Boston Medical Center Maternity Care Guideline
Guideline: Routine Prenatal Screening
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Approved by Guidelines committee, OB QI committee

Introduction

Definition: Routine screening tests are recommended during prenatal care to promote optimal maternal-fetal outcomes. There are also vaccinations recommended during routine pregnancy care for disease prevention (see separate guideline).

Prevalence: All pregnant patients should be offered routine screening.

Risk factors: Some labs are recommended for high risk populations only. These populations include, but are not limited to the following:

- Hemoglobin electrophoresis: African American, African, Southeast Asian, and Mediterranean descent
- Early GDM screening: High risk for GDM
- TB screening: High risk for TB

Diagnosis

ROUTINE PRENATAL LABS

Prenatal Labs Boston Medical Center			Reference: Guidelines for Perinatal care 8th Edition, ACOG/AAP		
	first trimester	second trimester	third trimester	postpartum	Once in a lifetime
Blood type	x				
RH factor	x				
Antibody screen	x		28 weeks repeat if RH NEG		
CBC	x	x		if OBH	
Hemoglobin electrophoresis	x				x
syphillis screen (2x in pregnancy)	x	all patients 24-28 weeks			
Hepatitis B **surface antigen**	x				
Hepatitis C antibody with reflex	x				
HIV	x		recommended		
GC/CT	x		<25yo		
Varicella IgG	x				if immune or vax x2
Rubella IgG	x				if immuune
TB screen and test +screen	PPD or Quant gold if not previsouly done or with new risk factors			if HR and not previously completed	
GDM	high risk	all patients 24-28 weeks		6wk GTT	
Hgb A1C	per GDM guideline				
GBS			>36 weeks		
Pap Smear	>21yo per PAP guidelines				
Urine culture	x				
HELLP labs if CHTNor hx PIH	x				
Chagas IgG	high risk only				
OPTIONAL GENETIC SCREEN					
SMA	X (any trimester)				x
CF carrier screen	X (any trimester)				x
Tay Sachs	X (any trimester)				x
Fragile X	X (any trimester)				x
FTS	x (11-13.4 wk)				
QUAD only if FTS/NIPT not done)		x (15-20wk)			
NIPT	X (any trimester)				

FIRST TRIMESTER

- Blood type and Antibody Screen
- CBC (see Anemia Guideline)
- Syphilis IgG/IgM (see Appendix I)
- HIV (document verbal consent obtained)
- Hepatitis B Surface Antigen (HBSaG)
- Hepatitis C
- Varicella antibody (if unknown or prior non-immune status)
- Rubella antibody (if unknown or prior non-immune status)
- Early GLT if high risk (see Appendix II)
- TB screen if high risk (see Appendix III)
- Hepatitis B antibody if at risk (See appendix V)
- Chagas IgG if high risk
- Genetic Testing: First Trimester Screen (FTS) 11w3d-13w4d of Noninvasive Prenatal Testing (NIPT) [cell free DNA]
- Gonorrhea/Chlamydia (urine (not clean catch), cervical, or vaginal specimen)
- Urine culture
- PAP if indicated (see BMC PAP testing guideline)

ONCE IN A LIFETIME

- Varicella Antibody [once in lifetime if found to be immune or received vaccine x2 doses]
- Rubella Antibody [once in lifetime if found to be immune]
- Hepatitis B core antibody if high risk (see appendix VI)
- Genetic/Carrier testing: SMA, Tay Sachs, CF, Hemoglobin electrophoresis, Fragile X

Carrier Screening for Genetic Condition

- Hemoglobin Electrophoresis
    - African American, African, Southeast Asian, and Mediterranean are high risk populations, but reasonable to offer in all populations
- Cystic Fibrosis
    - Recent updates recommend CF carrier screening in all pregnant women
- SMA: spinal muscular atrophy
    - Is recommended for all pregnant women for carrier screening
- Fragile-X
    - Is recommended for women with a family history of fragile X-related disorders or intellectual disability suggestive of fragile X
- Tay-Sachs
    - Screening for Tay–Sachs disease is recommended for women of Ashkenazi Jewish, French–Canadian, Cajun descent, or with a family history consistent with Tay–Sachs disease

GENETIC TESTING

Genetic testing should be offered to all pregnant patients. Some patients may opt not to have testing. Genetic counseling and testing is recommended in high risk populations who are AMA, or have a personal/family history of a child with a genetic disorder or anomaly. (Hyperlink to GENETICS GUIDELINE)

- First Trimester Screen (FTS) 11w3d-13w4d
- NIPT offered as early as 10wks for high risk populations. There may be insurance coverage issues. This test should only be ordered by the genetic counselor in the ATU.
- Quad screen (if FTS not done) 15-22w6d weeks (most accurate between 16-18 weeks)
- MSAFP only (if FTS is done) 15-22w6d weeks (most accurate between 16-18 weeks)

15-20 WEEKS

- QUAD screen if 1st trimester screen/early risk assessment or NIPT was not done
- Offer isolated AFP if 1st trimester screen/early risk assessment was done to evaluate for risk of neural tube defects

24-28 WEEKS

- CBC
- 1hr Glucola (see GDM GUIDELINE)
- Repeat Syphilis testing

28 WEEKS

- RH NEG: Anti-body screen and RHOGAM
    - Antibody screen should be drawn prior to RHOGAM administration, but you DO NOT need to wait until anti-body screen is resulted

≥36 WEEKS

- Vagino-rectal GBS culture.

