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This toolkit educates healthcare service providers about mumps prevention approaches and contains materials for patients. It also provides steps to take during the mumps outbreak in winter 2016-2017. Intended users are healthcare providers and workers, such as hospitals, clinics, and medical staff.

Contents (click to go directly to that page):

- [Vaccine Effectiveness Flyer \(for both staff and patients\)](#)
  - Included in both English and Spanish
- [Specimen Shipping Guide](#)
- [Provider Guidance Summary](#), covering:
  - Patient assessment and testing protocols
  - How to ensure immunity of your staff
- [“Stop: Consider Mumps” door sign](#)
  - Included in both English and Spanish

For more information about this toolkit, contact:

Public Health Nurses, Clinical and Quality Assurance Team  
Office of Immunization and Child Profile  
Washington State Department of Health  
360-236-3595 or 1-866-397-0337  
[immunenurses@doh.wa.gov](mailto:immunenurses@doh.wa.gov)

Some additional resources that may help you:

- **Washington mumps outbreak news and resources:** [www.doh.wa.gov/mumps](http://www.doh.wa.gov/mumps)
- [Nationwide mumps outbreak news](#)
- [Mumps is a notifiable condition](#)
- [Immunization reminder/recall resources](#)
- [Mumps information from the Immunization Action Coalition](#)
  - Includes patient handouts, standing orders, journal articles, case reports, VIS, and more
- [Mumps information for healthcare providers from the CDC](#)
- [CDC Expert Commentary: How to recognize and diagnose mumps \(video\)](#)

# Mumps Vaccine: Our Best Protection

Mumps is a contagious disease that causes fever, aches, and swelling in the cheek or jaw area. It also can lead to other problems like hearing loss and brain damage. There is no treatment for mumps, but there is a way to prevent it: the combination measles, mumps, and rubella (MMR) vaccine. It protects you and helps stop the spread of the mumps virus to others.

## Sometimes people who have MMR vaccine still get mumps. Why is that?

The vaccine is effective at preventing mumps, but it is not perfect. There is still a small chance of getting mumps if you're vaccinated. Nearly **9 out of 10 people get lasting protection** from the vaccine.

### Number at Risk of Getting Mumps



“Because some people do not get lasting protection from the vaccine and mumps spreads easily from person to person, outbreaks can still occur in vaccinated populations. But, if unvaccinated, many, many, more people would become ill.”

~ Dr. Jeff Duchin, Public Health—Seattle King County

**MMR vaccine is 88% effective against mumps** in people who have had two doses. That means of every 100 vaccinated people exposed, only 12 of them are at risk for getting infected with mumps. In contrast, **all unvaccinated people are at risk. The number of people who get mumps in an outbreak would be much larger if fewer people were vaccinated.** In addition, complications happen more often and are more serious among unvaccinated people who get mumps. Luckily, more than 9 out of 10 Washington kindergartners have both of their MMR vaccine doses.

Even though vaccinated people might get sick in an outbreak, the risk of getting sick is much greater for people who haven't been vaccinated. For example, in one recent summer camp outbreak, 43% of the unvaccinated people got mumps when they were exposed, but less than 4% of vaccinated people got it. But because there were so many more vaccinated campers than campers who didn't have the vaccine, the number of cases in vaccinated people was higher.

### Did You Know?

Before the vaccine program started, the U.S. saw more cases of mumps in a week than we see now in an entire year.

### How does mumps vaccine help?

- MMR vaccine provides **significant protection** from mumps, and greatly reduces the risk of complications.
- Since the widespread use of MMR vaccine in the U.S., there has been a **99% decrease** in the number of people with mumps.
- MMR vaccine doesn't just protect against mumps—**it also protects against measles and rubella**, which are even deadlier diseases.

### What you can do

- **Get vaccinated.** Make sure you and your kids are up to date on MMR vaccine. Check with your healthcare provider. MMR vaccine is available to all Washington kids at no cost.
- **Find the vaccination rate of your school** at [www.schooldigger.com](http://www.schooldigger.com).
- **Sign up for MyIR**, which lets you see your family's vaccinations at home and get reminders. Go to [doh.wa.gov/immsrecords](http://doh.wa.gov/immsrecords).

# Vacuna contra las paperas: nuestra mejor protección

Las paperas es una enfermedad contagiosa que causa fiebre, dolor e hinchazón en las mejillas o en el área de mandíbula. También pueden causar otros problemas como pérdida auditiva y daño cerebral. No hay tratamiento para las paperas, pero se pueden prevenir con la vacuna triple vírica contra el sarampión, las paperas y la rubéola (MMR). La vacuna te protege y ayuda a detener la propagación del virus a otras personas.

