting toxoplasmosis, an infection that can cause the woman to lose the pregnancy or can result in severe abnormalities in the fetus.

Physical Examination
The practitioner performs a complete physical examination that covers all body systems. As the nurse, you may provide assistance as needed. The head-to-toe physical is done first. The examiner looks for signs of disease that may need treatment and for any evidence of previously undetected maternal disease or other signs of ill health. A breast examination is part of the physical. Although it is rare, breast cancer in a young pregnant woman is a possibility.

A vaginal speculum examination and a bimanual examination of the uterus follow the head-to-toe physical. During the speculum examination, the practitioner obtains a Papanicolaou test, or Pap smear (see Nursing Procedure 4-1 in Chapter 4), and notes signs of pregnancy, such as Chadwick’s sign. The bimanual examination

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Table 7-1  **GENETIC DISORDER SCREENING CRITERIA BY ETHNICITY**

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Genetic Disorders for Which Screening May Be Recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td>African American, Indian, Middle Eastern</td>
<td>Sickle cell anemia; thalassemia</td>
</tr>
<tr>
<td>European Jewish, French</td>
<td>Tay-Sachs disease</td>
</tr>
<tr>
<td>Canadian</td>
<td>Thalassemia</td>
</tr>
<tr>
<td>Mediterranean, Southeast Asian, Caucasian</td>
<td>Cystic fibrosis</td>
</tr>
</tbody>
</table>

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Box 7-2  **RISK FACTORS FOR SEXUALLY TRANSMITTED INFECTIONS**

- Sex with multiple partners
- Sex with a partner who has risk factors
- Intravenous drug use (needle sharing)
- Anal intercourse
- Vaginal intercourse with a partner who also engages in anal intercourse
- Unprotected (no condom) intercourse

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Laboratory Assessment

Many laboratory tests are done during the course of the pregnancy. A complete blood count indicates the overall health status of the woman. Anemia manifests as a low blood count and low hemoglobin and hematocrit. Anemia is one indication of suboptimal nutritional status and is associated with poor pregnancy outcomes, unless caught and treated early. A woman who is at risk for sickle cell anemia or thalassemia is given a hemoglobin electrophoresis test.

Other laboratory tests routinely ordered include a blood type and antibody screen. This test helps identify women who are at risk of developing antigen incompatibility with fetal blood cells. A, B, and O incompatibilities can develop, as well as Rh(D) incompatibilities. If an antigen incompatibility develops, the fetus may suffer from hemolytic anemia, as the mother’s antibodies cross the placenta and attack his red blood cells (see Chapter 20 for further discussion of antigen incompatibilities).

Other tests screen for the presence of infection. The woman will undergo tests for hepatitis B, HIV, syphilis, gonorrhea, and Chlamydia. Each of these infections can cause serious fetal problems unless they are treated. A rubella titer determines if the woman is immune to rubella. If she is not, she will need a rubella immunization immediately after delivery because the rubella vaccine cannot be given safely during pregnancy. A urine culture screens for bacteria in the urine, a situation that can lead to urinary tract infection and premature labor if it is not treated. The Pap smear screens for cervical cancer.

Traditionally, screening for hypothyroidism is done only when the woman has risk factors or symptoms. However, current research indicates that up to one third of the cases of hypothyroidism go undetected using this approach. Hypothyroidism can have devastating effects on the fetus’ developing nervous system. Therefore, some experts now recommend that every pregnant woman receive thyroid function screening as part of routine prenatal care (Lockwood, 2007).

Due Date Estimation

One important aspect of the first visit is to calculate the due date, or the estimated date of delivery (EDD). An older term that is sometimes used is estimated date of confinement (EDC). Both terms refer to the estimated date that the baby will be born. This is critical information for the practitioner because he or she will manage problems that may arise during the pregnancy differently, depending on the gestational age of the fetus. Therefore, it is essential to have an accurate due date.

There are several ways to date a pregnancy. The most common way to calculate the EDD is to use Nagele's rule. To determine the due date using Nagele's rule, add 7 days to the date of the first day of the LMP, then subtract 3 months. This is a simple way to estimate the due date, but it is dependent upon the woman knowing when the first day of the LMP was. Sometimes this date is impossible to determine, particularly if the woman experiences irregular menstrual cycles, or if she cannot remember the date.

During the pelvic examination, the practitioner feels the size of the uterus to get an idea of how far along the pregnancy is. For instance, a uterus that is the size of a small pear is approximately 7 weeks. If the uterus feels to be the size of an orange, the pregnancy is approximately 10 weeks along, and at 12 weeks the uterus is the size of a grapefruit (MacKenzie, Stephenson, & Funai, 2006).

Other ways to validate the gestational age are to note landmarks during the pregnancy. Initial detection of the fetal heartbeat by Doppler ultrasound takes place between 10 and 12 weeks. Quickening typically occurs around 16 weeks for multigravidas and 20 weeks for primigravidas.

One of the most common and reliable ways to date the pregnancy is through an obstetric sonogram, a picture obtained with ultrasound (MacKenzie, Stephenson, & Funai, 2006). High-frequency sound waves reflect off fetal and maternal pelvic structures, allowing the sonographer to visualize the structures in real time. The sonographer measures fetal structures, such as the head and the femur. These measurements allow the practitioner to estimate the gestational age of the fetus, and thereby determine a due date. A sonogram obtained early in the pregnancy yields the most accurate due date. If there is a discrepancy between the EDD calculated using Nagele’s...
rule and the EDD determined by sonogram, the results of the sonogram (if it is done in the first half of the pregnancy) are used to base treatment decisions.

Risk Assessment
The risk assessment takes into account all of the information gathered from the history, physical examination, and laboratory tests. Many factors put a pregnancy at risk. These factors include a negative attitude of the woman toward the pregnancy (e.g., an unwanted pregnancy), seeking prenatal care late in the pregnancy, and maternal substance abuse (alcohol, tobacco, or illicit drugs). A history of complications with previous pregnancies or poor outcomes, and the presence of maternal disease also put the current pregnancy at risk. Social factors that increase the risk of poor outcomes include inadequate living conditions and domestic violence or physical abuse. If the woman is unaware of the adverse effects of tobacco and alcohol, the benefits of folic acid, or the risk of HIV, the pregnancy is at increased risk for complications and poor outcomes. Age also plays a factor. Young teens and women older than 35 years of age are at higher risk for a complicated pregnancy. An unplanned pregnancy or a pregnancy when the woman is unsure of her LMP date may also be at risk.

Test Yourself
✔ Which obstetric term indicates the number of pregnancies a woman has had?
✔ List four laboratory tests that are routinely ordered during the first prenatal visit.
✔ Explain how to calculate the due date using Nagele’s rule.

Subsequent Prenatal Visits
Traditionally, the practitioner sees the woman once monthly from weeks 1 through 32. Between weeks 32 and 36, prenatal visits are biweekly. From week 36 until delivery, the woman is seen weekly. Current research shows that fewer visits for low-risk pregnancies and more visits for at-risk pregnancies may be more beneficial overall than a rigid adherence to the traditional schedule of visits (Lockwood, 2007). In any event, encourage the woman to keep her appointments and maintain regular prenatal care throughout the pregnancy.

Most subsequent visits include specific assessments. Weight, blood pressure (Fig. 7-2), urine protein and glucose, and fetal heart rate (FHR) are all data that you may collect. At every visit, inquire regarding the danger signals of pregnancy (discussed in the Nursing Process for Prenatal Care). Ask the woman about fetal movement, contractions, bleeding, and membrane rupture. Normally the practitioner does not repeat the pelvic examination until late in the pregnancy, close to the expected time of delivery.

At each office visit, the practitioner measures the fundal height in centimeters (Fig. 7-3). This measurement provides a confirmation of gestational age between weeks 18 and 32. In other words, between weeks 18 and 32, the fundal height in centimeters should match the number of weeks the pregnancy has progressed. For example, if the woman is 18 weeks pregnant, the fundal height should measure 18 cm. If there is a discrepancy between the size and dates, the practitioner usually orders a sonogram to determine the cause of the discrepancy. A fundal height that is larger than expected could mean, among other things, that the original dates were miscalculated, that the woman is carrying twins, or that there is a molar pregnancy (see Chapter 17).

The woman undergoes screening at particular times during the pregnancy. Sometime between 15 and 20 weeks’ gestation, a maternal serum alpha-fetoprotein (MSAFP) should be drawn (see the discussion in the

Figure 7-2 The licensed practical/vocational nurse measures the blood pressure at a prenatal visit.

Figure 7-3 The certified nurse midwife measures the fundal height.
section on fetal assessment). Between 24 and 28 weeks, all women should be screened for gestational diabetes. At 28 weeks, a woman who is Rh(D)-negative should be screened for antibodies and given anti-D immune globulin (RhoGam), if indicated (see Chapter 20 for further discussion of hemolytic disease of the newborn). The woman should undergo screening for group B streptococcus after 35 weeks and before the end of 37 weeks. Positive cultures indicate the need for antibiotics for the woman during labor and close observation of the newborn for 48 hours after birth.

Test Yourself

✔ How often does the woman with an uncomplicated pregnancy have prenatal office visits from weeks 1 through 32?

✔ What purpose does measuring the fundal height serve during prenatal visits?

✔ List the time during pregnancy when screening for gestational diabetes normally occurs.

ASSESSMENT OF FETAL WELL-BEING DURING PREGNANCY

Throughout the pregnancy, the PCP may order tests to assess the well-being of the fetus. Some are screening tests, which means they are not diagnostic. If an abnormal result occurs with a screening test, the practitioner orders additional diagnostic testing. The discussion that follows describes some of the most common tests and procedures. Not every woman will receive every test, although some screening tests are recommended for all pregnant women, at certain points during the pregnancy.

Fetal Kick Counts

A healthy fetus moves and kicks regularly, although the pregnant woman usually cannot perceive the movements until approximately gestational week 16 to 20. The practitioner or the nurse instructs the woman to monitor her baby’s movements on a daily basis. Instruct the woman to choose a time each day in which she can relax and count the baby’s movements. Each kick or position change counts as one movement. Using a special form or a blank sheet of paper, instruct the woman to note the time she starts counting fetal kicks and then keep counting until she counts 10 movements. A healthy fetus will move at least 10 times in 2 hours (Wyatt & Rhoads, 2006). If it takes longer than 2 hours for the fetus to move 10 times, or if the woman cannot get her baby to move at all, she should immediately call her health care provider. The practitioner will order tests to determine the well-being of the fetus.

Ultrasoundography

Ultrasound is the gold standard in the United States to determine gestational age, observe the fetus, and diagnose complications of pregnancy (Fig. 7-4). Because it appears to be a safe and effective way to monitor fetal well-being, the procedure is performed frequently. One result of monitoring virtually every pregnancy with ultrasound is that most parents know the gender of the child before he or she is born. Many sonographers take a still picture of the fetus and provide this to the parents, if desired.

As stated earlier in the chapter, ultrasound uses high-frequency sound waves to visualize fetal and maternal structures (Fig. 7-5). The developing embryo can first be
Transabdominal Ultrasound

For the transabdominal method, the sonographer places a transducer on the abdomen to visualize the pregnancy. In the past, it was recommended that the woman have a full bladder for transabdominal ultrasound. Current recommendations are that the woman does not need to have a full bladder (Shipp, 2006). In fact, a full bladder may actually distort anatomy. If the sonographer cannot see sufficient detail with the transabdominal approach, he or she will likely switch to the endovaginal technique.

