The Health History

The woman’s history provides most of the information about the woman and her family; it is supplemented by a physical examination and laboratory evaluation. Expert history-taking skills are crucial to establishing a rapport and a good database (see Interviewing by the Perinatal Nurse by Givens and Moore, 2005, published by the March of Dimes).

To assess factors that may influence pregnancy outcome, the nurse analyzes the woman’s medical history, including health-maintenance information such as immunization status, socioeconomic status, and reproductive health history (Appendix A). Factors that alter the physiological process of pregnancy may adversely affect the health of the mother and her infant. The physiologic stress of pregnancy affects chronic conditions (e.g., diabetes, asthma, hypertension, cardiac disease), and these chronic conditions, in turn, affect the progress of pregnancy.

Previous pregnancy history is significant and may indicate risks for the current pregnancy. The nurse carefully evaluates information about preterm labor or birth, length of previous labors, gestational age, operative birth, grandmultiparity, elective or spontaneous abortion, stillbirth, and uterine and cervical anomalies. Additionally, information about major illnesses, such as pneumonia, depression, hepatitis, and rheumatic fever, is obtained. Childhood diseases and immunization status are noted.

During history taking, the nurse assesses the woman’s lifestyle, including factors such as substance abuse, smoking, caffeine intake, exercise, dental care, and nutritional patterns (how well does she take care of herself?). The woman is asked about sexually transmitted infections (STIs), including HIV/AIDS. Inquiring about use of emergency-room services and hospitalizations can lead naturally to questions about physical trauma and other safety issues, such as seat belt use. Adolescents, in particular, are likely to engage in risk-taking behaviors.

When asking the woman about safety, the nurse may also introduce the topic of domestic abuse. There is no single profile of the woman that suffers abuse, and abuse is likely to continue or escalate during pregnancy (AAP & ACOG, 2002). Prevalence studies indicate that the rate ranges between 4 percent and 8 percent. Table 3 summarizes some of the presenting patterns for domestic abuse.

<table>
<thead>
<tr>
<th>Table 3. Presenting Patterns for Domestic Abuse</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Unwanted pregnancy</td>
</tr>
<tr>
<td>• Late entry into prenatal care</td>
</tr>
<tr>
<td>• Missed prenatal appointments</td>
</tr>
<tr>
<td>• Substance use or abuse</td>
</tr>
<tr>
<td>• Poor weight gain and nutrition</td>
</tr>
<tr>
<td>• Multiple, repeated somatic complaints</td>
</tr>
</tbody>
</table>

(AAP & ACOG, 2002)
The nurse should select an abuse assessment tool to use with women. The Nursing Network against Violence against Women International has such a tool on its Web site. The March of Dimes nursing module *Abuse During Pregnancy* by McFarlane, Parker and Moran, 2007, includes a screening tool and a danger assessment.

### Maternal, Paternal, and Reproductive History

Maternal, paternal, and reproductive history (e.g., preeclampsia, hypertension, thyroid disease, preterm birth, fetal death, genetic disorders) may be particularly significant. Family history is the most important source of genetic information. Mutations on one or both chromosomes of a pair cause genetic mutations in fixed proportions among generations. A mutation on an individual gene can cause a genetic condition, whether it is present in a single or a double copy. **Table 4** describes the three main patterns of Mendelian inheritance.

<table>
<thead>
<tr>
<th>Table 4. The Three Main Patterns of Mendelian Inheritance</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Autosomal dominant (e.g., Huntington’s disease)</td>
</tr>
<tr>
<td>- Autosomal recessive (e.g., sickle cell anemia, cystic fibrosis)</td>
</tr>
<tr>
<td>- X-linked (e.g., Duchenne muscular dystrophy, retinitis pigmentosa)</td>
</tr>
</tbody>
</table>

Conditions such as sickle cell disease or trait, thalassemia, and cystic fibrosis in the family of either partner may require a referral for genetic counseling and additional testing, if the woman or her partner desires. The ideal time for genetic screening is before attempting pregnancy. Counseling and testing of all pregnant women are not advisable. If the initial prenatal assessment reveals possible risk factors for the baby, the nurse should refer the woman and her partner for genetic counseling (**Table 5**) The most common indications for genetic counseling and prenatal diagnosis are usually maternal age and abnormal maternal serum screening. (See *Genetic Issues for Perinatal Nurses* by Williams and Lea, 2003, published by the March of Dimes, and “What Is Genetic Counseling?” on the March of Dimes Web site.)

