

Increasing Appropriate Vaccination: Health Care System-Based Interventions Implemented in Combination

Task Force Finding and Rationale Statement

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Task Force Finding and Rationale Statement

Intervention Definition

Health care system-based interventions implemented in combination involve the use of two or more coordinated interventions to increase vaccination rates within a targeted client population. Interventions are implemented primarily in health care settings, although efforts may include additional activities within the community. Specific interventions may include client reminder and recall systems; clinic-based client education; expanded access in health care settings; provider assessment and feedback; provider reminders; and standing orders. The selection and implementation of coordinated interventions may result from an overall quality improvement effort in a health care setting.

Task Force Finding (October 2014)

The Community Preventive Services Task Force recommends health care system-based interventions implemented in combination on the basis of strong evidence of effectiveness in increasing vaccination rates in targeted client populations.

Based on findings from 37 of the 64 included studies, the Task Force further recommends a combination that includes the following.

At least one intervention to increase client demand for vaccinations, such as:

- Client reminder and recall systems
- Clinic-based client education
- Manual outreach and tracking

And one or more interventions that address either, or both, of the following strategies:

- Interventions to enhance access to vaccinations:
 - Expanded access in health care settings
 - Reduced client out-of-pocket costs
 - Home visits
- Interventions directed at vaccination providers or systems:
 - Provider reminders
 - Standing orders
 - Provider assessment and feedback

Interventions listed as examples for each strategy were those that showed the greatest effect on vaccination rates.

Rationale

Basis of Finding

The Task Force finding is based on evidence from a Community Guide systematic review completed in 2010 (62 studies; search period 1980-2010) combined with more recent evidence (2 studies; search period 2010-February 2012). Based on the combined evidence, the Task Force reaffirms its recommendation based on strong evidence of effectiveness.

Of the combined 64 included studies (76 study arms), 58 of them (70 study arms) provided a common measure of change in vaccination rates and showed a median increase of 9 percentage points (interquartile interval [IQI]: 4 to 21

percentage points). In general, changes in vaccination rates were greater when interventions were implemented in settings with low baseline rates.

The included studies evaluated a variety of interventions in different combinations. The Task Force examined the evidence of differences attributable to specific interventions and combinations of interventions using different strategic approaches. These strategic approaches included the following:

- Interventions to increase client demand (client reminder and recall systems, clinic-based client education, client or family incentives, client-held paper immunization records, case management, and manual outreach and tracking)
- Interventions to enhance access to vaccination services (expanded access in health care settings, reduced client out-of-pocket costs, and home visits)
- Interventions directed at vaccination providers (provider reminder systems, standing orders, provider assessment and feedback, provider education, and provider incentives)

The most common individual interventions implemented in a combined approach were client reminder and recall systems (34 study arms) and provider reminders (31 study arms).

Thirty-seven studies (44 study arms) evaluated a combination of interventions across two or three of the strategic approaches and showed a median increase in vaccination rates of 17 percentage points (IQI: 6 to 27 percentage points). In 26 study arms, interventions were combined within only one strategic approach and found a median increase in vaccination rates of 4 percentage points (IQI: 2 to 9 percentage points).

Nine studies evaluated combinations of interventions implemented as a part of a health care system quality improvement effort. The most commonly implemented interventions were those directed at vaccination providers (provider education, provider reminders, and provider assessment and feedback). The studies included in this evaluation were typically short in duration and reported mixed results.

Evidence did not show a direct relationship between the number of interventions implemented and changes in vaccination rates. Included studies evaluated combinations of between two and nine interventions. The majority of studies implemented two (31 study arms) or three (18 study arms) interventions.

Applicability and Generalizability Issues

Overall, included studies provided evidence of effectiveness for intervention combinations implemented in a range of clinical settings and communities, although evidence from rural settings was limited. Studies also demonstrated effectiveness across a range of client populations and vaccinations, including young children (childhood series, influenza) and older adults (influenza, pneumococcal, and tetanus vaccines). Two of the included studies evaluated interventions targeted at increasing vaccination rates among adolescents. Finally, the included studies demonstrated increases in vaccination rates for populations of low socioeconomic status (22 study arms) and across a range of racial and ethnic groups. Most of the included evidence evaluated client populations with low to moderate baseline vaccination rates, and findings are most applicable to these situations.

Other Benefits and Harms

Coordinated efforts to increase the receipt of recommended vaccinations may increase contact between health care providers and their clients, allowing for opportunities to deliver other clinical care or preventive services. No harms specific to particular intervention combinations were identified in this review.

Economic Evidence

The economic review identified 5 studies (search period 1980-2012). Monetary values are in 2012 U.S. dollars. Two studies evaluated pneumococcal vaccination, and one study each examined Tdap, tetanus, and childhood series. The median size of the intervention group was 20,000 (IQR: 567 to 212,500, 5 studies). The median cost of implementation per person per year was \$4 (IQR: \$0.84 to \$13, 4 studies). Based on three studies, the mean cost per additional person vaccinated was \$12 and ranged from a minimum of \$6 to a maximum of \$21. Health systems interventions can reach large groups of patients. More research is necessary to determine cost-effective combinations to improve vaccination coverage.

Considerations for Implementation

In a concurrent review, the Task Force also examined the evidence on effectiveness of interventions coordinated in combination across community settings. The included studies typically involved partnerships between community organizations and vaccination providers and attempted to increase vaccinations in populations with low rates of coverage. With studies providing strong evidence on effectiveness in increasing vaccination rates in targeted populations, the Task Force also recommends community-based interventions when implemented in combination. Taken together, these reviews and recommendations provide a range of options for decision-makers to consider in the selection and coordination of interventions to meet local needs and resources.

Evidence Gaps

More evidence is needed on the effectiveness of these interventions in rural settings and when applied to increase vaccinations recommended for adolescents. Future research on quality improvement activities in these settings should incorporate study periods sufficient to evaluate continuous quality improvement efforts.

The data presented here are preliminary and are subject to change as the systematic review goes through the scientific peer review process.

Disclaimer

The findings and conclusions on this page are those of the Community Preventive Services Task Force and do not necessarily represent those of CDC. Task Force evidence-based recommendations are not mandates for compliance or spending. Instead, they provide information and options for decision makers and stakeholders to consider when determining which programs, services, and policies best meet the needs, preferences, available resources, and constraints of their constituents.

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