

PRENATAL CARE



AMERICAN BOARD OF FAMILY PRACTICE

This Reference Guide has been prepared by the American Board of Family Practice as an integral part of the office record review portion of the Recertification Process. Its purpose is to provide the family physician with criteria for assessing patient records for the specific problem category discussed in the guide. These criteria have been identified by a committee of experts as being relevant to the record review process for this problem category.

The criteria are first displayed in a flow chart for easy reference. They are organized within the flow chart into the following major categories: history, physical examination, diagnostic procedures, management, patient education, and follow-up. Page notations above the various elements on the flow chart refer to specific sections within the guide which discuss each criterion in greater detail. For further information the reader is provided with a reference list which incorporates current citations in the professional literature.

The information contained herein is intended as a reference guide. It is not meant to be a comprehensive review of the subject. It is merely a guide to creating medical ambulatory records, and at the time of its development contained current information. However, given the rapid and continual changes in medical knowledge, physicians must constantly review the medical literature in order to remain up to date.

Obviously, there are inherent limitations in trying to equate the quality of office records with the quality of patient care. Using actual records from the family physician's own practice as a basis for self-assessment, however, allows the individual practitioner to review the elements of diagnosis and management of medical problems in a meaningful way. Furthermore, direct feedback from reference guides such as this one provides an opportunity to learn from the experience in a way that may improve the quality of both office records and patient care.

PRENATAL CARE

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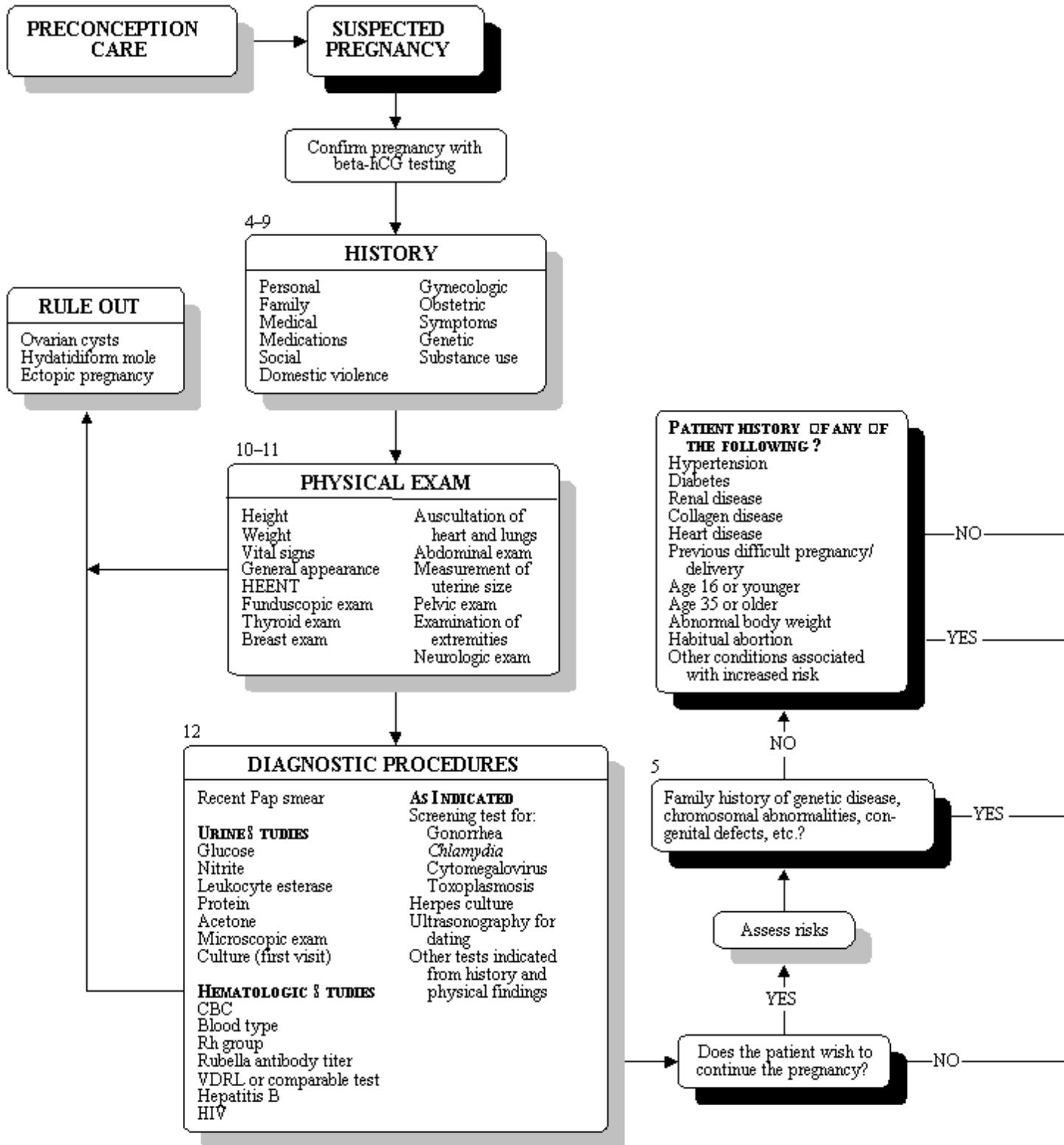
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FLOW CHART*



*The numbers to the left of each content block on this flow chart refer to specific pages in the reference guide where the content is discussed.

24-26

PATIENT EDUCATION

Attitude toward pregnancy
 Physiology of gestation/parturition
 Conditions which warrant immediate contact/procedures for contact
 Nutritional counseling
 Exercise and physical activity
 Working
 Sexual activity
 Tobacco/alcohol/drug use
 Prenatal classes
 Preterm labor precautions
 Preferences for anesthesia, delivery, circumcision, breastfeeding, etc.
 Auto safety and travel
 Hygiene
 Postpartum contraception
 Planning for delivery

PRECONCEPTION CARE OR BIRTH CONTROL ADVICE

27-28

POSTPARTUM CARE (4-6 WEEKS AFTER DELIVERY)

Interval history	Hematocrit
Screen for depression	Pap test
PHYSICAL EXAM	Urinalysis
Breasts	Address family adaptation
Heart	
Abdomen	
Pelvis	
Rectum	
External genitalia	
Lungs	
Thyroid	

15-16

EACH VISIT

Interval history
 Physical exam:
 Weight
 BP
 Fundal height
 Fetal heart tones
 Urinalysis

NORMAL UNCOMPLICATED DELIVERY

Provide routine maternity care

Provide high-risk maternity care, consider consultation or referral

Provide genetic counseling or refer to medical genetics service

Provide counseling, consider referral

17

ADDITIONAL ASSESSMENT

Screen for ectopic or abnormal intra-uterine pregnancy if evidence of 1st trimester pain or bleeding
 Offer as indicated: "triple screening" measurement (16-18 weeks), beta-*Streptococcus* screening (36 weeks)
 Urine culture, sensitivity (if urinary complaints in 2nd trimester)
 Glucose challenge screening test at 24-28 weeks as indicated
 Hematocrit or hemoglobin at beginning of 3rd trimester
 Atypical antibody screen at 28 weeks

Discrepancy ≥ 2 cm between fundal height and estimated date of delivery?

