HIV Testing Among Pregnant Women—United States and Canada, 1998-2001

MMWR. 2002;51:1013-1016
3 tables omitted

Since 1994, the availability of increasingly effective antiretroviral drugs for both the prevention of perinatal human immunodeficiency virus (HIV) transmission and maternal treatment has resulted in a greater emphasis on prenatal HIV testing and substantial increases in prenatal testing rates. In 2000, preliminary data indicated that 766 (93%) of 824 HIV-infected women in 25 states knew their HIV status before delivery (CDC, unpublished data, 2002). However, an estimated 280-370 perinatal HIV transmissions continue to occur in the United States each year. The primary strategy to prevent perinatal HIV transmission is to maximize prenatal HIV testing of pregnant women. States and Canadian provinces have implemented three different prenatal HIV-testing approaches. To assess their effectiveness, CDC reviewed prenatal HIV-antibody testing rates associated with these approaches. Medical record data suggest that the “opt-in” voluntary testing approach is associated with lower testing rates than either the “opt-out” voluntary testing approach or the mandatory newborn HIV testing approach.

Under the opt-in approach, women typically are provided pre-HIV test counseling and must consent specifically to an HIV-antibody test. Under the opt-out approach, women are notified that an HIV test will be included in a standard battery of prenatal tests and procedures and that they may refuse testing. Under mandatory newborn HIV testing, newborns are tested for HIV, with or without the mother’s consent, if the mother’s HIV status is unknown at delivery.

Three methods were used to estimate prenatal testing rates among all women who delivered, regardless of whether they received prenatal care. First, eight U.S. areas that participated during 1998-1999 in CDC’s Active Bacterial Core Surveillance/Emerging Infections Program (ABC) Network assessed HIV testing during prenatal care and ≤2 days before delivery by reviewing a stratified random sample of labor and delivery records and prenatal records forwarded to birthing hospitals; in collaboration with CDC, network staff received a sample of records from all birthing hospitals in the surveillance areas and weighted testing rates to represent all live-born infants in those areas. Second, public health investigators in each of the five Canadian provinces tallied the number of HIV tests among pregnant women that were submitted to provincial laboratories and divided the total by an estimate of all live and still-born births in each province during the same year. Third, CDC analyzed weighted data collected in 1999 by interviewers in nine states for CDC’s Prenancy Risk Assessment Monitoring System (PRAMS) (an ongoing, population-based survey conducted in 32 states and New York City among women who have given birth during the preceding 2-6 months7), who had asked women if they had been tested for HIV during pregnancy. Data on state prenatal HIV-testing policies were obtained from the American College of Obstetricians and Gynecologists.8

HIV-testing rates varied depending on which approach to testing was used. Rates for states using the opt-in approach to prenatal HIV testing included in the ABC Network ranged from 25% to 69%, testing rates in Canada ranged from 54% to 83%, and rates derived from PRAMS data ranged from 61% to 81%. Two U.S. states (Arkansas and Tennessee) and two Canadian provinces (Alberta, and Newfoundland and Labrador) reported using an opt-out prenatal HIV-testing policy. ABC Network data indicated that Tennessee had a testing rate of 85%. Canada’s population-based data indicated a 98% testing rate in Alberta and a 94% testing rate in Newfoundland and Labrador. PRAMS interview data indicated a 71% testing rate in Arkansas, compared with a 57% testing rate early in 1997 before the law was implemented (Arkansas Department of Health, personal communication, 2002). Two states (New York and Connecticut) require HIV testing of newborns whose mothers were not tested during pregnancy. In New York, an ABC Network review of medical records in seven counties in the Rochester area indicated that the proportion of pregnant women who received a prenatal HIV test increased from 52% of 438 charts during January 1998–July 1999 to 83% of 112 charts during August–December 1999 after New York required that newborn HIV testing results be made available within 48 hours of specimen collection. PRAMS data for 1999 indicated that the proportion of women statewide who reported having received an HIV test during pregnancy increased from 69% of 758 women during January–July to 93% of 502 during August–December. In separate, statewide analyses of prenatal testing reported on newborn metabolic screening forms from all live-born infants, New York reported prenatal HIV-testing rates of 89% in 2000 and 93% in 2001 (New York State Department of Health, personal communication, 2002). In Connecticut, an ABC Network review of 668 charts indicated a testing rate of 31% during January 1998–September 1999, compared with 81% of 93 charts reviewed during October–December 1999 after enactment of the mandatory newborn testing law.

