

OBSTETRICS

Prevention of mother-to-child transmission of infections during pregnancy: implementation of recommended interventions, United States, 2003-2004

Emilia H. A. Koumans, MD; Jennifer Rosen, MD; Melissa K. van Dyke, PhD; Elizabeth Zell, MStat; Christina R. Phares, PhD; Allan Taylor, MD; John Loft, PhD; Stephanie Schrag, DPhil; for the ABC and DHAP/RTI teams

OBJECTIVE: The objective of the study was to describe prenatal screening, positive test rates, and the administration of indicated interventions for hepatitis B, rubella, syphilis, group B streptococcus (GBS), chlamydia, and gonorrhea in the United States using 2 population-based surveys.

STUDY DESIGN: Both surveys abstracted demographic, prenatal, and delivery data from a representative sample of delivering women in 10 states. Analyses accounted for the complex sampling design.

RESULTS: Among the 7691 and 19,791 women in the 2 studies, screened proportions before delivery were more than 90% for hepatitis

B and rubella, 80% for syphilis, 72-85% for GBS, and less than 80% for chlamydia and gonorrhea. Inadequate prenatal care was the strongest factor associated with no screening. Administration of interventions indicated by positive test results was variable but generally low.

CONCLUSION: Improved prenatal screening and administration of indicated treatments or interventions, particularly for syphilis, GBS, chlamydia, and gonorrhea, will further protect newborns from infection.

Key words: chlamydia, gonorrhea, group B streptococcus, guidelines, hepatitis B, pregnancy, rubella, screening, syphilis, treatment

Cite this article as: Koumans EHA, Rosen J, van Dyke MK, et al. Prevention of mother-to-child transmission of infections during pregnancy: implementation of recommended interventions, United States, 2003-2004. *Am J Obstet Gynecol* 2012;206:158.e1-11.

During pregnancy, maternal infection with chlamydia, gonorrhea, syphilis, hepatitis B virus (HBV), rubella, and colonization with group B streptococcus (GBS) contributes to maternal, fetal, neonatal, and later morbidity and mortality. For example, approximately 25% of infants who become chronically infected with hepatitis B die prematurely from cirrhosis or liver cancer (2000-4000 deaths/year), 20-60% of infants born to women with untreated chlamydial infection develop conjunctivitis or pneumonia,^{1,2} and untreated syphilis, depending on stage, affects 40% to virtually 100% of

infants, 50% of which are preterm or stillborn.

Vertical transmission of all of these pathogens is preventable through appropriate prenatal screening and management of the mother and newborn. The Centers for Disease Control and Prevention (CDC), the American College of Obstetrics and Gynecology (ACOG), and the US Preventive Services Task Force (USPSTF) recommend routine, universal screening of all pregnant women for syphilis, chlamydia, HBV, and human immunodeficiency virus (HIV) as well as testing for rubella immunity.³⁻⁶ The CDC and ACOG also rec-

ommend screening all women for GBS and high-risk women for gonorrhea.^{3,7}

Recommended interventions include penicillin at least 30 days before delivery for syphilis, treatment during pregnancy for chlamydia and gonorrhea, administration of hepatitis B immunoglobulin, and vaccination for newborns born to HBV-positive women, postpartum maternal vaccination for rubella-susceptible women to protect future pregnancies, and intrapartum antibiotic prophylaxis for women colonized with GBS.

Many of these infections are known to disproportionately affect adults of certain racial and ethnic groups.⁸⁻¹⁰ The identification of groups of pregnant women at the highest risk for infection as well as the recognition of factors associated with lack of prenatal screening and treatment are critical for improving the success of prenatal prevention programs.

We used 2 large, multistate, population-based surveys of labor and delivery records in the United States to describe, by state, the proportion of delivering women in 2003 and 2004 who received prenatal screening for preventable infectious diseases, tested positive for specific infections, and received adequate inter-

From the Divisions of STD Prevention (Dr Koumans), Bacterial Diseases (Drs Rosen, van Dyke, Phares, and Schrag and Ms Zell), and HIV/AIDS Prevention (Dr Taylor), Centers for Disease Control and Prevention, Atlanta, GA, and RTI International, Chicago, IL (Dr Loft).

Received May 31, 2011; revised July 25, 2011; accepted Aug. 31, 2011.

The Birthnet study was funded through the Emerging Infections Program and the Antimicrobial Resistance Program Office, and Centers for Disease Control and Prevention. The DHAP/RTI study was funded by Centers for Disease Control and Prevention/Division of HIV/AIDS Prevention/Research Triangle Institute through a contract to Research Triangle Institute.

The authors report no conflict of interest.