## ¿Por qué a veces las personas que reciben la vacuna MMR aún enferman de paperas?

La vacuna es efectiva previniendo paperas, pero no es perfecta. Existe una pequeña probabilidad de que contraigas paperas aunque hayas sido vacunado. Alrededor de **9 de cada 10 personas reciben protección permanente** de la vacuna. **La vacuna MMR es efectiva hasta un 88% en contra de las paperas** en las personas que han recibido dos dosis de la vacuna. Esto significa que de cada 100 personas vacunadas expuestas al virus, sólo 12 corren el riesgo de enfermar con paperas. En cambio, **todas las personas sin vacunar corren el riesgo de enfermar** si se exponen al virus.

### Número de personas en riesgo de contraer paperas

12%



Vacunadas con la vacuna

100%



Sin vacunar

“Debido a que algunas personas no logran mantener una protección duradera contra las paperas después de vacunarse y ya que el virus puede propagarse fácilmente de persona a persona, aún pueden ocurrir brotes en poblaciones vacunadas. Sin embargo, si la gente no se vacunara, muchas más personas enfermarían”.

~ Dr. Jeff Duchin, Salud Pública del Condado de Seattle King

**El número de personas que enferman durante un brote de la enfermedad sería más grande si menos personas fueran vacunadas.** Adicionalmente, las complicaciones ocurren más seguido y son más graves entre los que no han sido vacunados. Afortunadamente, más de 9 de cada 10 niños en el kínder o jardín de niños han sido vacunados con las dos dosis de la vacuna MMR.

Aunque más personas vacunadas podrían enfermar durante un brote, el riesgo de adquirir la enfermedad es mucho mayor para las personas que no han sido vacunadas. Por ejemplo, en un brote reciente de la enfermedad en un campamento de verano, el 43% de las personas sin vacunar enfermaron de paperas al ser expuestos al virus, pero menos del 4% de las personas vacunadas enfermaron. Pero debido a que el número de personas vacunadas era mayor que el de las personas sin vacunar, el número de casos de la enfermedad fue mayor en las personas vacunadas.

### ¿Sabías que?

Antes de que el programa de vacunación empezara, en los EE. UU. se veían más casos de paperas en una semana que los que se ven ahora en un año.

## ¿Cómo ayuda la vacuna MMR?

- La vacuna MMR ofrece una buena protección en contra de las paperas y reduce el riesgo de complicaciones considerablemente.
- Desde que empezó a usarse la vacuna MMR ampliamente en los EE. UU., **ha disminuido** el número de personas con paperas **hasta un 99%**.
- La vacuna MMR no sólo protege contra las paperas, **también protege contra el sarampión y la rubéola**, las cuales son dos enfermedades aún más mortales.

## Lo que puedes hacer

- **Vacúnate.** Asegúrate de que tu y tus niños hayan recibido la vacuna MMR. Verifica con tu proveedor médico. La vacuna MMR está disponible para todos los niños en Washington sin costo alguno.
- **Encuentra las tasas de vacunación de tu escuela** en [www.schooldigger.com](http://www.schooldigger.com).
- **Regístrate en MyIR** para acceder al registro de vacunación tuyo y de tu familia desde la comodidad de tu casa y para recibir recordatorios. Visita [doh.wa.gov/immsrecords](http://doh.wa.gov/immsrecords).

This guide walks providers through the process of collecting and transporting potential Mumps specimens to the Washington Public Health Lab.

### **Serologic Testing for Mumps**

In most cases if serologic testing is desired, send serum commercially and request both IgM and IgG results.

### **Collection of Specimens for PCR Testing**

- On days 0-3 after onset of parotitis, collect a buccal swab only.
- On days 4-10 after onset of parotitis, collect both a buccal swab and urine.
- Please consult with your Local Health Jurisdiction about what testing can be considered if more than 10 days has elapsed since onset of parotitis.

