PRENATAL CARE FOR THE FAMILY PHYSICIAN: PART 2

Care and counseling by trimester

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ABSTRACT Symptoms such as nausea, vomiting, and fatigue are primary concerns during the first trimester of pregnancy, and chorionic villus sampling is sometimes used for prenatal diagnosis. During the second trimester, routine assessment of fetal health may include triple-marker serum screening and ultrasonography or amniocentesis; fulfilling the nutritional needs of the fetus also becomes more critical. Potential complications during the third trimester are preterm labor, gestational diabetes, preeclampsia, infections, and postterm pregnancies. At this time, both families and physicians must prepare for labor and delivery.

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Pregnancy has traditionally been divided into three periods, or trimesters, based on an average expected length of 40 completed menstrual weeks. The first is 1-12 weeks' gestation, the second extends through 24 weeks, and the third extends through delivery. Required assessments and tests as the pregnancy progresses are summarized in Table 1 (page 62). Physicians must understand the characteristics and potential complications typical at all three stages to optimize the health of the mother and fetus.

The first trimester: Symptom management and testing

• *Symptoms* Fatigue, nausea, and vomiting are common in early pregnancy. About 20%-30% of patients have few or no symptoms, and some have severe symptoms such as hyperemesis gravidarum that require hospitalization.[1] A study of 363 pregnant women found that nausea developed in all symptomatic patients by the ninth week, most commonly during weeks 4 to 7.[2] It ended by week 10 in 30%, by week 12 in 30%, and by week 16 in 30%.

For most women, rest and meal adjustments are sufficient management for nausea and vomiting. Many find that frequent small meals minimize nausea, but each patient is unique. Some cannot tolerate prenatal vitamins, even at bedtime, until the second trimester.

When symptoms are severe, sonography is indicated to rule out abnormalities such as multiple gestation or molar pregnancy. Unrelated medical problems that may cause nausea, such as thyroid disease, should also be considered.[3,4] Acupressure wrist bands may help relieve symp-

Table 1

Recommended tests for continuing prenatal care

Gestational age (wk)	Test
10-12	Chorionic villus sampling
13-18	Amniocentesis (early versus routine) with ultrasound
16-20	Ultrasound for anomalies
16-18*	Triple-marker serum screening
24-28	Diabetes screening (with hematocrit); repeat as needed
28	Rh-negative patients: repeat antibody test, administer Rho(D) immune globulin (Gamulin Rh, HypRho-D, RhoGAM)
32-36	Consider repeated STD screening, ultrasound, repeated hematocrit or diabetes screening (only if clinically indicated)
36	Assess for fetal position, confirm vertex
35-37	Consider group B streptococcal screening (vaginal and rectal swabs without speculum)
41-on†	Biweekly prenatal fetal testing (nonstress test and amniotic fluid index or biophysical profile)

Key: STD = sexually transmitted disease.
*This is the ideal time to screen; 15-20 weeks is acceptable.
†And if indicated.

toms, but no medications have been approved by the Food and Drug Administration (FDA). An agent once used for treatment, doxylamine and pyridoxine HCl (Bendectin), has been removed from the market for legal reasons, even though it is unlikely to have been a genuine teratogen.[3,5]

Pharmacotherapy should be avoided if possible since the period of intense nausea coincides with organogenesis. For severely distressed patients willing to assume the (probably negligible) risk, pyridoxine (vitamin B_6) showed efficacy at 25 mg tid in one study[6] and 10 mg tid in another larger study.[7] Doxylamine succinate (Unisom Nighttime Sleep-Aid) is available over the counter in a 25-mg formulation (compared with 10 mg in Bendectin), and patients may thus wish to divide the tablets.

Options for severe symptoms requiring intravenous treatment include promethazine HCl (Phenergan), trimethobenzamide HCl (Arrestin, Ticon, Tigan), and even prochlorperazine (Compazine). None appears to engender congenital anomalies,[3,5] but their use should be minimized nonetheless. Metoclopramide HCl (Octamide PFS, Reglan) may be more effective, but has not been used as often in practice.

