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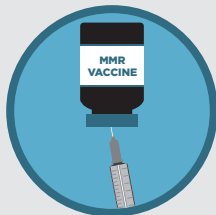
# MEASLES, MUMPS, RUBELLA (MMR)

WHAT YOU NEED TO KNOW

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ARE YOU SURE YOU USE THE RIGHT MEASURES  
TO PROTECT YOURSELF AGAINST MEASLES, MUMPS OR RUBELLA?

**GET INFORMED! GET VACCINATED! GET PROTECTED!**



# REMEMBER THE FOLLOWING FACTS ABOUT **MEASLES, MUMPS AND RUBELLA**

- measles caused hundreds of thousands of cases and deaths, mostly in children, before systematic vaccinations started in the 60s,
- measles is one of the most contagious diseases and quite effectively transmits from person to person, when not immune,
- adults need proof of immunity against measles, mumps or rubella or proof of receiving 2 doses of MMR vaccine,
- all women of child bearing age should know their immunity status against rubella (German Measles),
- in the event of a mumps outbreak a 3rd dose of MMR vaccine may assist in controlling the transmission

# THE DISEASES IN SHORT

Sub-optimal coverage with the MMR vaccine has led to pockets of susceptible populations in the EU countries and the reporting of outbreaks of all three diseases in the last years:

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Before universal measles vaccination, the disease was endemic in Europe and caused seasonal outbreaks every 2-5 years. The introduction of the measles vaccine in the 60's led to >99% decrease in the number of cases until about 2001. Since then a significant number of measles cases is reported in EU countries in late winter and early spring, peaking in 2011 (>30,000).

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Mumps still occurs frequently in the EU countries, where almost 950,000 cases of mumps were notified between 2001-2008.

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Incidence of rubella in the EU countries peaked in 2008, but cases occur annually. In 2013-14 a large outbreak is reported mainly in Poland.

# MEASLES

## SYMPTOMS

### Incubation period:

*10-12 days (rash appears approximately 14 days after infection)*

Measles is caused by an RNA virus and usually starts with cough, runny nose, conjunctivitis, and fever. An enanthem (Köplik's spots) appears on the buccal mucosa 1-2 days before the rash. An erythematous maculopapular rash appears 2-4 days after the prodromal syndrome and spreads from the head to the rest of the body. The rash tends to coalesce and blanches on pressure at the beginning.

Mortality is more common in young infants, in malnourished children, and among immune-compromised patients. Adults are more likely to suffer complications.

## TREATMENT

There is no specific treatment for measles; supportive care is needed.

# MUMPS

## SYMPTOMS

### Incubation period:

*12-25 days (usually 16-18 days)*

Mumps is caused by an RNA virus. It presents usually with swollen salivary glands (most frequently the parotids), fever, headache, myalgia and anorexia.

Up to 20-30% of patients are asymptomatic, while <10% of patients manifest symptoms of viral meningitis.

## TREATMENT

There is no specific treatment for mumps; supportive care is needed.

# RUBELLA

## SYMPTOMS

### Incubation period:

*12-13 days (approximately 14 days)*

Rubella is caused by an RNA virus, manifesting with a maculopapular rash, lymphadenopathy (frequently of the occipital lymphnodes), transient arthritis (mostly in women), upper respiratory infection and sometimes fever. Up to 20- 50% of cases may be asymptomatic.

Rubella has serious consequences in pregnant women causing during the first trimester fetal death or severe congenital defects known as congenital rubella syndrome (CRS).

## TREATMENT

There is no specific treatment for rubella; supportive care is needed.

# WHO NEEDS AN MMR VACCINE?

- Health care workers (HCWs) before starting clinical work, as well as supporting services and volunteers before contact with patients.
- Any susceptible HCW exposed to measles, mumps or rubella can receive the MMR vaccine within 72hrs of the exposure in order to prevent or modify the disease in some cases.

MMR is given subcutaneously or intramuscularly in a 2- dose schedule at least 4 weeks apart.

**MMR  
VACCINE**

If you have received at least one dose of the vaccine in the past (on or after 12 months of age), one more dose can be administered at any time.

MMR vaccine contains live attenuated measles, mumps and rubella viruses.

