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## Mumps Outbreak Update and Recommendations for a Third Dose of Vaccine

### Background

Mumps is a vaccine-preventable viral illness that typically starts with several days of fever, headache, muscle aches, fatigue, and loss of appetite, followed by swollen salivary glands. The best way to prevent mumps infection is through vaccination with a measles, mumps and rubella vaccine (MMR). The Advisory Committee on Immunization Practices (ACIP) recommends two doses of MMR: one dose at 12–15 months and a second dose at 4–6 years of age. The mumps component of the vaccine is about 78% effective after one dose and 88% effective after two doses.<sup>1</sup> This *Bulletin* provides an overview of the Anchorage mumps outbreak and offers guidance on administration of a third dose of MMR.

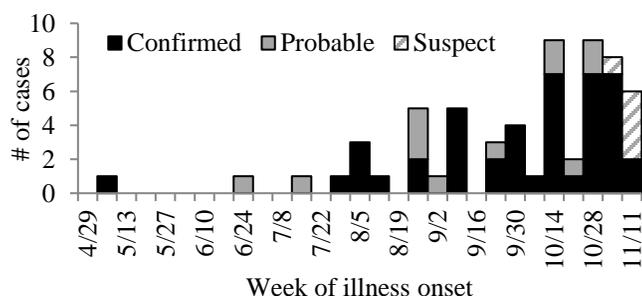
### Methods

The Anchorage Department of Health and Human Services and the Alaska Section of Epidemiology (SOE) began a joint investigation after the first mumps case was reported in May 2017. Patients were interviewed using a standardized investigation form to ascertain possible links to other cases, and were classified in accordance with the national case definition.<sup>2</sup> Buccal swabs were obtained and tested at the Centers for Disease Control and Prevention's Vaccine Preventable Disease Reference Center.

### Results

As of November 15, 2017, 44 confirmed, 12 probable, and 6 suspect cases were identified (Figure). All 56 confirmed and probable cases were residents of or spent extensive time in Anchorage. Among the 44 confirmed patients, the median age was 24 years (range: 10–68), and 13 (29%) were aged  $\leq 18$  years; 36 (82%) self-identified as Native Hawaiian or other Pacific Islander (NH/PI), 3 (7%) as white, one (2%) as black, and 4 (9%) were of unknown race; and 20 (45%) were female. Two patients have been hospitalized; none have died. Of the 22 (50%) confirmed patients for whom vaccination status was known; 1 had four doses of MMR, 1 had three doses, 17 had two doses, and 3 had one dose. Among patients with two or more doses of MMR, the median time from the most recent dose to illness onset was 12 years (range: 4–20 years).

**Figure. Confirmed, Probable, and Suspect Mumps Cases (N=62), by Week of Illness Onset — Alaska, May–November, 2017**



### Discussion

To date, this mumps outbreak has disproportionately impacted NH/PI people, who comprise 82% of confirmed cases. For most patients, their infection was epidemiologically linked to a household or a congregate setting (e.g., work or church) in which a case of mumps had been previously identified. While the original source of the outbreak is uncertain, several of the initial patients reported recent travel to or close contact with a person who had recently traveled to a Pacific island where mumps is circulating.

Controlling a mumps outbreak requires high levels of herd immunity by vaccination. Because the vaccine is not 100% effective, however, many cases occur in fully-vaccinated patients during mumps outbreaks.<sup>3</sup> In the current outbreak, 43% of patients had at least two doses of MMR. Moreover, waning

immunity to the mumps component of the MMR vaccine contributes to mumps transmission.<sup>4</sup> In this outbreak, a median of 12 years passed since receiving a second dose among patients who had received two doses of MMR.

On October 25, 2017, ACIP recommended that persons previously vaccinated with two doses of MMR who are identified by public health as being at high-risk for mumps during an outbreak should receive a third dose of MMR.<sup>5</sup> Based on this ACIP recommendation and the pattern of disease in the Anchorage outbreak, a third dose of MMR is advisable for certain people (Box). These recommendations may be updated as the outbreak evolves.

### Box. Interim Mumps Vaccination Recommendations during the Current Outbreak

- Clinicians should ensure that all patients are up-to-date on their MMR vaccination per the routine ACIP schedule.
- For persons who participate in a group setting (e.g., daycare, work, church) where mumps is currently circulating, OR for Anchorage residents who self-identify as being Native Hawaiian or other Pacific Islander:
  - A second dose of MMR is recommended for persons with only one dose of MMR (administered at least 4 weeks after the first dose).
  - A third dose of MMR is recommended if the person had a second dose that was administered  $\geq 5$  years ago (a third dose of MMR is NOT recommended for persons with a history of mumps).

### State-Supplied MMR Vaccine Availability

- All children who meet the state recommendations for an additional dose of MMR during the current outbreak are eligible to receive state-supplied MMR.
- Adults who meet the state recommendations for an additional dose of MMR during the current outbreak are eligible to receive state-supplied MMR if their insurance carrier participates in AVAP (Alaska Vaccine Assessment Program), or they are uninsured and their medical provider has opted-in to AVAP for uninsured adults.
- Adults who are not eligible for state-supplied MMR would need to purchase the vaccine or contact their carrier to see if it will be covered. Alaska Medicaid will cover recommended doses of MMR during this outbreak.

### Recommendations

1. Follow ACIP and Alaska outbreak vaccination guidance (Box). Additional information about mumps and mumps vaccine is available at: <http://dhss.alaska.gov/dph/Epi/id/Pages/Mumps.aspx>
2. Promptly report all suspect cases to SOE (907-269-8000, or after hours at 800-478-0084), and fax clinical notes to 907-563-7868 to avoid delays with sample shipment.
3. Inform patients with suspected and confirmed illness that they should *self-isolate* for 5 days after symptom onset.
4. Obtain a buccal swab specimen on all suspect cases using a synthetic swab on a plastic shaft and universal viral transport media; ship on cold packs to the Alaska State Virology Lab within 24 hours. For more information, see: <http://dhss.alaska.gov/dph/Epi/id/SiteAssets/Pages/Mumps/InformationforHCPsuspectedCasesMumps.pdf>

### References

1. McLean HQ, et al. Prevention of Measles, Rubella, CRS, and Mumps: Summary Recommendation of the ACIP. *MMWR* 2013;62(RR04):1-34.
2. Nationally Notifiable Diseases Surveillance System Case Definition: Mumps. Available at: <https://wwwn.cdc.gov/nndss/conditions/mumps/>
3. CDC. Mumps Cases and Outbreaks. Available at: <https://www.cdc.gov/mumps/outbreaks.html>
4. Cardemil CV, et al. Effectiveness of a third dose of MMR vaccine for mumps outbreak control. *NEJM* 2017;377(10):947-56.
5. CDC. Mumps for Healthcare Providers. Available at: <https://www.cdc.gov/mumps/hcp.html>