The findings and conclusions in this report are the authors' and do not necessarily represent the views of the Centers for Disease Control and Prevention.

Reprints: Emilia H. A. Koumans, MD, 1600 Clifton Rd NE, MS E-04, Atlanta, GA 30333. ekoumans@cdc.gov.

0002-9378/\$36.00 • Published by Mosby, Inc. • doi: 10.1016/j.ajog.2011.08.027

TABLE 1

States, locales, number of delivery charts reviewed, and birth cohort in Birthnet and DHAP/RTI studies

State	Birthnet locales ^a	n	Birth cohort ^b	DHAP/RTI locales	n	Birth cohort ^b
California	3 counties, Bay area	679	81,741	N/A		
Colorado	5 counties Denver	630	81,741	N/A		
Connecticut	Entire	861	82,505	Entire	2349	43,337
District of Columbia	N/A			Entire	1288	14,611
Florida	N/A			Selected	2083	104,518
Georgia	20 counties, Atlanta	977	145,731	Selected	2397	64,885
Maryland	Entire	906	130,644	Entire	1643	70,067
Michigan	N/A			Selected	1971	67,327
Minnesota	7 counties	727	78,298	N/A		
New Jersey	N/A			Entire	1399	113,375
New Mexico	6 counties	608	27,071	N/A		
New York	7 counties, Rochester and 3 counties, Albany	804	44,882	N/A		
Oregon	3 counties	622	40,356			
Pennsylvania	N/A			Selected	1875	22,287
South Carolina	N/A			Selected	2405	41,017
Tennessee	11 urban counties	877	110,089	Selected	2381	48,262
Total	10 states	7,691	819,528	10 states	19,791	589,686

Entire indicates that the sample was chosen from the entire state; Selected indicates that the sample was chosen from selected areas in the state.

DHAP/RTI, Division of HIV/AIDS Prevention/Research Triangle Institute; N/A, not applicable.

^a Birthnet areas accessed from <http://www.cdc.gov/abcs/methodology/surv-pop.html> (accessed Nov. 10, 2010); ^b Births in that locale during the study time period.

Koumans. Prevention of mother-to-child transmission of infections during pregnancy. *Am J Obstet Gynecol* 2012.

ventions. Some of the results of GBS screening and prophylaxis have previously been presented.¹¹ HIV screening results from these surveys will be presented in greater detail elsewhere. We also evaluated factors associated with lack of prenatal screening and maternal infection.

MATERIALS AND METHODS

Survey design

Birthnet. Demographic, prenatal, and peripartum information was abstracted from 7691 US labor and delivery records from a random sample of 819,000 live births from 10 active surveillance sites (Table 1) in 2003-2004. The sample was stratified by surveillance area, birth year, and hospital; all hospitals with at least 10 births per year were included. Within strata a random sample of births was selected using a systematic probability-proportional-to-size selection. Data were weighted based on the probability of chart selection and adjusted to account for nonresponse. Adjustments were made within each surveillance area and year so that

the number of term and preterm births represented that of the overall population.

Surveillance officers reviewed labor and delivery records for hepatitis B, rubella, syphilis, GBS, chlamydia, and gonorrhea testing data and on interventions for women testing positive. Because the neonatal chart was not abstracted, there is no information on administration of hepatitis B immune globulin and neonatal HBV vaccination.

Survey design

Division of HIV/AIDS Prevention (DHAP)/Research Triangle Institute (RTI). Births in 10 states with the highest rates of perinatal HIV transmission, high rates of pediatric AIDS, or state policies likely to have an impact on the rates of transmission were sampled using state vital records from calendar year 2003 (Table 1). In smaller states (Connecticut, District of Columbia, Maryland, New Jersey) all hospitals were eligible for selection; in larger states only certain locales were chosen.

In each state or locale, up to 11 delivery hospitals were selected using a systematic probability-proportional-to-size selection; 109 hospitals were selected. Of these, 97 participated in the survey (89.0%), and 220 delivery records were selected using a simple random sample. In some states, large hospitals were selected twice (for a total of 440 births) because of the hospital selection design. Hospital staff or nonhospital abstractors abstracted medical records for prenatal and peripartum testing data for hepatitis B, rubella, syphilis, GBS, and chlamydia. Interventions for women testing positive were also abstracted except for women with chlamydia. Receipt of infant HBV vaccine was abstracted from the infant's chart. The DHAP/RTI abstraction form was based on the Birthnet form for these infections.

Definitions

Race and ethnicity were abstracted from medical charts and may reflect self-identification as well as chart-abstractor or

Download English Version:

<https://daneshyari.com/en/article/6146559>

Download Persian Version:

<https://daneshyari.com/article/6146559>

[Daneshyari.com](https://daneshyari.com)