BACKGROUND

PURPOSE - To establish evidence based best practice guidelines for the care of women during pregnancy.

Early and regular prenatal care:
- Optimizes maternal and fetal outcome
- Allows earlier identification of risk factors, disease entities and medical problems
- Allows appropriate and timely antepartum monitoring interventions

RECOMMENDATION

1. Initial Evaluation - During the initial evaluation, the provider establishes an obstetric data base for the patient. This data base should include:
   1.1. Health history
   - Menstrual and contraceptive history
   - Obstetrical history
   - Medical History
     - Drug sensitivities and other allergies
     - Medications (prescription and non-prescription)
     - Operations
     - Major illnesses - including diabetes and other metabolic diseases, vascular problems, sexually transmitted diseases, convulsive disorders, gynecological abnormalities, serious injuries, blood transfusions, depression and psychiatric illness
     - Family and Genetic History
     - Metabolic disorders
     - Genetic and congenital abnormalities
     - Mental retardation
     - Abnormal outcome of previous pregnancy
     - Multiple births
   1.2. Comprehensive physical examination including:
     - Height and weight
     - Nutritional status evaluation
     - Blood pressure
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1.3. **Pregnancy dating** - all landmarks should be obtained and clearly recorded:
   - First day of last known menstrual period (LMP)
   - Date of positive pregnancy test (HCG)
   - Early ultrasound crown rump measurement
   - Early vaginal exam for estimation of uterine size
   - FHT by Doppler at 10 - 12 weeks
   - Head circumference and/or multiple fetal ultrasound biometry at 16-18 weeks for patients with unknown or poor dates, no early exam, uterine size discrepancy.

1.4. **Laboratory tests** - performed as early in pregnancy as possible
   - CBC
   - Urinalysis with microscopic examination
   - Urine testing to detect asymptomatic bacteriuria
   - Blood type and antibody screen
   - Rubella antibody screen
   - VDRL
   - Hepatitis BsAg
   - Tests for sexually transmitted diseases as indicated
     - Gonorrhea
     - Chlamydia (women less than 25 years or at high risk should be rescreened in the third trimester)
   - Cervical cytology (as indicated)
   - HIV testing to be offered to all patients
     - HIV negative women at high risk for HIV infection should be retested for HIV in the third trimester ideally before 36 weeks gestation.
   - Special tests as indicated:
     - TB skin test
     - Diabetic screening
       - Prior pregnancy with gestational diabetes
       - Maternal age greater than or equal to 35 years
       - BMI > 30
     - Selective screening for genetic disorders on the basis of family history and ethnic background
       - Sickle hemoglobinopathies
       - β-thalassemia
       - α-thalassemia
       - Tay-Sachs disease
       - Cystic fibrosis
     - Screening for genetic disorders based on family history (e.g., cystic fibrosis, fragile X for family history of nonspecific mental retardation, Duchenne muscular dystrophy
   - Other laboratory/diagnostic tests as indicated by historical or physical exam findings

1.5. **Risk Assessment** - To minimize maternal and neonatal morbidity and mortality, it is critical to identify risk factors, based on the findings of the history and physical examination.
   - Presence of risk factors (high risk, historical or potential) that may negatively affect optimal maternal and/or fetal outcome may require special management
   - An appropriate plan for the management of any problems should be formulated and risk factors re-evaluated throughout the pregnancy
   - Special obstetric problems may require a multidisciplinary approach to antepartum care and require involvement of a maternal-fetal medicine specialist, geneticist, pediatrician, pediatric cardiologist, neonatologist, anesthesiologist, or other medical specialist in the evaluation, counseling, and care of the patient.
   - Referrals should be made to the appropriate services/programs:
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- Patients assessed at risk for preterm labor/birth (history of prior preterm birth between 20 and 34 weeks gestation) should be offered 17 alpha-hydroxyprogesterone caporate therapy through the Maternal-Fetal Medicine Clinic
- Diabetic educator, dietician, social worker, etc. as indicated

2. Subsequent Care
   2.1. Frequency - The frequency of return visits should be determined by a woman's individual needs and risk factors.
   - The frequency and regularity of scheduled prenatal visits should be sufficient to enable providers to accomplish the following activities:
     - Monitor the progression of the pregnancy
     - Provide education and recommend screening and interventions
     - Reassure the mother
     - Assess the well-being of the fetus and mother
     - Detect medical and psychosocial complications and institute indicated interventions.
   - Women with an uncomplicated pregnancy should be seen:
     - Every 4 weeks during the first 28 weeks
     - Every 2 - 3 weeks until 36 weeks
     - Weekly after 36 weeks until delivery
   - Uncomplicated pregnancies should be offered induction of labor (at 41 + 3/7 to 42 weeks) versus antepartum testing at 41 week gestation
   - High risk women with active medical or obstetric problems should be seen more frequently at intervals to be determined by the nature and severity of the problems.

