VA/DoD Clinical Practice Guideline

Management of Pregnancy

GUIDELINE SUMMARY

2009

VA/DoD Evidence Based Practice

VA/DoD CLINICAL PRACTICE GUIDELINE
FOR PREGNANCY MANAGEMENT

Department of Veterans Affairs

Department of Defense

GUIDELINE SUMMARY

Prepared by:

The Pregnancy Management
Working Group

With support from:

The Office of Quality and Performance, VA, Washington, DC

&

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QUALIFYING STATEMENTS

The Department of Veterans Affairs (VA) and The Department of Defense (DoD) guidelines are based on the best information available at the time of publication. They are designed to provide information and assist decision-making. They are not intended to define a standard of care and should not be construed as one. Neither should they be interpreted as prescribing an exclusive course of management.

Variations in practice will inevitably and appropriately occur when providers take into account the needs of individual patients, available resources, and limitations unique to an institution or type of practice. Every healthcare professional making use of these guidelines is responsible for evaluating the appropriateness of applying them in the setting of any particular clinical situation.

Version 2.0 – 2009

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New *The Recommendations new in Version 2.0 (2009)*

Update *- Recommendation was included in Version 1.0 (2003) and was modified in verison 2.0 (2009)*

INTRODUCTION

The Clinical Practice Guideline for Pregnancy Management (GPM) was developed under the auspices of the Veterans Health Administration (VHA) and the Department of Defense (DoD) pursuant to directives from the Department of Veterans Affairs (VA). VHA and DoD define clinical practice guidelines as:

> "Recommendations for the performance or exclusion of specific procedures or services derived through a rigorous methodological approach that includes:
>
> - Determination of appropriate criteria such as effectiveness, efficacy, population benefit, or patient satisfaction; and
> - Literature review to determine the strength of the evidence in relation to these criteria."

The intent of the guideline is to:

- Reduce current practice variation and provide facilities with a structured framework to help improve patient outcomes
- Provide evidence-based recommendations to assist providers and their patients in the decision-making process concerning pregnancy
- Identify outcome measures to support the development of practice-based evidence that can ultimately be used to improve clinical guidelines.

2009 UPDATE VERSION OF THE GUIDELINE

In 2003, the first DoD/VA Clinical Practice Guideline for the Management of Uncomplicated Pregnancy was implemented. One of the key components of this CPG was changing from the traditional interval-based visit template (every four weeks in the first and second trimesters) towards a system in which an antenatal visit is planned for a specific gestational age, with each visit having specific well-defined goals and objectives.

The first version of the VA/DoD pregnancy guideline limited its scope of care to women with uncomplicated pregnancies. No recommendations or guidance were given for providers caring for women with common or minor complications of pregnancy. Thus, the guideline was named as the VA/DoD Clinical Practice Guideline for the Management of Uncomplicated Pregnancy (UCP). Women who initially received care according to the guideline simply "exited the guideline" when complications arose. No guidance for even the basic care of these women was provided and the tools, including the medical record materials (flow sheets, mother's handbook, etc.), were deemed non-applicable. However, the UCP guideline materials continued to be used in most institutions and care has been supplemented as needed.

The goal-oriented prenatal care system, first outlined in the 2003 version of the guideline, should be applied to all pregnant women regardless of their risk factors. As such, this guideline encompasses the basic components of prenatal care that will be provided to all pregnant women by low-risk providers (such as Certified Nurse-Midwives, Nurse Practitioners, or Family Practice Care Providers) as well as evidence-based recommendations for advanced prenatal care that should be applied when complications emerge during pregnancy or an increased risk for complications is identified.

However, rather than discard the recommendations for the basic components of prenatal care in women who have been identified with some risk, this version of the guideline includes evidence-based recommendations for routine prenatal care. It also includes additional recommendations suggesting specific and general actions to initiate the appropriate advanced prenatal care for many women with identified risks or complications. Women with specific risk factors, or who develop high-risk conditions complicating the pregnancy, may require additional surveillance (i.e., additional ultrasounds, lab studies, etc.) and/or consultation with advanced prenatal care providers such as Obstetrician/Gynecologists OB/GYN specialists or Maternal-Fetal Medicine (MFM) subspecialists.

The recommendations in this guideline may be modified according to local practice conditions and updated scientific evidence. Except in very unusual circumstances, the recommendations outlined in this guideline should serve as a backbone to the supplemental prenatal care that is provided or recommended by advanced prenatal care providers.

The guideline and algorithms are designed to be adapted by individual facilities, considering needs and resources. The algorithm will serve as a guide that providers can use to determine best interventions and timing of care to optimize quality of care and clinical outcomes for their patients. This should not prevent providers from using their own clinical expertise in the care of an individual patient. Guideline recommendations are intended to support clinical decision-making but should never replace sound clinical judgment.

BACKGROUND

Goals of the Guideline

- The primary goal of the Pregnancy Guideline is to improve pregnant woman and provider satisfaction with antenatal care (also referred to in the literature as "prenatal" or "antepartum" care). Approaches include:
    - Outlining antenatal visits for specific gestational ages, with each visit having specific well-defined goals and objectives.
    - Helping ensure both pregnant women and providers are aware of the specific expectations for each visit, thus promoting a partnership with the common goal of a healthy infant and mother. Enhanced patient education will be a hallmark of this healthcare partnership and the goal-oriented prenatal care system.
    - Presenting a standardized care plan in the Pregnancy Guideline that is expected to improve overall patient satisfaction and lessen inter-provider variability, which is often perceived by pregnant women in a negative manner and as a sign of clinical naiveté and uncertainty.
    - Providing a scientific evidence-base for practice interventions and evaluations.

Target population

- The guideline offers best practice advice for antenatal care of pregnant women.
- The guideline will not address specific intra-partum or post-partum needs.

Audiences

The guideline is relevant to primary and secondary healthcare professionals who have direct contact with pregnant women, and make decisions concerning antenatal care.

Development Process

The development process of this guideline follows a systematic approach described in "Guideline-for-Guidelines," an internal working document of VHA's National Clinical Practice Guideline Counsel.

The literature was critically analyzed and evidence was graded using a standardized format. The evidence rating system for this document is based on the system used by the U.S. Preventative Services Task Force.

Evidence Rating System

SR*	
A	A strong recommendation that the clinicians provide the intervention to eligible patients. *Good evidence was found that the intervention improves important health outcomes and concludes that benefits substantially outweigh harm.*
B	A recommendation that clinicians provide (the service) to eligible patients. *At least fair evidence was found that the intervention improves health outcomes and concludes that benefits outweigh harm.*
C	No recommendation for or against the routine provision of the intervention is made. *At least fair evidence was found that the intervention can improve health outcomes, but concludes that the balance of benefits and harms is too close to justify a general recommendation.*
D	Recommendation is made against routinely providing the intervention to asymptomatic patients. *At least fair evidence was found that the intervention is ineffective or that harms outweigh benefits.*
I	The conclusion is that the evidence is insufficient to recommend for or against routinely providing the intervention. *Evidence that the intervention is effective is lacking, or poor quality, or conflicting, and the balance of benefits and harms cannot be determined.*

** SR= Strength of Recommendation*

Lack of Evidence – Consensus of Experts

Where existing literature was ambiguous or conflicting, or where scientific data were lacking on an issue, recommendations were based on the clinical experience of the Working Group. These recommendations are indicated in the evidence tables as based on "Working Group Consensus."

This Guideline is the product of many months of diligent effort and consensus-building among knowledgeable individuals from the VA, DoD, and academia, and a guideline facilitator from the private sector. An experienced moderator facilitated the multidisciplinary Working Group. The draft document was discussed in two face-to-face group meetings. The content and validity of each section was thoroughly reviewed in a series of conference calls. The final document is the product of those discussions and has been approved by all members of the Working Group.

Implementation

The guideline and algorithms are designed to be adapted to individual facility needs and resources. The algorithm will serve as a guide that providers can use to determine best interventions and timing of care for their patients to optimize quality of care and clinical outcomes. This should not prevent providers from using their own clinical expertise in the care of an individual patient. Guideline recommendations are intended to support clinical decision-making but should never replace sound clinical judgment.

Although this guideline represents the state-of-the-art practice at the time of its publication, medical practice is evolving and this evolution will require continuous updating of published information. New technology and more research will improve patient care in the future. The clinical practice guideline can assist in identifying priority areas for research and optimal allocation of resources. Future studies examining the impact of this clinical practice guideline may lead to the development of new practice-based evidence.

Outcomes

1. Complete initial screening and intake by the nurse or provider during the first trimester.
2. Timely comprehensive screening for risk factors as outlined in the guideline.
3. Timely prenatal counseling and education as outlined in the guideline.

Content of the Guideline

The guideline consists of an algorithm that describes the step-by-step process of the clinical decision-making and intervention that should occur, and a summary chart that describes the interventions that should take place throughout the goal-oriented prenatal visits during pregnancy. General and specific recommendations for each visit are included in an annotation section. The links to these recommendations are embedded in the relevant specific steps in the algorithm and the chart describing the overall visits throughout pregnancy. (Summary Table)

Each annotation includes a brief background and specific recommendations. The Strength of Recommendation [SR], based on the level of the supporting evidence, is presented in brackets following each recommendation. Level [I], indicating insufficient evidence, follows recommendations that are based on Working Group Consensus of expert opinion.

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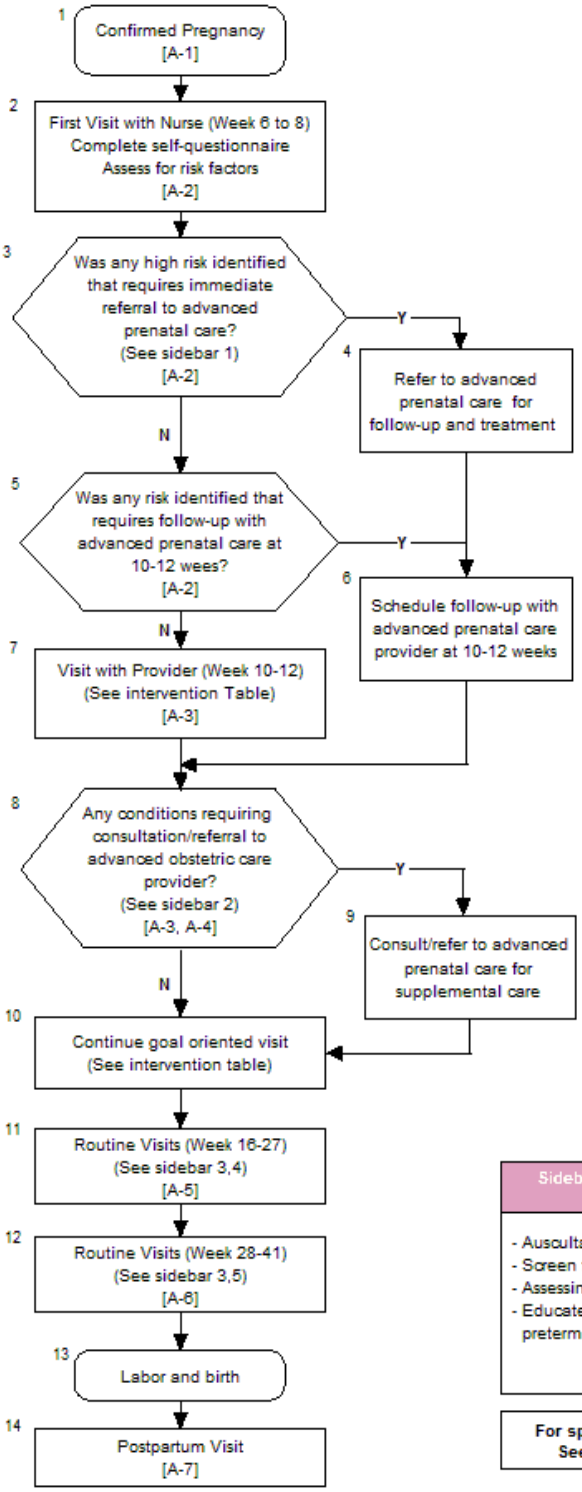
ALGORITHM

DoD/VA Clinical Practice Guideline for Management of Pregnancy



Sidebar 1: Indication for Immediate Referral

- Recurrent pregnancy loss
- Ectopic pregnancy
- Vaginal bleeding
- Uncontrolled hypertension
- Significant abdominal pain/cramping
- Severe pelvic infections
- Cardiovascular diseases
- Cardiac abnormality
- Pregestational Diabetes (Type 1 or 2)
- Renal disorder
- Transplant
- Moderate-sever MDD
- Suicidal
- HIV
- Known teratogen exposure

Sidebar 2: Indication for advanced obstetric care following 10-12 weeks

- Prior macrosomia or GDM
- Severe pelvic infections
- Second trimester pregnancy loss
- Cervical surgery (LEEP, cone biopsy)
- Recent bariatric surgery (<18 months)
- Uterine abnormality
- Drug use/alcohol use/smoking
- Current Cancer
- Transplant on medication
- Cardiac abnormality
- Current Infection:
  - Positive gonorrhea
  - Positive Chlamydia
  - Hepatitis B
  - Genital herpes
  - HIV
- Pre-existing conditions:
  - Abnormal pap-smear
  - Mild asthma
  - Controlled hypothyroidism
  - Previous gastric bypass
  - Depression
  - At risk for diabetes
- OBGYN conditions
  - At risk for preterm birth
  - Prior caesarean section

Sidebar 3: Intervention at ALL Routine Visits

- Screening for hypertensive disorders
- Breast feeding education
- Exercise during pregnancy
- Influenza vaccine (season-related)

Sidebar 4: Routine Visit Week 16-27

- Auscultation of fetal heart tones
- Screen fundal height
- Assessing weight gain
- Educate about symptoms of preterm labor (week 20)

Sidebar 5: Routine Visit Week 28 - 41

- Auscultation of fetal heart tones
- Screen fundal height
- Assessing weight gain
- Assess for symptoms of preterm labor (week 28)
- Assessment of fetal kick counts

For specific Intervention See Summary Table

ANNOTATIONS

A-0. Organization of Prenatal Care

BACKGROUND

Goal-oriented visits can be provided during individual encounters with OB providers, or can be accomplished in a group setting. Recommendations for reduced visit prenatal care have been instituted at some healthcare facilities. This first DoD/VA Clinical Practice Guideline for the Management of Uncomplicated Pregnancy was implemented in 2003. One of the key components of the clinical practice guideline was changing from the traditional interval-based visit template (every four weeks in the first and second trimesters) towards a system in which an antenatal visit is planned for a specific gestational age, with each visit having specific well-defined goals and objectives.

Group prenatal care has been implemented in many clinical practices in the United States and abroad. Centering Pregnancy® is a group model of prenatal care which provides care in a group setting, integrating assessment support and education at each visit. Studies have shown group prenatal care results in equal or improved perinatal outcomes with no added cost.

Level of care settings:

Throughout this guideline, the term *Routine Prenatal Care* refers to prenatal care generally provided to pregnant women by Family Medicine Physicians, Women's Health Nurse Practitioners, Certified Nurse-Midwives or Obstetrician/Gynecologists. The term *Advanced Prenatal Care* generally refers to care provided to women with complicated pregnancies provided by Obstetrician/Gynecologists and/or Maternal-Fetal Medicine specialists.

