

Measure Title CHILDHOOD IMMUNIZATION: MEASLES, MUMPS, AND RUBELLA (MMR)

Disease State Measles, Mumps, Rubella **Indicator Classification¹** Prevention

Strength of Recommendation² A

Physician Specialties Family Practice, Pediatrics

Clinical Rationale **Disease Burden**

- In the pre-vaccination era in the United States (prior to 1963), there were as many as 400,000 reported cases of measles per year.[1] With the implementation of universal vaccination programs, the incidence of measles has decreased dramatically; From 1997 through 1999 the incidence has been ≤ 0.5 per 1,000,000 people. Remarkably, 31 states and the District of Columbia reported no cases during 1999.[2] Nevertheless, with the continued influx on unvaccinated immigrants, measles continues to be a threat to the population. Complications of this infection include: diarrhea, middle ear infection, bronchopneumonia, encephalitis, subacute sclerosing panencephalitis, and multiple severe problems in pregnancy.[3]
- In the pre-vaccination era in the United States (prior to 1969), there were as many as 57,600 reported cases of rubella per year.[1] With the implementation of universal vaccination programs, the incidence of rubella has decreased dramatically; In 1988, 225 cases of rubella were reported in the United States, the fewest since national reporting began.[1] However, rubella has not been eradicated and therefore this disease continues to be a threat to the population. Complications of this infection include: rash, lymphadenopathy, arthralgia, fever, polyarthrits, encephalitis, thrombocytopenia, and multiple severe problems in pregnancy. The most common problems associated with congenital rubella syndrome are: auditory, ophthalmic, cardiac, and neurologic.
- In the pre-vaccination era in the United States (prior to 1967), there were as many as 186,000 reported cases of mumps per year.[1] With the implementation of universal vaccination programs, the incidence of mumps has decreased dramatically; In 1995, 906 cases were reported.[1] Unfortunately, as with measles and rubella, mumps continues to pose a threat to the population. Problems associated with this infection include: parotitis, fever, headache, malaise, myalgia, anorexia, respiratory symptoms, orchitis, aseptic meningitis, meningoencephalitis, and fetal death if the infection is contracted in the first trimester.

Reason for Indicated Intervention or Treatment

- Since monovalent vaccines containing measles, rubella, and mumps vaccine viruses -- and subsequently combined measles-mumps-rubella (MMR) vaccine -- were licensed, the numbers of reported cases of measles, mumps, rubella, and congenital rubella syndrome (CRS) have decreased by more than 99%.[1]
- Less than 20% of children are vaccinated based on clinical guidelines in a timely manner and one in three is under vaccinated for 6 months during their first 24 months of life.[4, 5]

Evidence supporting Intervention or Treatment

- The vaccine has been shown to be highly immunogenic, with seroconversion rates of 95 to 100% being achieved for each of the 3 component vaccines. This immunity appears to be long-lasting and may even be lifelong.” [6, 7]

Clinical Recommendations

- Children should get 2 doses of MMR vaccine: The first at 12-15 months of age and the second at 4-6 years of age. These are the recommended ages. But children can get the second dose at any age, as long as it is at least 28 days after the first dose.[4, 8]
- Some adults should also get MMR vaccine: Generally, anyone 18 years of age or older, who was born after 1956, should get at least one dose of MMR vaccine, unless they can show that they have had either the vaccines or the diseases.”[4, 8]

Source	The Health Plan Employer Data and Information Set (HEDIS®) 2006 Technical Specification.
Denominator	Continuously enrolled children whose second birthday fell during the measurement year.
Denominator Exclusion	Members with contra-indications for MMR at any time prior to the end of the measurement year.
Numerator	Members with at least one MMR vaccination prior to the member’s second birthday or receipt of history of disease diagnosis for measles, mumps, and rubella at any time in available member claims prior to the members’ 2nd birthday
Interpretation of Score	High score implies better performance
Physician Attribution	Score all physicians (in the selected specialties) who saw the member prior to the member’s second birthday.
External Files Required for Analysis	None
References	<ol style="list-style-type: none"> 1. Watson, J.C., et al., <i>Measles, mumps, and rubella--vaccine use and strategies for elimination of measles, rubella, and congenital rubella syndrome and control of mumps: recommendations of the Advisory Committee on Immunization Practices (ACIP)</i>. MMWR Recomm Rep, 1998. 47(RR-8): p. 1-57. 2. <i>Progress toward measles elimination--region of the Americas, 2002-2003</i>. MMWR Morb Mortal Wkly Rep, 2004. 53(14): p. 304-6. 3. Bloch, A.B., et al., <i>Health impact of measles vaccination in the United States</i>. Pediatrics, 1985. 76(4): p. 524-32. 4. <i>Recommended childhood and adolescent immunization schedule--United States, January-June 2004</i>. MMWR Morb Mortal Wkly Rep, 2004. 53(1): p. Q1-4. 5. Luman, E.T., et al., <i>Timeliness of childhood vaccinations in the United States: days undervaccinated and number of vaccines delayed</i>. Jama,

2005. **293**(10): p. 1204-11.
6. Carter, H. and H. Campbell, *Rational use of measles, mumps and rubella (MMR) vaccine*. *Drugs*, 1993. **45**(5): p. 677-83.
 7. Fahlgren, K., *Two doses of MMR vaccine--sufficient to eradicate measles, mumps and rubella?* *Scand J Soc Med*, 1988. **16**(3): p. 129-35.
 8. *Recommended childhood and adolescent immunization schedule: United States, 2005*. *Pediatrics*, 2005. **115**(1): p. 182.