16

Consider ultrasonography, antepartum testing if IUGR

Evidence of preeclampsia, pregnancy-induced hypertension, bleeding, rubella exposure, gestational diabetes, IUGR?

Provide high-risk maternity care, consider consultation and/or referral

Rh-negative mother?

18

Give Rh immune globulin

...

OVERVIEW

Childbirth in America is safer than it has ever been. Maternal death rates have dropped significantly in the last 30 years, as have the rates of fetal, perinatal, and neonatal death (although not for all segments of the population).¹ In part, these changes stem from improved public health practices, such as better nutrition and widespread immunization, as well as greater acceptance of the need for genetic screening, early diagnosis of pregnancy, and prenatal care. At the same time, there have been significant technological advances in maternity care, such as the use of ultrasonography, antenatal monitoring, antibody screening, and amniocentesis.^{2,3} These techniques allow the family physician to improve the accuracy of maternal and fetal risk assessment and increase the likelihood of successful intervention when needed.

TECHNOLOGICAL ADVANCES

At the same time, changes in public attitudes have resulted in a climate in which success in pregnancy is frequently measured by the lack of medical intervention required.⁶ Patients now expect their family physicians to act in a supporting role while accepting the patient's right to decide such matters as whether to use anesthesia or analgesia during delivery and, if so, what kind; whether to breastfeed; whether to permit the father, family members, or other labor support partners to be present during labor and delivery; and whether to leave the hospital early and/or "room in."

CHANGES IN PUBLIC ATTITUDES

These changes in public attitude, along with the technological advances, have given rise to expanded and sometimes conflicting roles for the family physician: diagnostician/ decision-maker and support-giver/counselor. Both of these roles require the use of an accurate, complete, and well-maintained office record. Although no record is ideal for use in all clinical practices, it is the purpose of this reference guide to describe those elements of outpatient pregnancy care which are necessary to assess the risks to mother and fetus and manage the pregnancy successfully. Additionally, it is expected that the guide will provide assistance to the family physician in clinical decision making for individual patients.

PURPOSE OF THE GUIDE

The primary focus of this guide is on the diagnosis and management of the normal, uncomplicated pregnancy. Brief mention will be made of certain risk factors associated with pregnancy and delivery, which may also affect the subsequent health of the mother and the neonate.

PRIMARY FOCUS

OVERVIEW

PRECONCEPTION CARE

Comprehensive care for patients prior to pregnancy should involve risk assessment of family, life style, genetic, psychological and medical issues. These issues can be reviewed before the patient actually becomes pregnant, which is also an ideal time to update immunizations, especially varicella, hepatitis B, and dT. All women who are planning to become pregnant, or have decided not to use contraceptives when potentially fertile, should take 400 mcg of folic acid each day. It is appropriate to stress the importance of early prenatal care, including proper diet and exercise and smoking cessation. The importance of a safe, supportive birth experience can also be stressed at this time.^{1,2} Preconception care can be integrated into periodic health visits.

PRENATAL CARE

Beginning prenatal care before 12 weeks gestation is associated with better birth outcomes, although a generally accepted axiom is that “any prenatal care is better than none.” If preconception care has been done, then the initial prenatal visit is easier, as the patient’s medical history will have been reviewed previously. If the patient is new or preconception care was not provided, then a more comprehensive initial visit is necessary. Suggested readings on prenatal care are listed in Table 1.

TABLE 1

Suggested Readings on Prenatal Care

- Andolsek KM (ed): *Obstetric Care: Standards of Prenatal, Intrapartum, and Postpartum Management*. Lea and Febiger 1990.
- Byrd JE. Content of prenatal care, in Ratcliffe SD, Baxley EG, Byrd JE, et al (eds): *Family Practice Obstetrics*, ed 2. Hanley & Belfus, 2001.
- Chavkin W: Prenatal care and women’s health. *J Am Med Wom Assoc* 1995;50(5):143.
- Guidelines for Perinatal Care*, ed 4. American Academy of Pediatrics and American College of Obstetricians and Gynecologists, 1997.
- Larimore WL: Prenatal care, in Taylor RB (ed): *Manual of Family Practice*. JB Lippincott Co, 1997, pp 481–486.
- Rosen MG: *Caring for Our Future: The Content of Prenatal Care. A Report of the Public Health Service Expert Panel on the Content of Prenatal Care*. US Public Health Service, 1989.
- Scherger JE, Levitt C, Acheson LS, et al: Teaching family-centered perinatal care in family medicine: Part I. *Fam Med* 1992;24(4):288-298.

INITIAL VISIT: ESTABLISHING THE DIAGNOSIS

The woman who visits her family physician's office for diagnosis of a suspected pregnancy has generally missed one or two menstrual periods and may have performed a home pregnancy test. However, many physicians prefer to confirm the pregnancy with office-based testing, particularly in the early stages. This can be done by detection of β -hCG in the urine or serum, detection of fetal heart tones, or sonographic detection of the fetus.

Inexpensive kits are available that detect pregnancy in a few minutes with a high degree of accuracy. A widely used technique is the enzyme-linked immunosorbent assay (ELISA) using monoclonal antibodies. This test can be done easily in office settings and may be performed on either urine or serum samples. It is readily available, fast, sensitive, and specific for the β -subunit of hCG. Other types of commercially available kits also contain antibody to hCG which is specific for the β -subunit, thus avoiding cross-reactions with luteinizing hormone (LH). This provides improved sensitivity and specificity.

These simple office tests will detect hCG at levels as low as 25 mIU/mL, which can be reached as early as the first week after implantation. Quantitative tests can detect levels below 5 mIU/mL, making them reliable as early as 9–10 days after conception, but they are more expensive and are more suitable for diagnosing complicated pregnancies (e.g., ectopic pregnancy) or for following gestational trophoblastic disease.

Ultrasonography may be used in some cases to confirm the diagnosis of pregnancy, as well as provide information about gestational age, the number of fetuses, and placental location. Transabdominal ultrasonography is reliable as early as 6 weeks after the last menstrual period and transvaginal ultrasonography is reliable as early as 4–5 weeks after the last menstrual period. Sonograms are useful in the diagnosis of problems such as hydatidiform mole or missed abortion. Sonograms in conjunction with β -hCG and progesterone levels are particularly useful in the differentiation of ectopic versus intrauterine pregnancy. Although ultrasonography is not required routinely, it is frequently used and is safe; there are no known instances of ultrasound-induced harm to pregnant women or their fetuses.

All women presenting with amenorrhea should be tested for pregnancy. Until pregnancy has been excluded, progesterone withdrawal testing is contraindicated, as it has been associated with congenital heart defects and limb bud defects in the newborn.

PREGNANCY TESTS

ULTRASONOGRAPHY

PROGESTERONE WITHDRAWAL TESTING

INITIAL VISIT: THE HISTORY

A thorough history should be taken at the time of the patient's first visit. In selecting questions for the history, the physician should focus on data which may lead to a more definitive diagnosis and to a more accurate assessment of risk factors. The information collected should include the patient's personal history, medical history, medication profile, family history, gynecologic history, and obstetric history, as well as assessment of the patient's symptoms.