Routine Prenatal Care Providers

Individuals qualified to provide routine obstetric care include Family Practice Physicians, Certified Nurse-Midwives, Women's Health Nurse Practitioners, and Obstetrician/Gynecologists. These providers may have varied experience in providing more advanced prenatal care.

Advanced Prenatal Care Providers

Obstetrician-Gynecologist: physician qualified by training and experience to manage complicated pregnancies by virtue of having completed four years of Obstetrics and Gynecology residency training and maintaining currency in the profession.

Maternal-Fetal Medicine (MFM) Specialist: physician who has completed two to three years of Maternal-Fetal Medicine fellowship after completing four years of Obstetrics and Gynecology residency training. Fellowship training provides additional education and practical experience to gain special competence in managing various obstetrical, medical, and surgical complications of pregnancy.

MFM sub-specialists function in collaboration with Family Medicine physicians, Women's Health Nurse Practitioners, Certified Nurse-Midwives and Obstetricians. The relationship and referral patterns between Obstetrician-Gynecologists and MFM specialists will depend on the acuity of the patient's condition and local circumstances.

RECOMMENDATIONS

1. Goal-oriented prenatal care system can be delivered to all pregnant women. [B]
2. Education should be a central component of prenatal care for all pregnant women. [B]
3. Group model of prenatal care, such as the Centering Pregnancy® model, is an acceptable alternative to individual provider appointments. [A]

A-1. Confirmed Pregnancy

Confirmation of pregnancy is established by a confirmed positive urine or serum pregnancy test.

A-2. First Visit with Nurse: Update Weeks 6 to 8
Complete Self-Questionnaire; Assess for Risk Factors

BACKGROUND

After confirmation of the pregnancy, the goal of the first prenatal contact is to exchange information and identify existing risk factors that may impact the pregnancy. This initial contact may be accomplished in a group setting or during a one-on-one visit. This encounter provides an opportunity early in the pregnancy to obtain general short-term risk stratification. In this visit, the nurse should identify women who: (1) Need immediate referral to an advanced prenatal care provider (e.g., high risk for ectopic pregnancy); (2) Need to see an advanced prenatal care provider at the first provider visit; or (3) Can have the first provider visit with a low-risk prenatal care provider. **Table 1** contains a checklist of the data collected during the first visit with the nurse and/or obstetric healthcare provider. These data are required to appropriately triage women into one of the three categories noted above. In addition, all active duty pregnant women are required to have an occupational health screening per AR40-501 exception to policy. This referral/consultation with occupational health should be done at this initial encounter.

RECOMMENDATIONS

1. Initial assessment by nurse may include the following actions:
    a. Assure the patient completes the Self-Questionnaire (see Appendix B of the full guideline)
    b. Review the patient's completed Self-Questionnaire for issues requiring immediate evaluation or intervention (see Appendix B of the full guideline)
    c. Obtain initial prenatal lab tests to be reviewed and documented at the following visit
    d. Consult with an advanced prenatal care provider regarding advice or instruction to the patient if there are immediate needs (see Table-1)
    e. Arrange immediate referral to advanced prenatal care for follow-up in cases needing short-term assessment or intervention (see Table-1)
    f. Provide brief information about options for screening for fetal chromosomal abnormalities and arrange for counseling (See I-36)
    g. Arrange follow-up with the appropriate provider at 10-12 weeks.

Table 1. Prenatal Risk Assessment by Nurse - Checklist

Risk Assessed by Nurse	Nurse assessment and Questionnaire	Laboratory tests	Immediate referral to advanced prenatal care provider	Consult with advanced prenatal care provider	Follow-up with advanced prenatal care: Weeks 10-12
Uncertain dating criteria	√	Ultrasound		√	
Late presentation	√	Ultrasound		√	
Past OB history:					
Recurrent pregnancy loss	√		√		
Ectopic pregnancy risk (prior hx of ectopic, prior tubal surgery, current IUD, hx of tubal infertility, hx PID)	√	Quantitative HCG/ US	√		
Prior macrosomia or prior gestational diabetes mellitus (GDM)	√	Glucola for GDM			
Preterm birth	√			√	
Second-trimester pregnancy loss	√	Ultrasound		√	
Cervical surgery (LEEP, cone biopsy)	√			√	
Bariatric surgery (less than 18 months)	√			√	
Current Problems:					
Vaginal bleeding (current)	√		√		
Significant abdominal pain/cramping (current)	√		√		
Prescription, over-the-counter, and herbal medications	√			√	
Drug/alcohol use	√				√
Smoking	√				√
Medical Conditions:					
Cardiovascular diseases	√		√		√
Cardiac abnormality	√		√		
Diabetes mellitus (DM) – Type 1 or 2	√	Hgb A1c	√		√
Renal disorder (includes pyelonephritis)	√		√		
Hypertension	√		If not controlled	√	
Thyroid disorders	√	Thyroid function		√	
Gastrointestinal disorders on medications	√			√	
Pulmonary disease	√			√	
Family history of DM in first relative	√	Glucola for GDM			
Neurological disorder	√			√	
Autoimmune disorder/Lupus	√			√	√
Major mental illness	√			√	
Blood disorders	√			√	

Risk Assessed by Nurse	Nurse assessment and Questionnaire	Laboratory tests	Immediate referral to advanced prenatal care provider	Consult with advanced prenatal care provider	Follow-up with advanced prenatal care: Weeks 10-12
Hepatitis	√	Hepatitis panel		√	
Sexually transmitted disease (STD)	√	√			
Tuberculosis	√			√	
Human immunodeficiency virus (HIV)	√	√		√	√
Rash or viral illness	√			√	
Radiation/toxic chemical exposure since becoming pregnant	√			√	
Cancer	√			√	
Transplant	√		√		√
Hx of genetic disease or family history of genetic disease	√		√		
Dental complaint	√		To Dentistry		
Screen for MDD	√		To Behavior Health if suicidal or moderate or severe MDD		
Occupational hazards	√		To Public Health		
Homeless	√		To Social Services		
Domestic violence	√		To Social Work if unsafe		
Hx of infertility	√	Transvaginal US		√	
Hx of mental illness on medications	√			√	
Diet restriction	√		To Nutrition Counseling	√	
Eating disorder	√			√	
Body mass index (BMI) > 29 kg/m^2	√	Glucola for GDM		√	
BMI < 20 kg/m^2	√			√	
Age (<16 or >35)	√			√	
Routine Lab Tests:					
Human immunodeficiency virus (HIV)		√			
Complete blood count (CBC)		√			
(ABO Rh) blood typing		√			
Antibody screen		√			
Rapid plasma reagent (RPR)		√			
Hepatitis B surface antigen test		√			
Rubella test		√			
Urinalysis and culture		√			

Additional Information:					
Religion	√				
Language barrier	√				
Currently or previously deployed or family member	√				
Born outside the United States	√				
Lives with cats	√				
Wears seat belts	√				
Planned pregnancy	√				
Highest level of education	√				

A-3. The First Provider Visit: Update Weeks 10-12

BACKGROUND

The first provider visit offers an opportunity for the provider to review the information obtained through the Self-Questionnaire and the results of the initial laboratory studies and to note any salient issues previously identified at the initial 6-8 week nurse's visit. The provider also has an opportunity to further investigate notable issues, complete a physical examination, address/document fetal viability, confirm the gestational age and address any complications that may have arisen in the interval since the initial nurse's visit.

The provider will outline the plan of care based on the information gathered from this and the initial nurses' visit. The plan for the ongoing prenatal care should be based on the backbone of routine prenatal care outlined in this guideline and then individualized by addressing any currently identifiable risks/complications and outlining any indicated supplemental prenatal interventions. The outline of care may involve referring the patient to, or consulting with, an advanced prenatal care provider. (See Annotation A-0 for Level of Care Settings)

RECOMMENDATIONS

1. At the first provider visit, a complete medical history and physical examination (including thyroid, breast and pelvic examination) should be obtained. Information from the previous visit(s) and laboratory studies should be reviewed and significant problems/risks should be assessed.
2. At the first provider visit, the provider should outline an individualized plan of prenatal care that includes guideline-based routine prenatal care and consultation with advanced prenatal care providers or other medical specialty care services if needed.
3. The following are conditions not addressed by this guideline that will require supplemental care that might be best provided by routine or advanced obstetric care providers and/or behavioral health providers depending on the individual circumstances and local conditions:
    - Current mental illness requiring medical therapy
    - Substance use disorders
    - Eating disorders.
4. The following are among conditions that require supplemental prenatal care or consultation with or referral to an advanced prenatal care provider (Table 2):
    a. General
        - Body mass index (BMI) <16.5 or >30
        - Age (<16 or >40 years at delivery)
        - At risk for diabetes

b. Infections:
   - Hepatitis B or C (see I-11)
   - Human Immunodeficiency virus (HIV)
   - Syphilis (positive RPR)
   - Cytomegalovirus (CMV)
   - Toxoplasmosis
   - Primary Herpes
   - Rubella
   - Parvovirus
   - Positive gonorrhea (see I-29)
   - Positive Chlamydia (see I-30)
   - Genital herpes (see I-32)
   - Recurrent urinary tract infections/stones

c. Pre-existing medical conditions:
   - Abnormal pap smear (see I-31)
   - Controlled hypothyroidism
   - Previous gastric bypass/bariatric surgery (see I-28)
   - Mild depression (I- 21 & 34)
   - Cardiovascular disease
   - High blood pressure
   - Familial hyperlipidemia
   - Pregestational diabetes
   - Kidney disease (including pyelonephritis)
   - Inflammatory bowel disease
   - Bronchio pulmonary disease including asthma
   - Autoimmune diseases including Anticardiolipin Antibody Syndrome, and Systemic Lupus Erythematosis
   - Thromboembolic disease, current or historical
   - Cancer
   - Seizure disorders
   - Hematologic disorders (including anemia, thrombocytopenia)
   - Genetic disease with known effect on pregnancy

d. Obstetric conditions:
   - Vaginal bleeding
   - Isoimmunization
   - Placenta previa—symptomatic or present beyond 28 weeks
   - Placental abruption

- At risk for preterm birth (see A-4)
- Prior cesarean section (see I-39)
- Previous uterine or cervical surgery
- Intrauterine fetal demise
- Preterm labor
- Preterm ruptured membranes
- Recurrent pregnancy loss
- Suspected or documented fetal growth abnormalities (intrauterine growth restriction [IUGR] or macrosomia)
- Abnormalities of amniotic fluid including oligohydramnios, polyhydramnios
- Fetal anomaly(s)
- Multiple gestation
- Surgical condition during pregnancy (e.g., appendectomy, ovarian cystectomy, cerclage)

Table 2. Conditions Requiring Supplemental Care

Risk Assessed by Routine Prenatal Care Provider	Referral/Consult with Advanced Prenatal Care Provider	Consider Referral/Consult with Advanced Prenatal Care Provider
GENERAL CONDITIONS		
Genetic condition potentially affecting fetus	√	
Body Mass Index (BMI < 16.5 or >30)		√
Age ≤ 16 or ≥ 34		√
Genetic condition affecting patient or spouse		√
OBSTETRIC CONDITIONS (current or historical)		
Recurrent pregnancy loss	√	
Ectopic pregnancy	√	
Significant abdominal pain/cramping	√	
Vaginal bleeding	√	
Second-trimester pregnancy loss	√	
Preterm labor (current) or birth (history)	√	
Cervical surgery (LEEP, cone biopsy)	√	
Uterine abnormality	√	
Short (<2.5 cm) cervix (< 36 weeks)	√	
Pregnancy induced hypertensive disorders	√	
Gestational diabetes mellitus (GDM)	√	
Malpresentation (> 36 weeks)	√	
Placenta Previa (symptomatic or beyond 28 weeks)	√	
Abnormal amniotic fluid: oligo/poly hydramnios	√	
Preterm ruptured membranes	√	
Fetal growth abnormality (<10, >90 %tile)	√	
Known or suspected fetal anomaly	√	
Multiple gestation	√	
Isoimmunization	√	
Abnormal prenatal screening result (aneuploidy risk)	√	
Abnormal prenatal screening result (ONTD risk)	√	
Intrauterine fetal demise	√	
Teratogenic exposure including drugs or radiation		√
Placental abruption		√
Prior cesarean section		√
Intrapartum complications		√
GYNECOLOGIC, MEDICAL, SURGICAL CONDITIONS		
Current need for surgery	√	
Bariatric surgery (< 18, > 36 months ago)	√	
Diabetes mellitus (DM) – Type 1 or 2	√	
Hematalogic disorders (except mild anemia)	√	
Gastrointestinal disorders on medication	√	
Chronic hypertension	√	
Cardiovascular disease	√	
Pulmonary disease including asthma	√	
Cancer (current or recent)	√	
Neurological disorders including epilepsy	√	

Risk Assessed by Routine Prenatal Care Provider	Referral/Consult with Advanced Prenatal Care Provider	Consider Referral/Consult with Advanced Prenatal Care Provider
Renal, urinary tract disorder	√	
Autoimmune disorder including Lupus	√	
Antiphospholipid syndrome	√	
Hyperlipidemia prior to pregnancy	√	
Transplant	√	
Abnormal pap smear		√
Breast abnormality		√
Pelvic surgery for infertility or infection		√
Illicit drug, alcohol, or tobacco use		√
Thyroid disorders		√
INFECTIOUS DISEASES		
Severe pelvic infections	√	
Hepatitis	√	
Tuberculosis	√	
HIV	√	
TORCH infection	√	
Sexually transmitted disease (STD)		√
PSYCHOSOCIAL CONDITIONS		
Major depressive disorder (MDD)	To Mental Health if suicidal or moderate or severe MDD	√
Domestic violence	To Social Work if unsafe environment	√
Homeless	To Social Service	√

A-4. Assessment of Risk Factors for Preterm Birth New

BACKGROUND

Preterm birth is the second leading cause of neonatal mortality in the United States. Although many preterm births are due to the development of obstetric complications, over 70 percent result from *spontaneous* preterm birth which includes deliveries related to idiopathic preterm labor, preterm rupture of membranes, and cervical insufficiency. Demographic or historical risk factors for spontaneous preterm birth delivery may be discovered at the initial nursing intake or provider visit. Other risk factors develop as a woman's pregnancy progresses and include certain symptoms or physical examination and imaging findings. Although the prediction and prevention of spontaneous preterm birth remain challenging, continual surveillance for these risk factors may be beneficial as effective therapeutic options are developed. Some risk factors only require annotation in the obstetric record and routine surveillance as indicated in this pregnancy guideline. The identification of other risk factors should prompt increased surveillance in the form of consultation with an advanced prenatal care provider or ancillary testing and imaging studies.

To date, no single test or sequence of tests has an optimal sensitivity or predictive value for preterm birth. Fetal fibronectin testing and cervical length measurement by transvaginal ultrasound appear to be useful in the management of some women meeting the criteria for increased surveillance. Most studies have shown that these tests have limited utility when used in the asymptomatic woman at low risk for preterm delivery. Importantly, modalities such as salivary estriol levels, bacterial vaginosis screening and home uterine activity monitoring are generally not effective at predicting preterm birth regardless of risk status.