If you are assisting during the procedure, place a small wedge (pillow or sandbag) under one hip to prevent supine hypotension. Explain to the woman that the sonographer will place a special gel on her abdomen and that it probably will be cold. She should not feel any discomfort during the procedure. A darkened room optimizes visualization of fetal structures during the procedure. Although the technician performing the sonogram can see fetal structures and obvious defects during the sonogram, it will take several hours to get the official results because the radiologist must review the films and dictate the diagnosis. After the procedure, clean the excess gel off the woman's abdomen and assist her to the bathroom.

**Endovaginal Ultrasound**

For the endovaginal method, the sonographer uses a specialized probe in the vagina. There are several advantages to this method. The endovaginal approach allows for a clearer image because the probe is very close to fetal and uterine structures. This method allows for earlier confirmation of the pregnancy than does the transabdominal method. The endovaginal method is superior for predicting or diagnosing preterm labor because the sonographer can measure and analyze the cervix for changes.

Assist the woman into lithotomy position (as for a pelvic examination) and drape her for privacy. A female attendant must be present in the room at all times during the procedure if the sonographer is male. The examiner covers the probe (which is smaller than a speculum) with a specialized sheath, a condom, or the finger of a glove; applies ultrasonic transducer gel to the covered probe; and inserts the probe into the vagina. Explain to the woman that she will feel the probe moving about in different directions during the test. The probe may cause mild discomfort, but it is generally not painful.

**Doppler Flow Studies**

Another test that uses ultrasound technology is a Doppler flow study, or Doppler velocimetry. A specialized ultrasound machine measures the flow of blood through fetal vessels. The ultrasound transducer on the woman's abdomen allows the sonographer to assess blood flow through the umbilical vessels and in the fetal aorta, brain, and heart. If the test shows that blood flow through fetal vessels is less than normal, the fetus may not be receiving enough oxygen and nutrients from the placenta, and the practitioner will order additional studies and interventions. Preparation and nursing care for a Doppler flow study are the same as for ultrasonography.
Maternal Serum Alpha-fetoprotein Screening

Alpha-fetoprotein is a protein manufactured by the fetus. The woman’s blood contains small amounts of this protein during pregnancy. Many physicians recommend measuring MSAFP between 16 and 20 weeks’ gestation because abnormal levels may indicate a problem and the need for additional testing (Natarajan & Klein, 2006).

MSAFP levels are elevated in several conditions. Higher-than-expected levels of MSAFP may indicate that the pregnancy is farther along than was predicted initially. When the woman is carrying multiple fetuses, such as twins or triplets, or when the fetus has died, MSAFP levels will be elevated. The main reason physicians screen MSAFP is to check for neural tube defects, such as anencephaly (failure of the brain to develop normally) or spina bifida (failure of the spine to close completely during development). MSAFP levels are usually elevated if the fetus has either of these anomalies. Omphalocele and gastroschisis (failure of the abdominal wall to close) are two other conditions that cause elevated MSAFP levels. Low MSAFP levels may also indicate a problem, in particular Down’s syndrome.

It is important for the parents-to-be to understand the reasons for and implications of MSAFP testing. Even when the levels are abnormal, approximately 90% of the time the woman will deliver a healthy baby. However, abnormal results increase the likelihood that the fetus has an abnormality, and the practitioner will usually order additional diagnostic testing with ultrasound and/or amniocentesis. Even when the follow-up ultrasound is normal, there is no guarantee that the fetus will be healthy. An elevated MSAFP in the presence of a normal ultrasound increases the risk that the woman will develop a complication of pregnancy, such as preeclampsia or intrauterine growth restriction.

Some women want to have the test done so that they can decide whether to end the pregnancy before the age of viability. Other women feel strongly that abortion is not an option, but they may want to know if an anomaly is present so that they can deliver in a hospital with high-level care and have specialists immediately available to resuscitate and care for the baby. Other women may decide against testing because a false-positive test might be needlessly worrisome and lead to more invasive, riskier tests, such as amniocentesis, even though the baby might be healthy. Each woman must consider these issues in consult with her partner and practitioner. No matter what decision the woman makes regarding testing, it is critical to support her decision.

A little sensitivity goes a long way!

If a screening test result is “suspicious,” or the practitioner orders further testing, the woman will need emotional support. It is scary not knowing what to expect while waiting for test results. Accept and let her talk through her feelings.

Triple-Marker (or Multiple-Marker) Screening

Measuring levels of two other hormones in conjunction with MSAFP increases the sensitivity of the test. When MSAFP, human chorionic gonadotropin (hCG), and unconjugated estriol levels are measured from the same maternal blood sample, the test is called a triple-marker screen. A low MSAFP, low estriol, and elevated hCG suggests that the baby has Down’s syndrome, whereas low levels of all three hormones increases the risk the fetus has trisomy 18, a more severe and less common chromosomal defect. A fourth biochemical marker in maternal serum, inhibin A, has been found to increase the ability of blood tests to predict chromosomal abnormalities of the fetus, so some practitioners add this fourth screen. This test is a multiple-marker screen.

Sometimes the practitioner orders serial estriol levels in the third trimester to monitor the well-being of the fetus. Falling estriol levels in the third trimester may indicate that the fetus is in jeopardy, in which case an emergency cesarean delivery may save the fetus’ life. Nursing care for MSAFP or triple marker screening is the same as that for any venous blood sampling of the woman.

Amniocentesis

An amniocentesis is a diagnostic procedure whereby a needle inserted into the amniotic sac obtains a small amount of fluid (Fig. 7-6). A variety of biochemical, chromosomal, and genetic studies are possible using the amniotic fluid sample.

The procedure is usually performed between 15 and 20 weeks’ gestation, although early amniocentesis (at 12–14 weeks’ gestation) may be preferable in some situations.
cases. Most practitioners will not perform amniocentesis before 12 weeks because of the increased risk for fetal foot deformities and pregnancy loss (Natarajan & Klein, 2006). Early and second-trimester procedures can determine the genetic makeup of the fetus because amniotic fluid contains fetal cells. Box 7-4 lists indications for first- and second-trimester amniocentesis. Third-trimester amniocentesis is usually done to determine fetal lung maturity, which allows for the earliest possible delivery in certain at-risk pregnancies.

Because amniocentesis is an invasive procedure that carries a small risk of spontaneous abortion, injury to the fetus, and chorioamnionitis (infection of the fetal membranes), the woman must give informed consent. The physician explains the procedure and risks and answers her questions. If you witness the consent, be certain that the woman has had all her questions answered before she signs. Explain the procedure to her so that she knows what to expect. Many women are worried that the procedure will be painful. Although pain is a subjective feeling that varies between individuals, most women find that the procedure is much less painful than they anticipated. Usually women report feeling a slight pinching sensation or vague cramping.

Just before the procedure, the practitioner uses ultrasound to locate a pocket of amniotic fluid. Without ultrasound to guide the needle, there is a high risk that the needle could puncture the placenta or the fetus. After locating the pocket of fluid (usually on the upper portion of the uterus), the practitioner prepares the site with povidone-iodine or alcohol, and places sterile drapes on the abdomen around the site. The sterile drapes also cover the ultrasound transducer. Next, the practitioner inserts a 20- to 22-gauge spinal needle into the chosen site. The practitioner watches the ultrasound picture and guides the needle along the chosen path into the pocket of fluid. The first 0.5 mL of fluid is discarded to avoid contamination of the specimen with maternal cells. Then, 20 mL (less for early amniocentesis) of fluid is withdrawn, and the needle removed. The practitioner then monitors the FHR by ultrasound to ensure fetal well-being. The fluid sample, which is normally straw colored, is placed into sterile tubes, labeled, and sent to the laboratory for analysis. Results are usually available within 2 to 3 weeks and are highly accurate (approximately 99%).

The woman should remain on bed rest the day of the procedure. Attach continuous electronic fetal monitoring (EFM) to observe the FHR and contractions, if they should occur. Women who are Rh(D)-negative should receive RhoGam after the procedure. Observe the insertion site for leakage of amniotic fluid (a rare complication). Monitor the woman’s temperature. Immediately report any temperature elevation, leaking of fluid from the site or from the vagina, vaginal bleeding, cramps, or contractions to the RN or the attending practitioner. After several hours of monitoring, the woman may go home. Instruct her to remain on bed rest for the rest of the day. The following day she may do light housework chores, and the third day she may resume regular activities. Warning signs she should immediately report to the attending practitioner include fever, amniotic fluid leakage, vaginal bleeding, and/or cramping.

As with any medical procedure that carries risk, amniocentesis has advantages and disadvantages that each woman and her partner must consider carefully. The most common reason for undergoing amniocentesis is to determine if there is a fetal abnormality so that the pregnancy might be ended (elective abortion) before the age of viability. Many women will not consider an abortion under any circumstances. In these cases, there are still benefits to amniocentesis. If the fetus does have a chromosomal abnormality, knowing in advance allows for the medical team and the parents to prepare for the birth. It also allows the physician to make better decisions about managing the pregnancy. Every woman who is contemplating amniocentesis should have genetic counseling. Then, no matter what decision the woman makes, it is critical that the health care team support her decision.

**Chorionic Villus Sampling**

Chorionic villus sampling (CVS) is a newer procedure that can provide chromosomal studies of fetal cells, similar to amniocentesis. Indications for CVS are the same as for amniocentesis (see Box 7-4). One advantage of CVS testing is that it is done earlier in the pregnancy than amniocentesis, which allows decisions about elective abortion to be made sooner in the pregnancy. Elective abortions are safer for the woman the earlier they are performed. CVS is typically performed at 8 to 12 weeks’ gestation (Natarajan & Klein, 2006). Because CVS is an invasive procedure, informed consent is required.

Just before the procedure, an ultrasound confirms fetal well-being, the location of the placenta, and gestational age. For the transcervical approach, assist the

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**Box 7-4 SELECTED INDICATIONS FOR CHROMOSOMAL STUDIES BY AMNIOCENTESIS OR CHORIONIC VILLUS SAMPLING**

- Advanced maternal age (generally accepted as older than 35)
- Previous offspring with chromosomal anomalies
- History of recurrent pregnancy loss
- Ultrasound diagnosis of fetal anomalies
- Abnormal MSAFP, triple-marker screen, or multiple-marker screen
- Previous offspring with a neural tube defect
- Both parents known carriers of a recessive genetic trait (such as cystic fibrosis, sickle cell anemia, or Tay-Sachs disease)

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woman into lithotomy position in stirrups. The practitioner cleans her vagina and cervix with povidone-iodine fluid. Using ultrasound guidance, the practitioner inserts a small catheter into the woman’s vagina and through the cervix. Placental tissue is then extracted into a syringe to obtain fetal cells for chromosomal analysis. Sometimes the practitioner uses a transabdominal approach with a needle, similar to the procedure for amniocentesis. The woman usually experiences minimal discomfort and may resume normal activities after the test. RhoGam should be administered after the procedure to Rh(D)-negative women.

One advantage of CVS testing is that the results are available in 7 to 10 days, much faster than with amniocentesis. Another advantage is that testing can occur earlier in the pregnancy. However, there are disadvantages to this technique. First, some studies demonstrate a higher rate of pregnancy loss with transcervical CVS versus transabdominal CVS and second-trimester amniocentesis (Ghidini & McLaren, 2006). A second potential disadvantage is that there is no amniotic fluid in a CVS sample; therefore, the amniotic alpha-fetoprotein cannot be evaluated, as it can with amniocentesis. This means the woman would need to have MSAFP levels drawn at 16 to 18 weeks’ gestation to test for neural tube defects. (A woman who has amniocentesis performed does not need the MSAFP test because amniocentesis results report the fetal alpha-fetoprotein level, which is a more accurate predictor of spinal defects than maternal serum levels.) The third disadvantage of CVS is that there is a small risk that the cells taken from the placenta will be different from fetal cells. If this happens, a situation called “placental mosaicism,” the test results would be abnormal, even if the fetus were normal. Some authorities suggest that CVS performed before 9 weeks’ gestation can cause fetal limb and digit deformations.