¹ **Indicator Classification** (Adapted from Health Plan Employer Data Information Set (HEDIS®) technical specifications)

Diagnosis	Measures applicable to patients receiving diagnostic workups for a symptom or condition that delineate appropriate laboratory or radiological testing to be performed (e.g. evaluation of thyroid nodule; pregnancy test in patients with vaginal bleeding or abdominal pain)
Effectiveness of Care	
Prevention	Measures applicable to asymptomatic individuals that are designed to prevent the onset of the targeted condition (e.g. immunizations).
Screening	Measures applicable to asymptomatic patients who have risk factors or pre-clinical disease, but in whom the condition has not become clinically apparent (e.g. pap smears; screening for elevated blood pressure).
Disease Management	Measures applicable to individuals diagnosed with a condition that are part of the treatment or management of the condition (e.g. cholesterol reduction in patients with diabetes; radiation therapy following breast conserving surgery; appropriate follow-up after acute event).
Medication Monitoring	Measures applicable to patients taking medications with narrow therapeutic windows and / or potential preventable significant side effects or adverse reactions (e.g. thyroid stimulating hormone (TSH) testing after levothyroxine dose change; hepatic enzyme monitoring for patients using antimycotic pharmacotherapy)
Medication Adherence	Measures applicable to patients taking medications for chronic conditions that are designed to assess patient adherence to medication (e.g. adherence to lipid lowering medication).
Utilization	Measures applicable to patients receiving treatment for a symptom or condition that advocate appropriate utilization of laboratory and pharmaceutical resources (e.g. conservative use of imaging for low back pain; inappropriate use of antibiotics for viral upper respiratory infection).

² Strength of Recommendation

Strength of Recommendation Based on a Body of Evidence

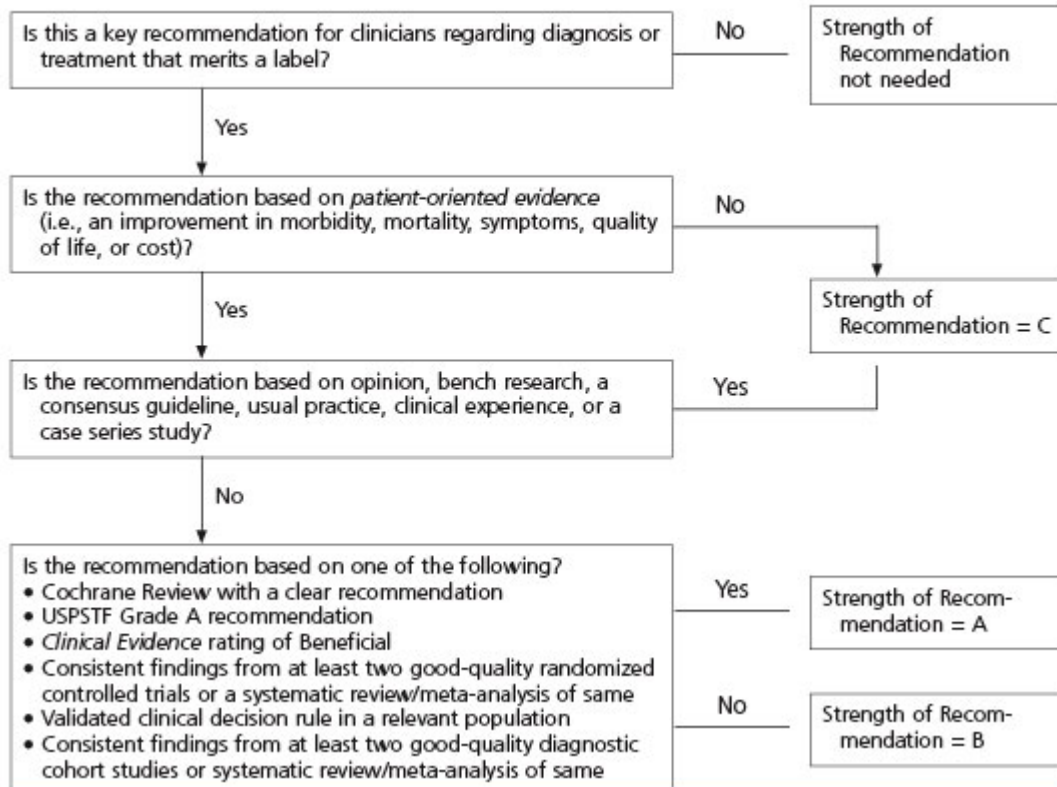


FIGURE 2. Algorithm for determining the strength of a recommendation based on a body of evidence (applies to clinical recommendations regarding diagnosis, treatment, prevention, or screening). While this algorithm provides a general guideline, authors and editors may adjust the strength of recommendation based on the benefits, harms, and costs of the intervention being recommended. (USPSTF = U.S. Preventive Services Task Force)