Measure Title: CHILDHOOD IMMUNIZATION: VARICELLA-ZOSTER VIRUS (VZV)

Disease State: Childhood Immunizations

Strength of Recommendation: A

Physician Specialties: Family Practice, Pediatrics

Clinical Rationale:

- 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**


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).
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)