Recent data suggest that the administration of progesterone intramuscularly or intravaginally beginning early in pregnancy in women at high risk for preterm birth significantly reduces the rate of preterm delivery. Specifically, women with a prior spontaneous birth at less than 37 weeks' of gestation and asymptomatic women with a shortened cervical length in the 2nd trimester appear to benefit from the administration of progesterone beginning early in pregnancy. Progesterone therapy is typically begun early in the 2nd trimester and continued until approximately 36 weeks. Both intramuscular 17 alpha hydroxyprogesterone caproate (250 mg, administered weekly) and vaginal progesterone suppositories (100 to 200mg, administered once daily) have been described in the literature.

Despite the apparent benefits of progesterone in high-risk populations and its growing use, the ideal progesterone formulation and long-term safety of the drug must be confirmed by additional studies. Progesterone supplementation for the prevention of preterm birth should still be considered investigational.

The identification of women at risk for preterm birth now increases in importance in light of the expanded availability of and indications for progesterone therapy for the prevention of preterm birth.

RECOMMENDATIONS

Assessment of preterm birth

1. Women should be assessed for preterm birth risk as early as possible in the pregnancy in order to optimize maternal and newborn outcomes.
2. Screening for preterm birth risk factors should continue up to 37 weeks estimated gestational age.
3. Women at increased risk but meeting the criteria for normal surveillance should have the risk factor(s) documented in the medical record to increase awareness of the risk but may continue to be followed in accordance with the routine management of the pregnancy guideline.
4. Routine care providers should consult with an advanced prenatal care provider whenever a woman meets the criteria for increased surveillance for preterm birth.
5. Women requiring increased surveillance should be considered for ancillary studies and other additional intervention. Progesterone supplementation should be considered in these women (see A-4).
6. Routine screening of fetal fibronectin (fFN) in asymptomatic or low-risk women is not recommended (see I-52). fFN testing in symptomatic or high-risk women between 24 and 34 6/7 weeks' gestation may be useful in guiding management.
7. The measurement of cervical length by transvaginal ultrasound may be useful in some patients requiring increased surveillance for preterm labor. Sonographic cervical length measurement is not recommended as a routine screening or prediction tool in women only requiring normal surveillance.
8. The determination of salivary estriol levels, bacterial vaginosis screening and home uterine activity monitoring are not recommended as a means to predict preterm birth.

Progesterone therapy

9. It is reasonable to offer antenatal progesterone therapy to women at high-risk for preterm delivery and who meet the generally accepted inclusion criteria. [B]
10. Progesterone may be administered intramuscularly on a weekly basis or intravaginally on a daily basis. [B]
11. Progesterone therapy should only be initiated after consultation with an obstetrician or maternal-fetal medicine specialist. [C]

Table 3. Risk Factors for Preterm Birth Stratified by Those Requiring either Normal or Increased Surveillance *

Normal Surveillance	Increased Surveillance
• Nonwhite race • Age younger than 17 years or older than 35 years • Low socioeconomic status • Single parent • Smoking • History multiple first trimester spontaneous abortions • History of lower genital tract infection • Low pre-pregnancy weight/body mass index • Occupational stress or prolonged standing (greater than 3 hours) • Periodontal disease	**Risk factors known from prior history:** • Prior cervical surgery • History of preterm delivery (less than 34 weeks) **Findings that may be identified during the pregnancy:** • Antepartum vaginal bleeding or persistent placenta previa • Uterine over-distension due to any cause (e.g., multiple gestation, polyhydramnios) • Abnormality of uterine cavity or architecture (e.g., septate uterus, uterine fibroids) • Uterine contractions, back ache, or pelvic pressure • Shortened cervical length • Rupture of membranes • Cervical dilation greater than or equal to 2 cm in 2nd trimester in symptomatic women (nulliparous women) • Soft cervical consistency in 2nd trimester in symptomatic women (nulliparous women) • Abdominal surgery during current pregnancy • Illicit drug use (e.g., methamphetamine, cocaine) • Use of assisted reproductive technology

*Women with multiple risk factors in the Normal Surveillance category may require individualized assessment and warrant consultation with an advanced prenatal care provider.

A-5. Routine Visits: Weeks 16-27

Visits during this period should include the following:

- Auscultation of fetal heart tones - if negative, elevate care
- Screening fundal height
- Screening for hypertensive disorders
- Assessing weight gain

Education about symptoms of preterm labor (week 20)

For specific interventions see Prenatal Care Interventions – Weeks 16-27.

A-6. Routine Visits: Weeks 28-41

Visits during this period should include the following:

- Auscultation of fetal heart tones - if negative, elevate care
- Screening fundal height
- Screening for hypertensive disorders
- Assessing weight gain
- Assessing for symptoms of preterm labor (week 28)
- Assessing fetal kick counts

For specific interventions see Prenatal Care Interventions – Weeks 28-41.

A-7. Postpartum Visit Update

BACKGROUND

The postpartum visit provides the opportunity for providers to interact with the new mother and her infant through interview, exam, and testing. The timing and the content of the postpartum visit have often been topics for debate. Recent literature helps the provider to answer these questions based on the evidence. The maternal postpartum visit should occur approximately eight weeks after delivery. Eight weeks is the optimal time to decrease the rate of false positive cervical smears.

RECOMMENDATIONS

1. The following should be included in the postpartum visit:
   - Pelvic and breast examinations. [B]
   - Cervical smear should be completed as indicated by cervical cancer screening guidelines (see I-31). [A]
   - The initiation or continuation of the HPV vaccine series for women (age < 26 years) identified as positive can be administered at this time as well (see I-50). [C]
   - Screening for postpartum depression (see I-21). [B]
   - Screening for domestic violence.(see I-20) [B]
   - Diabetes testing for patients with pregnancies complicated by gestational diabetes. The two-hour 75g oral glucose tolerance test (GTT) is recommended but a fasting glucose can also be done. [B]
   - Education about contraception, infant feeding method, sexual activity, weight, exercise and the woman's assessment of her adaptation to motherhood. Pre-existing or chronic medical conditions should be addressed with referral for appropriate follow-up as indicated. [I]

INTERVENTIONS

Prenatal care for all pregnant women should include the interventions listed in the following Summary Table. Each intervention should be completed by the indicated week (NOTE: Between weeks 38-41, weekly visits may be needed). Intervention marked with * only apply if the risk/condition has been identified/diagnosed.

Summary Table: Prenatal Care Interventions

Trimester:		First		Second		Third			Post Date	Post-partum
	INTERVENTION Week:	6-8	10-12	16-20	24	28	32	36	38-41	PP
I-1	Screening for hypertensive disorders	☑	☑	☑	☑	☑	☑	☑	☑	
I-2	Breastfeeding education	☑	☑	☑	☑	☑	☑	☑	☑	
I-3	Exercise during pregnancy	☑	☑	☑	☑	☑	☑	☑	☑	
I-4	Influenza vaccine (season-related)	☑	☑	☑	☑	☑	☑	☑	☑	
I-5	Screening for tobacco use - offer cessation	☑								
I-6	Screening for alcohol use - offer cessation	☑								
I-7	Screening for drug abuse - offer cessation	☑								
I-8	Screening for Rh status	☑								
I-9	Screening for rubella	☑								
I-10	Screening for varicella	☑								
I-11	Screening for hepatitis B	☑								
I-12	Treatment for hepatitis B *							☑	☑	
I-13	Screening for syphilis (Rapid Plasma Reagin)	☑								
I-14	Screening for asymptomatic bacteriuria	☑								
I-15	Screening for tuberculosis	☑								
I-16	Screening for HIV – counsel	☑								
I-17	Immunization – Td booster (first trimester)	☑								
I-18	Screening for anemia	☑								
I-19	Screening for hemoglobinopathies *	☑								
I-20	Screening for domestic abuse	☑				☑				☑
I-21	Screening for depression	☑				☑				☑
I-22	Establishing the gestational age		☑							
I-23	Auscultation fetal heart tones		☑	☑	☑	☑	☑	☑	☑	
I-24	Screening fundal height		☑	☑	☑	☑	☑	☑	☑	
I-25	Assessing weight gain (inappropriate)		☑	☑	☑	☑	☑	☑	☑	

Trimester:	First		Second		Third			Post Date	Post-partum
INTERVENTION Week:	6-8	10-12	16-20	24	28	32	36	38-41	PP
I-26 Nutritional supplement		☑							
I-27 Management of obesity *		☑							
I-28 Gastric bypass consideration *		☑							
I-29 Screening for gonorrhea		☑							
I-30 Screening for Chlamydia		☑							
I-31 Screening for cervical cancer		☑							
I-32 Screening for HSV and prophylaxis		☑							
I-33 Counseling for cystic fibrosis screening		☑							
I-34 Management of depression *		☑			☑				☑
I-35 Assessment of periodontal disease		☑							
I-36 Education about Prenatal Screening	☑								
- Screening test 1st trimester		☑							
- Counseling and test 2nd trimester			☑						
I-37 Obstetric ultrasound			☑						
I-38 Education about preterm labor				☑					
I-39 Counseling for trial of labor *				☑					
I-40 Screening for gestational diabetes					☑				
I-41 Iron supplementation *					☑				
I-42 Anti-D prophylaxis for Rh-negative women *					☑				
I-43 Assess for preterm labor					☑	☑			
I-44 Daily fetal movement counts					☑	☑	☑	☑	
I-45 Counseling for family planning						☑			
I-46 Screening for Group B Streptococcal (GBS)							☑		
I-47 Assessment of fetal presentation							☑	☑	
I-48 Consider Weekly cervical check/stripping								☑	
I-49 Term management								☑	
I-50 Immunization HPV vaccine *									☑
I-51 Education on Shaken Baby Syndrome									☑

Interventions Not Recommended In Routine Prenatal Care (All Weeks)	
I-52	Screening with fetal fibronectin
I-53	Cervical examination
I-54	Antenatal pelvimetry
I-55	Urine dipstick test
I-56	Edema evaluation
I-57	Screening for cytomegalovirus (CMV)
I-58	Screening for parvovirus
I-59	Screening for toxoplasmosis
I-60	Screening for bacterial vaginosis
I-61	Immunization – MMR
I-62	Immunization – Varicella
I-63	Ultrasound (US) evaluation of cervical length at week 24
I-64	Repeat screening for anemia, syphilis, and isoimmunization
I-65	Screening for hypothyroidism

Interventions at All Visits

I- 1. Screening for Hypertensive Disorders of Pregnancy: Update Weeks (All)

BACKGROUND

Hypertension in pregnancy can be defined as either a diastolic pressure greater than 90 mmHg or systolic pressure greater than 140 mmHg recorded on two separate occasions more than six hours apart, at any time during the gestation. Hypertension detected before the 20th week of gestation in the absence of gestational trophoblastic disease or high-order multiple gestation is generally considered indicative of chronic hypertension. Gestational hypertension is defined as isolated hypertension in the absence of proteinuria occurring after 20 weeks' gestation. Hypertension occurring in conjunction with proteinuria beyond 20 weeks' gestation is classified as preeclampsia. Proteinuria is defined as >300 mg in a 24-hour urine collection in the absence of evidence of a urinary tract infection. Regardless of the etiology or specific diagnosis, all hypertensive disorders of pregnancy are associated with an increased risk for adverse perinatal outcome and require supplemental monitoring and care beyond the routine care outlined in this guideline.

RECOMMENDATIONS

1. Recommend measuring blood pressure of all pregnant women at each prenatal visit, following the guidelines of the National High Blood Pressure Education Program and the VA/DoD Clinical Practice Guidelines for Hypertension. [B]
2. Women diagnosed with hypertension during pregnancy should be managed by, or in consultation with, an advanced prenatal care provider. [C]
3. Korotkoff 5 sound (disappearance of sound) will be used to determine the diastolic pressure. [C]

I- 2. Breastfeeding Education: Weeks (All)

BACKGROUND

Between 50 and 90 percent of expectant mothers decide how they will feed their babies either before conceiving or very early in pregnancy (Bailey & Sheriff, 1992; Dix, 1991). Prenatal breastfeeding education is a key opportunity to educate expectant mothers on the benefits and methods associated with successful breastfeeding during the time they are making their decision on choice of infant feeding method.

RECOMMENDATIONS

1. Recommend offering breastfeeding education to all pregnant women during the first visit with the provider. [B]
2. Recommend asking pregnant women, "What do you know about breastfeeding?" rather than, "Do you plan on breast or bottle feeding?" to provide an open opportunity for education. [B]
3. Recommend continuing education throughout pregnancy for those pregnant women who express a desire to breastfeed or for those who are still undecided on feeding method. [C]
4. Recommend including family/significant others in breastfeeding education. [B]

I- 3. Exercise During Pregnancy: Update — Weeks (All)

BACKGROUND

Attitudes toward exercise during pregnancy have changed markedly in recent decades. The underlying concern has revolved around fears that the exercise-induced increases in maternal body temperature, circulating stress hormones, and biomechanical stress, coupled with the decreased visceral blood flow, could have adverse effects on multiple aspects of the course and outcome of pregnancy. Only recently has a substantial amount of research been completed to support the idea that it is both safe and beneficial to exercise during pregnancy. Currently, there is no evidence to suggest that regular maternal exercise is associated with fetal compromise or unexplained fetal death. Furthermore, regular exercise improves maternal fitness, reduces the usual musculoskeletal complaints associated with pregnancy, enhances feelings of well being, improves body image, and decreases maternal weight gain and fat deposition in late pregnancy.

RECOMMENDATIONS

1. Strongly recommend all healthy, pregnant women perform regular mild to moderate exercise sessions, three or more times per week. [A]
2. Recommend individualized exercise programs for all pregnant women, based on their pre-pregnancy activity level. [I]
3. Recommend against high-altitude (>10,000 feet) activities, scuba diving, and contact sports during pregnancy. [I]

I- 4. Influenza Vaccine (Season-Related): — Weeks (Any Week)

BACKGROUND

Women who acquire influenza during pregnancy may experience an increase in morbidity and mortality during an epidemic, with a possible increased abortion rate. Most recent CDC guidelines suggest that immunization of pregnant women for influenza has been found to be safe for both the mother and the fetus regardless of gestational age.

RECOMMENDATIONS

1. Recommend immunizing all pregnant women for influenza during the epidemic season. [B]

First Visit with Nurse (6-8 Weeks)

I- 5. Screening for Tobacco Use – Offer Cessation: Update — Weeks 6 - 8

BACKGROUND

Tobacco use in pregnancy is associated with decreased birth weight, as well as risk for spontaneous abortion and preterm labor. Newborns exposed to environmental tobacco smoke experience an increased incidence of upper respiratory infections and deaths from Sudden Infant Death Syndrome (SIDS). Behavioral and pharmacologic methods for smoking cessation are both safe and effective in pregnancy.

RECOMMENDATIONS

1. Strongly recommend routine screening for tobacco use in pregnancy at the initial prenatal visit. For patients who smoke, recommend assessment of smoking status at each subsequent prenatal visit. [A]
2. If the screening is positive, cessation should be strongly recommended. [A]
3. There is insufficient data to recommend for or against pharmacologic therapy for tobacco cessation in pregnancy. [I]

I- 6. Screening for Alcohol Use – Offer Cessation: — Weeks 6 - 8

BACKGROUND

Alcohol is a known teratogen with adverse effects on fetal facial and central nervous system development. Maternal alcohol consumption is a leading preventable cause of birth defects and childhood disabilities in the United States (Centers for Disease Control [CDC], 1995). While there is a clear dose-dependent effect, numerous observational studies have failed to delineate a threshold level for safe alcohol consumption during pregnancy.

