Client: HMSA: PQSR 2007

Measure Title: CHILDHOOD IMMUNIZATION: DtaP/DT

Disease State: Diptheria, tetanus, and pertussis  Indicator Classification\(^1\) Prevention

Strength of Recommendation\(^2\): A

Clinical Intent: To ensure that all eligible children receive their DTaP vaccination at the clinically appropriate timeframe.

Physician Specialties: Refer to PQSR 2007 Specialty Matrix

Clinical Rationale: Disease Burden
- In the early 1940s, approximately 175,000 children had pertussis and 100,000-200,000 children had diphtheria per year, resulting in about 21,000 deaths annually.[1]
- Due to effective immunization programs, only 1 case of diptheria and 7,298 cases of pertussis were reported in 1999.[1, 2]
- Epidemiological statistics show that 5-10% of children with diptheria and about 33% of children with tetanus die.[3]
- Approximately 50% of the babies who get pertussis require hospitalization.[3]
- Despite the demonstrated effectiveness of the vaccines, greater than 14% of children had not received four or more DTP/DT/DtaP vaccinations by the 35 months of age in 2005.[4]

Reason for Indicated Intervention or Treatment
- Evidence shows that childhood immunizations are effective in preventing diptheria, tetanus, and pertussis.[2]

Evidence supporting Intervention or Treatment
- Efficacy of the DTaP vaccines in prevention of severe pertussis ranges from 59 to 95%.[5, 6]
- Children less than five years of age who received at least three doses of a pertussis vaccine had 12% less clinical disease than children who did not receive a minimum of three doses.[7]

Clinical Recommendations
- The CDC recommends that children get 5 doses of the DTaP vaccine, one dose at each of the following ages: 2 months, 4 months, 6 months, 15-18 months, and 4-6 years. In addition, a booster shot of the DT vaccine (tetanus and diphtheria) is recommended at 11-12 years of age, and then every 10 years.[8, 9]

Source: Adapted from HEDIS 2007 specification.

Extended CE period to include period from 42 days old through 24 months.

Denominator: Continuously enrolled children whose second birthday occurred on any day during the measurement year.
Denominator Exclusion | Members with contraindications for DTaP at any time in the member’s history prior to and including their second birthday.

Relevant Billing Codes:
- ICD-9-CM diagnosis code: 999.4x
- ICD-9-CM diagnosis code: 323.5x
- ICD-9-CM diagnosis “E” codes: E948.4, E948.5, E948.6

Numerator | Members with at least four diphtheria, four tetanus, and one pertussis vaccinations (or the equivalent combined vaccines) occurring in the time period between 42 days after birth and on or before the member’s 2nd birthday. One diphtheria and one tetanus vaccination must occur between the member’s first and second birthday, or the member can exhibit a history of each disease.

Relevant Billing Codes:
- ICD-9 diagnosis codes: 033.xx, 037.xx
- ICD-9 diagnosis “V” code: V02.4x, 032.xx
- CPT-4 code: 90698, 90700, 90701, 90702, 90703, 90719, 90720, 90721, 90723

Interpretation of Score | High score implies better performance

Physician Attribution | Score all physicians (in the selected specialties) that saw the member from 42 days of age through 2 years of age.

References


<table>
<thead>
<tr>
<th>Indicator Classification</th>
<th>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)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diagnosis</strong></td>
<td>Measures applicable to asymptomatic individuals that are designed to prevent the onset of the targeted condition (e.g. immunizations).</td>
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<td><strong>Effectiveness of Care</strong></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>
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<td><strong>Prevention</strong></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>
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<td><strong>Screening</strong></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 antifungal pharmacotherapy).</td>
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<tr>
<td><strong>Disease Management</strong></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>
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<tr>
<td><strong>Medication Monitoring</strong></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>
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**Strength of Recommendation**

Strength of Recommendation Based on a Body of Evidence

- **Is this a key recommendation for clinicians regarding diagnosis or treatment that merits a label?**
  - No: Strength of Recommendation not needed
  - Yes: Next question

- **Is the recommendation based on patient-oriented evidence (i.e., an improvement in morbidity, mortality, symptoms, quality of life, or cost)?**
  - No: Strength of Recommendation = C
  - Yes: Next question

- **Is the recommendation based on opinion, bench research, a consensus guideline, usual practice, clinical experience, or a case series study?**
  - No: Strength of Recommendation = B
  - Yes: Last question

- **Is the recommendation based on one of the following?**
  - Cochrane Review with a clear recommendation
  - USPSTF Grade A recommendation
  - *Clinical Evidence* rating of Beneficial
  - Consistent findings from at least two good-quality randomized controlled trials or a systematic review/meta-analysis of same
  - Validated clinical decision rule in a relevant population
  - Consistent findings from at least two good-quality diagnostic cohort studies or systematic review/meta-analysis of same

  - Yes: Strength of Recommendation = A
  - No: Strength of Recommendation = C

**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)