Although women are usually expected to gain no more than 2-5 lb [0.9-2.25 kg], some with nausea may actually lose weight in the first trimester. During this trimester, the fetus is not as sensitive to poor nutrition, and patients may simply have to focus on staying hydrated and eating what they can.

• *Recommended testing* during the first trimester is the same as in the initial evaluation (Table 6, Part 1, page 52) with the exception of chorionic villus sampling, a first-trimester alternative to amniocentesis. The test is performed between 10 and 12 weeks' gestation, and the risk of fetal loss is approximately double that of traditional amniocentesis (at 15-18 weeks): about 0.5%-1.0% versus 0.25%-0.5%.[8] The benefit of chorionic villus sampling is determining fetal status early, before pregnancy is apparent. If the baby is at a 25% risk for Tay-Sachs disease, for example, waiting for amniocentesis may be unacceptable. Early amniocentesis may be done at 11-14 weeks, with results requiring another 10-14 days. Some centers may not offer early amniocentesis, however, and the fetal loss rate is significantly higher than that of chorionic villus sampling.[9]

The second trimester: Fetal and maternal health monitoring

• *Fetal assessment* is more routine during this period. Most women have a serum triple-marker screening test at 15-20 (ideally 16-18) weeks' gestation. It screens for α-fetoprotein, unconjugated estriol, and human chorionic gonadotropin (hCG). Approximately 85%-90% of neural tube defects and 55%-60% of Down's syndrome cases can be detected with triple-marker screening.[9,10]

After genetic counseling, some women of ad-

vanced maternal age (set at 35 because amniocentesis loss rates historically equal chromosome abnormality rates at this age) choose serum screening over definitive testing. Women with positive screening tests or indications for definitive testing should undergo amniocentesis at 15-18 weeks (or later if necessary) for definitive chromosomal testing (Table 2, Part 1, page 38) and a determination of amniotic α-fetoprotein levels. Patients who elect chorionic villus sampling or early amniocentesis should have serum α-fetoprotein testing at 16-18 weeks (to detect neural tube defects) and sonography at 18-20 weeks. An ultrasound examination is part of the standard amniocentesis procedure.

Other indications for sonography include discrepancies between fetal size and gestational age, follow-up for previous abnormalities, or assessment of the effects of teratogen exposure. Screening ultrasonography for low-risk patients with normal triple-marker test results is controversial. In the RADIUS (routine antenatal diagnostic imaging with ultrasound) trial,[11] screening ultrasonography demonstrated no improvement in any measure of pregnancy outcome in the 7,617 women at low risk for perinatal problems. In this study, 94% of women in the screening group had ultrasound examinations at both 15-22 weeks and 31-35 weeks' gestation, and 45% in the control group had ultrasound examinations for certain indications.[11] Criticism leveled at this study has pointed to the low abnormality detection rate in the screening group—only 17% before 24 weeks. Even in the tertiary care settings, only 35% of anomalies were detected before 24 weeks.[11-13] In other studies, screening ultrasound had a much higher sensitivity for anomaly detection of 48%.[13]

Many families want to have an ultrasound for the pleasure of seeing their baby-to-be. Even if ultrasound remains unproven as a public health measure, any chance of detecting a problem may help prevent devastating personal consequences, and ultrasound has little if any known risk. The United States Preventive Services Task Force found insufficient evidence to recommend for or against routine second-trimester ultrasound screening.[14] It seems reasonable to offer ultrasonography to assess for anomalies (ideally at 18-20 weeks).[12] Not all insurance companies pay for the procedure, however, as its medical necessity has not been definitively demonstrated.

