ness, should be aware of the possible connection to animal-hide drums. When unknown gram-positive bacilli are detected in patients with illnesses consistent with *B. anthracis* infection, the health-care provider should be notified immediately, and health-care providers, laboratorians, and public health officials should ensure that a definitive diagnosis is reached promptly.

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REFERENCES

1. Keim P, Price LB, Klevytska AM, et al. Multiple-locus variable-number tandem repeat analysis reveals genetic relationships within *Bacillus anthracis*. *J Bacteriol*. 2000;182:2928-2936.
2. Fritz DL, Jaax NK, Lawrence WB, et al. Pathology of experimental inhalation anthrax in the rhesus monkey. *Lab Invest*. 1995;73:691-702.
3. MacDonald WD. Anthrax: report of a fatal case involving the cutaneous and gastrointestinal systems. *N Engl J Med*. 1942;226:949-951.
4. CDC. Human ingestion of *Bacillus anthracis*-contaminated meat—Minnesota, August 2000. *MMWR*. 2000;49:813-816.
5. CDC. Inhalation anthrax associated with dried animal hides—Pennsylvania and New York City, 2006. *MMWR*. 2006;55:280-282.
6. CDC. Cutaneous anthrax associated with drum making using goat hides from West Africa—Connecticut, 2007. *MMWR*. 2008;57:628-631.
7. Anaraki S, Addiman S, Nixon G, et al. Investigations and control measures following a case of inhalation anthrax in East London in a drum maker and drummer, October 2008. *Euro Surveill*. 2008;13:19076.
8. Watson A, Keir D. Information on which to base assessments of risk from environments contaminated with anthrax spores. *Epidemiol Infect*. 1994;113:479-490.
9. World Health Organization. Anthrax in humans and animals. 4th ed. Geneva, Switzerland: World Health Organization; 2008. Available at http://www.who.int/csr/resources/publications/AnthraxGuidelines2008/en/index.html. Accessed July 20, 2010.

* Cutaneous (e.g., ulcer and swelling), gastrointestinal (e.g., fever, nausea, abdominal pain, and diarrhea), inhalation (e.g., fever, chest pain, dyspnea, and shortness of breath), and specific codes from the *International Classification of Diseases, Ninth Revision* (ICD-9).
† Additional information available at http://www.cdc.gov/vaccines/recs/acip/downloads/min-oct08.pdf.
‡ Remediation of the building and positive drums included decontamination of all surfaces with a combination of scrubbing and rinsing with an amended bleach solution and HEPA-filtered vacuuming. Appropriate waste disposal protocols were followed, and post-remediation testing was performed.
§ Additional information available at http://www.nhsborders.org.uk/uploads/18645/anthrax_report_131207.pdf.

Addition of Severe Combined Immunodeficiency as a Contraindication for Administration of Rotavirus Vaccine

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In response to reported cases of vaccine-acquired rotavirus infection in infants with severe combined immunodeficiency (SCID) following rotavirus vaccine administration, both Merck & Co. and GlaxoSmithKline Biologicals have revised the prescribing information and patient labeling for their respective rotavirus vaccine products, pentavalent rotavirus vaccine (RV5) and monovalent rotavirus vaccine (RV1), with approval from the Food and Drug Administration.[1,2] Merck revised the prescribing information and patient labeling for RV5 in December 2009, and GlaxoSmithKline Biologicals did so for RV1 in February 2010. After the revision to the RV5 prescribing information, CDC sought consultation from members of the former Rotavirus Vaccine Work Group of the Advisory Committee on Immunization Practices (ACIP). On the basis of that consultation and available data, CDC is updating the list of contraindications for rotavirus vaccine. Rotavirus vaccine (both RV5 and RV1) is contraindicated in infants diagnosed with SCID.