PERSONAL HISTORY

The personal history should include notations regarding the following:

- age at the time of the office visit
- race or ethnic background
- occupational history and exposures
- alcohol consumption
- tobacco use
- use of cocaine, marijuana, intravenous drugs, or other illicit drugs
- history of domestic violence
- use of prescription or over-the-counter medications
- use of herbal preparations, dietary supplements, or vitamins
- any medically significant religious beliefs
- unusual dietary habits
- attitude toward the pregnancy
- levels of stress, both emotional and environmental
- level of physical activity

Questions regarding these variables should be focused to elicit information regarding possible risk factors. For example, the use of alcohol or illicit drugs, as well as victimization by domestic violence, has been associated with poorer pregnancy outcomes, and knowledge of these risk factors can enable the physician to provide appropriate counseling and intervention.

The family physician should attempt to quantify the patient's current alcohol consumption and tobacco use. Questions regarding the patient's religious beliefs should elicit possible conflicts with regard to dietary practices, blood transfusions, and anesthesia. Questions concerning life style or sexual practices that place the patient at risk for HIV infection, hepatitis B, or other STDs should be asked with care, using a nonjudgmental approach.

Questions regarding the patient's attitude toward the pregnancy should also be handled with great sensitivity. Some family physicians find it helpful to ask, "How are you accepting this pregnancy?" This question should be worded to elicit the patient's actual feelings. Such questions help establish rapport between the physician and the patient and provide the basis for a sensitive and caring relationship during the course of the pregnancy.

The patient's family history should include both maternal and paternal relatives. The patient should also be asked about the father's age, occupation, and attitude toward the pregnancy, as well as his religion and ethnic background. In addition, the family history should include information about the following disorders in relatives of either parent:

- diabetes
- hypertension
- psychiatric disorders
- alcoholism
- substance abuse
- genetic disease
- neural tube defects
- chromosomal abnormalities
- multiple births
- macrosomia
- congenital defects

A positive history of any of these places the patient at higher risk, and in some cases may necessitate a consultation for genetic counseling (see Table 2). Particular care should be taken in documenting questions concerning genetic disease, chromosomal abnormalities, and congenital defects. For medicolegal purposes, the record should contain a definite notation that these questions were asked, regardless of the patient's specific response.³

A thorough medical history increases the data available for assessing risks associated with the pregnancy and provides information which may help the family physician prescribe measures to decrease the patient's discomfort and improve her health during and after the pregnancy. For example, a history of blood transfusion and surgery may suggest a greater likelihood of isoimmunization and consequent erythroblastosis fetalis. Information regarding the patient's response to analgesics and anesthetics during any previous surgery may be useful if the patient becomes a candidate for cesarean delivery.

FAMILY HISTORY

MEDICAL HISTORY

INITIAL VISIT: THE HISTORY

TABLE 2

Some Indications for Genetic Counseling

Maternal age greater than 35

History of any of the following in the mother, father, previous children, or a close relative: Down syndrome or other chromosomal abnormality, neural tube defect, hemophilia, muscular dystrophy, cystic fibrosis, mental retardation, Huntington’s chorea, or any other birth defect or familial disorder

Previous history of stillbirth or three or more first-trimester spontaneous abortions

Race or ethnic background for either parent which is associated with a specific anomaly, including sickle cell disease in African-Americans, Tay-Sachs disease in those of Jewish descent, β -thalassemia in Mediterraneans, and α -thalassemia in Southeast Asians and Filipinos

Use of medications (including nonprescription drugs, herbs, or supplements) or recreational drugs since the last menstrual period

The patient should be asked whether she has any history of the conditions listed in Table 3. The record should also note any recent exposure to viral illnesses, particularly to rubella, and any recent febrile episodes. The patient’s immunization history should be recorded, particularly whether she has received a tetanus or diphtheria-tetanus booster within the previous 10 years, one or more doses of hepatitis B vaccine, varicella vaccine, and a second MMR if she was born after 1957.

TABLE 3

Components of the Patient Medical History

Diabetes	Headaches
Hypertension	Bowel disease
Gallbladder disease	Collagen disease
Hepatitis	Urinary tract infections or kidney disease
Blood clots	Thyroid disorders
Asthma	Allergies to drugs or foods, and/or seasonal allergies
Tuberculosis	Valvular, congenital, or other heart disease
Lung disease	Prior blood transfusions, previous surgery, or trauma
Epilepsy	Peptic ulcer
Depression or other mental health problems	Significant hemorrhoids

The medication profile should include a notation regarding **all medications used by the patient, including prescribed drugs, over-the-counter preparations, and herbal preparations.** Many patients view over-the-counter and herbal products as harmless because they are available without a prescription. These patients fail to realize that these are drugs with side effects, contraindications, and interactions similar to those of prescription drugs.⁴

MEDICATIONS

The genitourinary history should include an assessment of the patient's menstrual history, with specific questions regarding the regularity of menses. The patient should be asked about her use of birth control, as well as any history of infertility and use of infertility drugs. If she has been using an intrauterine device (IUD), the physician should ask whether or not the IUD has been previously removed, and if so, how recently. Current or recent IUD use may be associated with a higher incidence of maternal anemia, ectopic pregnancy, and miscarriage. In addition, the patient should be asked about any side effects associated with her contraceptive method.

GYNECOLOGIC HISTORY

The gynecologic history should also include any previous history of pelvic infections or sexually transmitted disease. Positive findings may suggest the need for laboratory studies to screen for chlamydia, gonorrhea, genital herpes, and AIDS, although negative findings from the history do not necessarily preclude the need for screening.⁵

The patient should be asked the dates of her last two normal menstrual periods and how certain she is of these dates. Because accurate dating of the pregnancy is so important to management and outcome, early ultrasonography should be considered if the patient has a history of irregular menses, if she is unaware of dates, or was using hormonal contraceptives during the early part of her pregnancy. The dates should be recorded in the office record and used in calculating the expected date of delivery (EDD) and compared with other methods used during the pregnancy, such as sonographic dating and uterine size.

ESTIMATE OF GESTATIONAL AGE

INITIAL VISIT: THE HISTORY

A rough estimate of the EDD can be made by counting 280 days from the first day of the last normal menstrual period (or 268 days from the date of fertilization, if known). This method will generally yield a date that is within 2 weeks on either side of the actual delivery date. However, menstrual irregularity or the recent use of hormonal contraceptives decreases the reliability of the estimate. In addition, implantation bleeding, which may occur at the beginning of pregnancy, is sometimes confused with menstrual bleeding. Failure to distinguish between these two types of bleeding can cause an error of 3–4 weeks in the estimate.

Additional evidence for the expected date of delivery should always be sought as part of the clinical evaluation of the patient during subsequent prenatal visits (see Table 5, page 16).

MATERNITY-CARE HISTORY

The record should include detailed information about all previous pregnancies and deliveries. The patient should be specifically questioned regarding the following:

- abortions, stillbirths, and neonatal deaths
- birth weights less than 2500 grams or greater than 4000 grams
- preterm labor
- preterm rupture of membranes before the onset of labor
- complications with labor or delivery
- pregnancy-induced hypertension, preeclampsia, or eclampsia
- postpartum hemorrhage
- third-trimester bleeding
- anemia

If the patient has a history of abortion, the record should note whether it was spontaneous, elective, or medically indicated.