Genetic counseling is becoming increasingly complex and has evolved into a well-recognized specialty. Our understanding of genetics and genomics in health care has changed in recent years. The term “genomics” refers to the study of all genes in the human genome, including their interactions with each other and the environment (Feetham, Thomson & Hinshaw, 2005). Evidence now indicates that not only can genes cause diseases, but they also can affect disease susceptibility and resistance, prognosis and progression, and responses to illness and their treatments. Recent findings about cystic fibrosis (CF) illustrate these concepts.

The American College of Obstetricians and Gynecologists (ACOG) recommends that the CF carrier screening test be offered to every woman as part of preconception and prenatal care (ACOG, 2005d). In 1989, scientists first reported the gene associated with CF on chromosome number 7. At the time, a single mutation, a three base-pair deletion, was found to account for about half of the people in the United States with CF. Scientists believed that a few more muta-
The term "genomics" refers to the study of all genes, including their interaction with each other and the environment.

Intensive education, planning and support are crucial in genetic counseling. As knowledge of the mechanisms of disease increases, individuals and families will need to incorporate the influence of genes, the environment and behavior into their understanding of and experiences with diagnosis, treatment and prevention (Feetham, Thomson & Hinshaw, 2005). Genetic counseling and fetal-surveillance techniques encourage a woman (and her partner) to confront difficult questions: How much and what kind of information do they want? What action, if any, will they take? What do their choices suggest about their parenting skills, self-image, and personal values? (Raines, 1996). While nurses can be knowledgeable, nontreating confidantes as the woman (and her partner) sort through the information and decision-making, they need to recognize the benefits, limitations and socioeconomic implications of the technology.
Cultural Assessment

Cultural assessment is an important part of prenatal care. To plan culture-specific care, the nurse should assess the woman’s beliefs, values and behaviors that relate to pregnancy and childbearing. This includes information about ethnic background, religious preferences, language, communication style, common etiquette practices, and expectations of the health care system (Olds et al., 2004).

Over the years, immigrants have come from a variety of cultures to the United States, and this trend is continuing today. According to the U.S. Census Bureau (2004), the U.S. population is becoming more diverse. Often, there are numerous cultural differences between health care providers and the patients they serve.

Cultural competence is a dynamic, multilayered process. It includes knowledge and skills that are both generic, applying across different groups, and specific to particular cultures (Callister, 2005). As they work to understand the reactions and behaviors of others, nurses and other clinicians need to be aware of their own cultural characteristics (Table 7).

When a woman is pregnant, her culture’s nutritional practices, beliefs about medication, and attitudes toward pregnancy are particularly important. For instance, a woman’s culture may view pregnancy as a natural occurrence; thus, she may not consider prenatal care to be important. Other women with different cultural backgrounds may believe that pregnancy should be carefully monitored for the best outcome. Because of her cultural background, a woman may refuse a pelvic exam or insist on a female health care provider.

Sometimes nurses must work with an interpreter to communicate with a woman. Meeting with the interpreter ahead of time to review goals and purposes can enhance the interaction. If the interpreter is male, a relative, or the child of the patient, it may not be possible to ask all questions or to be sure that they are interpreted appropriately. (See Cultural Competence in the Care of Childbearing Families by Moore and Moos, 2003, published by the March of Dimes.)
Table 7. Providing Culturally Competent Nursing Care

- Examine your personal cultural attitudes and knowledge.
- Use culturally sensitive interviewing tools, including asking the question, “Is there anything I need to know about your culture that will help me in providing care to you?”
- Foster an open, sensitive approach to health care beliefs.
- Demonstrate comfort with cultural differences.
- Develop cultural communication techniques.
- Demonstrate willingness to relinquish control and respect cultural practices, integrating them into the plan of care.
- Demonstrate RESPECT:

**Rapport** should be developed by understanding the patient’s point of view (avoid assumptions).

**Empathy** is important. Remember that patients are seeking advice.

**Support** patients by understanding their social context and involving their family.

**Partner** with patients regarding their treatment plan and negotiate if necessary.

**Explain** or teach them and verify their understanding.

**Cultural competence** should be achieved and the patient’s beliefs respected.

**Trust** is essential and can be achieved by demonstrating patience and taking time.

(Callister, 2005. Reprinted with permission from Lippincott Williams & Wilkins)
Maternal Age

Maternal age is linked to pregnancy outcome. Knowledge of the risks serves as a guide for counseling women for whom age is a risk factor. Poverty is a related factor (Cunningham et al., 2005; Markovitz et al., 2005). With poor socioeconomic status, the risk of perinatal morbidity increases after age 35; with adequate income and health care, women over age 35 have only a slight increase in gestational diabetes, pregnancy-induced hypertension (PIH), placenta previa or abruption, and cesarean delivery (Cunningham et al., 2005). The incidence of Down syndrome increases with advanced maternal age.