Reported by: A Roome, PhD, J Hadler MD, Connecticut Dept of Public Health. G Birkhead, MD, AIDS Institute, New York State Dept of Health. S King, MD,
Protecting Building Environments From Airborne Chemical, Biologic, or Radiologic Attacks

MMWR. 2002;51:789

IN NOVEMBER 2001, FOLLOWING THE discovery that letters containing Bacillus anthracis had been mailed to targeted locations in the United States, the Secretary of the U.S. Department of Health and Human Services requested site assessments of an array of public- and private-sector buildings by a team of engineers and scientists from CDC’s National Institute for Occupational Safety and Health (NIOSH). In November 2001, this team assessed six buildings, including a large hospital and medical research facility, a museum, a transportation building, two large office buildings, and an office/laboratory building. In January 2002, additional building assessments were conducted at CDC campuses in Atlanta and, in April 2002, at a large, urban transportation facility. A total of 59 buildings were evaluated during this 3-month period.

The primary goal of these assessments was to determine the vulnerability of building air environments, including heating, ventilation, and air-conditioning (HVAC) systems, to a terrorist attack with chemical, biologic, and radiologic (CBR) agents and to develop cost-effective prevention and control strategies. At each facility, CDC investigators performed onsite evaluations to assess the building’s vulnerability to CBR attack from internal and external sources. The investigators also suggest that jurisdictions that use an opt-in approach and that have low prenatal HIV-testing rates should reevaluate their approach.

REFERENCES
10 available

Radiologic Attacks
Biologic, or
Airborne Chemical,
reviewed security and safety plans at each facility. Facility owners received confidential reports identifying observed vulnerabilities and possible remedial options. Collectively, the field observations and prevention recommendations from the building assessments were combined with input from government and industry experts to identify general guidance that encourages building owners, facility managers, and engineers to review design, operational, and security procedures at their own facilities.

The recommendations include measures that can transform buildings into less attractive targets by increasing the difficulty of introducing a CBR agent, increasing the ability to detect terrorists before they carry out an intended release, and incorporating plans and procedures to mitigate the effects of a CBR release. These recommendations are presented in the recently completed NIOSH guidelines, which address physical security, airflow and filtration, maintenance, program administration, and staff training. The guidelines recommend that building owners and managers first understand their buildings’ systems by conducting walk-through inspections of the HVAC, fire protection, life-safety, and other systems. Security measures should be adopted for air intakes and return-air grills, and access to building operation systems and building design information should be restricted. The guidelines also recommend that the emergency capabilities of the systems’ operational controls should be assessed, filter efficiency should be evaluated closely, buildings’ emergency plans should be updated, and preventive maintenance procedures should be adopted. The guidelines also caution against detrimental actions, such as permanently sealing outdoor air intakes.

The recommendations are intended for building owners, managers, and maintenance personnel responsible for public, private, and government buildings, including hospitals, laboratories, offices, retail facilities, schools, transportation facilities, and public venues.

The recommendations do not address single-family or low-occupancy residences or higher-risk facilities such as industrial or military facilities, subway systems, or law-enforcement facilities. Copies of these recommendations are available at http://www.cdc.gov/niosh or by telephone, 800-356-4674.