• *Nutrition* becomes more critical during the second trimester. As nausea abates, most women should be able to eat a healthy diet to fulfill the fetus' growing needs. Appropriate weight gain is key to a good outcome for both mother and baby.[15] Inadequate weight gain is associated with low-birth-weight babies, and excessive weight gain with macrosomia.[16-18] Appropriate gains are based on prepregnancy body habitus (Table 7, Part 1, page 55). Most women should gain 25-35 lb (11.25-15.75 kg). Adolescents, African-Americans, and smokers are more likely to have low-birth-weight babies and should aim for the high end of the appropriate range. Short women should be encouraged to gain at the low end.[17]

The average fetus requires 150 calories per day more than the mother's normal caloric needs in the first trimester and 300-500 more in the second and third trimesters. Weight gain should come from healthy calories such as milk products (if tolerated), meat, fruits, vegetables, and whole grains. Some women must make a significant dietary change from junk food. Empty calories cannot substitute for healthy ones and simply add unnecessarily to maternal fat stores.

• *Fetal growth* Fundal height (the top of the symphysis pubis to the top of the fundus) should be equal to gestational age during the latter part of the second trimester (plus or minus 2 cm). Apparently abnormal growth requires ultrasound evaluation. Demonstrated fetal growth restriction or polyhydramnios requires referral.

• *Symptoms and psychosocial concerns* Patients often feel well again in the second trimester and begin to enjoy pregnancy. Most women find their clothes getting tight, many "show" by around 14-16 weeks (sooner if they are slender), and some, particularly if primiparous, may have mixed feelings about their changing shape—displeasure about their figures and joy about the growing baby. Even for highly desired pregnancies, some ambivalence toward the new responsibilities and roles of motherhood (especially for the first baby) is virtually inevitable. For unintended pregnancies, feelings may be far more negative.

Backaches often begin in the second trimester

as the patient's balance begins to alter and usually worsen in the third trimester as the fetus grows. Other minor (and occasionally major) symptoms may include hemorrhoids and varicosities of the lower extremities. Treatment is similar to that in the nonpregnant patient: fiber and occasionally stool softeners to avoid constipation for hemorrhoids and stockings, rest, and elevation for varicosities. Thrombosed external hemorrhoids may be treated with incision and drainage as in the nonpregnant patient.

Some heartburn is common during pregnancy, and it often worsens through the third trimester until the fetus drops. Calcium carbonate (Amitone, Mallamint, Tums, etc.) can be an excellent solution, as pregnant women need 1,200 mg of calcium per day in any case.

Calcium carbonate should not be taken at the same time as iron (in prenatal vitamins) because it can interfere with absorption. By the second trimester, most women can tolerate regular prenatal vitamins, which supplement a multivitamin/mineral. Although vitamins are almost routinely recommended, the benefits in women with no known deficiencies are equivocal, even in later pregnancy.[15-19]

The third trimester: Complications and final preparations

• *Preterm labor* Throughout the gestational period of 24-36 weeks, patients should be told that repetitive contractions are abnormal and must be reported immediately. Other symptoms suggestive of preterm labor are abdominal tightness, vaginal discharge, cramping, diarrhea, and bleeding.[20]

Bacterial vaginosis is associated with preterm labor and delivery, but screening is controversial. No improvement has been demonstrated with oral metronidazole (Flagyl, Protostat)[21] or topical clindamycin phosphate (Cleocin),[22] but cure with oral clindamycin may decrease the risk of preterm labor or early pregnancy loss.[23]

• *Rh-negative* patients should be rechecked for antibodies at 28 weeks, and given 300 mg of Rho(D) immune globulin (Gamulin Rh, HypRho-D, RhoGAM) to cover prophylaxis until delivery.

