



Yakima Health District

BULLETIN

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Coccidioidomycosis Knowledge, Attitudes and Practice Survey

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Actions Requested:

- Complete the Coccidioidomycosis Knowledge, Attitudes and Practice Survey

Background

As you may already be aware, the Washington State Department of Health (DOH) is conducting a 5-minute online survey assessing clinicians' knowledge, attitudes, and practices with respect to recognition, diagnosis and treatment of coccidioidomycosis (sometimes referred to as [San Joaquin] "Valley Fever"). DOH is seeking your participation to learn more about your background and experience as a healthcare provider with this condition to help determine the education and support that clinician want and need to help improve diagnosis and treatment of coccidioidomycosis. If you have not already done so, please assist in the effort by providing your input on the self administered survey at:

<https://test-fortress.wa.gov/doh/opinio/s?s=CocciSurveyYakima>

Mumps Update—Statewide Cases Exceed 600, Most in Decades

Actions Requested

Be aware that mumps transmission is occurring throughout the state (although Yakima County has been relatively spared to-date).

Maintain vigilance for and be familiar with evaluation and infection control measures for possible mumps cases.

Please report all suspected cases of mumps to Yakima Health District at (509) 249-6541 for investigation and coordination of laboratory testing.

Background

Mumps transmission continues in Washington State, primarily affecting Spokane, King (including the University of Washington campus), Snohomish and Pierce Counties, but also Grant County as well (Table 1). Only three cases have been reported in Yakima County to-date (Table 2). The outbreak appears to have originated among a network of Marshallese families in south King County and has disseminated from there since. None of the three cases in Yakima County were Marshallese, although a substantial proportion of total cases statewide (e.g., 40%) have been among Marshallese—especially in the Puget Sound region and Spokane Counties. About one-half of cases are among children ≤ 17 years of age. Multiple school-based outbreaks have occurred across the state, requiring exclusion of non-immune students. Approximately two-thirds of cases have received an age-appropriate number of doses of mumps-containing vaccine (see below for explanation of this paradoxical finding). Most transmission appears to be occurring in homes and in schools, not in the general community.

Table 1. Confirmed and Probable Mumps Cases, Washington State, 10/01/2016-03/15/2017

County	Cases
Spokane	270
King	222
Pierce	58
Snohomish	26
Grant	25
Skagit	10
Yakima	3
Thurston	3
Ferry	3
Okanogan	2
Benton	1
Stevens	1
Total	624

Source: Washington State DOH

<http://www.doh.wa.gov/YouandYourFamily/IllnessandDisease/Mumps/MumpsOutbreak>

Accessed March 20, 2017

Table 2. Characteristics of Yakima County Mumps Cases

Total cases	3
Ages (years)	3, 54, 57
Number fully immunized for age	2 (the other is “unknown”)
Dates reported	06 Dec 2016, 06 Feb 2017, 06 Feb 2017
Epidemiologic link to another Washington State outbreak case	3
Virologically confirmed	2
Secondary cases	0

Multiple simultaneous mumps outbreaks are occurring nationwide with analogous levels of activity in Texas, Oklahoma, Arkansas, Missouri, and New York. Overall, 37 states have reported over 5,000 cases in 2016 and 1,000 cases thus far in 2017. Before the nationwide mumps vaccination program started in 1967, about 186,000 cases were reported each year, but the actual number of cases was likely much higher due to underreporting. Since the pre-vaccine era, there has been a more than 99% decrease in mumps cases in the United States. During 1998–2015, 0-53 cases of mumps were reported annually in Washington State. The current level of transmission is unprecedented since prior to 1980.

Clinical Presentation and Transmission

Mumps typically presents with a several-day, non-specific prodromal illness including fever, headache, myalgia, and anorexia. This prodrome is then followed by 2-10 days of parotitis in about two-thirds of cases (or less commonly swelling of other salivary glands). In about 10% of post-pubescent patients, mumps can cause orchitis or oophoritis. Other presentations can include pancreatitis, aseptic meningitis (up to 10%), or encephalitis. In the pre-vaccine era, mumps was a common cause of deafness. The differential diagnosis for sporadic parotitis includes other viral pathogens (EBV, HHV-6, cytomegalovirus, adenovirus parainfluenza viruses 1-3, influenza A, coxsackie and other enteroviruses, bocavirus), *Staphylococcus aureus* and other bacteria, tumors, immunologic disease, and salivary duct obstruction.