**Use of Anthrax Vaccine for Pre-Exposure Vaccination**

In December 2001, the U.S. Department of Health and Human Services obtained a limited supply of anthrax vaccine (BioThrax [formerly Anthrax Vaccine Adsorbed (AVA)], BioPort, Lansing, Michigan), allowing ACIP to reconsider using anthrax vaccine in the U.S. civilian population. ACIP reaffirms that pre-exposure use of anthrax vaccine should be based on a quantifiable risk for exposure. ACIP recommends that groups at risk for repeated exposures to B. anthracis spores should be given priority for pre-exposure vaccination. Groups at risk for repeated exposure include laboratory personnel handling environmental specimens (especially powders) and performing confirmatory testing for B. anthracis in the U.S. Laboratory Response Network (LRN) for Bioterrorism Level B laboratories or above, workers who will be making repeated entries into known B. anthracis–spore–contaminated areas after a terrorist attack, and workers in other settings in which repeated exposure to aerosolized B. anthracis spores may occur. Laboratory workers using standard Biosafety Level 2 practices in the routine processing of clinical samples or environmental swabs (Level A laboratories) are not considered by ACIP to be at increased risk for exposure to B. anthracis spores.

For persons not at risk for repeated exposures to aerosolized B. anthracis spores through their occupation, pre-exposure vaccination with anthrax vaccine is not recommended. For the general population, prevention of morbidity and mortality associated with anthrax vaccine is not recommended. For the general population, prevention of morbidity and mortality associated with anthrax vaccine is not recommended. For the general population, prevention of morbidity and mortality associated with anthrax vaccine is not recommended.

**Prevention of Anthrax by PEP**

Because of a potential preventive benefit of combined antimicrobial PEP and vaccine and the availability of a limited supply of anthrax vaccine for civilian use, ACIP endorses CDC making anthrax vaccine available in a 3-dose regimen (0, 2, 4 weeks) in combination with...
antimicrobial PEP under an Investigational New Drug (IND) application with the Food and Drug Administration for unvaccinated persons at risk for inhalational anthrax. However, anthrax vaccine is not licensed for postexposure use in preventing anthrax.

Use of anthrax vaccine for PEP could have additional benefits, including reducing the need for long-term antimicrobial therapy with its associated problems of nonadherence and possible adverse events. After the anthrax-related terrorist attacks in 2001, approximately 10,000 persons were recommended to receive a 60-day regimen of antimicrobial prophylaxis for suspected or confirmed exposure to <i>B. anthracis</i> spores, but adherence to the recommended 60-day antibiotic regimens was as low as 42%. In addition, because studies of the 2001 terrorist attacks suggest that some persons might be exposed to <i>B. anthracis</i> spores in excess of those studied in animal models, the effectiveness of antimicrobial prophylaxis in such persons is unclear. However, no cases of anthrax have been detected among persons recommended to take antimicrobial prophylaxis after the terrorist attacks of 2001.

The provision of anthrax vaccine for PEP under an IND application should provide an opportunity to reduce the risk to the greatest extent possible with current medical knowledge and might provide data to support developing additional recommendations for preventing anthrax. To better document the immunogenicity of anthrax vaccine in the postexposure setting, ACIP encouraged CDC to obtain serologic testing on a subset of vaccinees.

ACIP recommended previously that if antimicrobial therapy is used alone for postexposure prevention of anthrax, at least a 30-day course of treatment should be provided. Previous recommendations noted that longer courses (42-60 days) might be indicated. On the basis of limited data from both unintentional human exposures and animal studies, ACIP now recommends that the duration of postexposure antimicrobial prophylaxis should be 60 days if used alone for PEP of unvaccinated exposed persons.

Data are insufficient to clarify the duration of antimicrobial use in combination with vaccine for PEP against anthrax. Antibody titers among vaccinated persons peak at 14 days after the third dose. If antimicrobial prophylaxis is administered in combination with postexposure vaccination, it might be prudent to continue antibiotics until 7-14 days after the third vaccine dose.