#### **1. Collect the Mumps Specimen, following Mumps RT-PCR collection guidelines:**

<http://www.doh.wa.gov/Portals/1/Documents/5240/SCSI-Mumps-RTPCR-V2.pdf>

#### **2. Complete the WAPHL Virology Specimen Submission form:**

<http://www.doh.wa.gov/Portals/1/Documents/5230/302-017-SerVirHIV.pdf>

Make sure all of the following information is filled out:

- Patient name, second identifier (e.g. date of birth), and county of residence
- Specimen type, date of collection, onset date and test requested (Mumps RT-PCR)
- Submitter name, address, and telephone/FAX numbers

#### **3. Once the Mumps specimen has been collected, prepare the specimen securely:**

- Make sure the cap of the transport tube is securely closed.
- Make sure the patient's name and second identifier are listed on the specimen tube and match the specimen submission form.
- Prepare a Biohazard Ziploc (plastic) bag containing a piece of super absorbent paper.
- Place the taped or para-filmed tube in the bag prevent potential leaking.
- Place the WAPHL submission form in the outer pouch of the Biohazard bag. **DO NOT** place any paperwork inside the pouch with the specimen tube.

#### **4. Prepare the Mumps specimen for shipment:**

- Place the Mumps Specimen contained in the Biohazard bag into a Saf-T-Pak plastic bag. Place the Saf-T-Pak plastic bag into a white Tyvek bag.
- Place the white Tyvek bag into a large plastic bag with frozen ice packs or dry ice, and place everything into the Saf-T-Pak cardboard box.
- Add packing material as needed to prevent contents from shifting during shipment.

For persons with disabilities, this document is available on request in other formats. To submit a request, please call 1-800-525-0127 (TDD/TTY call 711).

DOH 302-022 Dec. 2016

- Place specimen into a special shipping container labeled as “Biological Substance, Category B.”

**5. Ship the Mumps specimen:**

- Choose a delivery service with package delivery within 24 hours.
- Lab receiving hours are 8am to 5pm Monday through Friday, and 10am to 12pm on Saturday. Saturday delivery is discouraged.
- Reusable shippers should be covered in clear packing tape and indicate a ‘Please return to’ address on the outer box so WAPHL can ship it back.



STATE OF WASHINGTON

## DEPARTMENT OF HEALTH

*Post Office Box 47890 Olympia, Washington 98504-7890*

*Tel: (360) 236-4010 • FAX: (360) 586-7424*

*TDD Relay Service: 1-800-833-6388*

December 22, 2016

Dear Colleagues,

You are likely aware of the current mumps outbreak in Washington State. We are including information about the current outbreak to help you identify and test potential mumps cases in your community. We also want you to feel comfortable with clear guidance to give your patients and their families.

Since the first 3 cases were confirmed by testing at Public Health Laboratories (PHL) on November 23<sup>rd</sup>, the outbreak has quickly grown to include 110 cases (33 confirmed 77 probable). All cases identified to date have been residents of the King (96), Pierce (9), Spokane (4), and Yakima (1) counties. This outbreak has involved the Marshallese Community, and at least 40% of all cases are Marshallese. These cases may be associated with a larger multi-state outbreak. More than 2,800 cases have been reported nationally. The majority are in Arkansas (more than 2,000). The others are in Washington, Oregon, Texas, Oklahoma, Iowa, and Hawaii. Ask all patients about potential mumps exposure in persons whom have traveled internationally or to any area within the U.S. where mumps transmission is occurring.

### **Symptoms of mumps**

Mumps causes inflammation of glandular tissue, most commonly salivary glands (parotitis). Swelling is first visible in front of the lower part of the ear. Swelling usually peaks in 1-3 days and then subsides during the next week. One parotid may swell before the other, and in 25% of patients, only one side swells. Up to 20% of infections have no symptoms and up to half have mild symptoms which include:

- Prodromal symptoms like myalgia, anorexia, malaise, headache, low grade fever may precede parotitis by 3-4 days.
- Mumps-specific symptoms are parotitis and orchitis. Other glandular tissue can also be affected. Females can experience oophoritis which may cause pelvic discomfort.
- Other non-specific symptoms that may be experienced by persons with mumps are discomfort with swallowing or upon eating certain foods, jaw pain, or ear pain.
- Complications of mumps occur later in the illness and can include hearing loss, aseptic meningitis, pancreatitis, changes in sensorium associated with encephalitis.

### **Who should be tested?**

Any person who has parotitis should be evaluated. Even fully vaccinated persons can develop parotitis or mild nonspecific findings such as upper respiratory infections and abdominal or testicular pain. It is

important that you as clinicians evaluate the full differential diagnosis of mild nonspecific etiologies before requesting mumps testing in the absence of parotitis. If you have questions about testing, contact your local public health jurisdiction (LHJ) and also report each suspected case to your LHJ.