If possible, the family physician should obtain office and hospital records for all previous pregnancies and deliveries and should inquire about the current health status of children from previous deliveries. If the woman has had a previous cesarean delivery, it is necessary to ascertain whether the uterine incision was low transverse or vertical in order to evaluate the patient for vaginal delivery after cesarean. The indication for the cesarean delivery should be obtained from the previous records.

The record should include detailed information about the neonatal care of all previous live births. Specific information should include the baby's sex, weight, and any problems treated (i.e., infection, jaundice, respiratory distress, etc.). Some family physicians also record the name of each child.

The patient may report a number of symptoms which suggest pregnancy. She should be specifically questioned regarding the presence of edema, headaches, nausea, vomiting, and vaginal bleeding or spotting. She may also report breast sensitivity, more frequent urination and increased urine volume, abdominal distention with constipation, and increased vaginal discharge. Many patients will report a variety of minor complaints, such as aches and pains, fatigue, insomnia, and irritability. The physician should explain that such symptoms are common in pregnancy and, when appropriate, suggest measures to alleviate symptoms.

SYMPTOMS

INITIAL VISIT: THE PHYSICAL EXAMINATION

Results from the physical examination should be used to determine the patient's general health status, confirm the diagnosis of pregnancy, provide information about dating parameters, and assess for the presence of risk factors. The initial evaluation of a pregnant patient traditionally includes the following:

- measurement of the patient's height, weight, and vital signs (i.e., pulse, blood pressure, temperature, and respirations)
- inspection of the patient's general appearance
- a HEENT examination
- a thyroid examination
- a breast examination
- auscultation of the heart and lungs
- palpation of the abdomen
- measurement of uterine size or fundal height
- an attempt to detect fetal heart tones
- examination of the pelvis
- examination of the extremities
- a neurologic examination

By 10–12 weeks gestation, fetal heart tones can usually be detected with a Doppler stethoscope, which provides firm evidence of pregnancy. If heart tones are not heard by 12–13 weeks, ultrasonography should be performed to determine viability, location, and/or dates.

ASSESSMENT OF UTERINE SIZE

Bimanual estimation of uterine size (or measurement of fundal height) provides an opportunity to correlate objective findings with the patient's memory of the date of her last period, thus supporting an accurate estimate of the expected date of delivery. If uterine size is difficult to assess or appears inappropriate for dates, ultrasonography should be performed to assess the viability and location of the pregnancy. Fundal height is measured in centimeters above the pubic symphysis. In general, fundal height corresponds to gestational age within 2 weeks between 20 and 36 weeks gestation.

Other findings which may be noted on examination include an increase of 10–15 beats/min in the resting maternal heart rate. The apex of the heart is moved laterally, and there may be an exaggerated split of S₁ with no change in S₂. As many as 90 percent of patients will have an easily heard systolic murmur. Minute ventilation increases during pregnancy, up to 48 percent at term. Initially, this is due to increased levels of circulating progesterone and to mechanical changes related to the gravid uterus. These changes are often referred to as pregnancy-induced hyperventilation, or dyspnea of pregnancy.

The patient may have breast tenderness and darkening of the areolae, and colostrum can often be expressed after the first few months of pregnancy. There may also be aching, numbness, and weakness of the extremities caused by traction on the ulnar and/or median nerves, producing ulnar or carpal tunnel syndrome.

Significant findings in the patient's general appearance may be helpful in identifying underlying health problems, including poor nutrition. Both abnormally low and high prepregnancy weights have been associated with adverse pregnancy outcomes, which may be moderated with adequate nutritional education and support during pregnancy.

In conducting the oral examination, the family physician should be alert to the presence of untreated caries or gingivitis, which is an avenue for systemic infection and an indicator of poor nutrition or poor self-care. The patient should be urged to see her dentist for teeth cleaning and appropriate treatment early in the pregnancy. If dental care is needed, the patient should receive local anesthesia only, as office equipment for the administration of general anesthesia may sometimes be improperly calibrated and may provide insufficient oxygen delivery. Subacute bacterial endocarditis prophylaxis is not recommended for pregnant patients with uncomplicated mitral valvular disease who require dental work.⁶

Evidence of severe scoliosis or previous back surgery should be noted in the record. Either finding may suggest that the use of regional anesthesia may be complicated or contraindicated. Such patients are likely to have moderate pain in late pregnancy, which may be improved by wearing an orthopedic maternity girdle.

OTHER PREGNANCY-RELATED CHANGES

NUTRITIONAL STATUS

ORAL EXAMINATION

SCOLIOSIS, BACK SURGERY

INITIAL VISIT: DIAGNOSTIC PROCEDURES

REQUIRED LAB TESTS

The workup for the patient with a confirmed pregnancy should include the following laboratory tests and procedures:

- a CBC
- a complete urinalysis with microscopic examination and culture
- blood group and Rh
- an antibody screen and rubella antibody titer
- a serologic test for syphilis
- screening for hepatitis B surface antigen
- a Papanicolaou test (or evidence of a recent Papanicolaou test)

It is also now recommended that HIV screening be offered to all pregnant women so that vertical transmission of HIV can be reduced.

ADDITIONAL TESTS

The physician may also wish to obtain additional data to assess risks associated with the pregnancy and plan appropriate management. For example, in many practices it is common to order screening tests for gonorrhea and *Chlamydia*, particularly in patients who have a history of pelvic infections, physical symptoms suggestive of pelvic infection, a history of multiple sexual partners, or a history of preterm labor. A culture for herpes is indicated in patients with genital lesions which suggest herpes, and TB skin testing is recommended for patients at risk. A sickle cell test is recommended for women of African-American or Caribbean descent. Routine testing for cytomegalovirus or toxoplasmosis is not recommended.⁷

MANAGEMENT: OVERVIEW

The management of the pregnant patient will depend upon a number of factors, including the patient's preferences regarding her prenatal care and delivery. Once the diagnosis has been confirmed, the physician should discuss these matters with the patient and her family members and assist her in finding appropriate maternity care.