The causative agent is a paramyxovirus transmitted by saliva and respiratory droplets. Mumps virus can be isolated from saliva from 7 days before onset of parotitis until 9 days after (Table 3). The incubation period is typically 16-18 days (range 12-25 days). Treatment is supportive. Affected cases should be seen under respiratory droplet precautions in health care settings and isolated at home until 5 full days after onset of parotitis. Unvaccinated individuals who are exposed to a mumps case should be monitored for symptoms and be excluded from high-risk congregate settings (e.g., school, healthcare, childcare) from days 12-25 days after exposure. If the exact timing of exposure cannot be ascertained, then exclusion should be imposed until 25 days after the last possible moment of exposure.

Table 3. Timing of Detection of Mumps Virus in Saliva Relative to Onset of Parotitis

Time relative to onset of parotitis	Number tested	Number positive	Percent Positive
6-7 days before	6	1	17
2-3 days before	10	4	40
1 days before	7	6	86
1 day after	36	29	81
2-3 days after	37	18	47
4-5 days after	15	6	40
6-7 days after	1	7	16

Source: Centers for Disease Control and Prevention. MMWR 2007; 57(40):1103-1105

<https://www.cdc.gov/mmwr/PDF/wk/mm5740.pdf>

Accessed March 21, 2017

Laboratory Diagnosis

Laboratory diagnosis is based on isolation of mumps virus in culture or detection of mumps RNA by polymerase chain reaction (PCR) from either a buccal swab (days 0-3 after parotitis onset) or urine (days 4-10 after onset of parotitis). PCR is now the dominant virologic method of testing. In unvaccinated cases, detection of mumps anti-IgM can be helpful if virologic testing is negative, but beware: both IgM and virologic testing can be falsely negative in previously vaccinated patients.

Specimen Collection and Handling for Mumps Testing (please call 509-249-6541 to coordinate testing with YHD)

- Days 0-3 after parotitis onset (onset date is day 0): buccal swab only.
- Days 4-10 after parotitis onset: buccal swab AND urine specimen.

Buccal Swab Specimen

- Massage the parotid gland for about 30 seconds prior to collecting specimen.
- Place a Dacron® swab between rear molars and cheek (on each affected side if parotitis is bilateral) and leave in place 10–15 seconds.
- Place both swabs in a tube containing 2-3 ml of cold viral transport medium.
- Keep cold and ship on cold pack within 24-72 hours of collection to arrive at Washington State Public Health Laboratories (PHL--Shoreline, WA) during business hours.

Urine Specimen

- Collect a minimum of 10 ml of clean voided urine (50 ml preferred) in a sterile screw-capped container.
- Keep cold and ship on cold pack within 24-72 hours of collection to arrive at PHL during business hours.

Serology testing (submit through private/commercial laboratory)

- Collect at least 4ml of blood or 2 ml of serum in a red top or red-gray top tube.
- Keep cold and ship on cold pack within 24-72 hours of collection to commercial laboratory

Case Classification

For public health surveillance purposes, a confirmed case is a clinically compatible case with virologic confirmation by culture or PCR. Probable cases have a clinically compatible syndrome and epidemiologic connection to another probable or confirmed case, but negative virology results.

Vaccinated Cases Can Predominate in an Outbreak Setting

Be aware that while high vaccine coverage is important for interruption of transmission, the efficacy of two doses of mumps-containing vaccine is only about 90% (and one dose is even worse—only about 80%). Waning immunity over time may also play a role in the observed limitations of vaccine efficacy in this and other ongoing outbreaks in the United States.

In a congregate setting like a school or university, if 1000 students with 95% 2-dose vaccination coverage are exposed and the attack rate in the unvaccinated group is 30%, then 15 (30%) of 50 unvaccinated and 29 (3%) of 950 vaccinated students will become infected. This is how (1) transmission can be sustained even in highly vaccinated populations once the infection is introduced into a densely populated setting and (2) a majority of cases occurring in outbreaks among highly vaccinated populations are paradoxically found to be vaccinated rather than un-vaccinated. The moral of the story is that in an outbreak setting, prior history of one or two doses of mumps-containing vaccine does not exclude the diagnosis of mumps or the need to isolate the patient and complete an appropriate evaluation.

Role of a Third Dose of Mumps-Containing Vaccine

The limitation in protection afforded by two doses of mumps-containing vaccine raises the question of whether a third dose may be indicated for outbreak control. The Centers for Disease Control and Prevention has outlined specific criteria for concentrated use of a third dose among high-risk groups in an outbreak setting. DOH's Washington State Vaccine Advisory Committee reviewed these criteria in the context of this outbreak and found that the current situation at hand does not meet the implementation criteria supported by existing evidence. However, use of a third dose in certain settings may still remain on the table as the situation evolves.