RECOMMENDATIONS

1. Recommend routine screening for alcohol consumption using a standardized tool (refer to the VA/DoD Clinical Practice Guideline for the Management of Substance Use Disorders). [B]
2. If the screening is positive, cessation should be strongly recommended. [B]
3. There is insufficient evidence regarding which cessation intervention tool is the most effective. [I]

I- 7. Screening for Drug Use – Offer Treatment: — Weeks 6 - 8

BACKGROUND

Up to one in ten babies may be exposed to illegal drugs during pregnancy. Use of these drugs may be harmful to the health and growth of the fetus, particularly early in pregnancy. Drug use later in pregnancy increases the risk for preterm delivery and fetal growth restriction. Risks to the mother include HIV, hepatitis, and addiction.

RECOMMENDATIONS

1. Recommend routine screening for illicit drug use using a self-report method. [C]

2. Recommend pregnant women identified as abusing drugs be offered treatment and receive care in consultation with or referral to an advanced prenatal care provider. (See also VA/DoD Clinical Practice Guideline for the Management of Substance Use Disorders.) [C]

I- 8. Screening for Blood Type (ABO,Rh) and Antibody Status: Weeks 6 to 8

BACKGROUND

Since the introduction of anti-D (Rhogam) immune globulin injections during and after pregnancy in women who are D antigen negative, the incidence of isoimmunization has fallen from 10 cases to 1.3 cases/1,000 live births. Testing and identification of pregnant women with non-anti-D antibodies allows for early treatment of infants, which may improve fetal outcomes.

RECOMMENDATIONS

1. Recommend evaluation of maternal ABO and Rh blood type and blood antibody status at the initial prenatal visit. [B]
2. Pregnant women with positive antibody screens should be referred for consultation to assist with further management. [C] (see I-42)
3. There is insufficient evidence to recommend for or against routine repeat testing at 28 weeks' gestation. [I]

I- 9. Screening for Rubella: Weeks 6 - 8

BACKGROUND

Congenital Rubella Syndrome (CRS) is a constellation of findings in newborns exposed to the rubella virus prior to 16 weeks' gestation. The syndrome includes hearing loss, developmental delay, and ocular and cardiac defects. The incidence of CRS has declined dramatically since the advent of rubella vaccination in 1969. Identification of women lacking rubella immunity during the preconception period allows for immunization before pregnancy. Identification of non-immune women during pregnancy allows for risk counseling and immunization postpartum.

RECOMMENDATIONS

1. Recommend all pregnant women have a serum screen for rubella status at the initial prenatal visit. [B]
2. Recommend seronegative pregnant women be counseled to avoid exposure. [B]
3. Recommend seronegative pregnant women be vaccinated in the immediate postpartum period. [B]

I- 10. Screening for Varicella: Weeks 6 to 8

BACKGROUND

Varicella infection during pregnancy may lead to poor outcomes for both mother and fetus. The incidence of varicella in pregnancy is less than one in 1,000. Most adults are immune to varicella due to previous exposure. In women who report no history of infection, 85 percent are found to have positive antibody titers. Identification of non-immune persons through screening with subsequent immunization may decrease the incidence of varicella.

RECOMMENDATIONS

1. Recommend routine screening for varicella through history. [B]

2. If negative/unsure history, obtain a varicella titer. [B]
3. Recommend offering vaccination postpartum, if varicella is non-immune. [B]

I- 11. Screening for Hepatitis B Virus (HBV): Update — Weeks 6 - 8

BACKGROUND

Each year in the United States an estimated 22,000 infants are born to women with chronic hepatitis B virus (HBV). The incidence of acute hepatitis B in pregnancy is 1 to 2/1,000 and the prevalence of chronic hepatitis B is 5-15/1,000. Certain groups including Southeast Asians, Pacific Islanders, Alaskan Native Americans, drug addicts, transfusion recipients, women on dialysis and those with tattoos have an increased prevalence of infection (Duff, 1998).

However, these risk factors will only identify 60 percent of women with HBV infection. Perinatal transmission of hepatitis B virus occurs if the mother has an acute infection, particularly during late pregnancy or the early postpartum period, or if the mother is a chronic hepatitis B antigen carrier.

The risk of vertical transmission (mother to infant) can be greatly reduced (>90 percent) if the infectious status of the mother is known and therapy is given to the baby shortly after delivery. The risk of vertical transmission may also be reduced by maternal therapy during the last month of pregnancy.

RECOMMENDATIONS

1. Recommend routine laboratory screening for hepatitis B surface antigen at the initial prenatal visit. [A]
2. Repeat laboratory screening of pregnant women with identification of hepatitis risk factors during the pregnancy (e.g., healthcare worker, intravenous (IV) drug use, exposure to hepatitis, visit for evaluation or therapy for sexually transmitted infections, and new tattoos and blood transfusions). [C]
3. Vaccinate pregnant women with hepatitis risk factors who have not been previously vaccinated. [B]
4. Women at risk for HBV infection in pregnancy should be counseled concerning additional methods to prevent HBV infection. [C]

I- 12. Treatment for Hepatitis B Infection: Update — Week 36

BACKGROUND

Perinatal transmission of hepatitis B virus occurs if the mother has an acute infection, particularly during late pregnancy or the early postpartum period, or if the mother is a chronic hepatitis B antigen carrier.

Vertical transmission of infection occurs in 90 percent of pregnancies where the mother is hepatitis B e antigen positive and in about 10 percent of surface antigen positive, e antigen negative mothers. Most (85 to 95 percent) of infected infants become chronic carriers. Infants born to infectious mothers treated by both hepatitis vaccination and hepatitis B-specific immunoglobulin are 90 percent less likely to become infected than untreated infants.

There is also evidence that treating the mother in the last month of pregnancy with lamivudine or hepatitis B immunoglobulin may further reduce the transmission rate if she is highly infectious (HBV-DNA $>1.2x10^9$ geq/mL).

RECOMMENDATIONS

1. Treat all infants born to hepatitis B positive mothers with Hepatitis B immunoglobulin and initiate hepatitis B vaccination within 12 hours of birth. [A]

2. Strongly consider treating infants born to women at high risk for hepatitis B who have not been vaccinated or whose infectious status is unknown. [B]
3. Consider treating women who have high copy numbers of HBV-DNA with lamivudine during the last month of pregnancy. [B]
4. Women with HBV infection should be taught, and encouraged to implement, strategies to decrease transmission to non-infected intimate contacts. [B]

I- 13. Screening for Syphilis Rapid Plasma Reagin (RPR): Weeks 6 - 8

BACKGROUND

Syphilis is a sexually transmitted disease that can cause significant mortality and morbidity in both the mother and fetus. The disease is acquired through either sexual or congenital transmission and can be effectively treated using broad-spectrum antibiotics. Screening for maternal syphilis, treating, and tracking all confirmed cases, can prevent congenital syphilis.

RECOMMENDATIONS

1. Recommend routine screening for syphilis using serologic testing (i.e., RPR or Venereal Disease Research Laboratory [VDRL]) at the initial prenatal visit. [B]
2. Recommend a confirmatory test using a more specific treponemal assay (FTA-ABS, MHA-TP, HATTS) for pregnant women who test positive. [B]
3. Strongly recommend therapy with penicillin G antibiotic for pregnant women who have confirmed syphilis, as recommended by other sexually transmitted disease (STD) guidelines. [A]
4. Recommend appropriate medical and legal mandates follow-up and state/service branch reporting requirements for pregnant women screening positive. [I]

I- 14. Screening for Asymptomatic Bacteriuria: Update Weeks 6 - 8

BACKGROUND

Bacteriuria occurs in two to seven percent of pregnant women. Asymptomatic bacteriuria (ASB) in pregnant women is an established risk factor for serious complications including pyelonephritis, preterm delivery, and low birth weight.

RECOMMENDATIONS

1. Strongly recommend screening for ASB at initial obstetrical visit via urine culture and sensitivity. [A]
2. There is insufficient evidence to recommend for or against repeat screening throughout the remainder of pregnancy. [I]
3. Strongly recommend a three to seven-day course of appropriate antibiotics based on positive culture and sensitivity, and woman's history of medication allergies. [A]
4. There is insufficient evidence to recommend for or against a test of cure (TOC) after completion of antibiotic therapy, except in pregnant women with ASB-Group B Strep. [I]

I- 15. Screening for Tuberculosis: Update — Weeks 6-8

BACKGROUND

The incidence of tuberculosis has increased in the United States. Most new cases occur in cities with at least 500,000 people and in women in higher risk groups. High-risk groups for tuberculosis include individuals who:

- Have HIV infection
- Live in close contact with individuals known or suspected to have tuberculosis
- Have medical risk factors known to increase risk of disease if infected
- Are born in a country with high tuberculosis prevalence
- Are medically underserved
- Have a low income
- Are alcoholics
- Are intravenous drug users
- Are residents of long-term care facilities (e.g., correctional institutions, mental institutions, nursing homes and facilities)
- Are healthcare professionals working in high-risk healthcare facilities.

RECOMMENDATIONS

1. All pregnant women from one or more high-risk groups should be screened for tuberculosis with a Mantoux test with purified protein derivative (PPD) soon after the pregnancy is diagnosed. [C]
2. Pregnant women with a positive PPD with known conversion in the last two years and no clinical or X-ray evidence of disease should be treated with isoniazid (300 mg per day) starting after the first trimester and continuing for nine months. [C]
3. For pregnant women with a positive PPD whose time of conversion is unknown and who have no clinical or X-ray evidence of disease present, consider delaying therapy until after the pregnancy. [C]
4. Pregnant women with active tuberculosis should be treated with multi-drug therapy including isoniazid and rifampin, supplemented by ethambutol if isoniazid drug resistance is suspected. [C]

I- 16. Screening for HIV – Counsel: — Weeks 6 - 8

BACKGROUND

During the past decade, HIV infection became a leading cause of morbidity and mortality among women. As the incidence of HIV infection has increased among women of childbearing age, increasing numbers of children have become infected through perinatal transmission.

RECOMMENDATIONS

1. Strongly recommend routine testing for HIV infection at the initial prenatal visit. [A]
2. Pregnant women who test positive for HIV should be referred for treatment and counseling. [I]
3. Recommend retesting all high-risk pregnant women during the early third trimester and offer repeat testing for patients who refused the first test. [B]

I- 17. Screening for Td and Tdap Booster: Weeks 6 - 8

BACKGROUND

Tetanus and diphtheria were serious causes of infectious morbidity and mortality of people of all ages prior to the advent of widespread effective active immunization programs. The majority of cases of diphtheria and tetanus occur in adults who have not received adequate vaccination, and fatality rates for diphtheria are approximately 10 percent and 25 percent for tetanus. The tetanus-diphtheria (Td) vaccine is made up of bacterial toxins that cause the production of antibodies against the live bacterium when administered to an individual. Unfortunately, the immune response is not lifelong, thus periodic revaccination is required to ensure immunity. Since the vaccine is made up of inactive bacterial particles and not live bacteria, pregnancy is not a contraindication to providing indicated preventive services such as tetanus booster vaccination.

RECOMMENDATIONS

1. Strongly recommend routine screening for Tdap booster status at the initial prenatal visit. [A]
2. If there is no documentation of Td booster within the last 10 years: [A]
    a. Receive Tdap in the immediate postpartum period before discharge from the hospital or birthing center
    b. May receive Tdap at an interval as short as two years since the most recent Td vaccine
    c. Receive Td during pregnancy for tetanus and diphtheria protection when indicated, or defer the Td vaccine indicated during pregnancy to substitute Tdap vaccine in the immediate postpartum period if the woman is likely to have sufficient protection against tetanus and diphtheria.
3. Td booster should be provided if indicated. There are no contraindications other than a previous severe reaction to Td vaccination, such as anaphylaxis, generalized uriticaria, or angioedema. [A]
4. If the pregnant woman is an immigrant and it is unclear that she ever received the primary vaccination series, she should be given a primary series with an initial dose, a second dose a month later, and a third dose 12 months later. [B]

I- 18. Screening for Anemia: New Weeks 6-8

BACKGROUND

Anemia occurs in two to four percent of pregnant women. It is defined as a hemoglobin or hematocrit concentration less than the five percentile of a healthy pregnant population and varies during the trimesters of pregnancy and in African versus non-African populations. Non-African women with a hematocrit less than 33, 32 and 33 percent in the first, second and third trimesters, respectively, are anemic. The threshold for anemia in the African-American population is two percent lower. Severe anemia, defined as a hemoglobin < 6 gm/dL is associated with adverse pregnancy outcomes due to inadequate fetal oxygenation. Iron deficiency and acute blood loss are the most common causes of anemia. Anemia can be categorized by the size of the red blood cell (microcytic, normocytic and macrocytic), the mechanism of the anemia, or by whether the anemia is acquired or inherited. Certain ethnic groups are at increased risk for inheritable causes of anemia and should be screened for such (see Appendix C of the full guideline). Iron deficiency anemia is usually microcytic (Mean Corpuscular Volume <80 fL), can be confirmed by laboratory findings of diminished stores, and responds to iron supplementation. Iron deficiency anemia during pregnancy has been associated with an increased risk of low birth weight, preterm delivery, and perinatal mortality. There is also an association between maternal iron deficiency anemia and postpartum depression and poor results in mental and psychomotor performance testing in offspring.

RECOMMENDATIONS

1. All pregnant women should be screened for anemia during pregnancy with a hematocrit or hemoglobin measurement in the first and third trimester. [C]
2. Pregnant women with anemia should be further evaluated to define the cause of the anemia and given nutrient supplementation if deficient (e.g. iron, B12 or Folate). [C]
3. Red blood cell transfusion should be considered for pregnant women with severe anemia. [C]
4. Iron sucrose transfusion should be considered for pregnant women with iron deficiency anemia who fail to respond to oral iron supplementation after eliminating modifiable causes of malabsorption. [C]

I- 19. Screening for Hemoglobinopathies: Update — Weeks 6-8

BACKGROUND

The hemoglobinopathies are a heterogeneous group of single-gene disorders that includes the structural hemoglobin variants such as sickle cell disease and thalassemia. More than 270 million people worldwide are heterozygous carriers of hereditary disorders of hemoglobin, and at least 300,000 affected homozygotes or compound heterozygotes are born each year. Sickle cell disease and the thalassemias are discussed below.

RECOMMENDATIONS

1. Carrier screening should be offered to individuals of African, Southeast Asian, and Mediterranean descent. [A]
2. A complete blood count and hemoglobin electrophoresis are the recommended tests to screen for hemoglobinopathies. [B]

I- 20. Screening for Domestic Abuse: Update — Weeks 6 - 8

BACKGROUND

Domestic violence is an epidemic problem that may be first identified during pregnancy. Unfortunately, high-quality evidence-based documentation does not exist regarding the benefits of specific interventions to decrease domestic violence. Healthcare providers need to be aware that a woman's decision to leave an abusive relationship may result in an escalation of violence.

