

Although a Material Safety Data Sheet is not available, relevant to your inquiry is the Vaccine Agent Summary Sheet (VASS) for M-M-R II, which contains health and safety summary information for employees working with attenuated measles, mumps and rubella virus.

**M-M-R® II Vaccine Agent Summary Sheet (VASS)
(MEASLES, MUMPS, and
RUBELLA VIRUS VACCINE LIVE)**

**Health and Safety Summary Information for Employees Working with:
Attenuated Measles, Mumps and Rubella Virus**

SECTION I-IDENTIFICATION

Organism: The vaccine contains: Enders' attenuated Edmonston strain of measles virus; Jeryl Lynn** (B level) strain of mumps virus; and Wistar RA 27/3 strain of live attenuated rubella virus

Characteristics: All three virus strains are genetically weakened so it is not capable of causing disease in humans (1).

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SECTION II-HAZARD IDENTIFICATION

Vaccine protects against: Measles infection. Transmission of the wild type virus is via droplet spread or direct contact with nasal or throat secretions of infectious persons; less commonly by airborne spread or indirect contact with freshly infected articles. Measles is one of the most readily transmitted diseases. The infection is characterized usually by a mild fever (in children; in adults the fever may be severe), cough and a red, blotchy rash. The rash usually appears on the face 3-7 days after the fever starts and becomes generalized over the next 4-7 days. The affected person is infectious from the start of the fever until approximately 4 days after the rash appears. Incubation period is approximately 10 days (2).

Mumps infection. Transmission of the wild type virus is via droplet spread and direct contact with the saliva of an infected person. The infection is characterized by fever and swelling in the salivary glands. In adults, inflammation of the reproductive organs is not uncommon (20-30% of males, 5% of women). Neurologic involvement is rare, but can result in deafness. Pancreatitis occurs in 4% of cases. Affected persons are infectious from 7 days prior to symptoms to approximately 9 days after. Incubation period is 12-25 days (3).

Rubella infection. Transmission of the wild type virus is via contact with nasopharyngeal secretions of infected persons; droplet spread or direct contact with patients; indirect contact with freshly infected articles; in closed environments (4). All exposed, susceptible individuals may be infected and infected infants shed large quantities of virus (5). The manifestations of the illness includes a rash, slight fever, headache, malaise, conjunctivitis, swollen lymph nodes, runny nose, leukopenia (abnormal decrease in white blood cell count), thrombocytopenia (abnormal bleeding of blood vessels in the skin caused by a decrease in platelet number), joint pain, and arthritis (6).

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SECTION III-HEALTH HAZARDS

Special circumstances for workers handling vaccine:

Immune Status: Changes in the immune system due to cancer or cancer therapy (radiation or chemotherapy), steroid use, tuberculosis, organ transplant or diseases of the immune system (including HIV/AIDS) must be reported immediately to their occupational health group or personal physician, as appropriate. The US Advisory Committee on Immunizations Practices (ACIP) has recommended severely immunocompromised individuals not be exposed to live virus vaccines, as there is a risk of severe complications. However, administration of -measles-mumpsrubella vaccines to HIV patients without titers is recommended, as no unusual adverse effects have been found (7).

Pregnancy: (Measles) Women who are considering pregnancy should consult with their occupational health group or personal physician, as appropriate, prior to conception. The wild type virus has been associated with low birth weight infants and premature labor, but there is no congenital syndrome associated with exposure to the wild type virus (8). Exposure to the vaccine, in the unlikely event it occurred, would be to the highly attenuated virus which is not capable of causing disease in humans and has not been associated with causing birth defects in women inadvertently receiving the vaccine while pregnant (9). Fetuses of women with known immunity (i.e., titers) are not considered to be at risk.

(Mumps) Women who are considering pregnancy should consult with their occupational health group or personal physician, as appropriate, prior to conception. The wild type virus is not known to cause congenital birth defects, but has been associated with an increased risk of spontaneous abortions after a first trimester infection (10). There is one report that the vaccine strain can infect the placenta and fetus, but there have been no reports of congenital birth defects after exposure to the attenuated virus (11,12). Fetuses of women with known immunity are not considered to be at risk.

(Rubella) Women who are considering pregnancy should consult with their occupational health group or personal physician, as appropriate, prior to conception. The wild type virus has been associated with congenital rubella syndrome (13). Defects include deafness, eye problems, congenital heart disease, and mental retardation. Infection in early pregnancy increases the risk of spontaneous abortion and stillbirth. However, when infection occurs late in pregnancy, birth defects are less likely to occur. In a 10 year survey involving over 700 pregnant women who received rubella vaccine within 3 months before or after conception, none of the newborns had abnormalities compatible with congenital rubella syndrome (14).

SECTION IV-MEDICAL

- **Workers in areas responsible for seed growth, propagation and storage and vaccine growth and propagation are required to have proof of titers or vaccination.** This is consistent with national guidelines and World Health Organization regulations for product protection.
- **All others are recommended to have titers** as part of a good public health philosophy.

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Medical Surveillance: There is no routine medical surveillance for persons with a healthy immune system working with the vaccine strains of measles, mumps and rubella virus. Changes in immune status or pregnancy must be communicated to their occupational health group or personal physician, as appropriate, immediately.

Medical risk for laboratory/production workers with measles, mumps and rubella titers (circulating antibodies to virus): None. There are no known cases of infection of a person with a titer and a functioning immune system.

Medical risk for laboratory/production workers without measles, mumps or rubella titers: The risk from exposure to the live vaccine virus to a healthy employee appears to be low to no risk, the same as being given the vaccine (15). For a pregnant employee, the risk to her and her unborn child appears to be low to no risk, but the risk cannot be quantified precisely (16).

SECTION V-RECOMMENDED PRECAUTIONS

Containment/Vaccination Policy regarding this agent: Containment for attenuated measles, mumps and rubella virus is BSL1 (BSL1 containment is for organisms not considered to cause disease in healthy adult humans). Containment for chicken embryo and WI-38 cells is BSL1 (BSL1 containment is for organisms not considered to cause disease in healthy adult humans).

SECTION VI-HANDLING INFORMATION

Spills: A spill clean-up SOP should be developed. In the event it is not available, the measles, mumps and rubella virus is easily inactivated. 70% ethanol, Vesphene and LpH are all capable of destroying the virus. A freshly made 10% bleach solution will also inactivate the virus, but can damage stainless steel. The standard procedure for any large spill in an open area is to leave the area for 30 min prior to returning to disinfect the area. Wear gloves, safety glasses, face mask or respirator (as allowed by national regulation), "bunny" suit, and shoe covers.

References

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