SCID includes a group of rare, life-threatening disorders caused by at least 15 different single gene defects that result in profound deficiencies in T- and B- lymphocyte function.[3] The estimated annual incidence of SCID is one case per 40,000-100,000 live births, or a total of approximately 40-100 new cases among infants in the United States each year.[3] SCID usually is diagnosed after an infant has acquired a severe, potentially life-threatening infection caused by one or more pathogens. Infants with SCID commonly experience chronic diarrhea, failure to thrive, and early onset of infections. Chronic, wild-type rotavirus infection has been reported in infants with SCID, with resulting prolonged diarrhea or shedding of rotavirus.[4] Diagnosis and hematopoietic stem cell transplantation before onset of severe infections offer the best chance for long-term survival of SCID patients.[3,5]

The median age at diagnosis of SCID is 4-7 months, which overlaps with the ages for rotavirus vaccination recommended by ACIP (ages 2, 4, and 6 months for RV5; ages 2 and 4 months for RV1). Prenatal diagnosis is possible for the minority of infants with a known family history of SCID. Newborn screening for SCID through evaluation of dried blood spots is available in two states, Massachusetts and Wisconsin. On January 21, 2010, the Federal Advisory Committee on Heritable Disorders in Newborns and Children recommended that a screening test for SCID be included in the core panel of the recommended uniform screening panel for all newborn infants. On May 21, the U.S. Department of Health and Human Services approved the addition of SCID to the uniform screening panel.

Since introduction of rotavirus vaccine in the United States in 2006, five cases (four in the United States and one in Australia) of vaccine-acquired rotavirus infection in RV5-vaccinated infants with SCID have been reported in the literature.[6-8] Two additional U.S. cases of vaccine-acquired infection in RV5-vaccinated infants with SCID and one case of vaccine-acquired infection in an RV1-vaccinated infant with SCID from outside the United States have been reported to the Vaccine Adverse

Event Reporting System (VAERS). The eight infants (four males and four females) were diagnosed with SCID between ages 3 months and 9 months and had received 1-3 doses of rotavirus vaccine before the diagnosis. All the infants had diarrhea, and most had additional infections (e.g., *Pneumocystis jirovecii*, rhinovirus, adenovirus, *Salmonella, Escherichia coli*, and *Giardia*) at the time of SCID diagnosis. Rotavirus infection was diagnosed by enzyme immunoassay in seven of the eight patients for whom this information was available. In all eight cases, vaccine-acquired rotavirus infection was confirmed by reverse transcription–polymerase chain reaction (RT-PCR) and nucleotide sequencing. Prolonged shedding of vaccine virus was documented in at least six of these cases, with duration of up to 11 months.

Rotavirus vaccine (both RV5 and RV1) is contraindicated in infants diagnosed with SCID. Consultation with an immunologist or infectious disease specialist is advised for infants with known or suspected altered immunocompetence before rotavirus vaccine is administered.[9] General guidelines on immunodeficiency and use of live virus vaccines are available in the *2009 Red Book*, Table 1.14.[10]