**Percutaneous Umbilical Blood Sampling**

Percutaneous umbilical blood sampling (PUBS), also known as cordocentesis, is a procedure similar to amniocentesis, except that fetal blood is withdrawn rather than amniotic fluid. The woman is prepared in the same manner as for amniocentesis and must give informed consent. Ultrasound locates the placenta and fetal structures and confirms gestational age and viability. The practitioner inserts a thin needle transabdominally under ultrasound guidance, and withdraws blood from the umbilical cord close to its insertion with the placenta. Alternatively, the practitioner can obtain blood from the fetal heart or from the umbilical vein within the liver, although these sites are not commonly chosen. The blood is then sent for testing.

Sometimes, PUBS is done specifically to diagnose and treat certain diseases of the blood, such as von Willebrand’s disease, alloimmune thrombocytopenia, and hemolytic disease. It can also diagnose and treat cases of fetal infection such as toxoplasmosis, rubella, cytomegalovirus, varicella zoster, human parvovirus, and HIV. Through the technology of cordocentesis, the fetus with thrombocytopenia can receive weekly infusions of platelets until delivery. The fetus with hemolytic disease can receive exchange transfusions (part of the fetus’ blood is withdrawn and the same amount replaced with healthy blood). The fetus with an infection can be treated with antibiotics or receive other therapies, depending upon the type of infection. The blood obtained from cordocentesis can also be sent for rapid chromosomal studies. Results are back within 48 to 72 hours. The risks associated with PUBS are approximately the same as those of amniocentesis.

**Nonstress Test**

The nonstress test (NST) is a noninvasive way to monitor fetal well-being. Usually around 28 weeks and onward, the fetal nervous system is developed enough so that the autonomic nervous system works to periodically accelerate the heart rate. Therefore, the practitioner can observe FHR accelerations using an EFM.

The woman requires no special preparation other than placement of EFM (see Chapter 10 for in-depth discussion of fetal monitoring). She may or may not have an event marker to hold. If she uses one, she must push the button every time she feels the fetus move. The nurse or practitioner evaluates the fetal monitor tracing after 20 minutes. Generally, if there are at least two accelerations of the fetal heart in a 15 × 15 window (i.e., the fetal heart accelerates at least 15 beats above the baseline for at least 15 seconds), the NST is said to be “reactive,” provided that the baseline and variability are normal and that there are no decelerations of the FHR. In the presence of a reactive NST, fetal well-being is assumed for at least the next week.

If, however, there are no accelerations or less than two occur within 20 minutes, the strip is said to be “nonreactive.” In this case, the monitoring would continue for another 20 minutes in the hopes of obtaining a reactive NST. This is because fetal sleep cycles last for approximately 20 minutes. During fetal sleep, accelerations do not usually occur, so it is prudent to observe for an additional 20 minutes. Sometimes the practitioner attempts to stimulate the fetus. She may clap loudly close to the woman’s abdomen or may manipulate the fetus through the abdomen with her hands, or she may give the woman something cold to drink. Any of these activities might stimulate a sleeping fetus to wake up, and result in a reactive tracing. If the tracing remains nonreactive or equivocal (results cannot be interpreted), additional testing is warranted. In these instances, the practitioner

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2In the past, it was very important to monitor the FHR in conjunction with fetal movement. Now, it is generally felt that spontaneous accelerations with or without fetal movement are indicative of fetal well-being, so it is not necessary to have the woman track fetal movements, although some practitioners may prefer this.
frequently recommends vibroacoustic stimulation or a contraction stress test (CST).

**Vibroacoustic Stimulation**

For vibroacoustic stimulation, the practitioner places an artificial larynx a centimeter from or directly on the maternal abdomen. The sound stimulates the fetus to wake up, and a healthy fetus responds with a reactive NST. Some practitioners use vibroacoustic stimulation for all NSTs because it decreases the length of time needed to obtain a reactive tracing and decreases the number of false-nonreactive tracings. Other practitioners use vibroacoustic stimulation as the second step after obtaining a nonreactive NST.

**Contraction Stress Test**

Uterine contractions cause a momentary reduction of uteroplacental blood flow, which stresses the fetus. A CST monitors the fetus’ response to contractions to determine his or her well-being. The woman is placed on EFM, as for the NST. There are three ways to obtain uterine contractions for a CST. The easiest way is if the woman is having spontaneous Braxton Hicks contractions because there is no need to induce contractions. Another way is to induce uterine contractions through nipple stimulation. Nipple stimulation causes release of oxytocin from the posterior pituitary gland. The oxytocin then stimulates the uterus to contract. The third way is to start an intravenous drip of Pitocin (synthetic oxytocin) to induce contractions.

The goal is to have three contractions of at least 40 seconds’ duration within a 10-minute period. Then the practitioner reviews the fetal monitor strip to determine the reaction of the fetus to the stress of the contractions. If there are no late decelerations (decelerations that occur after the contractions; see Chapter 10) after any of the contractions, the CST is negative, which is a reassuring sign. A negative CST indicates that the fetus is not suffering from hypoxia and does not need immediate delivery. An equivocal CST occurs when there are late decelerations after some, but not all, of the uterine contractions. This result is suspicious of fetal hypoxia and may cause the physician to decide to perform a cesarean delivery of the fetus. A positive CST, late decelerations after every contraction, is indicative of fetal hypoxia and requires delivery of the fetus. An unsatisfactory CST occurs when there are insufficient contractions. The practitioner may repeat the test within 24 hours, or may order a biophysical profile.

**Biophysical Profile**

Biophysical profile uses a combination of factors to determine fetal well-being. Five fetal biophysical variables are measured. NST measures FHR acceleration. Then ultrasound measures breathing, body movements, tone, and amniotic fluid volume. Each variable receives a score of 0 (abnormal, absent, or insufficient) or 2 (normal or present) for a maximum score of 10. A score of 8 to 10 indicates fetal well-being. A score of 6 correlates with possible fetal asphyxia, whereas a score of 4 indicates probable fetal asphyxia. Scores of 0 to 2 are ominous and require immediate delivery of the fetus (Wyatt & Rhoads, 2006).

**Test Yourself**

- How many times should the fetus move in a 2-hour period of time?
- What three tests are included in the triple-marker screening test?
- What tissue is extracted for study when chorionic villus sampling is used?

**THE NURSE’S ROLE IN PRENATAL CARE**

Nurses are in a unique position to influence behaviors of the pregnant woman and to increase the chance she and her baby will stay healthy. Through consistent use of the nursing process, you can detect problems early in order to intervene, or assist the PCP to intervene, and support the woman through her pregnancy. Teaching remains the primary nursing intervention throughout pregnancy.

**Nursing Process for Prenatal Care**

**Assessment**

Ongoing assessment and data collection are essential components of prenatal visits. During the first prenatal visit, pay close attention to cues the woman may give regarding her feelings toward the pregnancy. Ambivalence is normal. The woman may express feelings of doubt about the pregnancy or her ability to be a good parent. These are normal reactions when a woman first finds out she is pregnant, and she needs reassurance that her responses are normal. Withdrawal or consistently negative remarks are warning signs. Report these observations to the registered nurse (RN) or PCP.

If you administer the initial questionnaire, show the woman all the pages and assist her to complete it, if necessary. Review the document carefully when she is done to ensure completeness. Look for answers that indicate the need for further assessment. Alert the RN or the PCP of possible risk factors identified in the history.

Assess for signs of nervousness and anxiety. The woman may express her nervousness by being restless or tense or by being quiet and withdrawn. Be attuned to signals she is giving regarding her comfort level. At every visit, inquire carefully regarding current medications, food supplements, and over-the-counter remedies she is using.

Note if the woman has been experiencing nausea and vomiting. Pay close attention to signs that might indicate poor nutritional status. Weight is an obvious clue. If the
Pregnancy

A woman is overweight or underweight, she will need special assistance with nutritional concerns throughout the pregnancy. Other warning signs of poor nutritional status include dull, brittle hair; poor skin turgor; poor condition of skin and nails; obesity; emaciation; or a low hemoglobin level. Ask the woman to write down a typical day’s food consumption pattern, and then compare her normal intake to MyPyramid to determine if her diet is adequate for her nutritional needs.

Determine her education level and knowledge of pregnancy and prenatal care. If she is highly knowledgeable, she may ask high-level questions that indicate an understanding of basic issues. Conversely, she may ask basic questions, or no questions at all, which could indicate a knowledge deficit.

During subsequent visits, you may assist with assessing for signs of fetal well-being. These assessments include obtaining fetal heart tones with an ultrasonic Doppler device (Fig. 7-7) beginning in week 10, and soliciting reports of active fetal movements after quickening. Pay close attention to vital signs, particularly the blood pressure. Monitor for danger signs of pregnancy (Box 7-5).

**Selected Nursing Diagnoses**

- Anxiety related to uncertainty regarding pregnancy diagnosis and not knowing what to expect during the office visit
- Health-seeking Behaviors related to maintaining a healthy pregnancy and concerns regarding the common discomforts of pregnancy

**Box 7-5 DANGER SIGNS OF PREGNANCY**

Inquire regarding these warning signals at every visit. Instruct the woman to report any of these signs, if she should experience them, to her health care provider right away.

- Fever or severe vomiting
- Headache, unrelieved by Tylenol or other relief measures
- Blurred vision or spots before the eyes
- Pain in the epigastric region
- Sudden weight gain or sudden onset of edema in the hands and face
- Vaginal bleeding
- Painful urination
- Sudden gush or constant, uncontrollable leaking of fluid from the vagina
- Decreased fetal movement
- Signs of preterm labor
  - Uterine contractions (four or more per hour)
  - Lower, dull backache
  - Pelvic pressure
  - Menstrual-like cramps
  - Increase in vaginal discharge
  - A feeling that something is not right

- Deficient Knowledge of self-care during pregnancy
- Risk for Injury related to complications of pregnancy
- Fear related to the unknown of childbirth, concerns regarding safe passage of self and infant through the delivery experience, and concerns related to assuming the parenting role

**Outcome Identification and Planning**

Maintaining the health of mother and fetus is the primary goal of nursing care during the prenatal period. Specific goals are that the woman’s anxiety will be reduced, she will manage the symptoms and discomforts associated with pregnancy; that she will feel confident in her ability to care for herself throughout the pregnancy; that she nor the fetus will experience injury from complications of pregnancy; that she will have sufficient knowledge to adequately meet her needs and those of the growing fetus throughout the pregnancy; and that she will express confidence in her ability to go through the labor and birth experience and assume the parenting role.

**Implementation**

Relieving Anxiety

Escort the woman to the examination room. Explain normal procedure and describe what she can expect during the visit. When the woman knows what to expect, she will be much less anxious. Maintain a calm, confident demeanor while giving care. Protect the woman’s privacy during invasive examinations.
Try to understand the woman’s perspective. Note if her anxiety level increases. Anticipate concern when fetal testing is required. Solicit questions and correct misconceptions the woman may have. Provide information concerning the treatment plan. Use active listening and encourage positive coping behaviors.

**Relieving the Common Discomforts of Pregnancy**

Pregnant women tend to experience similar discomforts because of the significant bodily changes they undergo. Some discomforts tend to occur in early pregnancy, some toward the end, and others continue throughout. Table 7-2 lists selected discomforts along with hints for helping the woman cope.