**MMR  
VACCINE**

# MMR CONTRAINDICATIONS (C) AND PRECAUTIONS (P)

- C:** history of severe allergic reaction to first dose of the vaccine
  - C:** history of anaphylactic reaction to neomycin;
  - C:** history of allergic reaction
  - C:** altered immunity or immunodeficiency  
(e.g. leukemia, lymphoma, HIV, hereditary immunodeficiencies etc)
  - C:** pregnancy
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## Precautions if:

- P:** history of thrombocytopenia or thrombocytopenic purpura
- P:** recently(<11months) receipt of antibody-containing blood product



## COMPLICATIONS ASSOCIATED WITH MEASLES, MUMPS & RUBELLA

### MEASLES

- About 1 in 3 patients develops a complication
- Adults are at higher risk for complications
- Otitis media, 1 in 15 cases
- Secondary pneumonia or severe bronchitis, 1 in 15 cases
- Diarrhea, 1 in 12 cases
- Seizures, 1 in 140 -170 cases
- Myelitis with transient paralysis
- Encephalitis, 1/1,000-2,000 cases leading frequently to neurologic sequelae
- Subacute Sclerosing Panencephalitis (SSPE), 7-10 years after the disease (1/100,000 cases)
- Death, up to 1-3 in 1,000 infants, especially if immune-compromised or malnourished.

### MUMPS

- Adults are at higher risk for complications
- Orchitis, 1 in 10-30 men after puberty
- Oophoritis, 1 in 100 women after puberty
- Mastitis
- Arthritis
- Myocarditis
- Pancreatitis, up to 1 in 30 case
- Thyroiditis
- Glomerulonephritis
- Transverse myelitis
- Encephalitis or meningitis up to 1/300-1/6,000 cases, cerebellar ataxia
- Neuritis of auditory nerve resulting usually to unilateral sensorineural hearing loss (1/20,000 cases)

### RUBELLA

- Arthralgia and arthritis up to 1 in 15 women
- Febrile seizures
- Otitis media
- Vomiting and diarrhea
- Pneumonia
- Thrombocytopenia (1 in 3,000 cases)
- Encephalitis (1 in 6,000 cases), with mortality up to 50%
- Infection during the 1st trimester of pregnancy may lead up to 1 in 5 to the development of Congenital Rubella Syndrome (CRS) with congenital cataracts, deafness and heart disease. In addition, rubella may cause fetal death, spontaneous abortion, and premature labor.

# EFFECTIVENESS OF THE MMR VACCINE

## 1 DOSE



on or after 12 months of age



- 95% protection against measles
- 80% protection against mumps
- 90% protection against rubella, probably long-lasting.

## 2 DOSES



administered 4-6 weeks apart



- 99.7% protection against measles; however up to 5% of immunized persons may lose immunity over time.
- 80-95% protection against mumps; however there are indications of waning immunity.

## SIDE EFFECTS ASSOCIATED WITH THE MMR VACCINE

### Mild

(most frequent)

- Mild rash (1 in 25 doses)

### Moderate

- Temporary arthralgias (1 in 5 doses) or arthritis (1 in 10 doses mostly in small peripheral joints of teenage and adult women 7-21 days after immunization)

- Febrile seizures (1/3,000 doses in infants)

- Idiopathic Thrombocytopenic Purpura (ITP) within 6 weeks of immunization (<1 in 24,000 doses.

### Severe

(rare & very rare)

- Pruritus
- Aseptic meningitis within 3-5 wks
- Transient paresthesia and pain in extremities
- Febrile seizures for children 12-23 mos
- Parotitis
- Orchitis
- Severe allergic reaction: this may occur with any of the vaccines (< 1/1,000,000 doses)

# WHERE CAN I FIND MORE INFORMATION?

1. BZgA, Germany: [www.impfen-info.de](http://www.impfen-info.de)
2. ECDC- Communication Toolkit on Immunisation: [ecdc.europa.eu/en/healthtopics/immunisation/Pages/Communication-toolkit.aspx](http://ecdc.europa.eu/en/healthtopics/immunisation/Pages/Communication-toolkit.aspx)
3. WHO Europe: Vaccines and immunization, [www.euro.who.int/en/health-topics/disease-prevention/vaccines-and-immunization](http://www.euro.who.int/en/health-topics/disease-prevention/vaccines-and-immunization)
4. NIH, USA: [www.vaccines.gov](http://www.vaccines.gov)
5. Immunization Action Coalition, USA: [www.immunize.org](http://www.immunize.org)
6. National Centre for Immunisation Research & Surveillance, Australia: [www.ncirs.edu.au](http://www.ncirs.edu.au)



**HProImmune**  
Promotion of Immunization for Health Professionals in Europe  
[www.hproimmune.eu](http://www.hproimmune.eu)

Disclaimer: The consortium partners declare no relevant conflict of interest with direct bearing on the subject matter of the HproImmune project. This pertains to relationships with pharmaceutical companies, biomedical device manufacturers and other companies with relation to vaccines.



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