REFERENCES

1. Food and Drug Administration. Product approval-prescribing information [package insert]. RotaTeq [rotavirus vaccine, live, oral pentavalent], Merck & Co, Inc: Food and Drug Administration; 2009. Available at http://www.fda.gov/biologicsbloodvaccines/vaccines/approvedproducts/ucm094063.htm. Accessed June 4, 2010.
2. Food and Drug Administration. Product approval-prescribing information [package insert]. Rotarix [rotavirus vaccine, live, oral], GlaxoSmithKline Biologicals: Food and Drug Administration; 2010. Available at http://www.fda.gov/biologicsbloodvaccines/vaccines/approvedproducts/ucm133920.htm. Accessed June 4, 2010.
3. Puck JM; SCID Newborn Screening Working Group. Population-based newborn screening for severe combined immunodeficiency: steps toward implementation. *J Allergy Clin Immunol*. 2007;120(4):760-768.
4. Saulsbury FT, Winkelstein JA, Yolken RH. Chronic rotavirus infection in immunodeficiency. *J Pediatr*. 1980;97(1):61-65.
5. Buckley RH, Schiff SE, Schiff RI, et al. Hematopoietic stem-cell transplantation for the treatment of severe combined immunodeficiency. *N Engl J Med*. 1999; 340(7):508-516.
6. Patel NC, Hertel PM, Estes MK, et al. Vaccine-acquired rotavirus in infants with severe combined immunodeficiency. *N Engl J Med*. 2010;362(4): 314-319.
7. Uygungil B, Bleesing JJ, Risma KA, McNeal MM, Rothenberg ME. Persistent rotavirus vaccine shedding in a new case of severe combined immunodeficiency: A reason to screen. *J Allergy Clin Immunol*. 2010;125(1):270-271.
8. Werther RL, Crawford NW, Boniface K, Kirkwood CD, Smart JM. Rotavirus vaccine induced diarrhea in a child with severe combined immune deficiency. *J Allergy Clin Immunol*. 2009;124(3):600.
9. CDC. Cortese MM, Parashar UD. Prevention of rotavirus gastroenteritis among infants and children: recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR*. 2009;58(RR-2).
10. American Academy of Pediatrics. Immunocompromised children. In: Pickering LK, Baker CJ, Kimberlin DW, Long SS, eds. Red book: 2009 report of the Committee on Infectious Diseases. 28th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2009:24-5.

Notes From the Field: Pertussis—California, January–June 2010

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THE NUMBER OF PERTUSSIS CASES REported to the California Department of Public Health (CDPH) has increased substantially during 2010. The increase in cases was first noted in late March among patients admitted to a children's hospital. During January 1–June 30, 2010, a total of 1,337 cases were reported, a 418% increase from the 258 cases reported during the same period in 2009. All cases either met the Council of State and Territorial Epidemiologists definitions for confirmed or probable pertussis or had an acute cough illness and *Bordetella pertussis*—specific nucleic acid detected by polymerase chain reaction from nasopharyngeal specimens.[1]

During January—June in California, the incidence of pertussis was 3.4 cases per 100,000 population. County rates ranged from zero to 76.9 cases per 100,000 (median: 2.0 cases). By age group, incidence was highest (38.5 cases per 100,000) among infants aged <1 year; 89% of cases were among infants aged <6 months, who are too young to be fully immunized. Incidence among children aged 7-9 years and 10-18 years was 10.1 cases and 9.3 cases per 100,000, respectively.

Of 634 case reports with available data, 105 (16.6%) patients were hospitalized, of whom 66 (62.9%) were aged <3 months. Incidence among Hispanic infants (49.8 cases per 100,000) was higher than among other racial/ethnic populations. Five deaths were reported, all in previously healthy Hispanic infants aged <2 months at disease onset; none had received any pertussis-containing vaccines.

The incidence of pertussis is cyclical, with peaks occurring every 3-5 years in the United States.[2] The last peak was in 2005, when approximately 25,000 cases were reported nationally and approximately 3,000 cases in California, including eight deaths in infants aged <3 months. If the rates from the first half of the year persist throughout 2010, California would have its highest annual rate of pertussis reported since 1963 and the most cases reported since 1958.

CDPH is attempting to prevent transmission of pertussis to vulnerable infants[3] by disseminating educational materials and clinical guidance, raising community awareness, and offering free tetanus, diphtheria, and acellular pertussis (Tdap) vaccine to birthing hospitals and local health departments to support postpartum vaccination of mothers and close contacts of newborns.

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REFERENCES

1. CDC. Manual for the surveillance of vaccine-preventable diseases. Atlanta, GA: US Department of Health and Human Services, CDC; 2008.
2. Farizo KM, Cochi SL, Zell ER, Brink EW, Wassilak SG, Patriarca PA. Epidemiological features of pertussis in the United States, 1980-1989. *Clin Infect Dis*. 1992;14(3):708-719.
3. CDC. Prevention of pertussis, tetanus, and diphtheria among pregnant and postpartum women and their infants. *MMWR*. 2008;57(RR-4):1-51.