Mumps Epidemic—United Kingdom, 2004-2005

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2 figures omitted

During 2004-2005, the United Kingdom (UK) experienced a nationwide epidemic of mumps, which peaked during 2005 when 56,390* notified cases were reported in England and Wales. The majority of confirmed cases during 2004-2005 were in persons aged 15-24 years, most of whom had not been eligible for routine mumps vaccination. Mumps usually is a self-limited viral disease that appears as parotitis. However, mumps also can lead to serious complications such as encephalitis or pancreatitis. This report summarizes the epidemiology of the 2004-2005 mumps epidemic in England and Wales.

Reporting was based on notified cases (i.e., clinically diagnosed cases of mumps reported by general practitioners). Since late 1994, laboratory confirmation of all notified cases of mumps has been recommended using a test to detect mumps-specific IgM antibodies in either serum or an oral fluid.1 The proportion of such cases began to increase in 1999 and increased further in each subsequent year, indicating an increase in the incidence of true infection.

The number of notified cases began increasing in 2003 and continued to increase during 2004-2005, accompanied by further increases in the proportion of confirmed cases. During 2004, a total of 16,367 cases were notified; 10,641 (65.0%) of these were tested for oral fluid IgM, and 6,047 of those cases (56.8%) were determined to be IgM positive. When combined with those cases confirmed by serum IgM testing, a total of 8,128 (49.7%) cases were laboratory confirmed during 2004, compared with 3,907 (29.9%) of 13,087 notified cases during 1999-2003. In February 2005, because of high rates of laboratory confirmation of cases among persons born during 1981-1986, the UK Health Protection Agency recommended a temporary halt to testing persons with notified cases of mumps born during those years, although persons in other age groups with lower rates of confirmation continued to be tested. Testing for all age groups resumed in January 2006 after a sustained decline in the number of notified cases in the last quarter of 2005.

During 2004, approximately 79.1% of confirmed cases were in persons aged 15-24 years. Among all mumps patients during 2004, approximately 3.3% were reported as having received 2 doses of measles, mumps, and rubella (MMR) vaccine, and another 30.1% had received 1 dose of MMR. The number of notified cases of mumps continued to increase through the first 6 months of 2005, with 20,653 cases occurring during the first quarter and 21,981 cases during the second quarter. During the third quarter of 2005, the number of notified cases decreased by 64.0% to 7,907; during the fourth quarter, a further decrease to 5,882 notified cases was observed. During the first month of 2006, notified cases of mumps averaged approximately 500 per week.

During 2005, the majority of notified mumps cases were in persons aged 19-23 years and attending colleges or universities; the third-quarter decrease in the number of notified cases coincided with summer vacations. Local health services have been encouraged by the UK Health Protection Agency to ensure that all students have received 2 doses of MMR before leaving school. In addition, many universities have advised enrolling first-year students to receive MMR vaccination before arriving at college.


CDC Editorial Note: In October 1988, mumps vaccination was added to the UK vaccination schedule as part of the new combined MMR vaccine. MMR replaced single measles vaccine offered at age 12-15 months; since 1996, a second dose of MMR has been offered at age 3.5-5 years. Vaccination coverage in the UK peaked during 1995, when 92% of children aged 2 years were reported as having received at least 1 dose of MMR. As of the second quarter of 2005, vaccination coverage with at least 1 dose by age 2 years had declined to 82%, with 75% of children having received 2 doses by age 5 years.

During November 1994, approximately 8 million school children aged 5-16 years (i.e., born during September 1978–August 1989) were offered combined measles-rubella vaccine to prevent a predicted epidemic of measles. At that time, a global shortage prevented offering MMR to this group. Therefore, a proportion of the 8 million children remained susceptible to mumps. Modelling based on serologic surveillance data for 1993 estimated that 19% of children aged 11-15 years in 1997 (i.e., aged 19-23 years in 2005) would be susceptible to mumps.4

The 2004-2005 mumps epidemic in the UK did not result from the decrease in MMR vaccination coverage in recent years, but rather from gaps in eligibility of certain cohorts, which has been evident during the epidemic by the age breakdown among patients with confirmed cases; mumps occurred predominantly in older teens and young adults, with the highest attack rate occurring in those born during 1983-1986.3 Persons born before September 1987 generally were not eligible for any routine mumps vaccination, although some might have received 1 dose of MMR upon school entry as part of a catch-up campaign after October 1988 that targeted children who missed their measles vaccination. Persons born before 1982 are more likely to have been exposed to mumps infection when it was
still a common childhood disease. Only 2.4% of confirmed cases in 2004 occurred in persons who would have been eligible for 2 doses of MMR routinely.