• *Gestational diabetes mellitus* is associated with the development of macrosomia, an increased risk of birth trauma, and a higher incidence of cesarean delivery.[24] Since intensive management appears to result in decreased overall infant morbidity, diagnosis is vital.[25]

Pregnancy is a "diabetogenic" state, conducive to the development of hyperglycemia and diabetes.[26] Even women without a personal or family history of diabetes are susceptible; roughly 3.5% with no preexisting disease are affected.[26] Virtually all pregnant women should be screened at 24-28 weeks' gestation. Screening is unnecessary in normal-weight patients younger than 25 with no family history of diabetes, except for those in ethnic groups at higher risk for diabetes (such as African-Americans, Hispanics, Asians, and Native Americans).[27] Patients at very high risk (personal or family history of diabetes or glycosuria with a suggestive glucometer reading) may be screened at 12-24 weeks' gestation,[28] screened as usual at 24-28 weeks, and, if gestational diabetes is still not detected, rescreened at 32-34 weeks.[29]

In the 50-g oral glucose challenge test, plasma glucose is drawn 1 hour after the patient drinks 50 g of glucose beverage or consumes 28 jelly beans (which contain 50 g of simple carbohydrate and have been shown to provoke a similar serum glucose response with fewer side effects than the beverage).[30] A 3-hour oral glucose tolerance test (OGTT) is indicated if the glucose level is higher than 135-140 mg/dL. The patient arrives fasting, drinks 100 g of glucose, and blood is drawn fasting (before the glucose load) and at 1, 2, and 3 hours. Criteria for diagnosis are two of four abnormal values (Table 2, page 67).[27,31,32] Any hyperglycemia requires strict treatment.[24,29]

Since some evidence suggests that patients with any abnormal plasma glucose values are at higher risk for diabetic complications, retesting later in gestation may be considered.[31] Most authorities consider a fasting glucose level above 105 mg/dL to constitute gestational diabetes. Most would not even obtain an OGTT to diagnose gestational diabetes if screening glucose values are above 200 mg/dL.

In a study of 59 pregnant women who had screening serum glucose values of 200 mg/dL or higher, however, the OGTT was normal in 11 (19%) who were tested after they demonstrated

normal fasting glucose (below 105 mg/dL).[33]

Criteria for the diagnosis of gestational diabetes are under review, and some authorities argue for lowering the threshold (Table 2).[27,31,32] The Expert Committee on the Diagnosis and Classification of Diabetes Mellitus cited data to support such a change, but concluded that revision would have been premature at the time.[27] Some experts believe that maternal age and weight are key confounders in gestational diabetes studies and that lowering the criteria would not improve outcomes.[34,35] American College of Obstetricians and Gynecologists (ACOG) criteria have not changed.

Women with gestational diabetes have at least a 50% chance of developing diabetes later in life.[29] Data suggest that such women may safely use low-dose estrogen and progestin contraceptives if they have no other contraindications, but progestin-only formulations may increase the short-term risk of developing diabetes.[25] Long-term studies are still needed.[25,29]

• *Preeclampsia screening* becomes important as the third trimester advances.[36] The most effective strategy is the early detection of an abnormal blood pressure trend. Prepregnancy or first-trimester readings establish the baseline. Close monitoring of blood pressure and urine testing for protein are indicated if blood pressure does not decrease normally during the second trimester.[36] Two blood pressure readings of 140/90 mm Hg or higher taken 6 hours apart after 20 weeks' gestation are diagnostic of pregnancy-induced hypertension.[37]

In the past, a 30-point increase in systolic or 15-point increase in diastolic pressure from baseline was considered preeclamptic. Such elevations are common in nulliparous women and are no longer considered diagnostic, but they can presage the development of pregnancy-induced hypertension and indicate the need for closer monitoring.[37]

Although the traditional diagnostic triad for preeclampsia is proteinuria, edema, and elevated blood pressure, only blood pressure monitoring is useful for screening. Dipstick "proteinuria" and edema are nonspecific findings common in normal pregnancy. Edema is so frequent that it has been abandoned as a diagnostic criterion by experts, although an abrupt weight increase from pathological edema may indicate preeclampsia.[37] True proteinuria (not apparent proteinuria due to leukorrhea) tends to be a late finding in genuine preeclampsia and unhelpful in screening.[36,37] Definitive testing for proteinuria requires a 24-hour urine collection with more than 300 mg per 24 hours becoming suspect.