Few data exist about the effectiveness of postexposure antimicrobial prophylaxis among exposed persons who have been partially or fully vaccinated. In the only human clinical trial of anthrax vaccine, cases occurred among participants who had received <4 doses. Recognizing these limited data, but considering a potential undefined benefit, ACIP recommends that persons who have been partially or fully vaccinated receive at least a 30-day course of antimicrobial PEP and continue with the licensed vaccination regimen. Antimicrobial PEP is not needed for vaccinated persons working in Biosafety Level 3 laboratories under recommended conditions nor for vaccinated persons (six vaccinations according to the current label) wearing appropriate personal protective equipment (PPE) while working in contaminated environments in which inhalational exposure to <i>B. anthracis</i> spores is a risk, unless their respiratory protection is disrupted.

**Additional Considerations**

For most occupational settings, recommendations about anthrax vaccine and antimicrobial PEP might be implemented in combination with use of appropriate PPE. In addition to receiving PEP for preventing anthrax, potentially exposed persons should be observed for signs of febrile illness. CDC has published guidelines on clinical evaluation of persons with possible anthrax, including antimicrobial treatment. Because the current vaccine supply is limited, ACIP recommends expanded and intensive efforts to improve anthrax vaccine production.

**Recommendations for Additional Research**

Because of the absence of data to guide public health recommendations in these critical areas, ACIP recommends studies on the safety and immunogenicity of anthrax vaccine for use in children, additional studies on the safety of anthrax vaccine during human pregnancy, and reproductive toxicology studies on anthrax vaccine in laboratory animals. To strengthen public health recommendations for PEP, ACIP recommends expanded animal studies to evaluate further the effectiveness of antimicrobial prophylaxis with and without anthrax vaccine, define the optimal duration of antimicrobial PEP for the prevention of inhalational anthrax, and evaluate alternative antimicrobial PEP regimens. Additional research also should be directed toward developing an improved vaccine for preventing anthrax and new therapeutic strategies, including use of antitoxin (e.g., hyperimmune globulin) for treating anthrax.

**REFERENCES**

1. CDC. Use of anthrax vaccine in the United States: recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 2000;49(No. RR-15).
2. CDC. Occupational health guidelines for remediation workers at Bacillus anthracis-contaminated sites—United States, 2001-2002. MMWR 2002;51:786-9.
3. CDC. Biological and chemical terrorism: strategic plan for preparedness and response: recommendations of the CDC Strategic Planning Workgroup. MMWR 2000;49(No. RR-4).
4. Shepard CW, Soriano-Gabarro M, Zeller E, et al. Anthrax postexposure prophylaxis for anthrax: adverse events and adherence. Emerg Infect Dis 2002;8:1124-32.
5. Melselion M, Guillemin J, Hugh-Jones M, et al. 1994. The Sverdlosk anthrax outbreak of 1979. Science 1994;266:1202-7.
6. Friedlander AM, Welkos SL, Pitt ML, et al. Postexposure prophylaxis against experimental inhalational anthrax. J Infect Dis 1993;167:1239-42.
7. Henderson DW, Peacock S, Belton FC. Observations on the prophylaxis of experimental pulmonary anthrax in the monkey. J Hyg 1956;54:28-36.
8. Pittman PR, Kim-Ahn G, Pilat D, et al. Anthrax vaccine: immunogenicity and safety of a dose-reduction, route-change comparison study in humans. Vaccine 2002;20:1412-20.
9. Brachman PS, Gold H, Plotkin SA, Fekety FR, Werrin M, Ingraham NR. Evaluation of human anthrax vaccine. Am J Public Health 1962;52:632-45.
10. CDC. Biosafety in microbial and biomedical laboratories. 5th ed. In: Richmond JK, Mckinney RW, eds. Washington, DC: U.S. Department of Health and Human Services, CDC, 2001.

©2002 American Medical Association. All rights reserved.