The UK epidemic illustrates the susceptibility of certain cohorts who have not been vaccinated and have not developed immunity through exposure to mumps because of a decrease in mumps circulation after implementation of a childhood immunization program. The epidemic also underscores the importance of ensuring high levels of mumps immunity among adolescents and young adults when vaccination with mumps-containing vaccine is introduced into the routine immunization schedule for children.

REFERENCES

2. Changes in laboratory testing as the increase in mumps cases in England and Wales continues. CDR Weekly. 2006;15.
5. Provisional total.

Mumps Outbreak at a Summer Camp—New York, 2005

ON JULY 26, 2005, THE SULLIVAN County Health Department (SCHD) and the New York State Department of Health (NYSDOH) were notified of a cluster of cases of parotitis among campers and staff members at a summer camp. An investigation conducted by NYSDOH identified 31 cases of mumps, likely introduced by a camp counselor who had traveled from the United Kingdom (UK) and had not been vaccinated for mumps. This report summarizes the results of the subsequent investigation by NYSDOH, which determined that, even in a population with 96% vaccination coverage, as was the case with participants in the summer camp, a mumps outbreak can result from exposure to virus imported from a country with an ongoing mumps epidemic.

Camp was in session during June 28–August 18. A case of mumps was defined as unilateral or bilateral parotitis of >2 days’ duration with no other apparent cause in a camper or staff member who was examined during June 30–September 1, 2005. 1 Among 541 campers and staff members, 31 cases of mumps were identified (attack rate: 5.7%), with illness onsets during June 30–August 9. The index patient was a man aged 20 years who resided in the UK and who had not been vaccinated for mumps. The man came to the United States on June 19 to work as a counselor at the camp; on June 30, he left-sided parotitis, sore throat, and a low-grade fever. However, mumps was not considered as a diagnosis by health-care staff members at the infirmary.

The patient was not isolated and continued to work among the camp population. During July 15-23, a total of 25 additional cases of parotitis were identified, consistent with exposure beginning June 28. However, the diagnosis of mumps was not made by members of the health-care staff at the infirmary or by community health-care providers for any patient with parotitis until July 24. SCHD and NYSDOH were alerted to a possible outbreak on July 26, and diagnosis of mumps for the first 23 (74%) cases was made via retrospective chart review by NYSDOH on July 27. At that time, five (16%) patients were either asymptomatic or in isolation. Subsequently, an additional three (10%) cases were identified, beginning on August 2.

Of the 31 mumps cases identified, 17 (55%) were in females. All patients had parotitis, 24 (77%) had jaw pain, and eight (26%) had bilateral disease. Four male patients had unilateral orchitis; all recovered spontaneously. Specimens for serology and viral culture/nucleic acid detection (i.e., nasopharyngeal swabs and urine) were obtained from six patients. All six serologic specimens tested positive for mumps-specific IgM; however, no virus was successfully amplified or cultured from any clinical specimen.

Twelve (39%) of the 31 mumps cases were among campers. All were U.S. residents aged 10-15 years who had been vaccinated with 2 doses of measles, mumps, and rubella (MMR) vaccine after the first birthday. Nineteen (61%) of the mumps cases were among staff members; of these, nine (47%) were UK residents, five (26%) were U.S. residents, three (16%) were residents of Australia, and two (11%) were residents of Germany. Staff members with mumps ranged in age from 19 to 41 years (median: 21 years). Of the 17 staff members with mumps for whom vaccination history could be obtained by vaccination or medical record, nine (53%) had not been vaccinated for mumps, four (24%) had been vaccinated with 1 dose, and four (24%) had been vaccinated with 2 doses of a mumps-containing vaccine. Symptoms, illness duration, and complications (e.g., orchitis) did not differ substantially between vaccinated and unvaccinated patients.

Outbreak-control measures were instituted at the camp immediately after SCHD and NYSDOH were notified on July 26. Persons exhibiting signs or symptoms of mumps were isolated from other campers and staff members for 9 days after onset of symptoms. A total of 513 persons who were neither known to have mumps nor symptomatic for mumps were quarantined to the grounds of the camp; these persons were not permitted to enter or leave the camp until their mumps immunity status had been verified. Mumps immunity was assessed in accordance with Advisory Committee on Immunization Practices (ACIP) criteria as follows: (1) birth before 1957, (2) history of physician-diagnosed mumps before arriving at camp, (3) laboratory evidence of mumps immunity (i.e., positive for mumps-specific IgG), or (4) receipt of 1 dose of a mumps-containing vaccine on or after the first birthday, as documented by a health-care provider. 1 Twenty persons who could not verify their vaccination status and did not meet any other