**Nasal Stuffyness and Epistaxis.** A pregnant woman is prone to nasal stuffiness and epistaxis (nosebleeds). Estrogen is the hormone most likely culpable for this discomfort because it contributes to vasocongestion and increases the fragility of the nasal mucosa. Sometimes the woman may have symptoms of the common cold that persist throughout pregnancy. Menthol applied just below the nostrils before bedtime might help relieve some discomfort from congestion. The woman should generally not use nasal decongestants, other than normal saline nasal sprays, and should consult her PCP before taking any medications, including over-the-counter remedies.

Avoiding vigorous nose blowing may prevent nosebleeds. It is also helpful to keep the nasal passages moist. Using a humidifier in the house and staying well hydrated can accomplish this. If a nosebleed occurs despite precautions, instruct the woman to pinch the nostrils and hold pressure for at least 4 minutes until the bleeding stops. Ice may help stop the bleeding. If the bleeding is heavy or does not stop with pressure, instruct the woman to consult her PCP.

**Nausea.** Morning sickness, or nausea, is a common complaint of early pregnancy, occurring in approximately 75% to 80% of pregnancies (Badell, Ramin, & Smith, 2006). Rising levels of hCG are thought to be part of the cause, although it is likely many factors that contribute. Although “morning sickness” is the lay term for the nausea of pregnancy, many women experience nausea at other times during the day, or even throughout the day. Fortunately, nausea generally subsides by the end of the first trimester.

Caloric intake during the first trimester is not as crucial as it is in the second and third trimesters, so nausea is usually not harmful to the pregnancy. However, severe nausea and vomiting can lead to nutritional deficiencies, dehydration, and electrolyte deficiencies, so preventive measures are important (Hunter & Young, 2007). Some helpful suggestions include advising the woman to place a high-carbohydrate, low-fat snack, such as Melba toast or saltine crackers, at the bedside before retiring. In the morning before getting out of bed, she should eat the snack. This can help prevent early morning nausea.

Other helpful hints are to encourage the woman to eat small amounts frequently throughout the day, instead of consuming three heavy meals hours apart, and never to let the stomach become completely empty. It also helps to avoid strong odors and spicy and fatty foods. Sometimes it is easier for the woman to eat when someone else prepares the meal. Brushing the teeth causes salivation, which can intensify nausea. In addition, the smell of the toothpaste may cause nausea, so the woman should wait for 1 hour after eating before brushing her teeth.

When the nonpharmacologic interventions described above do not sufficiently treat the nausea, there are several options. Two alternative therapies that have shown benefit are the herbal supplement ginger, at a dose of 250 mg by mouth 4 times per day or acupressure treatments. Sometimes taking a multivitamin supplement helps. Some studies have shown therapeutic benefit of taking 25 mg of pyridoxine (vitamin B6) every 8 hours (Badell, Ramin, & Smith, 2006).

Persistent vomiting may be a sign of hyperemesis gravidarum, a complication of pregnancy that can lead to dehydration and electrolyte imbalances. If the vomiting is severe or prolonged, advise the woman to consult her PCP. She should call the practitioner if she is unable to retain any food or fluids for 24 hours (Hunter & Young, 2007).

**Feeling Faint.** Sometimes women feel faint during the first few weeks of pregnancy. Postural hypotension could be the cause. Low blood sugar levels aggravate the situation. Advise the woman to change positions slowly and to avoid abrupt position changes. Eating frequent high-carbohydrate meals helps to keep blood sugar levels up. If she feels faint, a walk outside might help. Alternatively, she might need to lie down with her feet elevated or sit with her head lower than her knees, until the feeling passes.

**Frequent Urination.** Frequent urination can be bothersome and interfere with sleep. One cause of frequent urination in the first trimester is the increasing blood volume and increased glomerular-filtration rate. Frequency usually diminishes during the second trimester, only to reappear in the third trimester because of pressure of the enlarging uterus on the bladder.

**Increased Vaginal Discharge.** Leukorrhea, or increased vaginal discharge, is common during pregnancy. Increased production of cervical glands and vasocongestion of the pelvic area contribute to the discharge. If the discharge causes itching or irritation, or if there is a foul smell noted, the woman should contact her PCP because these are signs of infection. She should avoid douching because douching can upset the normal balance of vaginal flora, increasing the risk of contracting an infection (Cottrell, 2006). Sanitary pads may help to absorb the discharge.

**Shortness of Breath.** Shortness of breath may occur during the first trimester because of the effects of progesterone. During the latter half of pregnancy, this symptom results from the pressure of the uterus pushing upward...
<table>
<thead>
<tr>
<th>Discomfort</th>
<th>Contributing Factor or Cause</th>
<th>Hints for Relieving the Discomfort</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bleeding gums</td>
<td>Stimulating effects of estrogen on the gums</td>
<td>• Visit the dentist</td>
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<td></td>
<td></td>
<td>• Use rinses and gargles to freshen the oral cavity</td>
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<td>• Use a soft-bristled toothbrush</td>
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<td>• Use a cool-air vaporizer</td>
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<td>• Try normal saline nasal sprays</td>
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<td></td>
<td>• Try to avoid commercial medicated nasal sprays because initial relief may be followed by rebound stuffiness</td>
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<tr>
<td>Nasal stuffiness</td>
<td>Effects of estrogen on the nasal mucosa cause vasocongestion and stuffiness.</td>
<td>• Avoid vigorous nose blowing</td>
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<td></td>
<td></td>
<td>• Use a humidifier</td>
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<td></td>
<td>• Drink plenty of fluids</td>
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<td></td>
<td>• Wear a well-fitted support bra</td>
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<td></td>
<td>• Wearing a bra at night might be helpful if breast discomfort is interfering with restful sleep.</td>
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<td>Nosebleeds</td>
<td>The tiny veins of the nasal lining are prone to breaking and causing nosebleeds. Dry nasal passages increase the risk.</td>
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<td></td>
<td>• Avoid lying down after a meal</td>
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<td></td>
<td>• Avoid substances that increase acid production, in particular cigarette smoking.</td>
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<td>• Avoid substances that cause relaxation of the LES, such as coffee, chocolate, alcohol, and heavy spices.</td>
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<td>• Avoid lying on the right side after a meal</td>
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<td>• Avoid lying flat</td>
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<td>• Avoid gaining too much weight</td>
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<td></td>
<td>• Avoid high-heeled shoes</td>
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<td></td>
<td></td>
<td>• Always bend at the knees, not the waist</td>
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<td>• Avoid standing for too long at one time</td>
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<td></td>
<td>• Keep one foot on a stool when standing. Frequently change the foot that is resting on the stool.</td>
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<tr>
<td>Breast tenderness</td>
<td>Progesterone and estrogen are thought to contribute to the tingling or heavy sensations in the breasts that come and go throughout pregnancy.</td>
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<td>• Change positions slowly, especially when getting up in the morning.</td>
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<td>• Eat small high-protein meals frequently throughout the day.</td>
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<td></td>
<td>• If protein is not well tolerated, try high-carbohydrate, low-fat snacks to avoid hypoglycemia.</td>
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<td>• Avoid noxious odors</td>
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<td>• Take a walk outside in the fresh air.</td>
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<td>• Delay iron supplementation until the second trimester.</td>
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<td>• Plan for daily naps</td>
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<td>• Take frequent rest breaks throughout the day.</td>
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<td>• Go to bed early</td>
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<td>• Sit up straight to increase diameter of the chest.</td>
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<td>• If shortness of breath is interfering with sleep, prop up with pillows.</td>
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<td>• Eat small, frequent meals</td>
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<td></td>
<td>• Keep one foot on a stool when standing. Frequently change the foot that is resting on the stool.</td>
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<tr>
<td>Nausea and nausea with vomiting</td>
<td>Rising levels of hCG probably contribute to nausea along with other factors.</td>
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<tr>
<td>Feeling faint</td>
<td>Postural hypotension can easily develop with the hemodynamic changes that occur in a normal pregnancy as the blood vessels in the periphery relax and dilate.</td>
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<tr>
<td>Fatigue</td>
<td>Cause is unknown. Progesterone may contribute.</td>
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<tr>
<td>Shortness of breath</td>
<td>In early pregnancy, the effects of progesterone can create a sense of shortness of breath.</td>
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<tr>
<td></td>
<td>In later pregnancy, the uterus pushes on the diaphragm.</td>
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<tr>
<td>Heartburn</td>
<td>Relaxation of the LES under the influence of progesterone and increased intra-abdominal pressure due to the growing uterus cause acid reflux into the lower esophagus.</td>
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<tr>
<td>Low back pain</td>
<td>Changes in the center of gravity and loosened ligaments</td>
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(continued)
on the diaphragm. Advise the woman to take her time and rest frequently. If shortness of breath occurs during exercise, she may need to decrease the level of intensity. During late pregnancy, shortness of breath may interfere with sleep. Propping up with pillows can help expand the chest and decrease the sensation of being unable to catch her breath. Shortness of breath accompanied by chest pain, coughing up blood, or a smothering sensation with fever is a danger sign that indicates the need for medical intervention.

**Heartburn.** Heartburn, or pyrosis, is a common complaint occurring in 30% to 50% of pregnancies (Richter, 2005). Several factors contribute to this discomfort. Progesterone causes a generalized slowing of the gastrointestinal tract and can cause relaxation of the lower esophageal sphincter (LES). When the LES is relaxed,
acid content from the stomach can back up into the lower part of the esophagus and cause a burning sensation, known as heartburn. The increased pressure in the abdomen from the enlarging uterus contributes to the problem.

Prevention is generally the best way to treat heartburn. Several factors aggravate the condition. Smoking increases the acid content of the stomach. Certain foods and beverages, such as coffee, chocolate, peppermint, fatty or fried foods, alcohol, and heavy spices, can contribute to LES relaxation and exacerbate heartburn. Explain that the woman should avoid the particular substances that cause her discomfort. The pregnant woman should not smoke or drink alcohol because of the harmful effects on the fetus.

Advise the woman regarding interventions to help prevent heartburn or lessen its severity. The woman should eat smaller meals more frequently and avoid drinking fluids with meals. Filling the stomach with a heavy meal or with food and fluid increases the pressure and contributes to gastric reflux. It is best if the woman avoids lying down after meals. If she must lie down, suggest that she lie on her left side with her head higher than her abdomen. Placing 6-in blocks under the head of the bed or propping pillows at night to keep the chest higher than the abdomen may help. Chewing gum can help neutralize acid (Richter, 2005).

If nonpharmacologic interventions are not successful to prevent heartburn, medication may help. However, the woman should not take any over-the-counter medications or remedies without first consulting her PCP because several commonly used heartburn remedies, such as sodium bicarbonate, are not for use in pregnancy. The primary care provider may prescribe an antacid. If so, the woman should not take her vitamins within 1 hour of taking antacids.

**Backaches.** More than two thirds of all pregnant women experience low back pain at some point during pregnancy (Pennick & Young, 2007). Obesity and previous history of back pain are risk factors. Softening and loosening of the ligaments supporting the joints of the spine and pelvis can contribute to low back pain, as can the increasing lordosis of pregnancy and the changing center of gravity.

Teach the woman to prevent low back pain by using good posture, proper-body mechanics, such as bending the knees to reach something on the floor, rather than stooping over from the waist. She should also avoid high-heeled shoes. Good pelvic support with a girdle might be helpful for some women. Strengthening and conditioning exercises may be beneficial.

Treatment of mild backache includes heat, ice, acetaminophen, and massage. If the woman must stand for prolonged periods, she can put one foot on a stool. She should periodically switch the foot that is on the stool (Trupin, 2006). Severe back pain is usually associated with some type of pathology. The woman should consult her PCP for severe pain.