Symptoms of preeclampsia include malaise, headache, visual abnormalities, and right upper quadrant pain (from liver inflammation). Although helpful in building a diagnostic picture, such symptoms tend to be late findings and are not useful in screening. Physicians should be alert to the possibility of hemolysis, elevated liver enzymes, and low platelets (HELLP syndrome), which can occur in the absence of elevated blood pressure.[38]

• *Fetal growth* Maternal size and weight should increase by about 1 lb (0.45 kg) and 1 cm per week until near term (Table 7, Part 1, page 55). Near-term weight may stabilize, and the baby may drop into the pelvis. Apparent size may even decrease at this time, but should then continue increasing at about 1 cm per week. During late pregnancy, fetal growth in utero is approximately 200 g per week at 38 weeks' gestation, 125 g per week at 40 weeks, and about 60 g per week at 42 weeks.[39]

• *Fetal well-being* After approximately 24 weeks, the fetus should be moving regularly, and mothers should be told to report any decreased fetal movement. Formal counting of fetal movements ("kick counts") is often recommended, but whether it is genuinely helpful and how it should be utilized remain unclear.[40-43] Mothers perceive most of their

Table 2

Normal values in the 3-hour OGTT: Current and proposed

Specimen	Plasma glucose (mg/dL)	
	Current	Proposed[32]
Fasting	105	95
1 hour	190	180
2 hours	165	155
3 hours	145	140

Key: OGTT = oral glucose tolerance test.

Table 3

Consensus guidelines for the management of perinatal group B streptococcal disease

Group B streptococcus bacteriuria
- Treat at diagnosis
- Intrapartum chemoprophylaxis

Previous infant with group B streptococcus
- Intrapartum chemoprophylaxis

Screening-based approach
- Culture for group B streptococcus at 35-37 weeks (almost 100% concordance with intrapartum)
- Offer intrapartum chemoprophylaxis if positive
- Use risk-factor approach if group B streptococcus status is not known at delivery

Risk-factor approach
- No prenatal group B streptococcus culture
- Treat patient if risk factors are present at delivery:
  - < 37 weeks' gestational age
  - Duration of membrane rupture >18 h
  - Temperature > 38.0° C

Intrapartum chemoprophylaxis
- Penicillin G ([Pfizerpen] 5 million U load, then 2.5 million U q 4 h) preferred; alternative: ampicillin sodium (Omnipen-N)
- Penicillin-allergic patient: clindamycin phosphate ([Cleocin] 900 mg q 8 h); alternative: erythromycin (Erythrocin)

Source: Centers for Disease Control and Prevention. Prevention of perinatal group B streptococcal disease: A public health perspective. MMWR Morb Mortal Wkly Rep 1996;45(RR-7):1-24.

babies' vigorous movements. Common instructions for formal counting include counting up to 10 fetal movements (taking longer than 2 hours is abnormal)[44] or counting all movements for 1-2 hours each day (fewer than 3 per hour is abnormal).[45] Several studies have found that these schemes help reduce the risk of perinatal death,[44,45] but one study of 68,000 women showed no benefits, possibly due to inadequate adherence and poor evaluation of women saying they felt decreased fetal movement.[43,46] Regardless of whether formal counting is recommended, all mothers should be instructed to pay close attention to fetal movements and to report decreased activity if they have any question about it.

• *Vaginal birth after cesarean section (VBAC)* Patients with one (or possibly two) previous low transverse uterine scars from a cesarean section are eligible for VBAC. ACOG recommends encouraging a trial of labor after counseling.[47] Success rates are approximately 60%-80% after one cesarean delivery with an excellent safety record for most women without contraindications (such as a previous classical or T-shaped incision or other uterine surgery).[47-49] At least 80% of women with an earlier cesarean delivery for breech presentation, a previous vaginal delivery, or both will have a successful vaginal birth.[47-48] Uterine rupture is rare (less than 1%) but unpredictable, and careful monitoring is mandatory after receiving informed consent for VBAC.[47-49] Overall, maternal and fetal safety is optimized by a successful trial of labor. Unsuccessful labors are slightly more risky than elective second cesarean deliveries, with slightly increased rates of sepsis, lengths of hospitalization, and uterine rupture.[48]

