Inclusion Criteria
- Children with scheduled well care visits

Background
Compliance with scheduled well care visits is imperative for a patient's overall health maintenance. Often times, it can be difficult for parents and care providers to keep up with pre-scheduled appointments. Therefore, it is important to establish an effective patient reminder system in order to increase primary care visit compliance and in turn immunization rates.

Critically Analyze the Evidence
The GRADE criteria were used to evaluate the quality of evidence presented in research articles reviewed during the development of this guideline. The table below defines how the quality of evidence is rated and how a strong versus a weak recommendation is established.

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Type of Evidence</th>
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</thead>
<tbody>
<tr>
<td>STRONG</td>
<td>Desirable effects clearly outweigh undesirable effects or vice versa</td>
</tr>
<tr>
<td>WEAK</td>
<td>Desirable effects closely balanced with undesirable effects</td>
</tr>
<tr>
<td>Quality</td>
<td>Type of Evidence</td>
</tr>
<tr>
<td>High</td>
<td>Consistent evidence from well-performed RCTs or exceptionally strong evidence from unbiased observational studies</td>
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<td>Evidence for at least 1 critical outcome from observational studies, from RCTs with serious flaws or indirect evidence</td>
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PICO Question 1: In urban CHIP/Medicaid populations which interventions (postcards, letters, telephone, etc.) have the highest compliance success rate for pediatric well care visits?

Recommendation(s): Strong recommendation with moderate quality evidence for the utilization of a patient reminder system to increase primary care visit compliance and immunization rates. (1-4)

A systematic review of patient reminder/recall interventions (using criteria established by the Cochrane Collaboration) involving randomized controlled trials, controlled before-after studies, or interrupted time series, and measured immunization rates concluded patient reminder systems in primary care settings were effective in improving immunization rates. Of 109 studies identified, 41 met eligibility criteria. Studies were reviewed independently by 2 reviewers using a standardized checklist. Results of studies were expressed as absolute percentage-point changes in immunization rates and as odds ratios (ORs). Studies with similar characteristics of patients or interventions were pooled (random effects model). Patient reminder systems were effective in improving immunization rates in 33 (80%) of the 41 studies, irrespective of baseline immunization rates, patient age, setting, or vaccination type. Increases in immunization rates due to reminders ranged from 5 to 20 percentage points. Reminders were effective for childhood vaccinations (OR 2.02; 95% confidence interval [CI]: 1.49 - 2.72), childhood influenza vaccinations (OR 4.25; 95% CI: 2.10 - 8.60). While reminders were most effective in academic settings (OR 3.33; 95% CI: 1.98 - 5.58), they were also highly effective in private practice settings (OR 1.79; 95% CI: 1.45 - 2.22) and public health clinics (OR 2.09; 95% CI: 1.42 - 3.07). All types of reminders were effective (postcards, letters, and telephone or autodialer calls), with telephone reminders being most effective but costliest.

A randomized control trial to test if appointment reminders blinded to immunization status improved kept-appointment and vaccination coverage rates concluded that appointment reminders, blind to immunization status, are a practical and cost-effective strategy to increase kept-appointment rates for all children, and, through this mechanism, reach and vaccinate children who are not up-to-date. Children assigned to the postcard and telephone group were 1.75 times more likely to keep their appointments than controls (95% CI: 1.2 - 2.5). Children who actually received the postcard and telephone reminders were 2.3 times more likely to keep an appointment than controls (95% CI: 1.4 - 3.7). Children who kept appointments were 2.3 times more likely to be up-to-date with their immunizations (95% CI: 1.7 - 3.2). The reminders selectively increased vaccination coverage for the subgroup of children who were not up-to-date before the appointment (chi(2) 11.2). The cost of the reminders was $67 for the postcard and $158 for the postcard and telephone.
Assuming 5,000 visits per year and $100 reimbursement per visit, the return on each dollar invested was $10 for the postcard and $7.28 for the postcard and telephone reminder. Systematic review of randomized control trial, retrospective, and time series studies show low to moderate correlation of individual and combination patient appointment reminders in increasing primary care visit compliance and immunization rates in pediatric populations. Mailings and automated telephone reminders were also cost effective compared to live calls & nurse visits. Though low-income populations showed lower rates of targeted letter and telephone success than higher income & privately insured cohorts, these interventions did show low income, urban immunization rate improvement in infant and young children.

**Critical Points of Evidence***

*Evidence Supports*
- Automated telephone appointment reminder calls, in addition to ongoing letter reminders, should be utilized to increase compliance with well-child visits, and by association immunization rates. [*8*] – Strong recommendation, moderate quality evidence

*NOTE: The references cited represent the entire body of evidence reviewed to make each recommendation.*
Current Well Child Appointment Reminder Process:

Proposed Well Child Appointment Reminder Process:
References


Clinical Standards Preparation
This clinical standard was prepared by the Evidence-Based Outcomes Center (EBOC) team in collaboration with content experts at Texas Children’s Hospital. Development of this clinical standard supports the TCH Quality and Patient Safety Program initiative to promote clinical standards and outcomes that build a culture of quality and safety within the organization.

Primary Care Patient Compliance with Appointments Content

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Development Process
This clinical standard was developed using the process outlined in the EBOC Manual. The literature appraisal documents the following steps:

1. Review Preparation
   - PICO questions established
   - Evidence search confirmed with content experts
2. Review of Existing External Guidelines
   None
3. Literature Review of Relevant Evidence
   - Searched: PubMed
   - 1 meta-analysis and 7 randomized controlled trials
4. Critically Analyze the Evidence
5. Summarize the Evidence
   - Materials used in the development of the clinical standard, literature appraisal, and any order sets are maintained in a Primary Care Patient Compliance with Appointments evidence-based review manual within EBOC.

Evaluating the Quality of the Evidence
Published clinical guidelines were evaluated for this review using the AGREE II criteria. The summary of these guidelines are included in the literature appraisal. AGREE II criteria evaluate Guideline Scope and Purpose, Stakeholder Involvement, Rigor of Development, Clarity and Presentation, Applicability, and Editorial Independence using a 4-point Likert scale. The higher the score, the more comprehensive the guideline. This clinical standard specifically summarizes the evidence in support of or against specific interventions and identifies where evidence is lacking/inconclusive. The following categories describe how research findings provide support for treatment interventions.

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Recommendations
Practice recommendations were directed by the existing evidence and consensus amongst the content experts. Patient and family preferences were included when possible. The Content Expert Team and EBOC team remain aware of the controversies in the diagnosis/management of Primary Care Patient Compliance with Appointments in children. When evidence is lacking, options in care are provided in the clinical standard and the accompanying order sets (if applicable).

Approval Process
Clinical standards are reviewed and approved by hospital committees as deemed appropriate for its intended use. Clinical standards are reviewed as necessary within EBOC at Texas Children’s Hospital. Content Expert Teams are involved with every review and update.

Disclaimer
Practice recommendations are based upon the evidence available at the time the clinical standard was developed. Clinical standards (guidelines, summaries, or pathways) do not set out the standard of care and are not intended to be used to dictate a course of care. Each physician/practitioner must use his or her independent judgment in the management of any specific patient and is responsible, in consultation with the patient and/or the patient’s family, to make the ultimate judgment regarding care.

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<tr>
<th>Date</th>
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<th>Comments</th>
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<td>Apr 2014</td>
<td>Originally completed</td>
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