**Round Ligament Pain.** The round ligaments support the uterus in the abdomen. As the uterus expands during pregnancy, it applies pressure to the round ligaments, which respond by stretching and thinning. Because ligaments are pain sensitive structures, some women experience round ligament pain. The pain most frequently occurs on the right side and can be severe. The pain can occur at night and awaken the woman from sleep, or exercise can bring it on.

Helpful hints to treat round ligament pain include the application of heat. A heating pad or warm bath might be soothing. Sometimes lying on the opposite side can relieve some of the pressure on the ligament and reduce the pain. Avoiding sudden movements may help prevent round ligament pain. If fever, chills, painful urination, or vaginal bleeding accompanies the pain, the woman should seek emergency care because the pain is likely the result of a medical condition.

**Leg Cramps.** Leg cramps are a common occurrence during pregnancy, but researchers do not know the cause. Preventive measures include getting enough rest, resting several times per day with the feet elevated, walking, wearing low-heeled shoes, and avoiding constricive clothing. Another preventive measure is for the woman to avoid plantar flexion (pointing the toes forward). A recent Cochrane Database meta-analysis found that there is little evidence to support supplementation with calcium, sodium, or multivitamins to prevent leg cramps. The supplement that helps most is magnesium lactate or citrate. The woman should take 5 mmol in the morning and 10 mmol at night (Young & Jewell, 2007). When cramps occur, the woman’s partner can help by assisting her to extend her leg, then dorsiflex the foot so that the toes point toward the woman’s head. If she is alone, she can extend her leg and dorsiflex the foot until the cramp resolves.

**Constipation and Hemorrhoids.** The natural slowing of the gastrointestinal tract under the influence of hormones can lead to constipation during pregnancy, and constipation can lead to hemorrhoids. The best way to treat constipation is to prevent it. The same common sense approaches to preventing constipation that are advisable under normal situations are also helpful during pregnancy. These include drinking at least eight glasses of noncaffeinated beverages each day. Advise the woman to get adequate exercise. Adding fiber to the diet or a bulk-forming supplement such as Metamucil to the daily routine are also helpful hints.

Hemorrhoids can become a problem during pregnancy because of the increased blood flow in the rectal veins and pressure of the uterus that prevents good venous return. Elevating the legs and hips intermittently throughout the day can help counteract this problem. Hemorrhoids can cause pain, itching, burning sensation, and occasionally bleeding. Applying topical anesthetics such as Preparation H or Anusol cream and compresses, such as witch hazel pads, can relieve the pain and swelling.
**Trouble Sleeping.** Many of the discomforts discussed previously, such as heartburn and shortness of breath, can contribute to restless sleep at night and trouble sleeping. As the pregnancy progresses, it becomes increasingly difficult to find a position of comfort in bed. Suggest that the woman try lying on her side with plenty of pillows to support her back and legs. If that position does not help, she may find it easier to sleep in the sitting position in an armchair.

Urinary frequency returns during the third trimester and can contribute to sleeplessness because of frequent trips to the restroom. Drinking the majority of fluids early in the day and limiting fluids in the evening hours can reduce this problem. Heartburn can contribute to reduction in sleep, as can the movements of an active fetus. Some degree of sleeplessness and restlessness at night is an expected occurrence in the third trimester.

**Teaching Self-Care During Pregnancy**

The woman is usually too distracted during the first visit to absorb and retain much information. Keep teaching sessions brief and give her printed materials to read at home. The PCP should have a handout with a list of resources, such as books and Web sites to give to the woman. Tailor teaching topics to the individual needs of the woman during subsequent visits. Important self-care topics are discussed below. Family Teaching Tips: Major Components of Prenatal Self-Care highlights key topics to discuss with the pregnant woman during the course of prenatal care.

**Maintaining a Balanced Nutritional Intake.** During the first trimester, the fetus’ demands on maternal stores are less than at other times during the pregnancy. This is helpful because sometimes it is difficult for the woman to eat a well-balanced diet when she is coping with nausea. Focus on assessing the adequacy of her diet and answering her questions during the first visit. Emphasize the importance of taking the prenatal vitamins the PCP ordered for her. On subsequent visits, assist the woman to assess her own diet for adequacy by using the MyPyramid Web site at http://mypyramid.gov/. This interactive Web site developed by the U.S. Department of Agriculture and U.S. Department of Health and Human Services allows the woman to enter personalized information and receive a nutrition plan tailor-made for her. Instruct her to go to the Web site and choose “For Pregnancy and Breastfeeding” on the left side menu.

The key to healthy nutrition during pregnancy is quality and variety. Detailed nutritional guidelines may overwhelm some women. In general, it is safe to counsel the pregnant woman about the following strategies. Make certain there is enough food to eat and then advise the woman to eat the amount and type of food that she wants, salting it to taste. MyPyramid can assist the pregnant woman achieve a balanced diet. Monitor weight gain throughout pregnancy. There should be a steady increase in weight throughout pregnancy, for a total increase of 25 to 35 lb. Sudden weight gain often is associated with fluid retention and may be a sign of developing preeclampsia. Periodically assess the diet by asking the woman to do a 1- to 3-day food recall. Encourage the woman to take her iron and folic acid supplement. Monitor the hemoglobin and hematocrit at the 28-week check-up for any decreases. (See Chapter 6 for more detail on prenatal nutrition.)

**Dental Hygiene.** A pregnant woman needs to continue regular dental checkups and practice excellent dental hygiene. This includes at least twice-daily brushing, once-daily flossing, and a nutritious diet. If pregnancy gingivitis is a problem, then regular dental checkups are necessary. Untreated gingivitis can damage the gums and result in bone and tooth loss.
Vomiting in association with morning sickness can be hard on teeth. Stomach acids in the vomitus can make the teeth more susceptible to injury from the toothbrush. To reduce the impact of this problem, instruct the woman to rinse with water after vomiting, followed by a fluoride rinse or sugarless chewing gum to help neutralize the stomach acid. She should avoid brushing her teeth for at least 1 hour after vomiting to decrease the risk of enamel loss.

Exercise. Exercise is healthy during pregnancy. A woman may generally maintain her normal exercise routine during pregnancy, as long as she does not become overheated or excessively fatigued. Conditioned women have safely run marathons during pregnancy. Some research indicates that women who exercise during pregnancy experience shorter labors, have fewer cesarean deliveries, and have fetuses that experience fewer episodes of fetal distress. Women who exercise often report having better self-esteem and fewer depressive symptoms than do their nonexercising counterparts. These women return to their prepregnancy weight faster than sedentary women (Kelly, 2005). Box 7-6 outlines the March of Dimes (2007) precautions to increase the safety of exercise for the pregnant woman.

The American College of Obstetricians and Gynecologists (2005) recommends that a well-conditioned woman continue her pattern of aerobic exercise during pregnancy. If the woman is sedentary before pregnancy, she should not start a vigorous aerobic routine. In this situation, walking is the preferred exercise after getting approval from her PCP. There are some high-risk conditions, such as premature rupture of membranes, preeclampsia, vaginal bleeding, or incompetent cervix, in which exercise is contraindicated.

General common sense guidelines include advising the woman to listen to her body. The woman can use the “talk test” to gauge exertion level; that is, she should not be too short of breath to carry on a conversation while exercising (Kelly, 2005). If she is feeling fatigued, she should slow down or stop. She should not allow her heart rate to exceed 140 beats per minute. In the last trimester as the center of gravity changes, she should take extra care to avoid injury during exercise.

Hygiene. Perspiration and vaginal discharge increase during pregnancy, making personal hygiene a concern for some pregnant women. In general, tub baths or showers can continue throughout pregnancy with an eye toward safety. Some general personal hygiene considerations for pregnancy follow.

- Bathe in warm, not hot, water. Extreme temperature elevations associated with hot showers, baths, saunas, hot tubs, and fever are dangerous to the developing fetus.
- Take care, particularly in the third trimester, when getting in and out of the tub or shower. Fainting can occur, particularly if the water is too hot. Balancing can become problematic because the center of gravity changes. Handrails in the shower or tub are ideal. Rubber bath mats are also helpful.
- Avoid douching during pregnancy. This practice increases the risk for bacterial infection. Gentle cleansing of the genital area with warm water and soap are sufficient to control discomfort from increased vaginal secretions.

Breast Care. A pregnant woman should wear a bra that fits well and supports the breasts. She should use only clean water to wash the nipples. Soap dries the nipples and can lead to cracking.

Some women wish to condition their nipples for breast-feeding. Exposing the nipples to air and sunlight for a portion of each day is helpful. Manually stimulating the nipples by rolling them between the fingers or oral stimulation of the nipple by the partner, as a part of sexual expression, are additional ways to toughen the

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**Box 7-6 PRECAUTIONS TO ENSURE A SAFE EXERCISE PROGRAM FOR THE PREGNANT WOMAN**

The pregnant woman should avoid the following activities:

- Contact sports and any activities that can cause even mild trauma to the abdomen, such as ice hockey, kickboxing, soccer, and basketball.
- Activities with a high risk for falling, such as gymnastics, horseback riding, downhill skiing, and vigorous racquet sports.
- Scuba diving, which puts the baby at increased risk for decompression sickness and may contribute to miscarriage, birth defects, poor fetal growth, and preterm labor.
- Exercising on the back after the first trimester.
- Also, avoid prolonged periods of motionless standing. Both can reduce blood flow to the uterus.
- Jerky, bouncing, or high-impact movements that may strain joints and cause injuries.
- Exercising at high altitudes (more than 6,000 ft) because it can lead to reduced amounts of oxygen reaching the baby.
- Overheating, especially in the first trimester. Drink plenty of fluids before, during, and after exercise. Wear layers of “breathable” clothing and do not exercise on hot, humid days.
- Bathing in hot tubs, saunas, and Jacuzzis.

nipples. These practices are acceptable as long as there is no history of preterm labor because nipple stimulation can stimulate labor.

**Clothing.** Clothing should be loose and comfortable. The woman should not wear garments that constrict the waist or legs. If finances are tight, the woman might try borrowing clothes from a friend or relative, rather than investing in expensive maternity clothes. She might also buy used maternity clothes. High heels exacerbate backache and can be a safety hazard for the pregnant woman who has problems with balance. Shoes should fit comfortably.

**Sexual Activity.** Many couples are fearful that sexual activity during pregnancy might hurt the fetus. Unless there is a history of preterm labor, vaginal bleeding, ruptured membranes, or other medical contraindication, the woman and her partner can safely continue intercourse and other sexual activities throughout pregnancy. Many factors influence the woman’s desire for sexual activity. During the first trimester, she may feel nauseous and tired, so her interest in sex might be low. During the second trimester, she often feels better and may have a heightened interest in sex. The increased blood flow to the pelvic area can intensify the sexual experience for the pregnant woman. Some women experience orgasm for the first time during pregnancy. During the third trimester, fatigue may reduce her desire or she might fear hurting the fetus.

The partner’s sexual desire is also dependent on several interrelated factors. Some men find the pregnant body sexually appealing and desirable. Others may have trouble adjusting to their partner’s changing body shape. Some men are afraid of hurting their partner or the unborn child during intercourse. It may be helpful to have a tactful discussion regarding sexual concerns with the woman and the partner. During the third trimester, the male superior position may become difficult to accomplish. A side-lying or woman superior position might be easier. Vaginal penetration is less deep with the male facing the woman’s back. This position might be more comfortable for the woman (Trupin, 2006).

Sometimes the woman might be content with kissing, cuddling, and caressing as forms of sexual expression. If her partner needs more release, the woman might stimulate him to ejaculation, or he may prefer to masturbate. The essential ingredient is ongoing respectful communication between the partners regarding their sexual needs and desires.