• *Fetal position* should be assessed at approximately 36 weeks. External examination is usually sufficient, but internal sterile examination or ultrasonography may be needed to confirm position. External cephalic version for breech presentation is usually performed around 37-38 weeks, before labor but after the fetus is viable, in case emergency cesarean delivery is required.

• *Screening for infections* High-risk patients should be rescreened for sexually transmitted diseases at 32-36 weeks.

Screening for group B streptococcus (GBS) car-

riage is controversial. The American Academy of Pediatrics, ACOG, and the Centers for Disease Control and Prevention recently reached a consensus regarding screening (Table 3, page 68).[50,51] GBS is a leading cause of serious neonatal infection, with 7,600 cases and 310 deaths reported in 1990.[51] About 10%-30% of pregnant (and nonpregnant) women are colonized with GBS, treatment for colonized women is ineffective, and 1%-2% of infants born to colonized women develop early disease.[51] For the small number of infants who become ill, it is devastating and results in significant morbidity and mortality. Since it is virtually 100% preventable with intrapartum antibiotics, screening may be worthwhile. But many women need to be treated with antibiotics (with low but real risks) to prevent one case of neonatal disease.

The consensus strategy proposes two equally acceptable approaches. In the screening-based approach, intrapartum chemoprophylaxis administered to about 27% of all delivering patients prevents about 86% of GBS infections.[51] The second approach is risk-factor based; about 18% of delivering patients are treated to prevent about 68% of early infections.[51]

To perform GBS screening, vaginal and rectal swab specimens are obtained without a speculum. One study found that specimens collected by patients were at least as sensitive for GBS carriage as those by providers.[52]

• *Symptoms and psychosocial concerns* Discomforts usually increase as the third trimester progresses, and symptoms common to the second trimester may be accompanied by leg cramps, which may be relieved by calcium.

At this time, attention turns to labor, delivery, birth, and preparing for parenthood. Primiparous women, in particular, have numerous anxieties and questions, and they should be encouraged to attend a childbirth class, learn what to expect, and practice techniques for coping with labor pain.

Physicians must address labor precautions such as a reminder about decreased fetal movements, vaginal bleeding (other than obvious bloody show with the mucous plug), rupture of membranes, and contractions. Patients should make a list of phone numbers to call and make arrangements for the care of any older children. Plans for the baby are also needed, including decisions about circumcision and breast-feeding.

Many women elect to attend a breast-feeding class in preparation for this often challenging, natural function that is clearly superior to formula. The American Academy of Pediatrics advocates breast-feeding for all infants to ensure the best possible health and developmental and psychosocial outcomes.[53] Physicians who discuss and encourage breast-feeding before birth can play a significant role in increasing breast-feeding rates and consequently improving the health of infants and mothers.

• *Postterm pregnancies* In at least 90% of women, spontaneous onset of labor occurs by 42 weeks.[54] The most common cause of a postterm pregnancy is an incorrect gestational age, and uncertain dates must always be kept in mind.[54] Only a small percentage of pregnancies (probably around 3%) are truly postterm.[55]

Postterm pregnancies are associated with an increased incidence of oligohydramnios, relative macrosomia, and uteroplacental insufficiency. Since fetuses continue to gain weight (although less after 40 weeks), the longer the pregnancy, the more likely a large and difficult-to-deliver baby. Monitoring can lower the risk of fetal demise, but morbidity is still 2 of 1,000 cases after 41 weeks.[42]

For some of the many patients who are still pregnant after their due date, the waiting is extremely difficult, but little can be done to induce labor. Time-honored methods include walking (harmless), nipple stimulation (no proven benefit), and intercourse (probably not a good idea during the last month of pregnancy).[15]

Although not yet the standard of care for induction, membrane stripping has come under increased scrutiny. The procedure begins with a routine sterile cervical examination for factors such as station, effacement, and dilation (which are always helpful to know in late gestation). The physician then makes a 360° sweep with a sterile finger to gently "strip" the membranes from the inside of the cervix, taking care to avoid rupturing the membranes.

