Investigation of an Increase in Mumps in New York City, 2016–2017
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Background:
The number of suspected mumps reports to the New York City (NYC) Department of Health and Mental Hygiene (DOHMH) increased sharply beginning July 2016.

Objectives:
An investigation was conducted to determine factors associated with the increase in mumps reports.

Methods:
Reports of suspected mumps from providers and laboratories were investigated and classified as cases according to the Council of State and Territorial Epidemiologists confirmed and probable case definitions. Changes in the average monthly number of reports and cases were calculated for the period of increase (7/1/2016 through 6/30/2017) compared to a baseline period (1/1/2012 through 6/30/2016). Outbreaks of 20 or more cases were excluded. Facilities visited, demographics, epidemiologic linkages, and geographic distribution of cases were assessed.

Results:
Compared to the baseline period, an increase in the average monthly number of reports (from 15 to 68 reports /month) and cases (from 3 to 25 cases/month) occurred from 7/1/2016 through 6/30/2017. No geographic or epidemiologic linkages indicating a large outbreak were identified. During 7/1/2016 through 6/30/2017, a majority of reports (62%) and cases (55%) visited one particular urgent care chain (UCC) that expanded over 6 years to 43 sites throughout NYC. In July 2016, in response to an outbreak of mumps outside of NYC occurring at the time, this UCC implemented check-lists for clinic managers and providers specifying mumps PCR testing requirements for patients with parotitis and notification to DOHMH.

Conclusion:
During the baseline, mumps was underreported. The increase in cases observed in NYC was largely driven by increased testing and reporting, particularly from one large UCC. Our findings suggest that UCCs can dramatically improve case ascertainment by implementing policy changes across many facilities through a centralized structure, and can be valuable partners for disease surveillance.
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outbreak among men-who-have-sex-with-men (MSM) in Los Angeles County (LAC)
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Background:
Ten mumps cases, on average, were confirmed annually in LAC from 2010 through 2015, inclusive. Prior outbreaks occurred in 2010 and 2015. The former involved 11 cases in a cultural-religious community and the latter involved 6 cases at a sports-recreation venue. These historical mumps outbreaks have a greatly different size and epidemiology from a recent outbreak of 55 cases in the MSM community in LAC.

Objectives:
To detail the epidemiological findings and lessons learned from the 2017 Los Angeles County MSM mumps outbreak

Methods:
Demographic, clinical and risk factor data were analyzed among mumps cases reported to the LAC Department of Public Health during 2017. Nucleotide sequences of confirmed cases were also analyzed to identify sub-population clusters.

Results:
From January through August 2017, a total of 76 multi-jurisdictional mumps reports were received among MSM individuals or those who are socially connected to MSM individuals. Fifty-five are confirmed cases (74% of reports), and 50 (91% of cases) are LAC residents. The median age of cases is 33 years (age range: 19 to 60 years). Forty-seven (85%) of the cases are male, and 44 (80%) are MSM. Twelve (22%) of the cases, all men, are HIV-positive. During the outbreak’s 14 generations of case transmission, 41 (75%) of the cases frequented bars, clubs and/or gyms in select communities in LAC. Thirty-seven (67%) of the cases reported prior vaccination without documentation. Nucleotide sequencing discovered new, clustered, genetic sub-strains within the outbreak.

Conclusion:
This large outbreak of mumps in the MSM community of LAC has highlighted the need for the acquisition of standardized, detailed epidemiologic risk factor and nucleotide sequencing data. These data will assist local health departments in identifying unique mumps risk factors, transmission patterns and outbreak suppression strategies in the MSM community.
Economic Burden of the 2017 University of Washington Mumps Outbreak: A Prospective Analysis
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Background:
During February–June 2017, University of Washington (UW) experienced a mumps outbreak with 42 cases. All patients had received ≥2 documented doses of measles, mumps, and rubella (MMR) vaccine consistent with the recommended vaccination schedule; 2-dose MMR coverage among all UW students was >99%. In a university-wide effort encompassing many of the non-academic departments, UW collaborated with state and local public health departments (PHD) to rapidly implement outbreak investigation and response activities including recommending an additional dose of MMR vaccine. State public health response activities were limited to laboratory testing.

Objectives:
To report and examine labor and material costs provided by UW and PHD to respond to the UW mumps outbreak.

Methods:
Applied standard cost analysis methodology using a combined public health and university perspective. Labor and material costs for containment, response, and vaccination over the duration of the 2017 UW mumps outbreak were collected and categorized by payer and activity.

Results:
Preliminary results indicate total costs to UW and PHD in responding to the UW Mumps Outbreak were approximately $281,000 ($6,692 per case), with ≈2,700 logged hours. Of these, UW spent over $160,000 ($3,825 per case) and logged ≈1,500 hours, while PHD spent $120,000 ($2,867 per case) and logged ≈1,200 hours. The majority of PHD’s labor was allocated to laboratory testing of ill persons, case/contact investigation, and vaccination, while UW spent more hours planning how to respond to the outbreak, preparing for vaccination clinics, and conducting a massive outreach and education campaign.

Conclusion:
The response to the 2017 UW mumps outbreak amounted to a significant use of resources. Overall, labor was the largest driver of costs for the outbreak response; UW labor costs related to campus response planning and coordination dominated the total economic burden from a public health and university perspective.