Complications common in pregnant adolescents include low birthweight, preeclampsia, PIH, intrauterine growth restriction (IUGR), and preterm labor. Socioeconomic factors largely explain the increased risk of neonatal mortality in younger mothers (Markovitz et al., 2005).

Lifestyle Factors

Psychosocial and economic factors influence perinatal outcome. They are related to nutritional status, gestational age at entry into prenatal care, and availability of support systems.

Common-law unions illustrate the role of lifestyle in pregnancy. In many Western societies, births to women who live in an intimate relationship with a partner, but without legal marriage, have become increasingly common and widely accepted. However, pregnancy outcomes are worse among women in common-law unions than in traditional marital relationships. Also, the highest incidence of perinatal morbidity and loss occurs in families where the father is not present (Luo, Wilkins & Kramer, 2004).

Adolescence

When an adolescent (age < 20 years) becomes pregnant, she is thrust into a role for which she is often unprepared. She is at increased psychological and obstetric risk. She may delay entry into prenatal care because she is concerned about how others will react to her pregnancy, is unable to cope with the knowledge of pregnancy, or lacks a support system.

A woman’s relationship with the baby’s father is a factor in entry into prenatal care. One study has found that young women who continue to have a relationship with their baby’s father tend to enter prenatal care earlier than do teens who live with their mother and do not have a relationship with the father (Luo, Wilkins & Kramer, 2004).
**Nutrition**

Through nutrition education, nurses working in women's health care are in an excellent position to improve a woman's preconception health, prenatal health and perinatal outcome. Nutritional practices influence every pregnancy as well as a woman's risk for diabetes mellitus, cardiovascular disease, osteoporosis, and several types of cancer. Some complications of pregnancy, such as preeclampsia, preterm birth, intrauterine growth restriction, and low birthweight, may correlate with a woman's nutritional status. For those women with nutritional difficulties (e.g., inappropriate weight gain, gestational diabetes), the nurse should identify a registered dietitian for referral.

In 1990, the Institute of Medicine (IOM) issued recommendations for weight gain during pregnancy based on prepregnancy body-mass index (BMI) (Table 8). Many professional organizations in the United States have endorsed the recommendations, and several studies have validated them, demonstrating that weight gain in accordance with IOM guidance is associated with optimal birthweight and obstetric outcomes (Hickey et al., 1996; Parker & Abrams, 1992; Siega-Riz, Adair & Hobel, 1994).

<table>
<thead>
<tr>
<th>Table 8. Recommendations for Weight Gain in Pregnancy, Institute of Medicine</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Status</strong></td>
</tr>
<tr>
<td>Underweight</td>
</tr>
<tr>
<td>Average weight</td>
</tr>
<tr>
<td>Overweight</td>
</tr>
<tr>
<td>Obese</td>
</tr>
<tr>
<td>Twin gestation</td>
</tr>
</tbody>
</table>
Stotland et al. (2005) found that prepregnancy BMI was the strongest predictor of maternal weight gain outside the IOM recommendations. Women with low BMI before pregnancy had the highest risk for inadequate weight gain. Conversely, women with high BMI before pregnancy had the highest risk for excessive weight gain. Before recommending any intervention, however, the nurse should interview the woman about factors that may contribute to inadequate or excessive weight gain (e.g., stress, infection, other medical problems, lack of money to buy food).

Stotland et al. (2005) also identified three other factors that increase the likelihood that women will gain less than the amounts recommended by the IOM: being of African-American or Latina background, reporting that a provider advised weight gain less than the IOM recommendation, and possessing a low educational level. Low weight gains among African-American and Latina women persisted even when controlling for educational status. Compared to people with good health literacy, people with poor health literacy have less health knowledge, poorer health status, and less use of health services.

