Notes from the Field

Outbreak of Serogroup B Meningococcal Disease at a University — California, 2016

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On January 31, 2016, the Santa Clara County Public Health Department (SCCPHD) was notified of a suspected case of meningococcal disease in a university undergraduate student. By February 2, two additional suspected cases had been reported in undergraduate students living on the same campus. The index patient (patient A) required intensive care, whereas patients B and C had milder illness; there were no deaths. All three patients were part of overlapping social networks and had attended the same events during the week before the onset of patient A's symptoms, but whether they had direct contact with one another could not be verified. Serogroup B *Neisseria meningitidis* was identified in cerebrospinal fluid and blood from patient A and in blood from patient B. Serogroup B has been responsible for all U.S. college outbreaks of meningococcal disease since 2011 (*1*). Laboratory results for patient C were inconclusive.

The university student health center and a local hospital began providing ciprofloxacin chemoprophylaxis to students in the social networks of patient A on January 31, the day the case was reported. Expanded postexposure chemoprophylaxis to social network members (e.g., persons sharing social events) in addition to close contacts is recommended by the California Department of Public Health (CDPH) for single cases in crowded environments such as college campuses (*2*). As a result, patients B and C received ciprofloxacin after symptom onset but before they received their diagnoses, which might have prevented more severe disease. Additional students were targeted for chemoprophylaxis after cases in patients B and C were reported. A total of 436 students in the social networks of the three patients, which included social organizations and athletic teams, received ciprofloxacin.

After the second case was confirmed on February 2, SCCPHD and CDPH recommended that meningococcal serogroup B (MenB) vaccine be offered to the university student population. Two MenB vaccines are licensed in the United States, MenB-4C (Bexsero, GlaxoSmithKline, Middlesex, United Kingdom) and MenB-FHbp (Trumenba, Pfizer, New York, New York). In 2015, the Advisory Committee on Immunization Practices (ACIP) recommended use of MenB vaccines during outbreaks and for persons at increased risk for meningococcal disease (*3*). In addition, MenB vaccines may be administered to any adolescent or young adult aged 16–23 years (*4*).

Federally funded MenB-4C vaccine was provided by CDPH at no cost. All 5,232 undergraduate students, as well as graduate students and faculty and staff members at increased risk for meningococcal disease, were advised to receive vaccine. Persons at increased risk were defined as persons with underlying health conditions as recommended by ACIP (*3,5,6*) and persons living in on-campus housing at the time of the outbreak (208 persons other than undergraduate students). During four vaccination clinics held February 4–8, a total of 4,921 persons received the first vaccine dose. Vaccination clinics for the second vaccine dose were held on March 18 and April 6–8, during which 4,731 persons were vaccinated (some of whom had not received the first dose). No additional cases in Santa Clara County were identified as of May 23, 2016.

The response to this outbreak was rapid, with the first vaccination clinic conducted <48 hours after the second case was confirmed. University officials had conducted a serogroup B meningococcal disease outbreak tabletop exercise in June 2015, and SCCPHD had updated their incident command system protocol in January 2016. Factors that might have contributed to the rapid response include availability of a licensed vaccine, high levels of preparedness and activation of incident command systems at both the university and SCCPHD, and close partnerships among the state and local health department and the university.

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References

1. MacNeil J. Considerations for use of serogroup B meningococcal (MenB) vaccines in adolescents. Presented at the Advisory Committee on Immunization Practices meeting. Atlanta, GA; June 24, 2015. http://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2015-06/mening-03-MacNeil.pdf
2. California Department of Public Health. Meningococcal disease quicksheet. Richmond, CA: California Department of Public Health; 2015. http://www.cdph.ca.gov/programs/immunize/Documents/Meningquicksheet.pdf
3. Folaranmi T, Rubin L, Martin SW, Patel M, MacNeil JR. Use of serogroup B meningococcal vaccines in persons aged ≥10 years at increased risk for serogroup B meningococcal disease: recommendations of the Advisory Committee on Immunization Practices, 2015. MMWR Morb Mortal Wkly Rep 2015;64:608–12.
4. MacNeil JR, Rubin L, Folaranmi T, Ortega-Sanchez IR, Patel M, Martin SW. Use of serogroup B meningococcal vaccines in adolescents and young adults: recommendations of the Advisory Committee on Immunization Practices, 2015. MMWR Morb Mortal Wkly Rep 2015;64:1171–6. http://dx.doi.org/10.15585/mmwr.mm6441a3
5. Densen P. Complement deficiencies and meningococcal disease. Clin Exp Immunol 1991;86(Suppl 1):57–62. http://dx.doi.org/10.1111/j.1365-2249.1991.tb06209.x
6. Balmer P, Falconer M, McDonald P, et al. Immune response to meningococcal serogroup C conjugate vaccine in asplenic individuals. Infect Immun 2004;72:332–7. http://dx.doi.org/10.1128/IAI.72.1.332-337.2004