Membrane stripping probably reduces the likelihood of a postterm pregnancy by ripening the cervix.[56] Small studies of this technique have sug-

gested benefits,[37] but do not allow a full assessment of risks. Available reports indicate minimal morbidity with this technique.[38]

Induction is clearly indicated, regardless of the state of the cervix, in women with conditions such as pregnancy-induced hypertension, preeclampsia, and oligohydramnios. Induction with an unripe cervix is not pleasant for the patient, is less likely to be successful, and should be avoided if possible. After 41 weeks, weekly visits and biweekly nonstress tests with amniotic fluid index measurements are indicated to evaluate for signs of uteroplacental insufficiency or oliogohydramnios.[39] Some experts would induce with a favorable cervix at 41 weeks,[40] but others disagree.[39]

Induction is always indicated at 42 weeks, although the degree of uncertainty in gestational age may need to be considered.[45] Depending on the accuracy of the patient's dating, induction earlier or later than the 42nd week may be justified.

• *Administrative procedures* After approximately 34 weeks, the patient's record should be available at the intended site of delivery; many deliveries occur at night and on weekends. The woman's full updated history, physical examination, and laboratory findings should be included, along with a problem list and plans for intrapartum and postpartum care.

Conclusion

Providers of prenatal care are in a rare position to help promote healthy behaviors, readiness for parenting, and breast-feeding. Symptom management and initial testing are primary concerns during the first trimester. Chorionic villus sampling may be performed at 10-12 weeks for prenatal diagnosis.

Fetal health is the focus of second trimester care. Triple-marker screening or amniocentesis is used to detect neural tube defects or Down's syndrome, and ultrasonography may be required or requested. The mother's caloric intake must be sufficient to meet the needs of the growing fetus. Symptoms during the second trimester may include backaches and heartburn.

During the third trimester, monitoring for the development of significant complications such as preterm labor, gestational diabetes, preeclampsia, and infections is required. Patients may need counseling on the benefits of vaginal birth after previous cesarean delivery, inducing labor for postterm pregnancy, and the benefits of breast-feeding. After about 34 weeks, physicians should ensure that the patient's complete medical record is available at the intended site of delivery. ■

SELF-EXAMINATION

1. Roughly _____% of women have few or no symptoms during the first trimester.

   a) 5
   b) 10
   c) 15
   d) 25

2. No drugs have been FDA-approved for the treatment of nausea during pregnancy.

   a) true
   b) false

3. Which of the following statements about prenatal diagnostic testing is not true?

   a) Chorionic villus sampling is a first-trimester alternative to amniocentesis, with the same indications.
   b) The triple-marker screening test can detect more than 50% of Down's syndrome cases.
   c) The risk of fetal loss with early amniocentesis is lower than that of chorionic villus sampling.
   d) Traditional amniocentesis is routinely performed at 15-18 weeks.

4. The average fetus requires _____ calories more per day than the mother's normal caloric needs in the third trimester.

   a) 100-200
   b) 200-300
   c) 300-500
   d) 500-600

5. Which of the following statements about the

third trimester of pregnancy is not true?

a) Approximately 3.5% of women with no preexisting disease develop gestational diabetes.

b) A 3-hour oral glucose tolerance test is indicated if the glucose level on the 50-g glucose screening test is above 105 mg/dL.

c) At least 90% of women have spontaneous labor by 42 weeks.

d) The diagnosis of preeclampsia relies on blood pressure readings.

Answers at end of reference list.

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■ *Answers: 1)d, 2)a, 3)c, 4)c, 5)b*