A key component of the initial pregnancy evaluation which continues throughout prenatal care is the identification of risk factors, especially those that can be modified with appropriate counseling or medical treatment. Table 4 lists risk factors associated with complications of pregnancy and birth that may increase the likelihood of maternal and fetal morbidity and mortality. While a number of risk scoring procedures have been developed to assess the effect of such risk factors in combination, their major advantage is that they insure a comprehensive assessment. It is important to remember, however, that up to 50 percent of adverse pregnancy outcomes cannot be identified before the patient goes into labor.⁸

For the purposes of this reference guide, information regarding the management of pregnancy will be restricted to a discussion of the normal, uncomplicated pregnancy. Appropriate management of the normal pregnancy involves concern for the well-being of the mother, the fetus, and the family. Specifically, management should be directed toward the following goals:

- maintaining and improving the emotional health of the mother and her family
- reducing the likelihood of complications
- increasing the safety of delivery
- promoting better postpartum maternal health
- insuring the family's ability to care for the newborn
- preventing prematurity, stillbirth, and neonatal mortality
- promoting the optimal health of the newborn and the family

RISK FACTORS

MANAGEMENT GOALS

MANAGEMENT: OVERVIEW

TABLE 4

Factors Associated with Increased or High Risk in Pregnancy

Personal	Medical
Age <15 or >35	Anticardiolipin antibody
Domestic violence	Cardiac disease (Class II–IV)
Education level ≤ 8th grade	Chronic pulmonary disease
Low level of family support	Chronic renal disease
Poverty	Collagen vascular disease
Substance use/abuse	Congenital/chromosomal anomalies
	Diabetes mellitus
	Endocrinopathy
	Epilepsy
	Genital herpes
	Hemoglobinopathies
	HIV infection
	Hypertension
	Inflammatory bowel disease
	Lupus anticoagulant
	Rubella
	Thrombophlebitis
	Tuberculosis (active)
Pregnancy/Genitourinary History	
≥ 2 abortions (spontaneous or induced)	
≥ 7 deliveries	
Cervical conization	
Fetal or neonatal death in previous pregnancy	
Hemorrhage during previous pregnancy	
Incompetent cervix	
Infant ≥ 4000 grams	
Infertility (treated)	
Isoimmunization (ABO, Rh, etc.)	
Neurologically damaged infant from previous pregnancy	
Preeclampsia in previous pregnancy	
Previous preterm or small-for-gestational-age infant	
Surgically scarred uterus or uterine malformations	

PROGRESS OF THE PREGNANCY

Effective prenatal care involves an extended relationship between the family physician, the pregnant woman, and her family. In an uncomplicated pregnancy, the patient is traditionally asked to return for a routine checkup every 4 weeks through the 28th week of pregnancy, every 2 weeks for the next 6 weeks of pregnancy, and weekly for the remainder of the pregnancy. Adjustments in this schedule should be made as warranted by the physical and emotional status of the patient, as well as fetal status. In the last several years, some investigators have questioned the accepted pattern of prenatal care visits, noting that it was designed to detect problems that occur in late pregnancy, such as preeclampsia. A large randomized study of an alternative prenatal visit schedule showed no difference in outcomes with 2.7 fewer visits per patient on average.⁹ Other experts suggest that more visits in the first trimester would provide additional opportunities to detect and modify risk factors earlier.

During each visit the family physician should assure that an interval history is taken which identifies factors that may predispose the patient or the fetus to additional risks, with particular attention to the presence of nausea, vomiting, vaginal spotting or discharge at each prenatal visit. Edema, visual disturbances, and headaches should be asked about during the third trimester. The use of open-ended questions is preferable when eliciting symptoms. The patient should be questioned at each visit regarding fetal movement, pain, contractions, unusual vaginal discharge, and dysuria. The date of quickening and date when the fundus reaches the umbilicus should be noted in the office record as supportive evidence for the EDD (see Table 5).

As the patient's risk status may change during the course of the pregnancy, it is important that the family physician elicit information from the patient which may signal the development of such potentially hazardous conditions as gestational diabetes, urinary tract infection, preeclampsia/eclampsia, placental dysfunction, multiple gestation, polyhydramnios, bleeding, intrauterine growth retardation, and preterm labor or contractions. In addition, the patient should be asked about her concerns with regard to the pregnancy, and every attempt made to assess and allay any anxiety she may express. Reduction of anxiety may enhance the emotional and physical well-being of the pregnant patient. Many family physicians find that the use of a flow sheet to chart data from each prenatal visit makes it easier to distinguish normal progress of the pregnancy from potentially threatening conditions.

INTERVAL HISTORY

CONTINUED RISK ASSESSMENT

PROGRESS OF THE PREGNANCY

ROUTINE EVALUATION

At each visit the patient's weight, cumulative weight gain, and blood pressure should be recorded and a urine sample screened for glucose and protein. A Doppler stethoscope or fetoscope should be used to detect and count fetal heart tones at each visit. Each visit should include a measurement of fundal height in centimeters, with serial measurements noted in the record, as they provide evidence of appropriate growth. Table 5 provides guidelines for dating the course of the pregnancy.

TABLE 5

Dating the Course of the Pregnancy

MILESTONE/MANEUVER	GESTATIONAL AGE (WEEKS)
Fetal Heart Tones Detected	
Conventional stethoscope (fetoscope)	18–20
Doppler stethoscope	10–12
Ultrasonography—transabdominal	6–7
Ultrasonography—transvaginal	5–6
Perception of Motion	
Objective (examiner)	20
Subjective to the mother (“quickening”)	16–20
Fundal Height	
Symphysis or pelvic brim	12
Uterus reaches umbilicus	20

In the event that fundal height varies by 3 cm or more between 20 and 36 weeks gestation as determined by the patient history and subsequent clinical evidence, the physician should consider the following possibilities: an error in dates; multiple pregnancy, macrosomia, or polyhydramnios if the uterus is larger than expected; and intrauterine growth restriction (IUGR), oligohydramnios, or a congenital abnormality if the uterus is smaller than expected.⁶ Ultrasonography is usually indicated when there is a size/date discrepancy. With the exception of inaccurate dates, these conditions may also require additional evaluation, such as fetal kick counts, nonstress tests, a biophysical profile, amniocentesis, or oral glucose tolerance testing.

ADDITIONAL TESTING

Maternal serum testing or a “triple screen” (AFP, estriol, and hCG) should be offered between 16 and 20 weeks gestation. Abnormal values can be associated with fetal neural tube defects, gastroschisis, or genetic abnormalities. Precise dating of the pregnancy is necessary for reliable results. Ultrasonography is an important first step in evaluating an abnormal result, followed by amniocentesis or chorionic villus sampling in certain clinical situations.

Between the 24th and 28th week of gestation, a 50-gram glucose load should be administered without regard to time of day or the time of the last meal. A 1-hour plasma glucose level of 140 mg/dL or greater should be followed up with a 100-gram oral glucose tolerance test (performed after a 12-hour fast).¹⁰ A diagnosis of gestational diabetes is established if two or more of the following venous plasma glucose values are exceeded: fasting—95 mg/dL, 1-hour—180 mg/dL, 2-hour—155mg/dL, and 3-hour—140 mg/dL.¹¹

A hemoglobin or hematocrit determination is recommended at the beginning of the third trimester. Some authorities repeat diagnostic testing for *Chlamydia trachomatis* in the third trimester. A culture of the distal one-third of the vagina and the rectum to detect group B *Streptococcus* (GBS) is recommended at 36–37 weeks gestation by some authorities, but this recommendation is somewhat controversial.¹² If GBS colonization is demonstrated, it is recommended that the mother be treated with intravenous antibiotics during labor. Current options include penicillin G, ampicillin, or clindamycin. Empiric treatment should be considered in culture-negative women with preterm labor or prolonged labor (≥ 18 hours), or those who have a previous history of a GBS-infected baby or a GBS urinary tract infection. An association between bacterial vaginosis and preterm delivery has been identified in patients at high risk for preterm labor, suggesting a role for screening these patients between 22 and 28 weeks gestation.¹³ Low-risk patients need not be screened.¹⁴

