Client: HEALTH BENCHMARKS, INC. STANDARD ALGORITHM

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

Disease State: Measles, Mumps, Rubella  
Indicator Classification: Prevention

Strength of Recommendation: A

Organizations Providing Recommendation: Centers for Disease Control and Prevention

Clinical Intent: To ensure that all children 24 months and younger receive their MMR vaccination at the clinically appropriate timeframe.

Background: Disease Burden

- In the pre-vaccination era in the United States for measles (prior to 1963), rubella (prior to 1969), and mumps (prior to 1967), there were many more cases of these diseases than there are today due to the implementation of universal immunization programs.[1]
  - For measles, there were 400,000 reported cases per year compared with less than ≤0.5 per 1,000,000 during the period 1997 to 1999.[2]
  - For mumps, there were 186,000 reported cases compared with 906 in 1995.[1]
  - For rubella, there were 57,600 reported cases compared with 225 in 1988.[1]

- None of these diseases has been eradicated and severe complications require immunizations to continue to be administered. Complications include:
  - Diarrhea, middle ear infection, bronchopneumonia, encephalitis, subacute sclerosing panencephalitis, and multiple severe problems in pregnancy for measles;
  - Parotitis, fever, headache, malaise, myalgia, anorexia, respiratory symptoms, orchitis, aseptic meningitis, meningoencephalitis, and fetal death if the infection is contracted in the first trimester for mumps; and
  - Rash, lymphadenopathy, arthralgia, fever, polyarthritis, encephalitis, thrombocytopenia, and multiple severe problems in pregnancy for rubella.[3]

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]

- In 2003 23% of children were delayed in receiving their MMR vaccine when compared to the recommended timeline set by the Centers for Disease Control.[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]
- Ninety-five percent of children vaccinated with the current measles vaccine at age 12 months and 98 percent vaccinated at age 15 months develop measles antibodies.[1]

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, 9]

Source

Healthcare Effectiveness Data and Information Set (HEDIS®) 2008 Technical Specification for Physician Measurement

<table>
<thead>
<tr>
<th>Denominator</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denominator</td>
<td>Continuously enrolled children who had their 2nd birthday during the measurement year.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Denominator Index</th>
<th>Date of 2nd birthday, Members who had their 2nd birthday during the measurement year.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Denominator Encounters/Claims Criteria</th>
<th>N/A</th>
</tr>
</thead>
</table>

| Denominator Exclusion Definition | Members with contraindications for MMR any time on or before the index date. |

Note: Children who had a contraindication for a specific vaccine should be excluded from the denominator for all antigen rates and combination rates. The denominator for all rates must be the same. A user organization that excludes contraindicated children may do so only if the electronic data do not indicate that the contraindicated immunization was rendered. The exclusion must have occurred by the 2nd birthday. (HEDIS®, 2009)

If the organization uses the same sample as for the Lead Screening in Children measure, the same children will be excluded from the Lead Screening in Children...
**measure. (HEDIS®, 2009)**

### Denominator

<table>
<thead>
<tr>
<th>Exclusion Claims Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICD-9 diagnosis code(s): 042, 200.xx-202.xx, 203.xx, 204.xx-208.xx, 279.xx, 999.4, V08</td>
</tr>
</tbody>
</table>

### Numerator

#### Numerator Definition

Members with at least 1 MMR vaccination any time on or before the index date. Alternatively, a combination of either: (1) receipt of vaccination component any time on or before the index date or (2) history of disease diagnosis for measles, mumps, and rubella any time prior to or on the index date.

#### Numerator Claims Criteria

- CPT-4 code(s): 90704, 90705, 90706, 90708, 90707, 90710
- ICD-9 diagnosis code(s): 055.xx, 056.xx, 072.xx

### Physician Attribution

#### Physician Attribution Description

If child meets numerator criteria, score all physicians (in the selected specialties) that saw the member from 11 months of age through the index date. Likewise, if child does not meet numerator criteria, score all physicians (in the selected specialties) that saw the member from 12 months of age through the index date.

### References

8. Fernandes, A.W., et al., *Outcomes of inappropriate prescribing of beta-
blockers after an acute myocardial infarction in a Medicaid population.

9. Recommended Childhood and Adolescent Immunization Schedule.
**Indicator Classification** (Adapted from HEDIS® technical specifications)

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diagnosis</strong></td>
<td>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)</td>
</tr>
<tr>
<td><strong>Effectiveness of Care</strong></td>
<td></td>
</tr>
<tr>
<td>Prevention</td>
<td>Measures applicable to asymptomatic individuals that are designed to prevent the onset of the targeted condition (e.g. immunizations).</td>
</tr>
<tr>
<td>Screening</td>
<td>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).</td>
</tr>
<tr>
<td>Disease Management</td>
<td>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).</td>
</tr>
<tr>
<td>Medication Monitoring</td>
<td>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)</td>
</tr>
<tr>
<td>Medication Adherence</td>
<td>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).</td>
</tr>
<tr>
<td>Utilization</td>
<td>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).</td>
</tr>
</tbody>
</table>
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)