Local Mumps-containing Vaccine Coverage

Notwithstanding the imperfect efficacy of mumps vaccine, the best strategy for preventing mumps is promoting high levels of immunity by vaccination. Yakima County's relatively good coverage with mumps-containing vaccine (Table 4) and overall low vaccine exemption rate among school age children (1-2%) should contribute to limiting the local impact of the statewide outbreak. As the data show in Table 4, however, plenty of room for improvement in MMR coverage among children still exists.

Table 4. Measles-Mumps-Rubella Immunization Coverage, Yakima County, 2016

Age group	Criterion	Coverage (%)	Rank (all WA counties)	Rank (WA counties with population >100,000)
19-35 months	≥1 MMR	91%	1	1
4-6 years	≥2 MMR	75%	8	1

Source: Washington State Department of Health

<http://www.doh.wa.gov/DataandStatisticalReports/HealthBehaviors/Immunization/ImmunizationInformationSystem>

Accessed March 21, 2017

Documentation of Immunity

All healthcare providers should have documentation of immunity to mumps. The following are considered evidence of immunity for healthcare workers in non-outbreak settings (e.g., Yakima County at the current time):

- documented physician-diagnosed mumps (virologic or serologic confirmation preferred), or
- serologic evidence of immunity (i.e., serum anti-mumps IgG positive), or
- documented receipt of 1 dose of mumps-containing vaccine if born before 1957, or 2 doses of mumps-containing vaccine if born during or after 1957.

During an outbreak, more stringent requirements for evidence of immunity should be used for healthcare workers:

- documented physician-diagnosed mumps (virologic or serologic confirmation preferred), or
- serologic evidence of immunity, or
- documented receipt of 2 doses of mumps-containing vaccine regardless of birth year.

Among other members of the community, acceptable presumptive evidence of immunity to mumps includes one of the following:

- documentation of adequate vaccination
 - preschool-aged children and adults not at high risk: 1 dose of mumps-containing vaccines
 - school-aged children (i.e., grades K–12), adults at high risk (i.e., persons who work in health care facilities, international travelers, and students at post-high school educational institutions): 2 doses of mumps-containing vaccine
- serologic evidence of immunity, or
- birth before 1957, or
- documentation of physician-diagnosed mumps (virologic or serologic confirmation preferred).

Additional Resources

CDC. Mumps. <https://www.cdc.gov/mumps/hcp.html>

WA DOH. Mumps Outbreak. <http://www.doh.wa.gov/YouandYourFamily/IllnessandDisease/Mumps/MumpsOutbreak>

Committee on Infectious Diseases, American Academy of Pediatrics. Mumps. In *Red Book 2015: Report of the Committee on Infectious Diseases* (pp. 564-568).

YAKIMA HEALTH DISTRICT



1210 Ahtanum Ridge Drive
Union Gap, WA 98903



Reporting Line: (509) 249-6541
After hours Emergency: (509) 575-4040 #1
Toll Free: (800) 535-5016 x 541



Confidential Fax: (509) 249-6628



<http://www.yakimapublichealth.org>

Christopher Spitters, MD, MPH, Health Officer
André Fresco, MPA, Administrator
Ryan Ibach, Chief Operating Officer
Dave Cole, Director of Environmental Health
vacant, Director of Disease Control
vacant, Director of Public Health Partnerships

Notifiable Condition <i>(includes confirmed and probable cases)</i>	Total Cases by Year		
	Total Cases by Year	Total Cases by Year	Total Cases by Year
	2016	2015	2014
Campylobacteriosis	143	153	97
Chlamydia	1594	1597	1504
Cryptosporidiosis	3	7	7
Genital Herpes - Initial	68	111	60
Giardiasis	27	25	16
Gonorrhea	444	376	406
Hepatitis A acute	0	0	0
Hepatitis B acute	2	0	0
Hepatitis B chronic	7	18	11
Hepatitis C acute	4	1	2
Hepatitis C chronic	237	223	300
HIV/AIDS Cumulative Living	204	197	196
HIV/AIDS Deaths	3	3	2
HIV/AIDS New	13	5	8
Meningococcal Disease	0	0	1
Pertussis	4	11	18
Salmonellosis	29	49	53
Shigellosis	19	2	14
STEC (enterohemorrhagic E. coli)	24	20	15
Syphilis - Primary and Secondary	11	7	15
Tuberculosis	7	12	4

**Notifiable
Conditions
Year End
Summary
2016**