PROGRESS OF THE PREGNANCY

RH ISOIMMUNIZATION PROPHYLAXIS

In the Rho(d)-negative patient, 300 mg of Rh immune globulin (RhIG) should be given intramuscularly at 28 weeks gestation unless the father of the baby is known to be Rho(d) negative. It should also be given to Rho(d)-negative patients who have vaginal bleeding at any point during the pregnancy or who undergo amniocentesis or chorionic villus sampling. Studies have shown that the frequency of isoimmunization is reduced by such a regimen. Prior to administration of antepartum RhIG, the patient should be tested to insure that she is not producing Rho(d) antibodies. A repeat dose of RhIG should be administered at the time of delivery if the baby is Rho(d) positive.¹⁵

IMMUNIZATIONS DURING PREGNANCY

Immunizations during pregnancy are often delayed or avoided due to concerns about their safety. Generally, attenuated virus vaccines, such as MMR or varicella, should be avoided during pregnancy due to the possibility of fetal infection and malformation. The following vaccines should be used in pregnancy for the same indications as in nonpregnant patients: tetanus toxoid, hepatitis A or B vaccines, inactivated polio, and pneumococcal vaccine.

Influenza vaccine is recommended for all pregnant women who will be beyond 14 weeks gestation during the influenza season, as population studies have shown increased morbidity and hospitalization rates for pregnant women who develop influenza during the third trimester or post partum.¹⁶

MANAGING SYMPTOMS

During the course of the pregnancy the patient will report a variety of symptoms, some of them inconvenient, some of them distressing, and others potentially dangerous. The most common symptoms include morning sickness, heartburn, constipation, hemorrhoids, insomnia, bleeding from the gums or nose, urinary frequency, leg pain or swelling, musculoskeletal pain, and hair loss. The physician should explain that such symptoms are often associated with normal pregnancy and, when appropriate, suggest measures for symptom relief. Particular attention should be paid to the presence of morning sickness, vaginal bleeding, vaginitis, or urinary complaints.

For most patients the experience of morning sickness is distressing but not potentially dangerous. In general, it can be alleviated through appropriate dietary measures such as keeping a small amount of food in the stomach at all times. Avoiding fried and heavily seasoned foods may also be helpful. Milk can cause nausea and vomiting; since there is no need for the extra calcium before 16 weeks, milk can be omitted from the diet during this time. Nonpharmacologic measures that may be tried include a band that places pressure on a wrist acupressure point or the use of ginger capsules. Pyridoxine, 25–50 mg orally two to three times a day, or meclizine, 12.5–25 mg orally three times a day may be helpful. If the morning sickness is accompanied by persistent severe vomiting, weight loss, or ketonuria, the patient may have hyperemesis gravidarum, a condition which may warrant treatment with intravenous fluids, additional antiemetics, and consideration of hospitalization.

MORNING SICKNESS

Vaginal bleeding is common in early pregnancy, occurring in approximately 20 percent of all pregnant patients. It is generally thought that light bleeding or spotting is due to implantation. However, bleeding that is more than slight in amount, is accompanied by cramping, or that occurs later in the pregnancy requires investigation, as it may be the first sign of threatened abortion, hydatidiform mole, ectopic pregnancy, or other potentially serious conditions. Ideally, placental location can be evaluated by ultrasonography to rule out placenta previa, but if this is unavailable, a careful speculum examination can be safely performed to evaluate the cause of the bleeding. Bimanual examination is contraindicated until the location of the placenta is known. Cervicitis and vaginitis are common treatable causes.¹⁷

VAGINAL BLEEDING

MANAGING SYMPTOMS

VAGINAL DISCHARGE

Many patients complain of increased vaginal discharge during pregnancy. If this becomes problematic, further investigation is warranted using culture and microscopic techniques. Increased vaginal discharge or secretions may signal preterm cervical changes or labor and may warrant vaginal examination.

URINARY COMPLAINTS

Urinary frequency is a common complaint in early pregnancy, stemming both from increased pressure on the bladder caused by an enlarging uterus and from an increased glomerular filtration rate. Urinary complaints are also common during the final trimester as the presenting part descends into the pelvis. Urinary complaints (e.g., dysuria or urgency) may indicate urinary tract infection (UTI) and should be investigated by microscopic examination of the urine and culture. UTI has been associated with a significant increase in preterm contractions, preterm labor, prematurity, fetal loss, and chronic pyelonephritis following pregnancy, and should be treated with 7–10 days of antibiotic therapy followed by a post-treatment culture. Antibiotic selection should be based on the results of a culture and sensitivity testing, any patient history of drug reactions, and the stage of the pregnancy. (See the following section for a discussion of drug use in pregnancy.) Signs and symptoms of pyelonephritis (i.e., fever and flank pain) warrant 10–14 days of antibiotic therapy and hospitalization, with subsequent antimicrobial prophylaxis for the remainder of the pregnancy.¹⁸

DRUG USE IN PREGNANCY

Data with regard to medication use in pregnancy is often inadequate for making accurate judgments about the use of specific medications. **The physician is well advised to recall that every medication is potentially toxic, particularly during pregnancy.**¹⁹ There will be occasions when the use of medication is indicated, but appropriate references should be consulted first. Much of the concern over medication use in pregnancy has focused on agents which are known to be teratogenic, but toxicity may also be a problem in pregnancy, and may affect the mother, the fetus, and/or the neonate. In addition, changes in maternal circulation during pregnancy have a significant impact on the pharmacokinetics of commonly prescribed medications, making it much more difficult to anticipate the patient's response. If it is necessary to administer medications during pregnancy, the physician must weigh the risks versus the benefits of therapy and inform the patient about them in an appropriate way.

A source for information regarding specific medication use in pregnancy is Briggs G: *Drugs in Pregnancy and Lactation: A Guide to Fetal and Neonatal Risk*, ed 5 (Williams & Wilkins, 1998).

The patient should be cautioned regarding the use of all medications during pregnancy including over-the-counter medications and herbal preparations, which many patients do not regard as drugs. Of particular concern is the unsupervised use of aspirin. Ingestion of large quantities of aspirin during the last trimester is associated with neonatal intracranial hemorrhage. For this reason, acetaminophen has been recommended for use as an analgesic or antipyretic during pregnancy.

In addition, the physician should ask if the patient has been taking megadose vitamins, herbal preparations, or health-food supplements. An excessive intake of certain vitamins, specifically A and D, can actually be teratogenic and is associated with preterm birth.

MEDICATION PRECAUTIONS

ASPIRIN USE

VITAMIN INTAKE

NUTRITION DURING PREGNANCY

NUTRITIONAL RISK ASSESSMENT

The importance of good prenatal nutrition cannot be overemphasized. For this reason it is important for the physician to devote an adequate amount of time to ascertaining the patient's current nutritional status and providing her with ample information regarding appropriate dietary practices during pregnancy. The patient who represents a nutritional risk due to socioeconomic factors, dietary practices, or obstetric factors such as a short interconceptual period or multiple pregnancies can usually be identified during the history and the physical examination. In addition, it may be helpful to ask the patient to keep a food journal for a full week as an objective record of her usual dietary practices.