RECOMMENDATIONS

1. Recommend routine screening for domestic abuse at weeks eight, 24, and 32, using the following three simple/direct questions: [B]
    - Within the last year, have you been hit, slapped, kicked, or otherwise physically hurt by someone?
    - Since you've been pregnant, have you been hit, slapped, kicked, or otherwise physically hurt by someone?
    - Within the last year, has anyone forced you to engage in sexual activities?
2. There is insufficient evidence to recommend for or against specific interventions for identified domestic abuse in pregnancy. [I]
3. If the screening is positive, follow appropriate medical/legal mandates for reporting requirements for state/branch of service. [C]

I- 21. Screening for Depression: New — Weeks 6-8, 28, Postpartum visit

BACKGROUND

Depression in pregnancy in general, and in the peripartum period in particular, is a well-recognized problem. Although estimates vary, in the first three months after childbirth, 14.5 percent of women have a new episode of major or minor depression, and 10 percent to 20 percent of mothers are believed to suffer with depression sometime during their postpartum course, making postpartum depression the most common serious postpartum disorder. In addition, it is an under-recognized entity, with 50 percent of cases undetected. This rate of under-detection can be reduced by the use of a screening instrument, administered during the course of pre- and postnatal visits. This detection can lead to further diagnostic interviews and to appropriate treatment, lessening the deleterious effects of depression on both the mother and child. When a woman is diagnosed with depression, treatment should follow (see I-34).

RECOMMENDATIONS

1. Women should be screened for depression during their first contact with obstetric healthcare services, at week 28 and at the postpartum visit. [B]

1. Depression screening should be performed using a standardized screening tool such as the Edinburgh Postnatal Depression Scale (EDPS) or the PHQ-2. [B]

2. Women should be asked early in pregnancy if they have had any previous psychiatric illnesses, and if they had a past history of serious psychiatric disorder they should be referred for a psychiatric assessment during the antenatal period. [B]

First Visit With Provider (10-12 Weeks)

I- 22. Establishing the Gestational Age: New — Weeks 10-12

BACKGROUND

Establishing accurate pregnancy dating impacts the management of normal and abnormal pregnancies and thus is one of the most important responsibilities of prenatal care providers. Accurate dating is essential for timing tests such as prenatal screening tests for aneuploidy, assessment of proper fetal growth and maturity and management of the pregnancy past the due date. Common usage of the term gestational age refers to menstrual age that equals conceptional age plus 14 days.

Currently, the gestational age is assessed by menstrual history, clinical examination, ultrasound or by a known conceptional date. Gestational age is most accurately established by a certain conception date as occurs with reproductive technologies, single intercourse associated conceptions and basal body temperature records, each of which is highly predictive of conceptional age. The next most accurate assessment of menstrual age is by a six to eleven-week crown-rump length measurement by ultrasound followed by a certain last menstrual period in women with regular cycles, then by early second-trimester sonographic examinations and then first trimester followed by second-trimester physical examination. Dating the pregnancy by menstrual history or clinical examination is subject to considerable error. The mother's initial detection of fetal movements and late pregnancy ultrasound are too unreliable to be useful for accurate assessment of the gestational age.

RECOMMENDATIONS

1. Establish the gestational age-based estimated delivery date (EDD) prior to 20 weeks' gestational age. [B]

2. Various information and methods for dating a pregnancy may be available for consideration. EDD should be based on the most accurate information/method available for the individual pregnancy (see Table 4. Accuracy of Pregnancy Dating Information/Modalities (Prioritized List). [B]
3. Gestational age permitting, first-trimester ultrasound should be used to establish the gestational age and EDD **if** there is any uncertainty regarding the EDD due to: a pelvic examination discrepancy (> +/- two weeks), an unknown or uncertain last menstrual period (LMP), or irregular menstrual cycles. [B]
4. When a first-trimester dating ultrasound has not been previously performed a dating ultrasound at 16 to 22 weeks should be obtained. This examination can be combined with a basic screening anatomy ultrasound. [B]
5. Situations with abnormal fetal biometric ratios (e.g., head / abdominal circumference [HC/AC], biparietal diameter /femur length [BPD/FL]) limit the accuracy of biometric measurements for pregnancy dating and may signal fetal anomalies or karyotype abnormalities. Such circumstances require individualized assessment by an advanced prenatal care provider to establish dating and recommend ongoing assessment(s) and management. [C]
6. When clinical decisions late in pregnancy necessitate gestational age information and the dates have not been established prior to the 29th week, fetal maturity may be assumed when one of the following criteria are met: [C]
    a. 20 weeks of audible fetal heart tones by a non-electronic method
    b. 30 weeks of audible fetal heart tones by an electronic method
    c. 36 weeks from a positive pregnancy test in a reliable laboratory.

Table 4. Accuracy of Pregnancy Dating Information/Modalities (Prioritized List)

1. In vitro fertilization (+/- 1 day).
2. Ovulation induction, artificial insemination, a single intercourse record, ovulation predictor assay or basal body temperature measurement (+/- 3 days).
3. First-trimester sonographic assessment (6-11 weeks) (+/- 8%).
4. Reported LMP, if reliable.
5. Twelve to 22-week second-trimester sonographic examination (CRL or BPD, HC, AC and FL) if the LMP is unknown or uncertain or if the LMP is more than 8 percent discordant from the sonographic examination.
6. Twenty-three to 28-week second-trimester sonographic examination (BPD, HC, AC, FL) confirmed by a second examination 3-6 weeks later demonstrating normal interval growth (+/- 8%).
7. Third-trimester sonographic evaluation (+/-8%).

I- 23. Auscultation Fetal Heart Tones: Weeks 10-12, All following visits

BACKGROUND

No studies show improved perinatal outcome from identifying fetal heart tones, but expert opinion concurs that an occasional fetal demise may be found (with no other signs or symptoms) or an occasional cardiac anomaly might be detected. The primary indication for identifying fetal heart tones is the enormous psychological benefit to parents.

RECOMMENDATIONS

1. Recommend assessing fetal heart tones at each prenatal visit, starting at 10 to 12 weeks. [C]

I- 24. Screening Fundal Height: Weeks 10-12; All following visits

BACKGROUND

Fundal height is commonly used as an indicator of fetal growth. A discrepancy between fundal height and gestational age in weeks, particularly between weeks 20 and 36, may indicate abnormal growth and/or abnormalities in amniotic fluid volume. Timely detection and treatment of these abnormalities may improve fetal outcomes.

RECOMMENDATIONS

1. Recommend measuring fundal height in all pregnant women at each visit during the second and third trimesters. [B]
2. There is insufficient evidence to recommend for or against measuring fundal height after 36 weeks' gestation. [I]

I- 25. Assessing (Inappropriate) Weight Gain: Weeks 10-12; All following visits

BACKGROUND

Pregnant women who experience inappropriate weight gain may be at risk for a number of complications. Excessive weight gain may increase the risk for macrosomic infants, shoulder dystocia, operative delivery and postpartum obesity. Inadequate weight gain is associated with preterm delivery, intrauterine growth restriction, and low birth weight. Screening for inappropriate weight gain allows for early intervention to prevent these complications.

Obesity is defined as a BMI of 30 kg/m^2 or greater and affects approximately one-third of adult women. Obese women are at increased risk for several pregnancy complications (see I-27).

RECOMMENDATIONS

1. Recommend assessing and documenting body mass index (BMI) of all pregnant women at the initial visit. [B]
2. Pregnant women found to have a BMI <20 kg/m^2 should be referred for nutrition counseling and considered at increased risk for fetal growth restriction. [B]
3. Recommend screening for inappropriate weight gain for all women at every visit during pregnancy. [C]
4. Pregnant women with inadequate weight gain at 28 weeks who are unresponsive to nutritional treatment need additional surveillance. Consider consultation /referral to advanced prenatal care provider. [C]

I- 26. Nutritional Supplements: New Weeks 10-12

BACKGROUND

Women in the United States commonly (expect to) practice multivitamin supplementation throughout pregnancy. This tradition is based on the assumption that women have increased nutritional requirements during pregnancy that cannot be met by diet alone.

RECOMMENDATIONS

Multivitamins

1. Multivitamin supplements should be taken one month preconceptually and should be continued through the first trimester. [C]
2. Pregnant women taking nutritional supplements for a medical condition should continue that supplementation throughout pregnancy (e.g., B-12 with pernicious anemia and folate with seizure disorders). [I]
3. Pregnant women on restrictive diets (vegetarians, bariatric surgery) should have nutrition consultation to customize vitamin supplementation regimen. [I]

Folate

4. Folate supplements (400 mcg daily) should be taken one month preconceptually, continued through the first trimester and should be administered as part of the multivitamin supplementation. [A]
5. Women who have delivered a child with an open neural tube defect (NTD) should supplement their diets with 4 mg folate daily for at least one month prior to conception and through the first trimester to reduce the risk of recurrence. [A]

Calcium

6. Calcium supplementation may be considered to reduce the risk of preeclampsia in high-risk women and those with low baseline calcium intake. [A]

Omega3

7. There is insufficient evidence to support the use of Omega 3 supplements in the prevention of preterm birth, preeclampsia, and low birth weight. [I]
8. Other dietary supplements should be used with caution and only after discussion with provider. [I]

I- 27. Obesity: New — Weeks 10-12

BACKGROUND

Obesity is defined as a BMI of 30 kg/m^2 or greater and affects approximately one-third of adult women. Obese women are at increased risk for several pregnancy complications.

RECOMMENDATIONS

1. Recommend the following for obese pregnant women: [I]
    a. Provision of specific information concerning maternal and fetal risks of obesity
    b. Consideration of screening for gestational diabetes mellitus (GDM) on presentation or in the first trimester and repeated screening later in pregnancy if results are initially negative
    c. Assessment and possible supplementation of vitamin B12, folate, iron, and calcium for women who have undergone bariatric surgery
    d. Anesthesia consultation before labor
    e. Possible use of graduated compression stockings, hydration, and early mobilization during and after cesarean section
    f. Continuation of nutrition counseling and exercise program after delivery, and consultation with weight loss specialists before attempting another pregnancy.

I- 28. History of Gastric Bypass/Bariatric Surgery: New Weeks 10-12

BACKGROUND

The number of obese women of childbearing age undergoing bariatric surgery is increasing, resulting in questions regarding appropriate management of subsequent pregnancies. Pregnancy outcomes after bariatric surgery are consistent with general community outcomes. Nutritional and vitamin deficiencies, specifically iron, vitamin B12, folate and calcium are the most common complications.

RECOMMENDATIONS

1. Women with a gastric band should be monitored by their general surgeons during pregnancy because adjustment of the band may be necessary. [C]
2. Women who have undergone bariatric surgery should be evaluated for nutritional deficiencies and need for nutritional supplementation where indicated (e.g., Vitamin B12, folate, iron, and calcium). [C]
3. Women who experience dumping syndrome should NOT be screened for gestational diabetes with a glucose load but rather with fasting and two-hour postprandial glucose values. [C]

I- 29. Screening for Gonorrhea: Weeks 10-12

BACKGROUND

The CDC (1998) reports that there are approximately one million new cases of gonorrhea each year, and up to 80 percent of women infected with gonorrhea are asymptomatic. The reported prevalence among pregnant women varies from 0.4 to 7.5 percent. In pregnancy, infection with this organism can be asymptomatic or cause cervicitis, endometritis, or systemic illness. It has also been associated with septic abortion, neonatal ophthalmic infections, and abscesses of Bartholin's or Skene's glands. Maternal infection with gonorrhea has been associated with adverse pregnancy outcomes such as preterm labor, premature rupture of membranes (PROM), and preterm delivery (McGregor et al., 1990).

RECOMMENDATIONS

1. Recommend screening for gonorrhea in all pregnant women. [B]
2. Pregnant women with positive cultures should be treated with ceftriaxone, per the CDC guidelines. [B]
3. Pregnant women with positive screens for gonorrhea should be screened for other sexually transmitted diseases (STDs) and follow local mandatory reporting requirements. [I]
4. Recommend performing a test of cure (TOC) during pregnancy after completing antibiotic therapy. TOC in pregnant women, unlike non-pregnant women, is recommended due to risk of complications resulting from persistent or recurrent infections. [I]
5. Recommend counseling to decrease rate of reinfection. [C]
6. Recommend referring the partner for testing and treatment, as appropriate. [C]
7. Pregnant women must abstain from intercourse pending TOC. [C]

I- 30. Screening for Chlamydia: Weeks 10-12

BACKGROUND

Chlamydia trachomatis is one of the most common STDs in the United States. It is a leading cause of urethritis, cervicitis, PID, infertility, chronic pelvic pain, and ectopic pregnancy. In pregnancy, it can lead to preterm labor and delivery with resultant complications. Infection rates for neonatal conjunctivitis range between 15 and 25 percent and for neonatal pneumonitis between five and 15 percent. The morbidity and mortality rates for pregnant and nonpregnant women are equal.

RECOMMENDATIONS

1. Recommend screening all pregnant women for Chlamydia trachomatis at the initial physical examination. [B]
2. Pregnant women with positive cultures should be treated with azithromycin or erythromycin, per the CDC guidelines. [A]
3. Pregnant women with positive screens for Chlamydia should be screened for other sexually transmitted diseases (STDs). [I]
4. Recommend performing a test of cure (TOC) during pregnancy after completing antibiotic therapy. TOC in pregnant women, unlike nonpregnant women, is recommended due to risk of complications resulting from persistent or recurrent infections. [C]
5. Recommend counseling to decrease rate of re-infection. [C]
6. Recommend referring partner for testing and treatment, as appropriate. [C]
7. Pregnant women must abstain from intercourse pending TOC. [C]

I- 31. Screening for and Prevention of Cervical Cancer: Update Weeks 10-12

BACKGROUND

Pregnant women who are exposed to oncogenic human papilloma virus are at risk for cervical cancer. Screening for cervical cancer usually begins within three years of a woman becoming sexually active or by age 21, whichever comes first. The screening is performed annually with conventional cervical cytology smears or every two years using liquid-based cytology in women with no history of dysplasia. Pregnancy presents an opportunity to detect disease in those women not previously screened, and to initiate preventative measures in those who fit criteria for human papilloma virus (HPV) immunization.

RECOMMENDATIONS

1. Women current with routine screening for cervical cancer do not need to undergo additional testing. If the woman will come due for routine screening before the eight week postpartum visit, a screening test should be performed at the first prenatal visit. [B]
2. For women who do not receive cervical cancer screening antenatally, screening should be considered at the eight-week postpartum visit to ensure compliance with routine cervical cancer screening guidelines. [B]
3. Recommend performing cervical screening in pregnancy with a brush sampler and spatula. [A]
4. Recommend women with abnormal cervical cytology during pregnancy be managed based on local algorithms, which may include repeat testing, observation, or colposcopy. [C]

I- 32. Screening for HSV: New — Weeks 10-12 or onset of symptoms

BACKGROUND

Herpes Simplex Virus (HSV) is one of the most common sexually transmitted infections but it is not a reportable disease so the true incidence is not known. It is estimated that approximately 45 million adolescent and adult Americans are infected with HSV-2 (Fleming et al., 1997). However, HSV-1 can also cause genital disease.

Approximately 10 percent of women who are HSV-2 seronegative have partners who are seropositive and are at risk of transmission during pregnancy (Gardella et al., 2005). Most new infections in pregnancy are asymptomatic (Brown et al., 1997). Approximately 80 percent of infected infants are born to mothers with no reported history of HSV infection (Whitley et al., 1988).