Nutrition assessment includes diet information (1- to 3-day recall), weight-gain monitoring, and hematologic assessment. The woman’s usual dietary routine provides a basis for understanding her nutritional health. Table 9 describes risk factors for nutritional problems.

Table 9. Risk Factors for Poor Nutrition in Pregnancy

- Adolescence
- Low income
- Cigarette smoking
- Substance use or abuse
- Frequent dieting
- Vegan diet
- Pica
- High parity
- Mental illness, including depression
- Use of certain medications, such as phenytoin
- Mental retardation
- Chronic diseases
- Eating disorders

(ACOG, 1996)
Many pregnant women experience pica or olfactory cravings during pregnancy. These conditions are not limited to any one group, educational level, race, ethnic group, income level or religious belief (Cooksey, 1995). The incidence varies from culture to culture. Pica has ranged from as low as 14.4 percent in rural women of Georgia to as high as 73 percent in Kenyan women (Corbett, Ryan & Weinrich, 2003).

While some women are embarrassed to tell the clinician about pica and olfactory cravings, these conditions may significantly interfere with dietary intake of proper nutrients during pregnancy. Corbett, Ryan and Weinrich (2003) recommend that patient interviewing regarding pica should be open, directive and culturally sensitive.

As with all sensitive issues, the nurse should establish a trusting relationship with patients and allow adequate time to verbalize their concerns and share information about pica and olfactory cravings. A nonjudgmental attitude is essential for the nurse and other health team members. The clinician should help the patient understand why pica and other types of cravings may be harmful in pregnancy. Several family members may engage in pica practices, lending credibility to them and influencing the woman’s attitude about their safety.

**Cigarette Smoking**

During pregnancy, nicotine affects maternal circulation and may cause vasoconstriction of uterine and placental vessels. As smoking increases, the risk of miscarriage, stillbirth and neonatal death increases. Cigarette smoking during pregnancy has been linked to an increased incidence of low birthweight, prematurity, attention deficit hyperactivity disorder (ADHD), and other behavioral and learning problems in school-age children (ACOG, 2005c). Almost 25 percent of women aged 18 to 44 years smoke cigarettes (CDC, 2003). Of particular concern is the increase in smoking among adolescent girls.

Because many women feel guilty or embarrassed about smoking, they minimize the amount they actually smoke every day when they speak to health care providers. (This pattern of behavior also applies to drinking alcohol and using illicit drugs.)

Passive smoking has recently been reported to contribute to serious upper respiratory problems, particularly among infants and young children. While women may be aware that smoking during pregnancy affects the fetus, they may not know about the potentially detrimental effects of passive smoking. Smoking relapse rates are high 1 year after pregnancy (ACOG, 2005c), thus exposing infants to the risk of passive smoke.

As with other lifestyle issues, the nurse should approach smoking in a non-judgmental manner, and then educate the patient about risks of active and passive smoking.

Women may not know about the potentially detrimental effects of passive smoking.
Substance abuse can cause cardiac, pulmonary, gastrointestinal and psychiatric complications.

Substance Use and Abuse

Substance use and abuse may have disastrous effects in pregnancy. When substance abuse occurs during pregnancy, maternal risk of abruptio placentae, preterm labor, sudden cardiac death and stroke is increased. Substance abuse affects all body systems and can cause cardiac, pulmonary, gastrointestinal and psychiatric complications. Illicit drug use is highest among women during their peak childbearing years (Misra, 2001).

Pregnant women who report any alcohol use, binge drinking, and frequent drinking are more likely to be older than 30, employed and unmarried compared to other pregnant women (Sidhu & Floyd, 2002). According to the 2002 National Survey of Drug Use and Health, 9 percent of pregnant women reported alcohol use in the month preceding the survey, 3 percent reported binge drinking, and less than 1 percent reported heavy drinking (Substance Abuse and Mental Health Services Administration, 2003).

A study using data from the Pregnancy Risk Assessment Monitoring System (PRAMS) highlights the variations across states in the prevalence of alcohol use during pregnancy (Phares et al., 2004). Eight states were studied. During the first 3 months of pregnancy, prevalence of alcohol use ranged from 3.4 percent to 9.9 percent across the states. It was less than 6 percent in six of the eight states. In seven of eight states, prevalence was highest among pregnant women who were at least 35 years old, were non-Hispanic, had more than a high school education, or had higher incomes. In four of the states, prevalence was highest among white women; in three states, use was highest among American Indian women; in one state, among black women.