- Swab the lower vagina (vaginal introitus), followed by the rectum (insert swab through the anal sphincter)
- Exceptions: If history of positive GBS UTI in current pregnancy or prior infant with invasive GBS disease-- no testing indicated, recommend intrapartum prophylaxis.
- Order sensitivities if patient has a PCN allergy
- If positive GBS vaginal culture >6 weeks from testing, repeat

- HIV: Third trimester HIV testing can be offered to all pregnant patients.
    - If patients decline testing, please document this in problem list under supervision of pregnancy. If patients have a documented negative first trimester HIV test and decline 3rd trimester screening, they do not need to be offered testing on L and D
- Syphilis screen: Third trimester for high risk patients or those who did not have a second test during pregnancy
- GC/Chlamydia: Re-screen if at risk
    - <25 years old, prior positive in this pregnancy, high risk sexual activity, or patient desires

POSTPARTUM

- RH NEG: Maternal Hemorrhage screen and Antibody screen
- GDM
    - Screening for diabetes if GDM at 6 weeks postpartum (fasting glucose or 2 hr 75 gm GTT) (see GDM Guideline)

Treatment/Management

- CDC 2015 STD Screening Recommendations
    - http://www.cdc.gov/std/tg2015/screening-recommendations.htm
- Recommendations based on evidence-based protocols for positive testing
- For abnormal genetic screening follow ATU genetic screening workflow

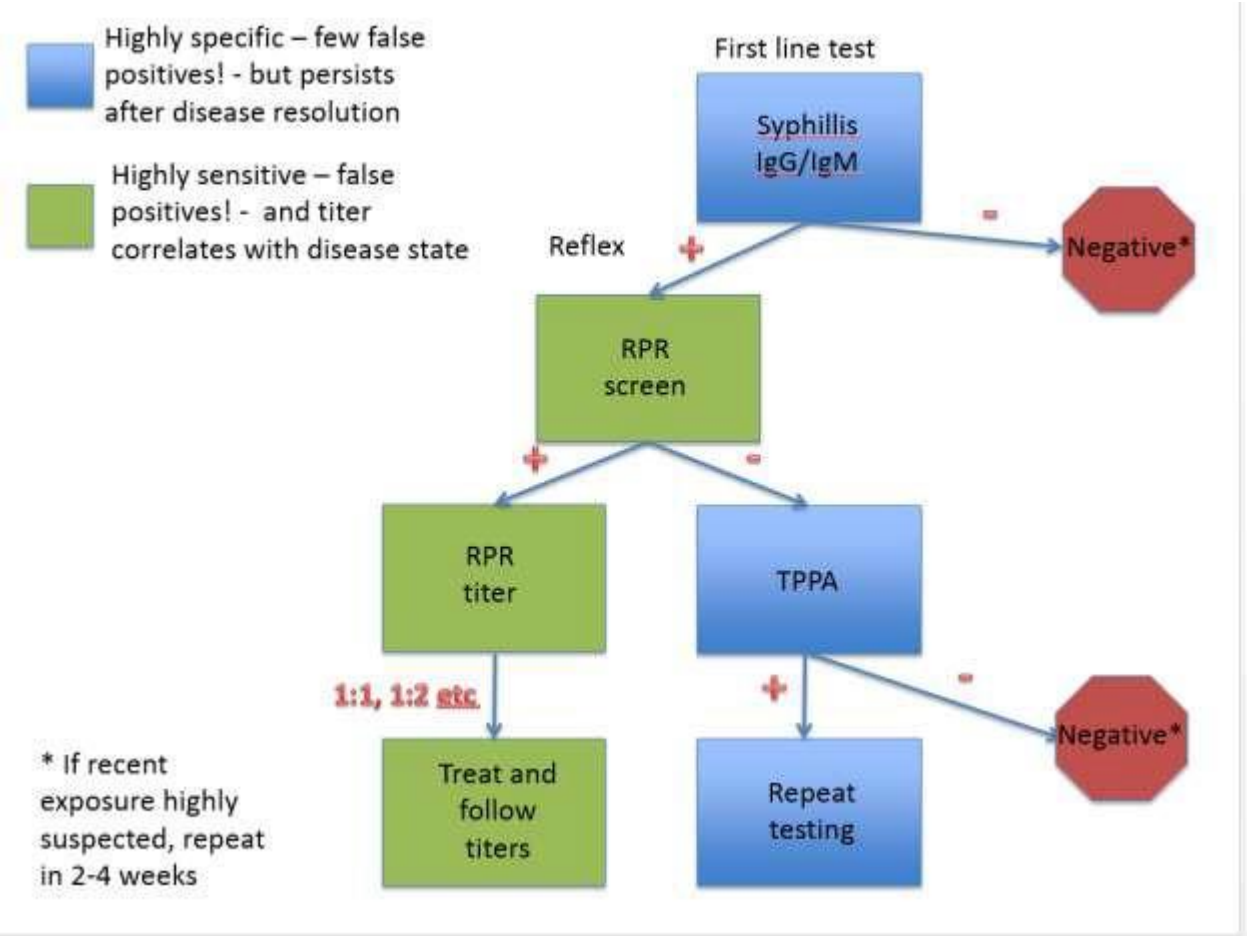
Logistical Practice for BMC and CHC providers