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**A word of caution:**

If the couple practices anal intercourse, they should not proceed to vaginal intercourse after engaging in anal intercourse. Doing so could introduce the bacterium *Escherichia coli* into the vagina that could cause an ascending infection.

**Employment.** How long a woman can remain safely employed during pregnancy depends on several factors. In general, a woman with a low-risk pregnancy can continue working until she goes into labor, unless there are specific hazards associated with her job. Research demonstrates that women in physically demanding jobs, such as working in the fields (day laborers), experience a higher incidence of low-birth-weight infants, preterm delivery, and hypertension during pregnancy. A woman who is required to stand for long periods as part of her job also is at increased risk for preterm delivery.

When a woman chooses to work during pregnancy, it is most helpful if she can take frequent rest periods. If she must stand for prolonged periods, suggest that she shift her weight back and forth, and that she take frequent breaks to walk around and to sit with her feet elevated. She should avoid excessive fatigue.

Exposure to teratogens, substances capable of causing birth defects, is always a concern when a woman works during pregnancy. Environmental hazards that might put the pregnant woman at risk in the work place include exposure to chemicals, metals, solvents, pharmaceutical agents, radiation, extreme heat, second-hand smoke, and infection (Fowler & Culpepper, 2007). The woman should investigate the type of chemicals or other substances to which she is exposed during the course of her work and then work with her employer to limit exposure to harmful substances.

**Travel.** Travel is generally not limited during the first trimester. The woman can travel safely in the second and third trimesters with careful planning. One concern when traveling long distances is the chance that labor will occur while the woman is away from her PCP. It is advisable for the woman to carry copies of her prenatal records with her when she travels. This practice will increase the odds that she will receive appropriate care if she must seek health care away from home.

When traveling by car, encourage the woman to make frequent stops (at least every 2 hours) so that she can empty her bladder and walk about. Sitting for prolonged periods in one position can predispose the woman to clot formation. She should not decrease fluid intake to avoid having to stop to void. Insufficient fluids can lead to dehydration and increase the risk for clot formation, constipation, and hemorrhoids. There is no increased risk with air travel, other than the risk of developing complications in an area remote from the help needed.

The greatest risk to the fetus during an automobile crash is death of the mother. Therefore, all pregnant women should use three-point seat belt restraints when traveling in the car (Fig. 7-8). Teach the woman to apply the lap belt snugly and comfortably. When driving, she should move the seat as far back as possible from the steering wheel. The airbag should be engaged with the steering wheel tilted so that the airbag releases toward the breastbone versus the abdomen or the head (Cesario, 2007).
Pregnancy

Medications and Herbal Remedies. The general principle regarding medication use during pregnancy is that almost all medications cross the placenta and can potentially affect the fetus. The woman should not take any medication, including over-the-counter medications and herbal remedies, during pregnancy without the express approval of the PCP. Before she takes any medication, the practitioner should make a careful appraisal of risk versus benefit. Treatment, including medications, for certain diseases and conditions must continue during pregnancy. Examples include epilepsy, asthma, diabetes, and depression (see Chapter 16).

The problem with most medications is that they cross the placenta, but their effect on the fetus or pregnancy is not always known. Because of ethical concerns, controlled trials of medication use during human pregnancy are usually not possible. The little that is known about medication effects during pregnancy comes from animal trials and from experience over the years in treating chronic maternal conditions. The problem with animal studies is that there is no guarantee that human pregnancies or fetuses will respond in the same way as the animal that is being studied responds. Box 7-7 describes the Food and Drug Administration’s five pregnancy categories for medications.

Many women use herbal remedies. Some remedies are culturally determined, passed from mother to daughter from generation to generation. Some women believe that herbs and alternative therapies are safer than medications. Some studies are verifying the health benefits of certain herbs. However, certain herbs are contraindicated in pregnancy, so it is important for the pregnant woman to consult with her health care provider before using any herbal remedies.

Test Yourself

✔ List three suggestions for reducing nausea in early pregnancy.

✔ Name three actions the pregnant woman can take to reduce heartburn.

✔ Why should the pregnant woman avoid hot showers or baths?

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Box 7-7 FDA PREGNANCY CATEGORIES OF MEDICATIONS

The Food and Drug Administration (FDA) has delineated five categories for medication use during pregnancy. Each category details the overall threat, if any, the drug in that category might pose to the fetus or pregnancy. The categories are differentiated according to the type and reliability of documentation available and the risk-versus-benefit ratio. The categories are as follows:

**Category A:** Adequate studies in pregnant women have not demonstrated a risk to the fetus in the first trimester of pregnancy, and there is no evidence of risk in later trimesters.

**Category B:** Animal studies have not demonstrated a risk to the fetus, but there are no adequate studies in pregnant women. Or animal studies have shown an adverse effect, but adequate studies in pregnant women have not demonstrated a risk to the fetus during the first trimester of pregnancy, and there is no evidence of risk in later trimesters.

**Category C:** Animal studies have shown an adverse effect on the fetus, but there are no adequate studies in humans; the benefits from the use of the drug in pregnant women may be acceptable, despite its potential risks. Or there are no animal reproduction studies and no adequate studies in humans.

**Category D:** There is evidence of human fetal risk, but the potential benefits from the use of the drug in pregnant women may be acceptable despite its potential risk.

**Category X:** Studies in animals or humans demonstrate fetal abnormalities or adverse reaction; reports indicate evidence of fetal risk. The risk of use in a pregnant woman clearly outweighs any possible benefit.

In any case, the woman should not take any medication during pregnancy unless there is a clear benefit for its use.
woman to report all herbal and over-the-counter remedies to the PCP. Enhance communication by asking about herbal use in a nontargeting way (Born & Barron, 2005).

Teaching About Substance Use and Abuse

Substance use is a term that simply refers to use of a substance, whereas the term substance abuse specifically indicates that a person has a problem with the use of the substance. Although many substances have the potential for abuse, this section covers caffeine, tobacco, alcohol, and recreational drug use during pregnancy.

Caffeine. There is controversy and uncertainty regarding the role of caffeine use during pregnancy. Current recommendations are that the pregnant woman may safely consume coffee and caffeine in moderation. The March of Dimes (2005) defines moderate as one to two 8-oz cups of coffee per day. Although there is no definitive proof that caffeine in larger doses causes problems in pregnancy, there is some evidence that the woman who drinks three or more cups of coffee per day may be at increased risk for spontaneous abortion or delivering a low-birth-weight baby.

Tobacco. Smoking is contraindicated during pregnancy. Smoking increases the risk for low birth weight; preterm delivery; abortions; stillbirths; sudden infant death syndrome; birth defects, such as cleft lip and palate; and neonatal respiratory disorders, including asthma. Smoking poisons the fetus with carbon monoxide and nicotine, leading to fetal hypoxia. It also affects the placenta, causing it to age sooner than normal, a condition that reduces blood flow to the fetus, contributing to hypoxia and stunted growth. Despite these health hazards, approximately half a million women in the United States continue to smoke during pregnancy (Chen et al., 2006), and these figures may actually be much higher due to underreporting (Okah, et al., 2005). Although aids to stop smoking, such as nicotine gum and the new drug varenicline (Chantix), are pregnancy Category C drugs and the transdermal patch is in pregnancy Category D (see Box 7-7), the risk of injury caused by smoking may outweigh the risk of harm from these drugs.

Alcohol. There is no safe amount of alcohol consumption during pregnancy, but one in eight pregnant women consume alcohol (Krulewitch, 2005). A woman should not drink any alcoholic beverages during pregnancy because alcohol is a potent teratogen. Even one drink can cause an unborn baby long-term harm (Constantinou, 2005). For years, the risk of fetal alcohol syndrome has been linked to the use of large amounts of alcohol during pregnancy. Characteristics of fetal alcohol syndrome include microcephaly (a very small cranium), facial deformities, growth restriction, and mental retardation. Although smaller amounts of alcohol may not lead to a full-blown case of fetal alcohol syndrome, subtle features of the syndrome might present to include milder forms of mental retardation and learning disabilities.

Marijuana. There is conflicting data about the effects of marijuana on pregnancy. Some studies suggest that marijuana use in pregnancy may slow fetal growth and possibly increase the risk for premature delivery. Infants born to women who smoke marijuana during pregnancy show evidence of stressed nervous systems (March of Dimes, 2006). These infants tend to have high-pitched cries, tremeulousness, and reduced response to visual stimuli. Researchers continue to study the long-term effects of marijuana use in pregnancy on the child.

Cocaine. Cocaine has many negative effects on pregnancy. Pregnancy increases the cardiovascular dysfunction associated with cocaine use. This puts the pregnant woman who uses cocaine at high risk for cardiac dysrhythmias and myocardial ischemia and infarction (Kuczkowski, 2005). Cocaine use is associated with a higher rate of spontaneous abortion and premature labor. Infants born to women who use cocaine during pregnancy tend to be small and have a higher incidence of low birth weight. Cocaine use during pregnancy can cause the placenta to pull away from the uterine wall prematurely (placental abruption), leading to fetal and maternal hemorrhage. These infants exhibit withdrawal behaviors after birth and must receive special treatment for the withdrawal (see Chapter 20).

Maintaining Safety of the Woman and Fetus

Monitor the pregnant woman at every visit for warning signs (see Box 7-5). If she reports experiencing any of the warning signs, notify the RN or PCP immediately. If at any time during the pregnancy an elevated blood pressure is noted, report this finding immediately to the RN or PCP, particularly if it is accompanied by a headache, epigastric pain, or blurred vision.

Preparing the Woman for Labor, Birth, and Parenthood

Being prepared for labor, birth, and parenting boosts the woman’s confidence and increases her use of positive coping measures. Many women search the Internet and read books that address the birth and parenting experience. The PCP should also provide lists of resources available in the local community. Available resources may include classes on a variety of topics offered by private practice or not-for-profit educational organizations or by hospitals.

Packing for the Hospital or Birthing Center. As the woman prepares for the birth of her baby, she may begin to gather items she will need at the hospital or birthing center. She should pack one bag of articles she will need at the hospital or birthing center and another bag of things for her postpartum stay and the trip home from the hospital (Box 7-8).

Communicating Expectations About Labor and Birth.

It is important for the woman to feel comfortable
communicating her desires regarding labor and birth. Some women feel very strongly about having natural childbirth or breastfeeding. Others want an epidural as soon as possible after they go into labor. These are only three examples of expectations a woman may have. Encourage the woman to write down her questions and expectations and to communicate these to her PCP. Some women develop written birth plans (Box 7-9) to communicate their desires. These can be helpful to the woman and the PCP.

If the woman communicates her expectations early in the pregnancy, there is time for her to find another provider if her current provider cannot or will not meet her expectations.

Choosing the Support Person. The expectant mother may have choices involving her labor support team if she delivers in the hospital or birthing center. Some hospitals limit her to one or two persons for labor support. Other women may have the option of having more support persons for labor. The woman may choose the father of the baby as her main support person. In other situations, the primary support person might be her mother, sister, other family member, or friend.

The woman may choose to have a doula with her as a support person. The word *doula* is Greek for servant. Doula’s of North America (DONA), founded in 1992, is an international association of doulas who are trained “to provide the highest quality emotional, physical and educational support to women and their families during childbirth and postpartum” (The DONA International Advantage, undated). The woman may contract with a doula to provide support for labor and birth and help with establishing breastfeeding. A doula can also provide support for the postpartum period. The doula’s role may include assisting the woman and her partner in preparing for and carrying out their plans for the birth; providing emotional support, physical comfort measures, and an objective viewpoint; as well as helping the woman get the information she needs to make good decisions. A woman may choose to hire a doula because she wants to decrease the likelihood of needing pharmacologic pain management, oxytocin (Pitocin), forceps, vacuum extraction, or cesarean birth, and because she wants an advocate at a time when she may feel unable to vocalize her needs adequately.