In developed countries, prospective evaluation of maternal nutrition has failed to show significant clinical differences in birth weight with differences in intake of macronutrients; maternal nutrition seems to have only a marginal impact on infant size.²⁰ In cases where significant nutritional deficiency is suspected, a multidisciplinary approach with a registered dietitian, social service worker, and the physician is appropriate.

RECOMMENDED DIET

For most patients a well-balanced diet containing approximately 2300 kcal/day will provide adequate nutrition during pregnancy. For normal-weight pregnant teenagers, a daily intake of 2400 kcal or more is recommended. The diet should provide for an increased intake of certain nutrients, specifically protein, calcium, iron, and folic acid. Although most patients will be able to obtain adequate protein and calcium from dietary sources, the patient who is unlikely to increase her intake of milk products will probably require calcium supplementation. In addition, 400 mcg of folic acid should be included in any multivitamin preparation.

IRON SUPPLEMENTATION

Research on the appropriateness of iron supplements has produced conflicting results. Those who recommend iron supplementation identify the high incidence of anemia in pregnancy (>30 percent of patients at some time during pregnancy) as an appropriate indication for iron supplementation.²¹

FOLIC ACID

Routine supplementation of 400 mcg/day of folic acid, starting 3 months before conception, is now universally recommended.²² Supplementation at 800 mcg/day should be considered when the patient has a history of inadequate diet, multiple pregnancies, hemolytic anemia, or the use of oral contraceptives and anticonvulsants (e.g., phenytoin). The recommended dosage for mothers with a previous child with a neural tube defect is 4 mg/day, started 3 months prior to conception.³

The optimum weight gain for best perinatal outcome is controversial. According to several studies, a total weight gain of 24–35 pounds during pregnancy is associated with the best outcome. A weight gain of at least 20 pounds is associated with a successful pregnancy outcome for most women whose prepregnancy weight is 85–120 percent of ideal weight. There is a general consensus that the woman who enters pregnancy substantially below her desired body weight is at greater risk and should gain a greater amount of weight during the pregnancy. Although authorities do not agree about the optimum weight gain for the patient who is overweight, there is strong support for the view that the overweight patient may not need to gain as much as the patient who begins pregnancy at normal weight.²³ Substantial deviations in weight at the start of pregnancy may signal the need for consultation and/or referral to a registered dietitian.

WEIGHT GAIN

The discussion of appropriate diet during pregnancy should include information regarding the use of dietary measures to decrease symptoms such as nausea, constipation, and heartburn. The patient should be encouraged to increase her intake of liquids and to add bulk-containing foods to her diet if she is troubled by constipation. As previously noted (see page 19), nausea may be relieved by keeping small amounts of food in the stomach at all times. Heartburn may be alleviated by eliminating fluids with meals and restricting fluid intake to before meals or 2 hours after meals. The patient should be cautioned against lying down immediately after eating, and she may be advised to take a low-sodium non-aluminum antacid if the symptoms are distressing.

DIETARY MEASURES AND SYMPTOM RELIEF

PATIENT EDUCATION AND SUPPORTIVE CARE

Good supportive care and effective patient education play an extremely important role in the care of the pregnant patient. Early in prenatal care, the family physician should discuss with the patient, her partner, and in some cases her family, their feelings about the pregnancy. It is important to elicit any fears that she or her partner may have regarding pregnancy and provide appropriate information about what to expect as the pregnancy progresses.

MANAGEMENT OF THE PREGNANCY

As soon as the pregnancy is confirmed, the family physician should discuss pregnancy and birth care with the patient. This conversation should include information about who will attend the birth, the type of anesthesia (if any) to be used, the hospital that will be used, the frequency of prenatal visits, other family physicians in the practice (if appropriate), the fee schedule, hospital protocols regarding labor and postpartum care, and hospital financial arrangements. Philosophical differences between the patient and the family physician at this time may suggest the necessity for referral. The patient's preferences for postpartum contraception should also be discussed later in the pregnancy, as well as plans for well child care and circumcision.

INDICATIONS FOR IMMEDIATE PHYSICIAN NOTIFICATION

The family physician should provide information early in the pregnancy about conditions which warrant immediate physician notification, e.g., vaginal bleeding, severe abdominal pain, dysuria, or exposure to persons with rash and fever. The signs of preterm labor should also be explained. The patient should be informed that, in the event of any of these conditions, phone consultation is available 24 hours a day, 7 days a week. She should be given telephone numbers for the office, home, answering service, and hospital. In addition, the family physician should explain alternatives to be used in the event that he or she is not accessible.

FAMILY INVOLVEMENT

The family physician should schedule one or more sessions with the father or other support persons to discuss concerns regarding the pregnancy and delivery. There should also be a discussion of the father's or support person's preferences regarding participation in the delivery process.

LABOR SUPPORT

Support during pregnancy, labor, and delivery by nonprofessional, family-chosen persons (doulas) is centuries old. The multiple clinical advantages of labor support have been validated in controlled studies, and include shorter labors requiring less intervention and resulting in improved outcomes for the mother and the baby.²⁴ Persons the mother has chosen to provide support need not be excluded from routine labor and delivery.

Breastfeeding has multiple benefits for the baby as well as the mother. Women who are most successful at breastfeeding are those who decide to breastfeed before, or quite early in, their pregnancy. Breastfeeding education, support, and preparation from the woman's health-care providers correlates with increased rates of successful breastfeeding.²⁵ It appears important then, for the family physician to discuss and encourage breastfeeding at preconception visits or as early in the pregnancy as possible.

Toward the end of the pregnancy, the family physician should discuss labor and delivery with the patient. Both the patient and her support person(s) should participate in informed consent regarding labor and delivery procedures. In particular, for the low-risk patient, labor and delivery interventions of little or no proven benefit (e.g., prep, enema, NPO, continuous electronic fetal monitoring, absolute bed rest, routine episiotomy, routine epidural anesthesia, etc.) should be left to the discretion of the patient.²⁶ This is an excellent time to begin discussions about family planning, birth control and the spacing between pregnancies, sibling rivalry, and the father's involvement in child care.

A detailed list of topics for patient education appears in Table 6. Childbirth classes are generally available on various topics, including early pregnancy, labor, breastfeeding, cesarean delivery, vaginal birth after cesarean delivery, anesthesia during labor, and fitness. There may be special classes available for grandparents and siblings.

Printed materials for patient education are available from the following sources:

American Academy of Family Physicians
11400 Tomahawk Creek Parkway
Leawood, KS 66211-2672
www.aafp.org
For patients: www.familydoctor.org

ACOG Distribution Center
P.O. Box 4500
Kearneysville, WV 25430-4500
(800) 762-2264, extension 192
<http://sales.acog.com>

BREASTFEEDING PREPARATION

LABOR AND DELIVERY

PATIENT EDUCATION TOPICS/MATERIALS

PATIENT EDUCATION AND SUPPORTIVE CARE

DOCUMENTATION

All patient education efforts should be documented in the office record. Each entry should explain:

- when the patient education was completed
- who did the patient teaching
- what content was included
- what support materials (listed by titles) were given to the patient
- what difficulties or questions the patient had
- what follow-up was needed

TABLE 6

Topics for Patient Education During Pregnancy

Normal physiologic processes of gestation and parturition
Risk factors and how to minimize risk
Conditions which require immediate contact with the physician and procedures for making the contact
(phone number, answering service, etc.)
Nutritional counseling and weight gain
Sex and pregnancy
Working and pregnancy
Exercise and physical activity
Tobacco use
Alcohol consumption
Drug use in pregnancy
Clothing
Breast care
Breastfeeding
Prenatal classes
Automobile safety, e.g., use of seat belts during pregnancy, and the use of infant seats
Travel recommendations
Sibling rivalry
Postpartum contraception
Circumcision
Lamaze delivery
Oral hygiene
General hygiene and avoidance of douching

POSTPARTUM CARE

A postpartum examination should be scheduled at 4–6 weeks after delivery. In the interim, copies of the delivery record and hospital discharge summary should be requested and incorporated into the patient record.