RECOMMENDATIONS

1. Routine HSV screening of pregnant patients is not recommended. [I]

I- 33. Counseling for Cystic Fibrosis Screening: Update — Weeks 10-12

BACKGROUND

Cystic fibrosis (CF) is an autosomal recessive genetic condition. More than 1,300 mutations have been identified in the gene for cystic fibrosis, but the severity of disease (the phenotype) resulting from some of these mutations is not well characterized. Screening tests for common mutations are available and can reduce a couple's risk for having a child with cystic fibrosis. The risk of being a carrier depends on an individual's ethnicity and family history.

RECOMMENDATIONS

2. Information about cystic fibrosis (CF) should be provided to all couples. [I]
3. For couples who desire screening at <18 weeks' gestation, only one partner should initially be screened; if the screening is positive then the other partner should be screened. [I]
4. Cystic fibrosis carrier screening should be offered to all couples who desire it. Informed consent should be obtained prior to testing. [I]
5. Either sequential (testing one partner first) or concurrent (testing both partners simultaneously) carrier screening for cystic fibrosis is appropriate. The latter option may be preferred if there are time constraints for decisions regarding prenatal diagnostic testing or termination of the affected pregnancy. [I]
6. Recommend genetic counseling for individuals with a family history of cystic fibrosis, or for individuals found to be carriers of two cystic fibrosis mutations who have not previously received a diagnosis of cystic fibrosis. [I]

I- 34. Management of Depression during Pregnancy: New — When diagnosed

BACKGROUND

Untreated maternal depression is associated with various adverse pregnancy outcomes to include premature birth, fetal growth restriction, low-birth-weight infants, increased life stress, decreased social support, poor maternal weight gain, alcohol and drug use, and smoking. Treatment options for pregnant patients with depression may involve pharmacological and/or nonpharmacological options.

RECOMMENDATIONS

1. When antenatal depression symptoms are mild to moderate, consider referring patients for non-pharmacological treatment, such as Interpersonal Therapy (IPT). [A]
2. When pharmacological treatment of depression is necessary during pregnancy, the potential risks of SSRI exposure during pregnancy should be balanced with the potential risks of untreated depression on the mother and fetus. [B]
3. Avoid paroxetine use during pregnancy when possible. Consider fetal echocardiography for women exposed to paroxetine during early pregnancy. [B]
4. Choice of medications should be based on the well-characterized reproductive safety profiles of the medication, while also considering the severity of the depressive disorder and the wishes of the pregnant patient. [C]
5. Multidisciplinary management of the pregnant patient with depression is recommended to the extent that it is possible. This may involve the patient's obstetrician, behavioral healthcare provider, primary care physician, and pediatrician. [C]

I- 35. Periodontal Disease and Dental Care: New Weeks 10-12

BACKGROUND

Prenatal care providers have a significant role in educating women concerning the importance of good oral health during pregnancy. Periodontal disease prevalence among women of reproductive age is estimated at 37 percent to 46 percent and can be as high as 30 percent among pregnant women. In addition, fewer than half of women receive dental care during pregnancy. The prenatal care team can encourage women to maintain a high level of oral hygiene, to visit an oral health professional, and promote the completion of all needed treatment during pregnancy. Instruction on oral health for pregnant women should include expected physiologic changes in the mouth and interventions to prevent threats to their oral health.

Periodontal disease is a bacterial infection characterized by gingivitis (gum inflammation, bleeding, redness, tenderness and sensitivity) and periodontitis. If left untreated, periodontal disease can result in the formation of pockets around teeth caused by the destruction of the attachment of gums to teeth and teeth to the alveolar bone. Eventually it may lead to tooth loss. Periodontal disease is both preventable and curable. Treatment of periodontal disease in pregnant women is safe, and improves periodontal health.

Treatment of periodontal disease during pregnancy and the risk of adverse outcomes to the fetus have been debated in the literature. The most recent research completed does not support a direct relationship between provision of periodontal treatment in pregnancy to reduce adverse outcomes in pregnancy

RECOMMENDATIONS

1. Assessment of oral health and instruction on maintaining a high level of oral hygiene should be offered to all pregnant women during their initial prenatal assessment to promote oral health and the general health of the woman. [C]
2. Preventative dental treatment is safe and should be provided as early in pregnancy as possible. [B]
3. Routine dental care, including x-rays and periodontal therapy, are effective and safe during pregnancy, and should be recommended. [B]
4. There is insufficient evidence to recommend the routine treatment of periodontal disease in order to alter the rates of preterm delivery (PTD), low birth weight (LBW) or fetal growth restriction. [I]

I- 36. Prenatal Screening for Fetal Chromosomal Abnormalities: New — Weeks 10-12; 16-20

BACKGROUND

There is a three to five percent chance for a pregnancy to be complicated by a fetal structural or karyotype abnormality. Many of these abnormalities are detectable prior to delivery. Prenatal detection of fetal abnormalities provides an opportunity for preparation and/or intervention that may optimize the desired pregnancy outcome. Normal findings on prenatal tests may also decrease parental anxiety and stress.

Methods of prenatal evaluation broadly fall into screening and diagnostic categories. While screening modalities gather information used to calculate an individualized risk for the pregnancy, the results are not definite. These risks are usually reported both as a ratio of the likelihood that the baby(s) will be abnormal (e.g., 1:300) and more generally as "high risk" or "low risk". High risk is usually defined as being a ratio of more than 1:100 to 1:270 where the cutoff value depends on the specific test selected. Diagnostic testing provides yes or no (i.e., affected or not affected) results.

Screening modalities include measurement of maternal serum analytes, ultrasound evaluation, or a combination of maternal serum analyte and ultrasound evaluation. These modalities can variably be applied in each of the three trimesters of pregnancy but are typically performed in the first and second trimesters. The information obtained from these modalities can be combined to yield a complex array of screening strategies, each with its own inherent strengths and weaknesses including varied accuracy rates.

Multiple screening and testing modalities are now defined and offered but the individual tests/strategies are not uniformly available. Due to the complex nature of the testing strategies, the potential harm of both screening and diagnostic testing, their varied local availability, and their inherent elective nature, it is imperative that detailed counseling be provided to the prospective mother prior to electing or declining a specific testing strategy.

Ultrasound can be diagnostic of certain fetal anomalies but a fetal tissue sample is necessary to diagnose or exclude fetal karyotype abnormalities. Fetal tissue samples are usually obtained by chorionic villus sampling (CVS), amniocentesis, or fetal cord blood sampling (cordocentesis). Each of these methods has limitations and inherent risks of provoking a pregnancy loss. Some large studies have shown amniocentesis to be significantly less likely to cause pregnancy loss than cordocentesis or CVS but the risk of CVS in experienced hands has been reported to be very low in other studies. Amniocentesis is also the most widely available of the diagnostic methods. Chorionic villus sampling provides an earlier result than either amniocentesis or cordocentesis.

RECOMMENDATIONS

1. All pregnant women, regardless of age, should be offered a prenatal screening test for the most common clinically significant fetal anomalies as a routine part of prenatal care. [B]
2. Women presenting for care at appropriate gestational ages should have aneuploidy screening and diagnostic options available to them that provide first-trimester results as well as strategies that provide second-trimester results. The specific first-trimester screening strategy made available by or in the institution must be decided prior to embarking upon that strategy. [B]
3. Initial limited and comprehensive prescreen/pretest counseling methods may include written or multimedia communication, one-on-one, or group counseling formats. Posttest and late entry counseling should be provided in an individualized one-on-one format. [B]
4. Screening programs should show respect for the needs and quality of life of the woman and her family. Counseling should be nondirective and should respect a woman's choice to accept or to refuse any or all of the testing or options offered at any point in the process. [I]
5. The following modes of prenatal screening/diagnostic testing should be available for women receiving prenatal care in the DoD/VA: [B] (see Appendix E of the full guideline)
    a. No test at all

b. Screening with results in first trimester

c. Screening with results in second trimester

d. Diagnostic/invasive test in first and second trimester.

6. In order to make these screening and diagnostic options available, each institution providing prenatal care should provide locally or arrange for access to: genetic counseling, first- and second-trimester serum marker assessment, first-trimester nuchal translucency (NT) measurement, basic and comprehensive second-trimester ultrasound assessment, first-trimester chorionic villus sampling and second-trimester amniocentesis. [I]
7. All women considered high-risk, due to maternal age, personal or family history, or the result of a previous test, should be offered the choice of a first- or second-trimester screening strategy and the choice of first- or second-trimester diagnostic testing including appropriate comprehensive pre- and post-test genetic counseling. [I]
8. A comprehensive ultrasound may be offered as a primary or follow-on screening test. [B]
9. First-trimester NT should be interpreted for risk assessment only when performed by a trained sonographer who is accredited to provide this service [B] and when offered together with biochemical markers. [A]
10. For women who undertake first-trimester screening (FTS), second-trimester serum alpha fetoprotein (AFP) screening and/or ultrasound examination should be offered to screen for open neural tube defects (ONTD). [B]
11. Pregnant women with persistent unexplained elevations of maternal serum alphafetoprotein (MSAFP) are at increased risk for adverse perinatal outcome and should receive specialized prenatal care. [B]
12. The Quad Marker Screen should be used rather than the Triple Marker Screen when second-trimester serum screening is undertaken. [B]

Counseling

Comprehensive Counseling should include:

- *Initial brief counseling/information* This counseling/information, ideally provided in the first trimester, seeks to provide summary information and identify women who desire to forgo any screening or diagnostic testing for fetal aneuploidy/anomalies and to provide an opportunity for women to begin to consider screening/testing options.
- *Comprehensive prescreen/pretest counseling*. This counseling should be comprehensive in nature and should be provided to all women who are considering undertaking a screening strategy or diagnostic testing for fetal aneuploidy/anomalies. Comprehensive counseling should include information regarding the elective nature of the testing, the various available screening strategies, the potential benefits and limitations of screening tests, the potential risks and benefits of diagnostic testing, the locally available diagnostic testing strategies, and the financial and institutional limitations of pregnancy termination in the DoD/VA.
- *Posttest counseling*. This counseling should be provided to all women who have undergone screening or diagnostic testing when the result of the testing is abnormal or "high risk." This posttest counseling should include a discussion of the significance of the result, including its limitations such as the false positive rate and an outline of further options and management strategies for the woman and her family.
- *Late entry counseling*. This counseling should be provided to women presenting for prenatal care when the gestational age of her pregnancy limits options for screening strategies or diagnostic testing. The counseling should be based on the individual circumstances including the gestational age and patient desires.

Visits During Weeks: 16-27

I- 37. Obstetric Ultrasound: Update — Week 16-20

BACKGROUND

Ultrasound is commonly performed for a host of reasons to include earlier detection of severe anomalies, confirmation of dating, general assessment of fetal well-being, and maternal reassurance. It is not possible to completely separate aneuploidy screening from the above when ultrasounds are performed.

Fetal assessment by a comprehensive sonographic survey has been proven to be a useful means of ascertaining fetal health and establishing an accurate gestational age in, pregnant women.

Women with specific risk factors, or who develop high-risk conditions that may complicate the pregnancy, require additional surveillance including ultrasound(s) to assist in decision making.

None-the-less, the routine use of screening ultrasound in low risk women has not been conclusively demonstrated to improve long-term outcome in the offspring of these women. Thus, from a cost effectiveness standpoint, the routine use of screening ultrasound in well-dated pregnancies remains controversial.

A single screening ultrasound examination at 18-20 weeks for all pregnant women who desire the examination after having been counseled regarding the limitations and safety of the exam is supported by ACOG.

RECOMMENDATIONS

1. Recommend counseling and educating all pregnant women prior to scheduling sonographic studies about the potential benefits, limitations, and safety of prenatal ultrasound. Documentation of education and counseling is recommended; however, written informed consent is not deemed necessary. [C]
2. A complete obstetric sonographic examination should be recommended and available to women considering an invasive test on the basis of age, or other risk factors, when a more accurate gestational age is required for decision-making regarding medical or antenatal routine care interventions, or for predicting actual date of delivery [A]
3. A complete obstetric sonographic examination should be recommended and available to women or who are at increased risk for a songraphically detectable maternal or fetal abnormality where an intervention may improve the outcome (See table for list of indications) [A].
4. There is insufficient evidence to recommend for or against complete obstetric sonographic examination in the second trimester to all low-risk asymptomatic consenting pregnant women [I]
5. All complete obstetric sonographic studies hold be performed and interpreted by qualified healthcare providers. [A]

(See Standard for Performance of Antepartum Obstetrical Ultrasound Examination at: http://www.aium.org/publications/clinical/obstetric.pdf)

Table 5. Indications for Ultrasonography During Pregnancy

A. Evaluation Of Known Or Suspected Complications Of Pregnancy:
- confirm intrauterine pregnancy
- suspected ectopic pregnancy
- vaginal bleeding
- abdominal and pelvic pain
- maternal pelvic or adnexal masses
- uterine abnormalities
- cervical insufficiency
- suspected amniotic fluid abnormalities
- suspected placental abruption
- premature rupture of membranes
- premature labor
- suspected placenta previa
- suspected hydatidiform mole
- evaluate abdominal / pelvic pain or mass
-

B. Pregnancy Dating:
- uncertain gestational age
- assigned gestational age and clinical size discrepancy
- evaluation of suspected multiples

C. As Component of Screening For Fetal Aneuploidy:
- abnormal biochemical markers
- history of previous congenital anomaly
- to assess findings that may increase or decrease the risk of aneuploidy
- family, environmental or maternal history increasing the risk for fetal anomalies
- to screen for fetal anomalies

D. Evaluation of Fetal Growth and Well Being:
- confirm cardiac activity
- suspected fetal death
- determine fetal presentation
- fetal condition in late registrants for prenatal care
- medical conditions posing high risk of fetal growth abnormalities
- signs of fetal growth abnormality
- follow up of known fetal anomaly

E. As adjunct For Procedures:
- amniocentesis, chorionic villus sampling or fetal surgery
- external cephalic version
- cervical cerclage placement/evaluation
- embryo transfer, or localization and removal of an intrauterine device

I- 38. Education about Symptoms of Preterm Labor: Week-24

BACKGROUND

The majority of women who are admitted for the treatment of preterm labor, often in the advanced stages of labor and delivering within 12 hours of admission, recognized that there was something “different” about their pregnancy for hours or even days prior to seeking medical attention.

True preterm labor is defined as progressive cervical effacement and dilation in the presence of regular uterine contractions at a gestational age of at least 20 weeks, but no more than 37 weeks. A growing body of evidence suggests that progesterone administered to women at high risk for preterm birth significantly prolongs gestation. Additionally, many experts assert that the tocolysis of acute preterm labor allows the administration of antenatal corticosteroids and optimizes neonatal outcome. Thus, in addition to early risk factor assessment for preterm birth (see A-4), comprehensive patient education regarding the symptoms of preterm labor may maximize the opportunity for early evaluation and intervention to prevent delivery.