Childbirth Education Classes. Since the 1970s, many parents have begun to prepare for labor and childbirth by attending classes. Today, childbirth educators offer classes in private practice, not-for-profit organizations, and hospitals. Some classes adhere to the philosophy of one method of unmedicated childbirth (Box 7-10). Others combine philosophies of two or more methods of childbirth. Still, others tend to teach the woman little about birthing a baby without medical pain management and focus on the medical procedures and routines that she can expect upon admission to the hospital. Some programs combine information about birth, baby care, and breastfeeding in one series of classes. Others offer separate classes for which the woman and her partner can register. Box 7-11 lists common topics included in childbirth education classes.

**Pregnancy and Postpartum Exercise Classes.** The purpose of these classes is to enhance endurance as well as to strengthen the arms, legs, pelvic floor, back, and abdomen. A certified childbirth educator or a nurse usually offers these classes. Some fitness centers also offer prenatal and postnatal exercise classes. Basic pregnancy exercises,
Sample Birth Plan

Box 7-9

Birth plan for Rachel Thompson
Due date: March 23, 2010
Patient of Dr. Maria Martinez
Scheduled to deliver at Metropolitan Medical Center
January 10, 2010

Dear Dr. Martinez and Staff at Metropolitan Medical Center,

I have chosen you because of your reputations for working with parents who feel strongly about wanting as natural a birth as possible. I understand that sometimes birth becomes a medical situation. The following is what I would prefer as long as medical interventions are not indicated. I would appreciate you working with me to have our baby in the way described in our birth plan, if possible.

Sincerely,

Rachel Thompson

Laboring
I would prefer to avoid an enema and/or shaving of pubic hair.
I would like to be free to walk around during labor.
I prefer to be able to move around and change position at will throughout labor.
I would like to be able to have fluids by mouth throughout the first stage of labor.
I will be bringing my own music to play during labor.
I do not want an IV unless I become dehydrated.
I need to wear contact lenses or glasses at all times when conscious.

Fetal Monitors
I do not want to have continuous fetal monitoring unless it is required by the condition of my baby.

Stimulation of Labor
If labor is not progressing, I would like to have the bag of water ruptured before other methods are used to augment labor.
I would prefer to be allowed to try changing position and other natural methods before oxytocin is administered.

Medication/Anesthesia
I do not want to use drugs if possible. Please do not offer them. I will ask if I want some.

C-section
If a cesarean delivery is indicated, I would like to be fully informed and to participate in the decision-making process.
I would like my husband present at all times if my baby requires a cesarean delivery.
I wish to have regional anesthesia unless the baby must be delivered immediately.

Episiotomy
I am hoping to protect my perineum. I am practicing ahead of time by squatting, doing Kegel exercises, and perineal massage.
If possible, I would like to use perineal massage to help avoid the need for an episiotomy.

Pushing
I would like to be allowed to choose the position in which I give birth, including squatting.
Even if I am fully dilated, and assuming my baby is not in distress, I would like to try to wait until I feel the urge to push before beginning the pushing phase.

Immediately After Delivery
I would like to have my baby placed on my chest.
I would like to have my husband cut the cord.
I would like to hold my baby while I deliver the placenta and any tissue repairs are made.
I plan to keep my baby with me following birth and would appreciate if the evaluation of my baby can be done with my baby on my abdomen unless there is an unusual situation.
I would prefer to hold my baby skin to skin to keep her warm.
I want to delay the eye medication for my baby until a couple hours after birth.
I have made arrangements to donate the umbilical cord blood if possible.

Postpartum
I would like a private room so my husband can stay with me.
Unless required for health reasons, I do not wish to be separated from my baby.

Nursing My Baby
I plan to nurse my baby very shortly after birth if baby and I are OK.
Unless medically necessary, I do not wish to have any formula given to my baby (including glucose water or plain water). If my baby needs to be supplemented, I prefer an alternative method to using a bottle.
I do not want my baby to be given a pacifier.
I would like to meet with a lactation consultant.

Photo/Video
I would like to make a video recording of labor and/or the birth and want pictures of the doctor and the baby.

Labor Support
My support people are my husband, Owen, and friends Judy and Margaret, and I would like them to be present during labor and/or delivery.
I would like my other children (ages 4 years and 6 years) to be present at the birth. My physician has approved this. Judy and Margaret will take care of the other children during the birth.
The work of Dr. Grantly Dick-Read is fundamental to most methods of prepared childbirth. Dr. Dick-Read was a British obstetrician who practiced from 1919 to 1940. Dr. Dick-Read regarded fear as the basis of pain in childbirth and believed that civilization had culturally conditioned women to expect childbirth to be painful. He described a fear–tension–pain cycle. When labor began, the laboring woman tensed in fear at the beginning of each contraction. This tension resulted in the increase of pain; the pain reinforced the belief that labor was painful; and thus the cycle continued. He believed that pregnant women could interrupt this fear–tension–pain cycle with prenatal education and knowledge to reduce fear of the birth process and conscious relaxation during labor.

**Dick-Read Method**

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**Lamaze Method**

Dr. Fernand Lamaze built on Dick-Read’s ideas and combined them with Pavlov’s theory of conditioned response. The Lamaze instructor teaches the pregnant woman to rehearse conditioned positive responses (i.e., relaxation, breathing, and attention focusing) to a stimulus (i.e., beginning of a contraction). Then, when she is in labor, the goal is for her to respond with the helpful conditioned responses, instead of natural responses (e.g., panic, breath holding, and increased tension) that can slow the progress of labor and increase the woman’s pain level. Her partner is trained to respond by supporting the laboring woman with encouragement and praise; providing focus and offering physical comfort measures, such as position changes, controlling the environment, massage, talking her through the contractions, enhancing her relaxation, and instilling confidence (Bing, 1994).

**Bradley Method**

Dr. Robert Bradley also based his obstetric practice on the work of Dick-Read. Dr. Bradley became convinced that the way to make childbirth an enjoyable experience was to copy what animals do naturally. He empowered the woman’s partner to take an active role in the labor and birth process. The principles of the Bradley method include the need for:

- **Darkness and solitude.** Animals usually choose to birth babies in dark secluded places; therefore, labor and birth should occur in a darkened room.
- **Quiet.** Loud or unexpected noises are disturbing.
- **Physical comfort.** Comfort measures, such as controlling the room temperature, pillows for support, positioning, nonconstricting clothing, and familiar objects, contribute to the laboring woman’s needs.
- **Physical relaxation.** Conscious relaxation on the part of the laboring woman increases her comfort and allows her uterus to work more effectively and quickly. Tensing up during contractions produces increased pain.
- **Controlled breathing.** Slow, deep, sleeplike breathing by mouth is encouraged throughout labor.
- **Closed eyes and the appearance of sleep.** Shutting the eyes enhances concentration on deep breathing by shutting out visual stimuli.

**LeBoyer Method**

Dr. Frederick LeBoyer’s method recommends decreased stimulation for the newborn during the birthing process and immediately thereafter. He stressed turning down the lights, limiting noise and loud talking, warmth, and gentleness. One long-lasting effect of Dr. LeBoyer’s methods is his emphasis on not separating the woman and her newborn.

**Underwater Birth Method**

During the 1980s, the concept of giving birth in water gained popularity. Those who encourage water births cite that humans begin life surrounded by liquid in the womb. Moreover, soaking in a warm bath enhances relaxation. Free from gravity’s pull on the body, and with reduced sensory stimulation, the laboring woman’s body is less likely to secrete stress-related hormones, thus allowing production of endorphins. Supporters of underwater birth believe that this release of endorphins has an analgesic effect on the laboring woman. Two benefits of birthing in water cited by proponents include a decrease in maternal blood pressure within 10 to 15 minutes of entering the water and increased elasticity of the perineum, which reduces the frequency of and severity in tearing of the perineum.

In 1989, Barbara Harper, RN, founded Waterbirth International/GMCHA (Global Maternal Child Health Association). This organization provides information and facilitates networking among those who are interested in learning more about birthing in water (http://www.waterbirth.org/).

**Hypnobirthing**

Hypnobirthing incorporates an eclectic approach to labor and birth. The fundamental belief is that the woman who is prepared physically, mentally, and spiritually can experience the joy of birth. Forms of hypnosis and deep relaxation are integral parts of the method. Some women use traditional hypnosis with posthypnotic suggestions during labor and delivery. Others use forms of self-hypnosis, incorporating the basics of Drs. Dick-Read and Lamaze, such as deep relaxation and breathing for each phase of labor.
such as the pelvic tilt, Kegel, tailor sit and tailor stretch, and stretches as comfort measures to combat some of the discomforts of pregnancy, are included, as well as exercises that allow the woman to be able to utilize beneficial labor positions comfortably. Postnatal exercise classes strengthen muscles affected by the pregnancy. Sometimes, they incorporate the baby as part of the exercise.

**Baby Care Classes.** These classes are usually offered to the pregnant woman and her partner. Basics such as infant bathing, diapering, and feeding are featured. Parents-to-be receive information on newborn sleeping and waking patterns and infant comforting and rousing techniques. Safety information such as handling of the baby, car seat safety, and safety proofing the home is included. Signs of illness and guidelines for when to call the pediatrician are an important part of this class. Discussion usually includes items needed for the nursery or the instructor provides a list in handouts (Box 7-12).

**Breast-feeding Classes.** An international board certified lactation consultant often teaches breast-feeding classes; however, certified breast-feeding educators or specially trained nurses may also conduct these classes. Usually offered in the last trimester of pregnancy, this class educates the woman and her partner on the benefits of breast-feeding, signs of good latch and position, and establishing a good milk supply. Selection of and using a breast pump and milk storage are topics of interest in this class, as many women plan to return to work and continue to nurse their infants. Attendance of this class by the woman’s partner increases his support and ability to provide assistance, thus contributing to the success of breast-feeding. The instructor usually provides contact information for lactation support resources in the community.

**Siblings Classes.** Many hospitals provide siblings classes for children who are soon to be big brothers and big sisters. Siblings’ class goals include preparing children for the time of separation from mother while she is in the hospital and helping the children accept the

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**Box 7-11 COMMON TOPICS INCLUDED IN CHILDBIRTH EDUCATION CLASSES**

- Psychological and emotional aspects of pregnancy
- Anatomic and physiologic changes involved in pregnancy and childbirth
- Fetal development
- Communication with obstetrician/pediatrician: verbal and written birth plans
- Choosing a pediatrician
- The normal, natural process of labor and birth
- Stages/phases of labor: physical and emotional changes of each
- Partner’s role in providing support for each stage/phase of labor
- Comfort measures for labor: relaxation, movement, breathing, focus, massage, pressure, encouragement, and support
- Medication and anesthesia options for labor and birth
- Back labor: causes, physical signs, and comfort measures
- Induction of labor: indications for induction and what to expect
- Possible complications of labor: prevention and management
- What to pack for the hospital
- Hospital admission routine
- Medical procedures and interventions, such as vaginal examinations, routine laboratory work, fetal monitoring, artificial rupture of membranes (AROM), IVs, vacuum extraction, and forceps
- Cesarean birth
- Breastfeeding
- Physical and emotional aspects of the postpartum period

**Box 7-12 SUGGESTED ITEMS FOR THE LAYETTE**

**Clothes**
- 4–6 “onesies”
- Gowns
- Sleepers
- 2–3 blanket sleepers
- 4–6 undershirts
- 4–6 pairs of socks
- 4–6 receiving blankets
- 3–4 hooded towels
- 4–6 washcloths
- 4–6 bibs
- 4–6 burp cloths
- Several packages of newborn size diapers and wipes or washcloths

**Baby Supplies**
- Baby lotion
- Baby shampoo
- Zinc oxide ointment
- Cotton swabs
- Rubbing alcohol
- Cradle or bassinet
- Crib
- Changing pad or table
- Sling
- Swing
- Stroller
- Baby bathtub
Evaluation: Goals and Expected Outcomes

Goal: The woman’s anxiety is reduced.
Expected Outcomes: The woman
- verbalizes a reduction in anxiety
- names at least two outlets for dealing with her anxiety

Goal: The woman’s symptoms and discomforts of pregnancy are manageable.
Expected Outcomes: The woman
- voices feeling relaxed and confident in her ability to deal with the common discomforts of pregnancy
- demonstrates the use of effective strategies for coping with the discomforts of pregnancy

Goal: The woman will feel confident in her ability to care for herself throughout pregnancy.