2.2. Parameters for assessment
   - Maternal
     - Weight and weight gain
     - Blood pressure
     - Urine protein and glucose
     - Preterm labor surveillance after 20-24 weeks
     - Any pertinent data or change in risk status
   - Fetal
     - FHT assessment
     - Fetal movement
     - Uterine size/fundal height measurement for progressive growth and consistency with estimated date of delivery
     - Gestational age update on basis of present findings; when applicable, document reason for change in GA
     - Leopold's maneuver for fetal lie and presentation after 30 weeks
     - Antepartum fetal testing as indicated

2.3. Laboratory and other special tests
   - All women presenting for prenatal care before 20 weeks should be offered screening for fetal aneuploidy
   - Genetic counseling is suggested but not limited to the following:
     - Maternal age ≥ 35 years at EDC
     - History of previous child with chromosomal aberration, particularly autosomal trisomy
     - Chromosomal abnormality in either parent, particularly a translocation
     - Family history of a sex-linked condition
     - Inborn errors of metabolism
     - Neural tube defects
     - Hemoglobinopathies
     - History of repeated pregnancy losses
     - Family history of specific genetic disease such as cystic fibrosis, Tay-Sachs, beta-thalassemia, or alpha-thalassemia.
     - High risk factors such as insulin dependent diabetes and ingestion/exposure to teratogens
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• Low risk patients should be offered the Maternal serum quadruple screen at 15-20 weeks.
• All women regardless of age should have the option of invasive prenatal diagnosis.
  • Chorionic villus sampling at 11-13 weeks
  • Amniocentesis at 15-20 weeks
• High risk patients should be offered first trimester aneuploidy screening at 12-13 weeks
  This may include:
  • First Screen (a combination of nuchal translucency with maternal serum analytes: AFP, PAPP-a, Free Beta hCG)
  • Cell free DNA screening (NIPT)
  • SMFM and ACOG recommend NIPT be limited to women at increased risk for fetal aneuploidy. This includes:
    • Women age 35 years at delivery or greater
    • Fetal ultrasonographic findings associated with an increased risk for fetal aneuploidy
      • Specifically trisomy 13, 18, or 21
      • Personal history of prior pregnancy with aneuploidy that is detectable by NIPT (specifically trisomy 13, 18 and 21)
      • Positive serum screen for aneuploidy, and parental balanced
      • Robertsonian translocation with increased risk for trisomy 13 or 21.
• First trimester combined (serum and nuchal translucency) screening
  • Has similar detection rates for Down syndrome compared to second trimester quadruple screen for women less than 35 years of age.
  • This is test may be a viable option for women considering a chorionic villus sampling if they have a positive first trimester screen.
  • Women electing this option should have this test performed at 11-13 weeks
  • Requires a blood test and separate ultrasound examination for nuchal translucency.
• A maternal alpha feto protein (MAFP) only should be obtained at 15-20 weeks with first trimester screening to assess for neural tube defects
• Targeted ultrasound as clinically indicated
• Diabetes screening at 24-28 weeks
• CBC at 28 weeks
• Antibody screen should be repeated at 28 weeks gestation in all unsensitized D (Rh) negative patients. These patients should receive 300 µg D immune globulin prophylactically at 28 to 29 weeks gestation.
• Maternal serum quadruple screen at 15 - 20 weeks if patient did not receive first trimester screening

3. Additional Aspects of Ongoing Prenatal Care

3.1. Nutrition
• Following weight gain guidelines for singleton gestations identified by the Institute of Medicine improves the likelihood of delivering a normal-weight newborn.
• Assessment of weight gain during pregnancy is important and should be documented on a form specifically designed for that purpose.
• Goals for weight gain during pregnancy should be based on individual needs. An additional 100-300 kcal per day is recommended during pregnancy.
• Nutritional status should be evaluated at initial visit, and then reassessed periodically.
• Daily supplements for minerals and vitamins may be given if adequacy of a patient’s diet is questionable or if she is at high nutritional risk.
• A daily supplement of ferrous iron (30 mg) is recommended as prophylaxis for iron deficiency.
• Folic acid 0.4 mg daily during the first trimester; or 4 mg daily in the first trimester for history of neural tube defect.

3.2. Patient Education - Patient education is an essential element of prenatal care. Providers participating in antepartum care should discuss the following as appropriate:
• Laboratory studies that may be performed
• Expected course of the pregnancy
PRENATAL CARE

- Signs and symptoms to be reported to the provider (e.g., vaginal bleeding, headache, burning on urination)
- Anticipated schedule of visits
- Practices to promote health maintenance and healthy lifestyle
  - Personal hygiene, rest and exercise
  - Nutrition
  - Encourage cessation of tobacco, alcohol and drugs, particularly illicit drugs, that could have a significantly detrimental effect of the fetus
- Educational programs available on:
  - Pregnancy wellness
  - Childbirth and early parenting
  - Infant care
  - Breastfeeding
- Plans for infant feeding
- Options for intrapartum care/preparation for labor and delivery
- Planning for discharge and child care

3.3. Occupational Considerations
- Physical and emotional stress, as well as environmental health hazards, should be taken into consideration on advising patients whether to continue working or to make adjustments in her schedule.
- Women with medical or obstetric complications of pregnancy may need to make adjustments based on the nature of their activities, occupation and specific complications.
- Each case is evaluated individually in determining the degree to which pregnancy may interfere with a woman's ability to work, and the advisability of the patient's continuing to work should be reassessed periodically throughout pregnancy.

3.4. Psychosocial Services
- To ensure early detection and effective management of emotional problems, the provider should be alert to the stresses that may arise from the pregnant woman's psychologic and social conflicts.
- Psychological and social problems related to fear of pregnancy, guilt of unwanted pregnancy, financial concerns, and marital or other family conflicts may be the most distressing part of a woman's pregnancy.
- A woman with negative feelings about her pregnancy needs additional support from the health care team and may need professional advice on the alternatives to completing the pregnancy and keeping the baby.
- Patient should be referred for counseling and assistance when necessary.

3.5. The Adolescent Pregnancy
- The pregnant adolescent presents a significant challenge to the care providers; mother and baby are at higher social, educational, and obstetrical risk when compared to the general population.
- In addition to prenatal care, special attention should be given to:
  - Early and effective social service referral for case management (for home environment assessment, parenting skill, family support, etc.)
  - Nutritional counseling by a registered dietitian
  - Family planning education

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