RECOMMENDATIONS

1. Pregnant women should be educated about the most common symptoms of preterm labor:
    a. Low, dull backache
    b. Four or more uterine contractions per hour. Uterine contractions may be perceived by the patient as:

- Menstrual-like cramps
- Sensation of the "baby rolling up in a ball"
- Increased uterine activity compared to previous patterns
- Abdominal cramping (may be associated with diarrhea)

c. Increased pelvic pressure (may be associated with thigh cramps)

d. Change in vaginal discharge such as change in color of mucus, leaking of clear fluid, spotting or bleeding or discharge associated with itching or fish-like odor immediately after intercourse

e. General sensation that "something feels different" (e.g., agitation, flu-like syndrome, and sensation that baby has "dropped").

2. A pregnant woman who experiences any of the above symptoms or is unsure about the presence of any of the above, should lie down on her side with one of her hands on her lower abdomen to palpate for uterine contractions for an additional hour. If symptoms persist and/or she palpates four or more uterine contractions in the hour, she should seek immediate medical care. The exception to this is the pregnant woman who notes the presence of vaginal bleeding, leaking of clear fluid from the vagina, or a vaginal discharge with a fish-like odor immediately after intercourse, all of which should prompt immediate medical attention. [I]
3. Re-emphasize to the pregnant woman that she is the most important link in the early diagnosis of preterm labor, and that early diagnosis and treatment of preterm labor increases the chances for a healthy infant.
4. Educate the pregnant woman that she can safely continue moderate exercise and activity during her pregnancy so long as she does not notice any of the symptoms of preterm labor. The exception to this is that she may notice some increase in uterine cramping with moderate exercise or activity. This is of no consequence so long as the cramping ceases when she stops her activity. She should limit her activity to no more than two hours per session. [B]
5. Women with uncomplicated pregnancies may continue a standard work schedule throughout their pregnancy. If their work is strenuous or they spend long periods of time on their feet they should limit their work week to 40 hours and workday to eight hours during the last trimester (beginning at 28 weeks) or sooner if they frequently experience symptoms of preterm labor while at work. Pregnant women should attempt to limit periods of time on their feet to three hours. [B]
6. There is no evidence that sexual intercourse increases the probability of preterm labor in women with uncomplicated pregnancy. They may experience some uterine contractions following orgasm; however, this is a normal response and she only needs to seek medical attention if they persist at four or more per hour for at least three hours, or if vaginal bleeding or spotting is noted.

I- 39. Counseling for Trial of Labor: Update — Week 24

BACKGROUND

A trial of labor after previous cesarean delivery has been accepted as a way to reduce the overall cesarean rate. Although vaginal birth after cesarean delivery (VBAC) is appropriate for many women with a prior low-transverse cesarean delivery, several factors increase the likelihood of a failed trial of labor which ultimately leads to increased maternal and perinatal morbidity and mortality. The rate of uterine rupture for women in spontaneous labor after one prior cesarean delivery is approximately 0.5 percent.

Cesarean delivery on maternal request is defined as a cesarean delivery for a singleton pregnancy on maternal request at term in the absence of any medical or obstetric indicators. The overall U.S. cesarean rate rose to 29.1 percent in 2004, and limited evidence suggests that cesarean delivery on maternal request

is also increasing for unclear reasons. Cesarean delivery on maternal request should be guided by the best possible information regarding potential health outcomes for both mother and baby.

RECOMMENDATIONS

1. Appropriate candidates for a trial of labor include women with one prior low transverse cesarean and no other contraindications to labor or vaginal delivery. Women with two prior low transverse cesareans are candidates provided they have undergone a previous vaginal delivery. [B]
2. Women who meet the criteria for a possible trial of labor should be counseled regarding the risks and benefits of VBAC versus repeat low transverse cesarean delivery. Ideally, informed consent should be documented in the antepartum period after 24 weeks, and again at the time of admission for delivery.
3. There is insufficient evidence to recommend for or against cesarean delivery on maternal request. [I]

Visits during Weeks: 28-37

I- 40. Screening for Gestational Diabetes: Update — Week 28

BACKGROUND

Routine screening of all pregnant women for gestational diabetes mellitus (GDM) should be performed at 24 to 28 weeks' gestation. GDM is defined as marked impairment of glucose metabolism initially identified during pregnancy, and has also been associated with childhood obesity. Pregnant women with GDM are at increased risk for developing fetal macrosomia and requiring operative delivery. Uncontrolled or poorly controlled gestational diabetes may also lead to neonatal morbidity, such as hypoglycemia, polycythemia, and hyperbilirubinemia. Treatment aimed at normalizing glucose metabolism has been shown to reduce these risks. Therefore, any pregnant woman with GDM should have additional surveillance and management beyond the scope outlined in this guideline.

RECOMMENDATIONS

1. Recommend screening all pregnant women for GDM at 24 to 28 weeks' gestation. [B]
2. Screening for GDM should be performed by randomly administering a 50 gram oral glucose tolerance test (GTT) followed by a blood draw one hour later. Generally accepted threshold values of the 1-hour screen are between 130 mg/dL and 140 mg/dL. Pregnant women who are positive require the diagnostic three-hour GTT. [B]
3. In the three-hour GTT a 100-gram glucose load is administered to a woman who has fasted overnight (minimum eight hours). Blood draws are performed fasting and at one, two and three hours after the oral glucose load. No special diet is required before this test. [C]
4. Two acceptable sets of threshold values for the three-hour 100-gram GTT can be used to diagnose gestational diabetes: the National Diabetes Data Group (NDDG) criteria and the Carpenter/Coustan conversion criteria. Institutions should adopt one of these two criteria sets based upon their population demographics. There should NOT be variance within the facility itself, though variance may occur between facilities. [B]
5. For patients with only one abnormal value, consider one of the following: [C]
    a. Undergo a repeat three-hour 100-gram glucose challenge test approximately one month following the initial test
    b. Have dietary management and intermittent postprandial glucose testing performed in a manner similar to women with gestational diabetes.
6. Patients with a history of gastric bypass surgery may experience a "dumping" syndrome following ingestion of large quantities of simple sugar. An alternative to the 50-gram glucose tolerance test in

these patients includes a fasting and two-hour postprandial finger sticks for one week. Target ranges are 90 mg/dL or lower fasting and 120 mg/dL or lower for postprandial. [C]

I- 41. Iron Supplement: Update — Week 28

BACKGROUND

Iron supplementation in pregnancy is commonly practiced and generally expected by women in the United States. This tradition is based on the assumption that women have increased nutritional requirements during pregnancy that cannot be met by diet alone.

RECOMMENDATIONS

1. There is insufficient evidence to recommend for or against routinely supplementing iron for all pregnant women. [I]
2. Women exhibiting signs or symptoms of anemia at any time during their pregnancy should be evaluated upon presentation. [I]
3. Obtain a serum ferritin if iron deficiency anemia is suspected. Recommend supplementing with at least 50 mg elemental iron (325 mg ferrous sulfate) twice a day (bid) in all pregnant women diagnosed with iron deficiency anemia (abnormal ferritin). [B]

I- 42. Anti-D Prophylaxis for Rh-Negative Pregnant Women: Update — Week 28

BACKGROUND

The incidence of Rh incompatibility varies by race and ethnicity. Approximately 15 percent of whites are Rh negative, compared with five to eight percent of African Americans, and one to two percent of Asians and Native Americans. Among whites, an Rh negative woman has an approximate 85 percent chance of mating with an Rh positive man, 60 percent of whom are heterozygous and 40 percent of whom are homozygous at the D locus. Pregnant women who have had D antigen isoimmunization in a previous pregnancy have an increased risk for development of fetal anemia and hydrops in future pregnancies. Since the introduction of anti-D (Rhogam) immune globulin injections during and after pregnancy in women who are D-antigen negative, the incidence of isoimmunization has fallen from 10 cases to 1.3 cases/1,000 live births.

RECOMMENDATIONS

1. Recommend determination of paternal erythrocyte antigen status for screen-positive women. [I]
2. Recommend administering anti-D prophylaxis to all unsensitized D-negative pregnant women. [B]
3. Recommend using either 300 mcg of anti-D immunoglobulin at 28 weeks or 100 mcg of anti-D-immunoglobulin at 28 and 34 weeks' gestation. [I]
4. Pregnant women who have had isoimmunization in a previous pregnancy or who are screened positive for antibody screen should be referred to a Maternal Fetal Medicine specialist for care. [A]

I- 43. Assess for Preterm Labor: Update — Weeks 28, 32

BACKGROUND

The assessment of risk for various adverse perinatal outcomes has become a routine component of prenatal care. One of the principal adverse outcomes that has been subjected to such risk assessment and profiling is preterm labor and subsequent preterm delivery. Preterm delivery, defined as delivery prior to 37 weeks' gestation, occurs in approximately 11 percent of all pregnancies in the United States. Efforts to identify and prevent preterm delivery have been hampered by the lack of an effective preventive method and treatment modalities that are only effective in delaying preterm births for a few days. Early efforts at lowering the preterm delivery rate focused on the use of risk factor profiling. Unfortunately, subsequent analysis of such risk profiles demonstrated that only approximately 50 percent of women who delivered prematurely were identified by the risk profile system. Thus, all pregnant women must be considered at risk for preterm labor until they reach 37 weeks' gestation. This risk spans a wide spectrum and the approach of the practice guideline will be as follows:

- Screen each pregnant woman for clinically substantive risk factors (see A-4)
- Provide patient education regarding early clinical signs and symptoms of preterm labor and appropriate responses (see I-38)
- Inquire about the presence of clinical signs or symptoms of preterm labor at each visit between 24 and 36 weeks' gestation.

RECOMMENDATIONS

1. Pregnant women should be educated about the most common symptoms of preterm labor:
    a. Low, dull backache
    b. Four or more uterine contractions per hour. Uterine contractions may be perceived by the patient as:
    - Menstrual-like cramps
    - Sensation of the "baby rolling up in a ball"
    - Increased uterine activity compared to previous patterns
    - Abdominal cramping (may be associated with diarrhea)
    c. Increased pelvic pressure (may be associated with thigh cramps)
    d. Change in vaginal discharge such as change in color of mucus, leaking of clear fluid, spotting or bleeding or discharge associated with itching or fish-like odor immediately after intercourse.
    e. Sensation that "something feels different" (e.g., agitation, flu-like syndrome, and sensation that baby has "dropped").
2. A pregnant woman who experiences any of the above symptoms or is unsure about the presence of any of the above, should lie down on her side with one of her hands on her lower abdomen to palpate for uterine contractions for an additional hour. If symptoms persist or she palpates four or more uterine contractions in the hour, she should seek immediate medical care. The exception to this is the pregnant woman who notes the presence of vaginal bleeding, leaking of clear fluid from the vagina or a vaginal discharge with a fish-like odor immediately after intercourse, all of which should prompt immediate medical attention.
3. If no diagnosis of preterm labor is established, continuation in the guideline is appropriate.

I- 44. Daily Fetal Movements Counts: Weeks 28; All following visits

BACKGROUND

Nearly one-half of all fetal deaths occur in pregnancies of low-risk women. Since fetal movement is a sign of fetal well-being, it may be beneficial for all women to learn to assess fetal movement during the third trimester. One hundred percent of fetuses between 30 to 39 weeks' gestation and 98 percent of fetuses 24 to 27 weeks' gestation, move by the 75th minute of observation, so maternal perception of movement should occur within 1½ hours (Patrick et al., 1982). A decrease in fetal movement may indicate fetal jeopardy and should immediately prompt the pregnant woman to seek further evaluation of fetal well-being.

RECOMMENDATIONS

1. Recommend instructing all pregnant women about the importance of assessing fetal movement on a daily basis beginning in the third trimester. [B]
2. Recommend instructing all pregnant women as to the course of action they should take if they do not perceive the minimum fetal movement counts within the time frame specific to their healthcare facility.

I- 45. Counseling for Family Planning: Week 32

BACKGROUND

Antepartum counseling for family planning allows the pregnant woman and provider ample time for discussion and informed decision-making. The different options for birth control discussed during pregnancy, including permanent sterilization, may enable the woman to consider the pros and cons of each method and choose the one that best fits her lifestyle.

RECOMMENDATIONS

1. Recommend antepartum counseling and educating all pregnant women regarding family planning, to include various temporary contraceptive means and/or permanent sterilization. [C]

I- 46. Screening for Group B Streptococcus (GBS): Update Week 36

BACKGROUND

Group B streptococcus (GBS) infections are the leading cause of serious neonatal infections (i.e., sepsis, meningitis, and pneumonia) within the first seven days of life (early-onset infection). A preventive strategy using intrapartum antibiotics for prophylaxis (IAP) in women who have been identified as GBS carriers has been proven to decrease the incidence of early-onset GBS infections of the newborn.

RECOMMENDATIONS

2. Recommend screening all pregnant women for Group B streptococcus (GBS) at 35 to 37 weeks' gestation, using a rectovaginal culture and selective broth media to identify colonized women. [B]
3. Screening should be repeated every four weeks until delivery. [C]
4. Pregnant women with positive rectovaginal cultures should be treated with intrapartum IV chemoprophylaxis with either Penicillin or Ampicillin (if no contraindications) [(a)]. [A]
5. Pregnant women who have had a previous child with early-onset GBS infection or have GBS bacteruria in the current pregnancy should receive intrapartum antibiotics, without screening cultures. [A]

[(a)]Management of the GBS-colonized parturient with a history of an allergic reaction to penicillin agents: due to emerging resistance to previous second-line antimicrobial agents, clindamycin and erythromycin (10 to 15 percent resistant strains in most centers), alternative second-line agents for women with a history of allergic reactions to penicillin or ampicillin are listed below:

a. Administer cefazolin 2gm IV load, followed by 1 gm IV every eight hours, for allergic reaction other than immediate hypersensitivity

b. Administer vancomycin 1 gm IV load, followed by 1 gm IV every 12 hours, for immediate hypersensitivity reaction (anaphylaxis, dyspnea, rapid onset of urticarial rash).

I- 47. Assessment of Fetal Presentation: Weeks 36, 38-41

BACKGROUND

Fetal non-cephalic presentation at term can result in cesarean section delivery. Examination at 36 weeks can identify non-cephalic presentation. External version of the fetus to the vertex position can allow a trial of labor for vaginal delivery. Vaginal delivery is associated with less morbidity and mortality than cesarean section delivery.

RECOMMENDATIONS

1. Recommend screening for non-cephalic presentation for all patients at 36 weeks' gestation. [B]
2. There is insufficient evidence to recommend for or against Leopolds versus cervical exam as the best screening method to determine fetal presentation. [I]
3. Recommend ultrasound for confirmation, if non-cephalic presentation is suspected. [B]
4. If non-cephalic presentation is confirmed and there are no contraindications, recommend external cephalic version at 37 weeks or beyond and referral to an advanced prenatal care provider. [B]

Visits During Weeks: 38-41

I- 48. Consider Weekly Cervical Check/stripping (sweeping): Update Weeks 38-41

BACKGROUND

Post-dates pregnancies (over 42 weeks) occur in 10 percent of uncomplicated pregnant women. Post-dates pregnancies have a higher incidence of induction of labor, operative delivery, post-partum hemorrhage and shoulder dystocia. Routine membrane stripping, in low-risk pregnant women with accurate dating criteria, has been proposed as a method of encouraging earlier delivery to prevent post-dates pregnancy.