Expected Outcomes: The woman
- verbalizes understanding of how to modify lifestyle to accommodate the changing needs of pregnancy
- answers questions regarding self-care appropriately
- asks informed questions

Goal: The woman and fetus remain free from preventable injury throughout the pregnancy.
Expected Outcomes: The woman
- schedules and attends prenatal visits
- describes warning signs to report
- calls with questions and concerns
- calls if warning signs are experienced

Goal: The woman will express confidence in her ability to go through the labor and birth experience and assume the parenting role.
Expected Outcomes: The woman
- expresses realistic expectations regarding plans for labor and birth
- schedules and attends childbirth education and/or parenting classes
- prepares the home for arrival of the baby

Test Yourself
✔ Identify at least five ways smoking increases pregnancy risk.
✔ How much alcohol is it OK for a pregnant woman to drink?
✔ What is a doula?

KEY POINTS

The goal of early prenatal care is to increase the chances that the fetus and the mother will remain healthy throughout pregnancy and delivery.

The main goals of the first prenatal visit are to confirm a diagnosis of pregnancy, identify risk factors, determine the due date, and provide education regarding self-care and danger signs of pregnancy.

The history at the first prenatal visit includes chief complaint, reproductive history, medical–surgical history, family history, and social history. The reproductive history includes the obstetric history, which looks at previous pregnancies and their outcomes. Determining the gravida and parity of the woman is an important part of the obstetric history. The parity is usually further subdivided into the number of term deliveries, preterm deliveries, abortions (spontaneous or induced), and living children.

A complete physical examination will be done during the first visit to include a breast exam, a speculum examination with a Pap test, and a bimanual examination of the uterus.

The most common laboratory assessments (in addition to the Pap test) done on the first prenatal visit include a complete blood count, blood type and screen, hepatitis B, HIV, syphilis, gonorrhea, Chlamydia, rubella titer, and a urine culture.

To calculate the estimated due date by Nagele’s rule, add 7 days from the first day of the last menstrual period, then subtract 3 months to obtain the due date. Other methods for estimating the due date use uterus size, landmarks in the pregnancy, and ultrasonographic measurement of fetal structures.

Any abnormal part of the history, physical examination, or lab work can put the pregnancy at risk. A history of difficult pregnancy or pregnancy complications puts subsequent pregnancies at risk.

Subsequent prenatal visits are shorter and focus on the weight, blood pressure, urine protein and glucose measurements, fetal heart rate, and fundal height. Inquiry is made regarding the danger signals of pregnancy at each prenatal visit.
Fetal kick counts are done by the woman at the same time each day. It should not take longer than 2 hours to get to 10 counts. If it does, the woman should call her primary care provider.

Ultrasonography uses high-frequency sound waves to visualize fetal and maternal structures. Ultrasonography is done to determine or confirm gestational age, observe the fetus, and diagnose fetal and placental abnormalities.

Maternal serum alpha-fetoprotein testing is recommended for every pregnant woman between 16 and 18 weeks. Elevated levels are associated with various defects, in particular fetal spinal defects.

Triple-marker screening involves a blood test to determine levels of three hormones, maternal serum alpha-fetoprotein, hCG, and unconjugated estriol. This test screens for chromosomal abnormalities, but an abnormal result does not mean that something is definitely wrong with the fetus. Further tests are needed.

Amniocentesis involves aspiration of amniotic fluid through the abdominal wall to obtain fetal cells for chromosomal analysis. Amniocentesis is usually done between 15 and 20 weeks’ gestation.

Chorionic villus sampling is similar to amniocentesis, but it can be performed earlier, usually at 10 to 12 weeks. Placental tissue is aspirated through a catheter that is introduced into the cervix.

Percutaneous umbilical blood sampling (PUBS) is similar to amniocentesis; however, fetal blood is withdrawn from the umbilical cord for testing, rather than amniotic fluid.

The nonstress test measures fetal heart rate acceleration patterns. A reactive NST is reassuring. The CST exposes the fetus to the stress of uterine contractions. A negative CST is reassuring. A positive CST indicates probable hypoxia or fetal asphyxia.

Vibroacoustic stimulation is a method by which an artificial larynx is activated over the pregnant abdomen to stimulate the fetus to move. This is done in conjunction with an equivocal nonstress test.

CST is a test done to determine how well the fetus can handle the stress of contractions. Three contractions are needed within a 20-minute period. These can occur spontaneously or they may be induced by nipple stimulation or oxytocin infusion. A “negative” (desired) result occurs when there are no decelerations during the test. If decelerations occur with one half or more of the contractions, this is a “positive” (undesirable) result.

The biophysical profile combines the NST and several ultrasound measures, breathing, movements, tone, and amniotic fluid volume to predict fetal well-being.

Common nursing diagnoses during the pregnancy are anxiety, health-seeking behaviors, risk for injury, and deficient knowledge.

Nursing interventions are tailored to the needs of the individual woman and are focused on relieving anxiety and the common discomforts of pregnancy. Interventions include assisting the woman to maintain a balanced nutritional intake, monitoring the blood pressure and weight and inquiring regarding the danger signals at each visit, teaching throughout the pregnancy, and helping the woman prepare for labor, birth, and parenting. Refer the woman to community resources, such as childbirth education or sibling classes.

Nursing care has been successful if the woman is less anxious, reports that pregnancy discomforts are tolerable, consumes a balanced diet, and verbalizes an understanding of self-care.

INTERNET RESOURCES

**Pregnancy**
www.marchofdimes.com

**Prenatal Care**

**Childbirth Education**
www.cea.org

**Nutrition**
www.mypyramid.gov

**Childbirth**
www.childbirth.org
www.lamaze.org

**Doulas**
http://dona.org
www.doula.com
http://doulanetwork.com

**Complementary and Alternative Medicine**
www.botanicalmedicine.org
www.herbalgram.org

**Medications**
www.cc.nih.gov/phar/updates
Workbook

- NCLEX-STYLE REVIEW QUESTIONS

1. A woman reports that her LMP occurred on January 10, 2010. Using Nagele’s rule, what is her due date?
   a. October 17, 2010
   b. October 17, 2011
   c. September 7, 2010
   d. September 7, 2011

2. A woman presents to the clinic in the first trimester of pregnancy. She has three children living at home. One of them was born prematurely at 34 weeks. The other two were full term at birth. She has a history of one miscarriage. How do you record her obstetric history on the chart using GTPAL format?
   a. G3 T2 P1 A1 L3
   b. G4 T3 P0 A1 L3
   c. G4 T2 P1 A1 L3
   d. G5 T2 P1 A1 L3

3. A woman who is 28 weeks’ pregnant presents to the clinic for her scheduled prenatal visit. The nurse midwife measures her fundal height at 32 cm. What action does the nurse expect the midwife to take regarding this finding?
   a. The midwife will order a multiple-marker screening test.
   b. The midwife will order a sonogram to confirm dates.
   c. The midwife will schedule more frequent prenatal visits to monitor the pregnancy closely.
   d. The midwife will take no action. This is a normal finding for a pregnancy at 28 weeks’ gestation.

4. A G1 at 20 weeks’ gestation is at the clinic for a prenatal visit. She tells the nurse that she has been reading about “group B strep disease” on the Internet. She asks when she can expect to be checked for the bacteria. How does the nurse best reply?
   a. “I’m glad that you asked. You will be getting the culture done today.”
   b. “The obstetrician normally cultures for group B strep after 35 weeks and before delivery.”
   c. “You are only checked for group B strep if you have risk factors for the infection.”
   d. “You were checked during your first prenatal visit. Let me get those results for you.”

5. Results of an early CVS test show that a woman’s baby has severe chromosomal abnormalities. When the obstetrician explains the findings to her, she becomes tearful. She shares with the nurse that it is against her religious beliefs to have an abortion. How would the nurse best respond to her?
   a. “Abortion is really the best thing for the baby. He has no chance of a normal life.”
   b. “I agree with you. It is against my religious beliefs, too.”
   c. “It is dangerous to carry a fetus with chromosomal abnormalities to term. You really should consider an abortion to protect your health.”
   d. “You don’t have to decide what to do today. Take some time to talk this over with your family. I will support you whatever decision you make.”

- STUDY ACTIVITIES

1. Do an Internet search on “genetic counseling.”
   Make a list of at least three genetic counselors in your area to which a pregnant woman could be referred.

2. Using the following table, fill in key points for each topic regarding self-care during pregnancy. Note any special precautions for that topic that would be important to emphasize to the pregnant woman.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Key Points</th>
<th>Special Precautions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nutrition</td>
<td></td>
<td></td>
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<tr>
<td>Dental hygiene</td>
<td></td>
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<tr>
<td>Exercise</td>
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<tr>
<td>Hygiene</td>
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<td></td>
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<tr>
<td>Breast care</td>
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<tr>
<td>Clothing</td>
<td></td>
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<tr>
<td>Sexual activity</td>
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<tr>
<td>Employment</td>
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<tr>
<td>Travel</td>
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<td></td>
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<tr>
<td>Medication use</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Develop a teaching plan for pregnant women who are 20 weeks and greater. Address common discomforts of pregnancy that the women are likely to encounter during the last half of pregnancy.
CRITICAL THINKING: WHAT WOULD YOU DO?

Apply your knowledge of the nurse’s role during pregnancy to the following situations.

1. Theresa Martinez presents to the clinic because she thinks she might be pregnant.
   a. What nursing assessments should be completed?
   b. During the history, Theresa reports that there is a history of type 2 diabetes in her family, and that her mother delivered large babies (10 and 11 lb). What should you do with this information?

2. Amanda Jones calls the clinic. She is a G2 P1 at 28 weeks’ gestation. She is worried because she thinks the baby is moving less than usual.
   a. What should you tell Amanda to do first?
   b. Amanda comes to the office to be checked because she is still worried about the baby. What is the priority nursing assessment that should be completed at this time? Why?
   c. Because Amanda has decreased fetal movement, the physician orders a biophysical profile. How would you explain this test to Amanda? Which part of this test would you normally expect to be a nursing function?

3. Rebecca Richards is pregnant for the first time. She is 40 years of age. The obstetrician has suggested chromosomal studies.
   a. Explain the advantages and disadvantages of CVS versus amniocentesis.
   b. Rebecca tells you that she is opposed to abortion for any reason. She asks why she should go through CVS because she will not accept an abortion. How would you respond to Rebecca?
   c. Halfway through the pregnancy, Rebecca’s fetus is diagnosed with thrombocytopenia. What therapy will likely be ordered for the fetus? Explain this therapy to Rebecca.