Using a diverse sample, Chasnoff and colleagues (2001) developed and evaluated a brief screening instrument called 4Ps Plus to detect substance use in pregnant women receiving prenatal care (Table 10). Based on their responses, women were classified as low risk, average or high risk. Compared to a self-report measure and a urine toxicology test, the 4Ps Plus instrument was more sensitive in identifying women with a substance-use issue.
“Moderate activity” may vary from one individual to another and from one pregnancy to another.

In the 4Ps Plus study, women classified as high risk used any alcohol or smoked three or more cigarettes in the month before pregnancy. In this high-risk group, 34 percent of women used either illicit drugs or alcohol while pregnant. After women in the study became aware of pregnancy, the rate of use for cocaine, heroin and methamphetamines was 1 percent. Of women in the study who continued to use alcohol after becoming aware of pregnancy, most drank less than 2 days per week.

Nurses need to examine their own biases and assumptions about who is likely to use illicit drugs or alcohol during pregnancy. Chasnoff and colleagues (2001) found that those in the wealthiest community had the highest rate of reported substance use during pregnancy (50 percent). This finding highlights the need to screen all pregnant women, not just the poor and uninsured. (See the fact sheets “Illicit Drug Use in Pregnancy” and “Drinking Alcohol During Pregnancy” on the March of Dimes Web site.)

**Exercise During Pregnancy**

Overall, exercise benefits pregnant women physically and psychologically. Many women are committed to exercising regularly and wish to continue throughout pregnancy. Prenatal and postpartum exercise classes are readily available in urban and suburban communities, with a variety of health professionals certified to teach these programs.

The American College of Obstetricians and Gynecologists has found that, in the absence of obstetrical or medical complications, moderate activity maintains cardiorespiratory and muscular fitness during pregnancy (ACOG, 2003a). **Table 11** describes important ACOG recommendations about exercise during pregnancy.

---

**Table 10. 4Ps Plus: A Screening Instrument for Substance Use**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Parents</td>
<td>Did either of your parents ever have a problem with alcohol or drugs?</td>
</tr>
<tr>
<td>Partner</td>
<td>Does your partner have a problem with alcohol or drugs?</td>
</tr>
<tr>
<td>Past</td>
<td>Have you ever drunk beer, wine or liquor?</td>
</tr>
<tr>
<td>Pregnancy</td>
<td>In the month before you knew you were pregnant, how many cigarettes did you smoke?</td>
</tr>
<tr>
<td></td>
<td>In the month before you knew you were pregnant:</td>
</tr>
<tr>
<td></td>
<td>• How many beers did you drink?</td>
</tr>
<tr>
<td></td>
<td>• How much wine did you drink?</td>
</tr>
<tr>
<td></td>
<td>• How much liquor did you drink?</td>
</tr>
</tbody>
</table>

(Chasnoff et al., 2001)
In its 2003 guidelines, ACOG did not define “moderate activity.” The author believes that “moderate” may vary from one individual to another and from one pregnancy to another in the same individual. Women need advice from doctors or advanced practice nurses about the meaning of “moderate activity.”

Other Lifestyle Factors

The nurse should assess the nature of the woman’s job, her hobbies, and her residential environment. Has she been exposed to or is she likely to be exposed to potential teratogens, including toxic chemicals? What about sources of stress? Does she sit or stand continuously? Lift heavy objects? Perceive problems with air ventilation?

Women work during pregnancy for many reasons. Some continue to work out of economic necessity, often making do from paycheck to paycheck. Many strive to minimize risk factors, such as hazards in the workplace or excessive hours on the job. Activities that cause excessive fatigue (such as heavy work, job-related stress, or daily commutes of 1.5 to 2 hours per day) may stimulate uterine contractions and increase the risk of perinatal complications.
Maternal Infections

Maternal infections have long been recognized as risk factors for adverse pregnancy outcomes. Intrauterine infection and bacterial vaginosis have both been identified as risks for preterm birth. The mechanism likely involves both maternal and fetal inflammatory responses. Both maternal and neonatal infections are more common after preterm than term birth. The earlier the delivery, the more risk there is of an associated infection (Boggess, 2005).

Epidemiological, microbiological and clinical evidence supports an association between infection and preterm birth (Boggess, 2005). According to epidemiological studies of spontaneous preterm birth, births at less than 34 weeks gestation are much more likely to be accompanied by clinical or subclinical infection than those at more than 34 weeks (Boggess, 2005). (See the fact sheet “Sexually Transmitted Infections in Pregnancy” on the March of Dimes Web site.)