- Use the EPIC Smartphrase ".bmcobprenatallabs" to pull most recent labs into problem list under "supervision of pregnancy" at BMC
- Patients with positive carrier or genetic screening should be referred to Genetics for consultation. Call 617-414-7292 to schedule or contact Philip Conner, Genetic Counselor, via EPIC flag.
- For +TB screening: Add to problem list, add TB testing and CXR results if indicated

Patient Education/Patient Education Materials

- GBS patient materials in English and Spanish http://www.cdc.gov/groupbstrep/resources/print-materials.html

Appendix
SPECIAL POPULATIONS TESTING
Appendix I: Algorithm for Syphillis Testing



Appendix II: Early GLT Screening: (GDM guideline)
Pregnant women who meet the following criteria should be screened as early as possible, preferably at the first prenatal visit. If the initial screening result is normal, they should be re-screened at 24-28 weeks. Indications for early testing include, but are not limited to:

- Personal history of GDM
- Obesity (BMI≥30)
- PCOS
- Impaired glucose tolerance
- Glycosuria early in pregnancy
- Strong family history of diabetes (one first degree relative, or more than one second degree relative)
- Previous macrosomic infant.
- Previous unexplained third trimester loss or neonatal death.

Appendix III Tuberculosis screening: Pregnant people at high risk for tuberculosis should be screened in the first trimester of pregnancy. If previously positive (Quant Gold or PPD), do not repeat testing, ensure CXR done in past.

- Symptomatic for TB disease (fever, night sweats, cough, and weight loss)
- Close contact with someone with active TB
- Foreign-born or >1month travel to high prevalence country (>25/100,000) www.who.int/tb/data for country atlas
- Resident of large congregate shelter (NOT small family shelters) or recent incarceration (without test)
- HIV infection, organ transplant, other immunosuppression
- Active IV drug use
- Medical conditions associated with risk of progression to TB disease if exposed/infected: diabetes mellitus (preexisting), silicosis, cancer of head or neck, Hodgkin's disease, leukemia, end-stage renal disease, intestinal bypass or gastrectomy, chronic malabsorption syndrome, extremely low body weight
- CXR with fibrotic changes suggestive of old TB

- Test with PPD or Quantiferon Gold
- CXR for women with a positive tuberculosis test and refer to TB clinic **postpartum.**Treatment for LTBI is most commonly started three months postpartum if indicated.

Appendix IV
Hepatitis B antibody screen
Anti-Hbc testing should be performed in the following high risk populations:

- Household, sex, and needle-sharing contacts of HBsAg-positive persons
- HIV-infected persons
- Injection drug-users
- Incarcerated persons

Foreign born persons from countries with Hepatitis B prevalence of >8% (listed below)
Africa: all countries except Algeria, Djibouti, Egypt, Libya, Morocco, Tunisia

- Southeast Asia: All countries except Malaysia
- East Asia: China, Hong Kong, Mongolia, North Korea, South Korea, Taiwan
- Australia and South Pacific: all countries except Australia, Guam, and New Zealand
- Middle East: Jordan and Saudi Arabia
- Eastern Europe and Northern Asia: Albania, Armenia, Azerbaijan, Moldova, Tajikistan, Turkmenistan, Uzbekistan

Appendix VI
HIV High Risk

- CDC defines high HIV prevalence as an area in which 17/100,000 people are infected with HIV. Almost all neighborhoods in Boston fall into this category.
- CDC recommends a repeat screening in the third trimester in places with elevated rates of HIV infection in pregnant women, which includes Boston

References
ACOG. ACOG Committee Opinion No.691. Carrier Screening for Genetic Conditions. March 2017:1-15.
ACOG. ACOG Practice Bulletin No. 78. Hemoglobinopathies in pregnancy. Obstet Gynecol. 2007 Jan;109(1):229-37.

Guidelines for Perinatal Care, 8th Edition. American Acadmey of Pediatrics, American College of Obstetricians and Gynecologists. Sept 2017. https://www.acog.org/clinical-information/physician-faqs/-/media/3a22e153b67446a6b31fb051e469187c.ashx

Syphillis MA Department of Public Health SCongenital Syphilis Alert 202
https://www.mass.gov/doc/congenital-syphilis-clinical-alert-6-30-2020/download

References for HIV screening recommendations:
Specific most recent numbers by neighborhood are in page 50 in this document:
http://www.bphc.org/healthdata/archive/Documents/Health%20of%20Boston%202008_Online.pdf
General guidelines: 17/100,000 is considered high HIV prevalence by CDC; please see this document for prenatal HIV screening guidelines by CDC.
http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5514a1.htm