### **What is the best testing method?**

Collect a buccal swab specimen from patients with clinical features compatible with mumps. If you suspect mumps, collect the clinical samples for detection of mumps as soon as possible, preferably within 3 days of parotitis onset (with the date of onset being day 0). The early collection of a buccal swab specimen provides the best means of laboratory confirmation, particularly among suspected mumps patients with a history of vaccination. Prolonged viral shedding in urine is possible and may be recommended depending on the timing of clinical symptoms. You can also consider serologic testing. See additional information below. All mumps testing done at the Public Health Lab must be ordered through your LHJ.

#### **Collection of buccal/oral or urine specimens for PCR testing**

- On days 0-3 after onset of parotitis: Collect a buccal swab only.
- On days 4 – 10 after onset of parotitis: Collect both buccal swab & urine.
- Please consult with your [Local Health Jurisdiction](#) about what testing can still be considered if more than 10 days has elapsed since onset of parotitis.

#### **Serologic testing is recommended in the following situations:**

- Patients with unknown vaccination status
- In some circumstances when the patient presents beyond the 10 day period.

In most cases, if serologic testing is desired, serum can be sent commercially and both IgM and IgG results should be requested. Please note: Follow up to determine IgG results will be important for patients with unknown vaccination status, since a negative PCR cannot rule out mumps on a person previously exposed to mumps antigen, either by vaccination or previous infection.

### **Guidance for patients and their families**

- Mumps spreads through droplets and direct contact with saliva of an infected person. Maximum infectiousness occurs 2 days before onset of parotitis until 5 days afterwards. Therefore persons diagnosed with mumps should not work or go to school until the 6<sup>th</sup> day after the onset of parotitis. At home, they should cover their cough/sneezes, avoid sharing food or drinks with others and limit contact with any new persons.
- Persons exposed to a confirmed or suspect case of mumps should be watched for symptoms from the 12<sup>th</sup> day after initial exposure through the 25<sup>th</sup> day after the most recent exposure.
- Exposed persons **who develop symptoms** should isolate themselves from others immediately (as outlined above) and contact their healthcare provider. Let patients know that no available test is sensitive enough to rule out mumps in a person previously exposed to mumps antigen, either through vaccination or through mumps infection.
- A third dose of MMR vaccine is not currently recommended. The clinical evidence and feasibility of a third dose is being evaluated in Washington State.
- Dosing of vaccine before 12 months is not currently recommended.
- The 2<sup>nd</sup> dose of vaccine given before the 4<sup>th</sup>-6<sup>th</sup> birthday is acceptable if given greater than 1 month since the last vaccine, and may be considered under special circumstances.

### **Assessing Evidence of Immunity**

- Evidence of adequate vaccination for school-aged children, college students, and students in other postsecondary educational institutions who are at risk for exposure and infection during mumps outbreaks consists of 2 doses of mumps-containing vaccine separated by at least 28 days or
- Laboratory evidence of immunity or lab evidence of disease or
- Born before 1957 or documentation of age-appropriate vaccination with a live mumps virus-containing vaccine:

Preschool-aged children and adults not at high risk	1 dose
Persons 6 months or older who travel internationally	2 doses
School-aged children (grades K-12)	2 doses
Health care workers	2 doses
Students at post-secondary educational institutions	2 doses

### **Accepted evidence of Immunity**

- Vaccine doses with written documentation of the date of administration at age  $\geq 12$  months are the only doses considered to be valid. Self-reported doses and history of vaccination provided by a parent or other caregiver are not considered adequate evidence of immunity. Persons who do not have documentation of adequate vaccination or other acceptable evidence of immunity should be vaccinated.
- Serologic screening for mumps immunity before vaccination is not necessary, nor is it recommended if a person has other acceptable evidence of immunity to these diseases. Similarly, post-vaccination serologic testing to verify an immune response is not recommended.
- Documented age-appropriate vaccination supersedes the results of subsequent serologic testing.
- If a person who has 2 documented doses of mumps- or mumps-containing vaccines is tested serologically and is determined to have negative or equivocal mumps titer results, it is not recommended that the person receive an additional dose of MMR vaccine. Such persons should be considered to have presumptive evidence of immunity.
- In previously unvaccinated persons who have mumps-specific IgG antibody that is detectable by any commonly used serologic assay are considered to have adequate laboratory evidence of mumps immunity. Persons with an equivocal serologic test result do not have adequate presumptive evidence of immunity and should be considered susceptible, unless they have other evidence of mumps immunity (such as confirmed disease) or subsequent testing indicates mumps immunity.
- Facilities should ensure that the mumps immunity status of health-care personnel is routinely documented and can be easily accessed.