Maternal genitourinary and reproductive tract infections have been implicated as a main risk factor in 15 to 25 percent of preterm deliveries. Chlamydia and bacterial vaginosis are both associated with preterm birth. Bacterial vaginosis is a gram-negative, anaerobic dominance of the vaginal flora that can result in ascending infection. It occurs in up to 20 percent of all pregnancies (Boggess, 2005). (See the fact sheet “Sexually Transmitted Infections in Pregnancy” on the March of Dimes Web site.)

Dental care during pregnancy has received more attention lately since some studies have found an association between gingivitis and preterm birth, low birthweight, and preeclampsia (Boggess et al., 2003; Lopez, Smith & Gutierrez, 2002). Gingivitis occurs in 60 to 75 percent of pregnant women, surfing most frequently in the second trimester (Barak et al., 2003; Khader & Ta’ani, 2005). Elevated levels of the hormones estrogen and progesterone cause the gums to react differently to bacteria found in plaque (Barak et al., 2003). Symptoms include swollen red gums and bleeding when brushing the teeth. Gums infected with periodontal disease are toxic reservoirs of bacteria resulting in increased prostaglandin production (Barak et al., 2003).

Lopez, Smith and Gutierrez (2002) found that periodontal diseases in the pregnant woman significantly increase the risk of subsequent preterm birth and low birthweight. While it is important to promote good oral hygiene during routine prenatal visits, there is no convincing evidence, on the basis of existing studies, that treatment of periodontal disease will reduce the risk of preterm birth (Khader & Ta’ani, 2005). (See “Periodontal Disease and Preterm Birth” on the March of Dimes Web site.)

Viral infections during pregnancy can lead to serious consequences for both the mother and the infant, including congenital anomalies, disabilities and mortality. Currently, prenatal patients are routinely screened for rubella, hepatitis B, syphilis, Group B streptococcus (GBS), and HIV. Table 12 presents the acronym TORCH, which describes significant maternal infections. Gestational age greatly influences the likelihood of fetal infection (Sweet & Gibbs, 2002). (See the fact sheets “Sexually Transmitted Infections in Pregnancy,” “Toxoplasmosis,” and “Group B Strep Infection” on the March of Dimes Web site.)
Nurses often encounter questions regarding viral exposure and the use of vaccinations, especially influenza vaccine. Appendix B describes vaccines recommended during pregnancy.

Listeriosis has a unique predilection for pregnant women, with an estimated 17-fold increase in incidence, as compared to women who are not pregnant (Mylonakis et al., 2002). Intrauterine infection can lead to severe complications such as amnionitis, preterm labor, spontaneous abortion, stillbirth, or infection of the neonate (Mylonakis et al., 2002). Listeriosis has a high fatality rate (20 to 30 percent) in neonates.

*Listeria monocytogenes* is transmitted to the fetus either by crossing the placenta via the maternal bloodstream or by ascending from a colonized vaginal canal. In healthy pregnant women, vaginal colonization is rare. By contrast, *L. monocytogenes* is commonly isolated from the vaginas of women giving birth to infants with perinatal listeriosis (CDC, 2005d).

Maternal listeriosis may be a diagnostic challenge because the signs and symptoms are flu-like including fever, muscle aches, nausea and diarrhea. Infected newborns and infants are at risk for sepsis and meningitis. When maternal listeriosis is suspected, a blood test can be done to verify the causative organism. Ampicillin or penicillin is generally recommended as the treatment of choice (CDC, 2005d).

---

**Table 12. The Acronym TORCH: Significant Maternal Infections**

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Infection</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>Toxoplasma</td>
</tr>
<tr>
<td>O</td>
<td>Other organisms (parvovirus, HIV, Epstein-Barr virus, herpes viruses 6 and 8, varicella, syphilis, enteroviruses)</td>
</tr>
<tr>
<td>R</td>
<td>Rubella</td>
</tr>
<tr>
<td>C</td>
<td>Cytomegalovirus (CMV)</td>
</tr>
<tr>
<td>H</td>
<td>Hepatitis</td>
</tr>
</tbody>
</table>

---

Listeriosis has a high fatality rate in neonates. Maternal listeriosis may be a diagnostic challenge because the signs and symptoms are flu-like.