An interval history should be taken at the time of the postpartum visit, and should address the following issues:

- persistent vaginal bleeding
- perineal pain
- breast symptoms
- any problems related to coitus
- family planning and contraception preferences and plans
- efforts at exercise and weight control
- the status of the infant

In addition, the patient should be asked about any problems she has encountered, such as loss of sleep, difficulties with her spouse or family, or rivalry among her other children. The family physician should provide reassurance and appropriate suggestions for helping her cope with these problems.

A postpartum physical examination should be performed, including examination of the thyroid gland, breasts, heart, and abdomen, and a pelvic examination. The pelvic examination should include a careful inspection of the perineum and any vaginal lacerations, inspection for evidence of vaginitis, and evaluation of the cervix. A bimanual examination should be performed to determine the status of uterine involution. A rectal examination should be performed and evidence of hemorrhoids should be noted in the patient record. A Papanicolaou test should be performed at this time.

An important part of the postpartum visit is the opportunity for the family physician to provide additional supportive care to the patient. Topics which may be considered include continuing emphasis on good nutrition, weight loss, regular exercise, and risks associated with smoking. The family physician should elicit information which may indicate postpartum depression or abuse and which may, in turn, necessitate referral or consultation. The patient should be given anticipatory guidance regarding thyroid symptoms, which may not occur until 3–4 months post partum.

INTERVAL HISTORY

PHYSICAL EXAM/ LABORATORY DATA

SUPPORTIVE CARE

POSTPARTUM CARE

PRECONCEPTION COUNSELING

The postpartum visit is an excellent opportunity for preconception counseling for patients not desiring sterilization. Even though family planning or contraceptive options typically occupy the patient's attention at these visits, a balanced approach should include counseling and assessment in anticipation of a future pregnancy.

IMMUNIZATIONS

The postpartum visit also provides an excellent opportunity to update diphtheria/tetanus immunization, MMR (for women born after 1957 who have not had a second MMR), and hepatitis B and/or varicella vaccines if indicated.

REFERENCES

1. Scherger JE, Levitt C, Acheson LS, et al: Teaching family-centered perinatal care in family medicine, Part I. *Fam Med* 1992; 24(4):288-298.
2. Gjerdingen DK, Fontaine P: Preconception health care: A critical task for family physicians. *J Am Board Fam Pract* 1991;4(4):237-250.
3. American College of Obstetricians and Gynecologists: *Teratology*. Technical bulletin no 236, April 1997.
4. Kacew S: Effect of over-the-counter drugs on the unborn child. *Paediatr Drugs* 1999;1(2):75-80.
5. Cline MK, Bailey-Dorton C, Cayelli M: Maternal infections: Diagnosis and management. *Prim Care* 2000;27(1):13-33.
6. Dajani AS, Taubert KA, Wilson W, et al: Prevention of bacterial endocarditis: Recommendations by the American Heart Association. *JAMA* 1997;277(22):1794-1818.
7. U. S. Preventive Services Task Force: *Guide to Clinical Preventive Services*, ed 2. Williams & Wilkins, 1996, pp lxx-lxxi.
8. Wall EM: Assessing obstetric risk: A review of obstetric risk-scoring systems. *J Fam Pract* 1988;27(2):153-163.
9. McDuffie RS Jr, Beck A, Bischoff K, et al: Effect of frequency of prenatal care visits on perinatal outcome among low-risk women: A randomized, controlled trial. *JAMA* 1996;275(11):847-851.
10. Gestational diabetes mellitus. American Diabetes Association position statement. *Diabetes Care* 1999;22(supp 1):S74-S76.
11. Schwartz ML, Ray WN, Lubarzsky SL: The diagnosis and classification of gestational diabetes mellitus: Is it time to change our tune? *Am J Obstet Gynecol* 1999;180(6 pt 1):1560-1571.
12. Prevention of perinatal group B streptococcal disease: A public health perspective. *MMWR* 1996;45(RR-7):1-24.
13. Hauth JC, Goldenberg RL, Andrews WW, et al: Reduced incidence of preterm delivery with metronidazole and erythromycin in women with bacterial vaginosis. *N Engl J Med* 1995;333(26):1732-1736.
14. Carey JC, Klebanoff MA, Hauth JC, et al: Metronidazole to prevent preterm delivery in pregnant women with asymptomatic bacterial vaginosis. National Institute of Child Health and Human Development Network of Maternal-Fetal Medicine Units. *N Engl J Med* 2000;342(8):534-540.
15. American College of Obstetricians and Gynecologists: *Prevention of Rho(d) Alloimmunization*. Practice bulletin no 4, May 1999.
16. Peter G (ed): *2000 Red Book: Report of the Committee on Infectious Diseases*, ed. 25. American Academy of Pediatrics, 2000.
17. Sakornbut E, Shields S: Vaginal bleeding in late pregnancy, in *Advanced Life Support in Obstetrics (ALSO) Course Syllabus*, ed 4. American Academy of Family Practice, 2000, pp C1-C16.
18. Gilstrap LC, Faro S: *Infections in pregnancy*, ed 2. Wiley-Liss, 1997, pp 21-38.
19. Briggs GG: *Drugs in Pregnancy and Lactation: A Guide to Fetal and Neonatal Risk*, ed 5. Williams & Wilkins, 1998.
20. Mathews F, Yudkin P, Neil A: Influence of maternal nutrition on outcome of pregnancy: Prospective cohort study. *BMJ* 1999;319(7206):339-443.
21. Mahomed K: Iron supplementation in pregnancy. *Cochrane Database Syst Rev* 2000;(2):CD000117.

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22. Lumley J, Watson L, Watson M, et al: Periconceptional supplementation with folate and/or multivitamins for preventing neural tube defects. *Cochrane Database Syst Rev* 2000;(2):CD001056.
 23. Johnson JW, Longmate JA, Frentzen B: Excessive maternal weight and pregnancy outcome. *Am J Obstet Gynecol* 1992;167(2):353-372.
 24. Hodnett ED: Caregiver support for women during childbirth. *Cochrane Database Syst Rev* 2000;(2):CD000199.
 25. Bedinhaus JM, Melnikow J: Promoting successful breastfeeding skills. *Am Fam Physician* 1992;45(3):1309-1318.
 26. Smith MA, Acheson LS, Byrd JE, et al: A critical review of labor and birth care. *J Fam Pract* 1991;33(3):281-292.

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