

Measure Title	CHILDHOOD IMMUNIZATION: VARICELLA-ZOSTER VIRUS (VZV)		
Disease State	Childhood Immunizations	Indicator Classification¹	Prevention
Strength of Recommendation²	A		
Physician Specialties	Family Practice, Pediatrics		

Clinical Rationale

Disease Burden

- Childhood vaccination efforts in the past century have led to dramatic declines in many life-threatening diseases, but approximately 300 children per year in the U.S. still die from vaccine-preventable diseases [1].
- Prior to the introduction of the varicella vaccine in 1995, the Centers for Disease Control and Prevention (CDC) estimated the yearly incidence of chickenpox in the United States at approximately 3.7 million cases with nearly 11,000 admissions and 100 deaths [2].
- At least 90% of the cases occurred in children less than 15 years of age [3].

Reason for Indicated Intervention or Treatment

- Despite recommendations starting in 1995 by the American Academy of Pediatrics and 1996 by the Advisory Committee on Immunization Practices to use the varicella vaccination, underutilization of the vaccine is still leading to hospitalizations, serious complications, and death [4].
- In an average household, a child with varicella-zoster virus (VZV) misses 8 or 9 days of school, and adult caretakers lose up to 2 days of work [5]. Infection in high-risk children can lead to serious complications and death [3, 6-8].
- When breakthrough infections occur, patients who have been vaccinated have milder disease than those with natural disease [9-11].
- The incidence of chickenpox between 1999 and 2001 in four states with consistent reporting of the disease was 0.3 to 1.0 per 1000 people, compared to 1.1 to 3.8 per 1000 people from 1990 -1994. The reductions were associated with steadily increasing vaccination rates in those states [2].

Evidence supporting Intervention or Treatment

- A randomized, double-blind, placebo-controlled trial demonstrated that the live attenuated varicella-zoster vaccination was 98% effective in preventing chickenpox in healthy children between the ages of 1 and 14 over two varicella seasons, and 95% effective after 7 years [9, 10]. At 10 years post-vaccination, the vaccine efficacy for patients who received one varicella injection was 94.4% [11]. The varicella cases that did occur were considerably milder than the natural disease [9-11].
- Other non-randomized studies estimated the varicella vaccine efficacy at 86-98% [12-16], with breakthrough infections resulting in milder disease than natural varicella [17, 18].

Clinical Recommendations

- American Academy of Pediatrics (AAP), the Advisory Committee on

Immunization Practices (ACIP) of the Centers for Disease Control and Prevention, and the American Academy of Family Physicians all recommend that susceptible children (those without a reliable history of chickenpox) between the ages of 12 months and 12 years receive one dose of the varicella vaccine [19, 20]

- Healthy People 2010 set a target varicella vaccination coverage rate of 90% for children between 19-35 months of age, and more than 95% for children at school entry [21].

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 VZV at any time during the available history:
Numerator	Members with at least one VZV vaccination any time prior to the member's second birthday or history or a history of Varicella at any time prior to the member's second 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. <i>Nation's Immunization Program Must Be Revitalized</i>. The National Academies, 2000. 2. <i>Decline in annual incidence of varicella--selected states, 1990-2001</i>. MMWR Morb Mortal Wkly Rep, 2003. 52(37): p. 884-5. 3. Preblud, S.R., <i>Varicella: complications and costs</i>. Pediatrics, 1986. 78(4 Pt 2): p. 728-35. 4. <i>Varicella: The Chickenpox Vaccine</i>. American Academy of Pediatrics, 2000. 5. Jackson, M.A., V.F. Burry, and L.C. Olson, <i>Complications of varicella requiring hospitalization in previously healthy children</i>. Pediatr Infect Dis J, 1992. 11(6): p. 441-5. 6. Guess, H.A., et al., <i>Chickenpox hospitalizations among residents of Olmsted County, Minnesota, 1962 through 1981. A population-based study</i>. Am J Dis Child, 1984. 138(11): p. 1055-7. 7. Fleisher, G., et al., <i>Life-threatening complications of varicella</i>. Am J Dis Child, 1981. 135(10): p. 896-9. 8. Kuter, B.J., et al., <i>Oka/Merck varicella vaccine in healthy children: final report of a 2-year efficacy study and 7-year follow-up studies</i>. Vaccine, 1991. 9(9): p. 643-7. 9. Weibel, R.E., et al., <i>Live attenuated varicella virus vaccine. Efficacy trial in healthy children</i>. N Engl J Med, 1984. 310(22): p. 1409-15.

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20. *Recommended Childhood and Adolescent Immunization Schedule - United States*. 2005, American Academy of Pediatrics, The Advisory Committee on Immunization Practices, American Academy of Family Physicians.
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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

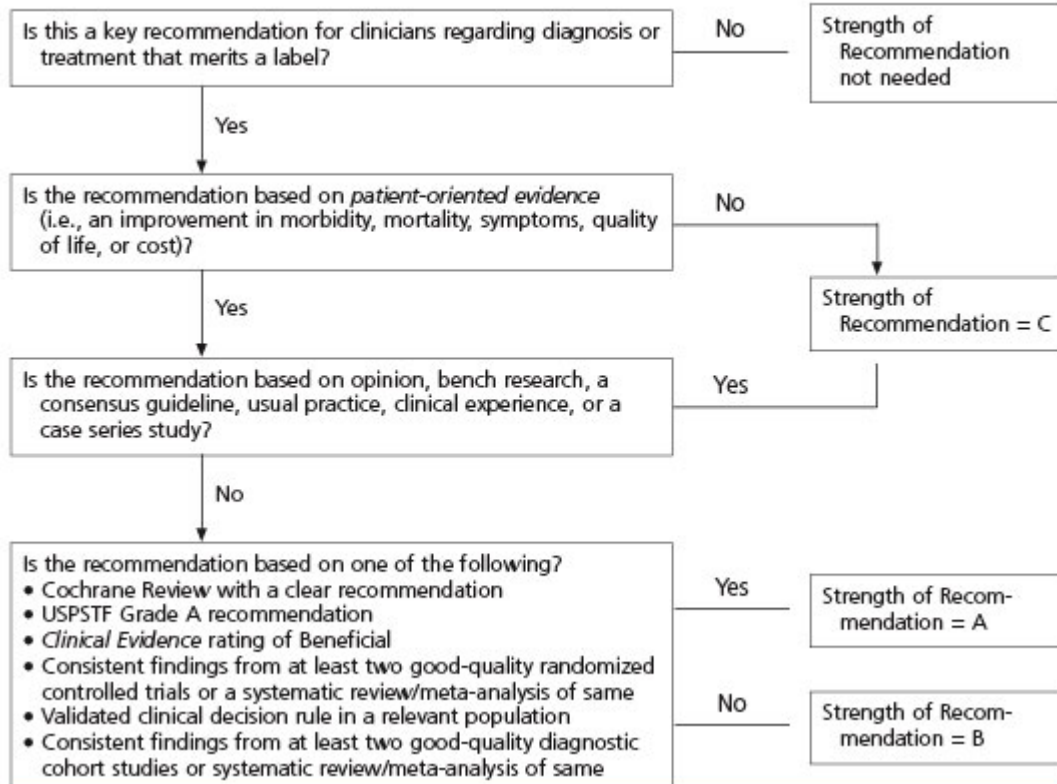


FIGURE 2. Algorithm for determining the strength of a recommendation based on a body of evidence (applies to clinical recommendations regarding diagnosis, treatment, prevention, or screening). While this algorithm provides a general guideline, authors and editors may adjust the strength of recommendation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