RECOMMENDATIONS

1. Consider offering routine membrane sweeping to all pregnant women every visit beginning at 38 weeks. [C]
2. There is insufficient data to encourage or discourage this practice in women known to be GBS-colonized. [I]

I- 49. Term Management: New — Weeks 38-41

BACKGROUND

Intrapartum fetal distress, meconium staining, postmaturity syndrome and primary cesarean section rates all increase after the 40th week of gestation (Devoe, 1983). Pregnancies continuing past the 41st week carry additional risk of oligohydramnios, perinatal morbidity and mortality (Sims & Walther, 1989). The goal of antepartum fetal testing is to prevent adverse fetal and maternal outcomes, to include fetal death. The success of antenatal fetal testing at predicting these outcomes, as well as the appropriate time to initiate antenatal fetal testing, have both been topics of debate in the medical community.

RECOMMENDATIONS

1. In the absence of contraindications, labor induction should be offered to women who reach 41 and 0/7 weeks undelivered. [A]
2. In those patients with a favorable cervix (Bishop score > 6), induction after 39 weeks may be considered. [B]
3. When labor induction is offered or planned, women should be educated on the risks of induction, including length of induction, discomfort involved, and the process in determining appropriate timing of induction. [B]
4. Antepartum fetal testing should begin as soon as possible after 41 and 0/7 weeks if not scheduled for induction at this time. [C]
5. Testing should consist of weekly amniotic fluid assessment and twice weekly non-stress testing (NST). [C]
6. Inadequate amniotic fluid index should prompt further evaluation to determine the need for delivery. [B]

I- 50. Immunization HPV Vaccine: New — Prior to discharge; Postpartum visit

BACKGROUND

Cervical cancer is currently the 13th most frequently diagnosed cancer among American women (Saslow et al, 2002). Over 70 percent of cervical cancers result from infection with high-risk human papilloma virus (HPV) types 16 and 18 (Wright et al., 2007). The U.S. Food and Drug Administration has approved a quadrivalent HPV vaccine for use in women between nine and 26 years of age. This vaccine is given in a series of three shots: an initial shot followed by subsequent shots at two and six months from date of initial injection. Pregnant women are members of the population at risk for cervical cancer due to exposure to oncogenic human papilloma virus. Pregnancy presents an opportunity to initiate preventative measures in those who fit criteria for HPV immunization. For women who do not receive cervical cancer screening antenatally, screening should be considered at the eight-week postpartum visit to ensure compliance with routine cervical cancer screening guidelines.

RECOMMENDATIONS

1. Offer vaccination before postpartum discharge to all women $\leq$ 26 years of age who have not previously completed HPV vaccination series. [B]
2. Women who begin their HPV vaccination series in the immediate postpartum period should complete the series with subsequent vaccinations at two months and six months following the first shot in the series. The eight-week postpartum visit provides an opportunity for the second shot. [C]
3. Vaccination to protect against HPV in individuals with a history of dysplasia is controversial and the decision to proceed in this situation should be made between a patient and her provider. [I]

4. Women who have initiated the HPV vaccine series before becoming pregnant should halt the series during pregnancy, and resume after delivery. [I]
5. HPV vaccination may be given to lactating women. [I]

I- 51. Education - Shaken Baby Syndrome (SBS): New At discharge; Postpartum visit

BACKGROUND

Shaken Baby Syndrome (SBS) is a preventable cause of injury and death. Thousands of cases occur each year in the United States. Unfortunately, evidenced-based documentation does not exist regarding prevention strategies.

The SBS toolkits are derived from educational components of the National Center on SBS but are customized to military families. The kits were developed in consultation with a steering committee and were tested with several focus groups.

RECOMMENDATIONS

1. All pregnant women and fathers should receive education about Shaken Baby Syndrome prior to discharge from the hospital. [I]

Interventions Not Recommended in Prenatal Care (All Weeks)

I- 52. Routine Screening with Fetal Fibronectin: Update Not Recommended

BACKGROUND

Fetal fibronectin levels can identify pregnant women at risk for preterm delivery. Routine fetal fibronectin screening of cervical vaginal fluid has been suggested by some experts as a means of reducing preterm delivery among low-risk/asymptomatic pregnancies. However, there is insufficient data to support fetal fibronectin screening in all pregnant women.

RECOMMENDATIONS

1. Recommend against routine screening for preterm birth with fetal fibronectin (fFN) test. [D]
2. Utilization of fFN testing in symptomatic women between 24 and 34 6/7 weeks' gestation may be useful in guiding management of women with signs and symptoms of preterm labor. [B]

I- 53. Routine Cervical Examination: Not Recommended

BACKGROUND

Digital cervical examination can identify pregnant women at risk for preterm delivery. Universal screening of cervical dilation and effacement has been suggested as a means of reducing preterm delivery among low-risk/asymptomatic pregnancies. However, there is insufficient data to justify routine digital cervical examination in all pregnant women.

RECOMMENDATIONS

1. Recommend against performing cervical examination to screen for preterm birth prevention in low-risk asymptomatic pregnant women. [D]

I- 54. Routine Antenatal Pelvimetry: Not Recommended

BACKGROUND

Traditionally, all pregnant women underwent clinical pelvimetry during the course of their pregnancy to detect pelvic diameters that would preclude a trial of labor or place a woman at increased risk of dystocia.

RECOMMENDATIONS

1. Recommend against the use of antenatal pelvimetry (clinical or radiographic) in routine prenatal care. [D]
2. There is fair evidence that clinical pelvimetry is not effective in predicting the actual occurrence of cephalopelvic disproportion (CPD), and its performance is associated with significant increase in cesarean section rates. [D]

I- 55. Routine Urine Dipstick Test: Not Recommended

BACKGROUND

Random urine dipstick testing for protein and glucose has been traditionally done at each prenatal visit. Concerns have been raised about the efficacy of the urine dipstick in detecting protein elevation that may indicate preeclampsia.

RECOMMENDATIONS

1. Recommend against the use of urine dipstick testing for protein and glucose during prenatal visits (the appropriate screening test for gestational diabetes is the one-hour glucola). [D]
2. Recommend the use of selective laboratory urinalysis for pregnant women with signs or symptoms of preeclampsia. [B]

I- 56. Routine Edema Evaluation: Not Recommended

BACKGROUND

Routine clinical evaluation of edema has been performed to screen for preeclampsia. Dependent edema (DE) is a common occurrence in normal pregnancies, thus limiting its usefulness as a screening tool for preeclampsia. According to the NIH consensus, "Edema occurs in too many normal pregnant women to be discriminant and has been abandoned as a marker in this and other classification schemes (for preeclampsia)" (NIH, 2000).

RECOMMENDATIONS

1. Recommend against routine evaluation for edema in pregnancy. [D]

I- 57. Routine Screening for Cytomegalovirus (CMV): Not Recommended

BACKGROUND

Cytomegalovirus (CMV) is the most common congenitally acquired infection (0.2 to two percent of all infants) and may result in significant poor perinatal outcome. Some have suggested routine screening for CMV antibody status to identify women at risk for primary CMV infection during pregnancy.

RECOMMENDATIONS

1. The evidence is insufficient to recommend for or against routine screening for cytomegalovirus (CMV). [I]
2. Recommend counseling pregnant women about methods to prevent acquisition of CMV during pregnancy. [C]

I- 58. Rooutine Screening for Parvovirus: Not Recommended

BACKGROUND

Acute parvovirus B19 infection in pregnancy has been rarely associated with the development of fetal anemia and hydrops. It has been suggested that early detection of this infection may improve fetal outcomes. There is no immunization or treatment for parvovirus B19.

RECOMMENDATIONS

1. Recommend against routine testing for parvovirus in pregnancy. [D]

I- 59. Routine Screening for Toxoplasmosis: Not Recommended

BACKGROUND

Toxoplasmosis infection has been rarely associated with fetal morbidity and mortality. Common sources for infection include the handling of contaminated meats and cat feces. It has been suggested that early detection and subsequent treatment of this infection may improve fetal outcomes.

RECOMMENDATIONS

1. Recommend against routine testing for toxoplasmosis in pregnancy. [D]
2. Recommend counseling pregnant women about methods to prevent acquisition of toxoplasmosis during pregnancy. [C]

I- 60. Routine Screening for Bacterial Vaginosis: Update Not Recommended

BACKGROUND

Bacterial vaginosis is found in approximately 10 to 20 percent of normal pregnancies and is a common condition in pregnancy that has been associated with an increased risk for preterm delivery. It has been suggested that screening for bacterial vaginosis may improve fetal outcomes through reduction of preterm labor.

RECOMMENDATIONS

1. Recommend against routine screening for bacterial vaginosis in asymptomatic pregnant women. [D]

I- 61. Immunization – MMR: (measles/mumps/rubella) Not Recommended

BACKGROUND

Rubella in the first 16 weeks of pregnancy causes miscarriage, abortion, stillbirth, and Congenital Rubella Syndrome (CRS). The most common manifestations of CRS are hearing loss, developmental delay, growth

retardation, and cardiac and ocular defects. Since 1969, when the vaccine was made available in the United States and childhood immunization was initiated, no major periodic rubella epidemics have occurred. Adults accounted for 25 percent of the measles cases reported in 1994 (Baughman et al., 1994). Complications of measles, including pneumonia and encephalitis, are more common among adults than among school-aged children. In 1994, measles was reported in 232 American adults, age 20 or older (Centers for Disease Control, 1994).

RECOMMENDATIONS

1. Recommend against routine measles/mumps/rubella (MMR) immunization during pregnancy. [D]

I- 62. Routine Immunization – Varicella: Not Recommended

BACKGROUND

The CDC recommends that all adults be immunized for varicella, if seronegative. Immunization prevents over 90 percent of varicella infections. Congenital varicella syndrome, while rare, can cause significant neonatal morbidity and mortality. There are theoretical concerns regarding administration of an attenuated virus during pregnancy. These include potential alterations in fetal immunity and inducement of a congenital varicella-like syndrome in the fetus.

RECOMMENDATIONS

1. Recommend against routine varicella vaccination in pregnancy. [D]
2. Recommend serological testing early in pregnancy for all pregnant women with a negative or uncertain history. [B]
3. Recommend offering vaccination postpartum to pregnant women who are non-immune. [B]

I- 63. Routine Ultrasound Evaluation of Cervical Length: Update Not Recommended

BACKGROUND

Preterm delivery remains one of the principal causes of adverse perinatal outcomes. Multiple interventions to identify pregnant women at risk for preterm delivery have been studied in the recent past. It has been determined that cervical length, as measured by transvaginal sonography, correlates with the incidence of preterm delivery. Observational studies have found a linear relationship between cervical length and the rate of preterm delivery as well as the gestational age of delivery. This finding has prompted questions regarding the usefulness of routine screening of cervical length in pregnant women.

RECOMMENDATIONS

1. Recommend against *routine* cervical length screening at 24 weeks' gestation. [D]

I- 64. Repeat Screening for Anemia, Syphilis, and Isoimmunization: Not Recommended

BACKGROUND

Traditional maternal care often requires repeat testing of all women for anemia, syphilis, and anti-D and non-anti-D antigen antibody development in the mother at 24 to 28 weeks' gestation. This testing was done to identify correctable causes of potential morbidity and mortality in the mother and fetus. Pregnant women with anemia may respond to vitamin and iron supplementation and those with syphilis can be

treated with antibiotics. The unborn fetus with D isoimmunization may be helped by in utero transfusion or early delivery.

RECOMMENDATIONS

1. Recommend against routine repeat screening for blood group antibodies. [D]
2. Recommend against routine repeat screening for anemia and syphilis. [D]
3. Recommend providers consider repeat testing for anemia or syphilis at 24 to 28 weeks for women who are at higher risk for these conditions. [C]

I- 65. Routine Screening for Hypothyroidism: Not Recommended

BACKGROUND

Recent publications have drawn attention to the role of thyroid hormone status of the mother on the future neuropsychological development of the child. Screening all pregnant women for thyroid hormone status has been suggested. To date, however, there are no evidence-based studies to provide meaningful and clinically relevant data to guide the practitioner.

RECOMMENDATIONS

1. Recommend against routine screening for thyroid hormone status of the mother. [D]
2. Recommend ensuring adequate iodine intake during pregnancy for pregnant women in areas of the country with questionable levels of dietary iodine. [C]

APPENDIX G
Acronym List

AAP	American Academy of Pediatrics
ACS	American Cancer Society
ACOG	American College of Obstetricians and Gynecologists
AFI	Amniotic Fluid Index
AFP	Alphafetoprotein
AIUM	American Institute of Ultrasound in Medicine
ASB	Asymptomatic Bacteriuria
bid	Twice a Day
BMI	Body Mass Index
CAGE	Alcohol Abuse/Dependency Screening Instrument
CBC	Complete Blood Count
CBT	Cognitive Behavioral Therapy
CDC	Centers for Disease Control
CF	Cystic Fibrosis
CI	Confidence Interval
CMV	Cytomegalovirus
CNM	Certified Nurse Midwife
CPD	Cephalopelvic Disproportion
CPG	Clinical Practice Guideline
CPS	Clinical Preventive Services
CRS	Congenital Rubella Syndrome
DE	Dependent Edema
DM	Diabetes Mellitus
ECT	Electroconvulsive Therapy
EDC	Estimated Date of Confinement
EDD	Estimated Date of Delivery
EDPS	Edinburgh Postnatal Depression Scale
EGA	Estimated Gestational Age
fFN	Fetal Fibronectin
GBS	Group B Streptococcus
GDM	Gestational Diabetes Mellitus
GTT	Glucose Tolerance Test
HBIG	Hepatitis B Immune Globulin
HCG	Human Chorionic Gonodatropin
HIV	Human Immunodeficiency Virus
HPV	Human Papillomavirus
HSV	Herpes Simplex Virus
IAP	Intrapartum Antibiotics for Prophylaxis
IOM	Institute of Medicine
IPT	Interpersonal Therapy
IV	Intravenous
LBW	Low Birth Weight
LEEP	Loop Electrosurgical Excisional Procedure
MDD	Major Depressive Disorder
MFM	Maternal-Fetal Medicine Physician
MMR	Measles/Mumps/Rubella

MOM	Multiples of the Median
MSAFP	Maternal Serum Alphafetoprotein
NDDG	National Diabetes Data Group
NIH	National Institute of Health
NNT	Number-Needed-To-Treat
NRT	Nicotine Replacement Therapy
NST	Non-Stress Testing
NTD	Neural Tube Defect
OB/GYN	Obstetrician/Gynecologist or Obstetrical/Gynecological
OIA	Optical Immunoassay
ONTD	Open Neural Tube Defects
OR	Odds Ratio
Pap	Papanicolaou
PCR	Polymerase Chain Reaction
PID	Pelvic Inflammatory Disease
PROM	Premature Rupture of Membranes
PTB	Preterm Delivery
RCT	Randomized Controlled Trials
RPR	Rapid Plasma Reagin
RR	Relative Risks
SIDS	Sudden Infant Death Syndrome
SOGC	Society of Obstetricians and Gynaecologists of Canada
SSRI	Selective Serotonin Reuptake Inhibitors
STD	Sexually Transmitted Disease
Td	Tetanus-diphtheria
TOC	Test of Cure
TSH	Thyroid Stimulating Hormone
US	Ultrasound
USPSTF	United States Preventive Services Task Force
VBAC	Vaginal Birth After Cesarean Delivery
VDRL	Venereal Disease Research Laboratory