### **Outbreaks in Health-Care Facilities**

- During an outbreak of mumps, health-care facilities should recommend 2 doses of MMR vaccine at the appropriate interval for health-care personnel regardless of birth year who lack laboratory evidence of mumps immunity or laboratory confirmation of disease.
- Health-care workers include all persons (medical or nonmedical, paid or volunteer, full- or part-time, student or nonstudent, with or without patient-care responsibilities) who work within facilities that provide health care to patients (i.e., inpatient and outpatient, private and public).
- If documentation of adequate evidence of immunity has not already been collected, it might be difficult to quickly obtain documentation of immunity for health-care personnel during an outbreak or when an exposure occurs. Therefore, health-care facilities should ensure that the

mumps immunity status of health-care personnel is routinely documented and can be easily accessed.

- Exposed healthcare personnel without acceptable evidence of immunity should be excluded from the 9th day after the first unprotected exposure to mumps through 25 days after the last exposure. The mumps vaccine cannot be used to prevent the development of mumps after exposure. Hence, previously unvaccinated healthcare personnel who receive a first dose of vaccine after an exposure should still be considered non-immune and must be excluded as described above.

### **Background Vaccine Information**

- **Mumps Component:** The mumps component of the combination MMR vaccine that is currently distributed in the United States was licensed in 1968 and contains the live attenuated mumps Jeryl-Lynn vaccine strain.
- **Immune Response to Mumps Vaccination:** Mumps-containing vaccines produce a subclinical or mild, non-communicable infection inducing both humoral and cellular immunity. Antibodies develop among approximately 95% of children vaccinated at age 12 months with a single dose of the vaccine. Almost all persons who do not respond to the mumps component of the first dose of MMR vaccine at age  $\geq 12$  months respond to the second dose.
- Response to the vaccine is similar in almost all respects to that noted in natural infection. Antibodies first appear 12-15 days after vaccination and peak at 21-28 days. To assure protection, vaccine should be given one month (28 days) before any potential exposure to mumps disease.
- One dose of mumps-containing vaccine administered at age  $\geq 12$  months was approximately 78% effective in preventing mumps. The effectiveness of 2 doses of mumps-containing vaccine was 88%.

### **References**

- Prevention of Mumps, Rubella, Congenital Rubella Syndrome, and Mumps, 2013: Summary Recommendations of the Advisory Committee on Immunization Practices (ACIP). June 14, 2013 / 62(RR04);1-34 [www.cdc.gov/mmwr/preview/mmwrhtml/rr6204a1.htm](http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6204a1.htm)
- Vaccines, Plotkin & Mortimer pp. 419-446.
- CDC guidance for surveillance and outbreak control for mumps, can be found in the Manual for the Surveillance of Vaccine-Preventable Diseases [www.cdc.gov/vaccines/pubs/surv-manual/index.html](http://www.cdc.gov/vaccines/pubs/surv-manual/index.html)
- Epidemiology and Prevention of Vaccine-Preventable Diseases, 13<sup>th</sup> edition, 2015.
- Control of Communicable Diseases Manual. 20<sup>th</sup> edition



**FEVER and  
SWOLLEN JAW?  
CONSIDER MUMPS.**

**Mumps is highly contagious. Please protect yourself and others!**

**Please notify medical staff immediately if  
you have any of these symptoms:**

- **Swollen glands under the ears or jaw**
- **Fever**
- **Headache**
- **Muscle aches**
- **Tiredness**
- **Loss of appetite (not wanting to eat)**



**[www.doh.wa.gov/mumps](http://www.doh.wa.gov/mumps)**

DOH 348-591, December 2016.

If you have a disability and need this document in another format,  
please call 1-800-525-0127 (TDD/TTY call 711).





**¿FIEBRE y MEJILLAS  
HINCHADAS?  
¡QUIZÁS SEAN PAPERAS!**

**Las paperas son muy contagiosas. ¡Protéjase y proteja a otros!**

**Favor de notificar de inmediato al personal médico si tiene cualquiera de estos síntomas:**

- **Glándulas hinchadas por debajo de las orejas o mandíbula**
- **Fiebre**
- **Dolor de cabeza**
- **Dolores musculares**
- **Cansancio**
- **Pérdida de apetito**



**[www.doh.wa.gov/paperas](http://www.doh.wa.gov/paperas)**

DOH 348-591 Spanish, January 2017.

Si usted tiene una discapacidad y necesita este documento en otro formato, por favor llame al 1-800-525-0127 (para servicio TDD/TTY, llame al 711).

