The Guide to Community Preventive Services
THE COMMUNITY GUIDE
What Works to Promote Health

Increasing Appropriate Vaccination: Standing Orders (2009 Archived Review)

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Review Summary

Intervention Definition

Standing orders authorize nurses, pharmacists, and other healthcare personnel where allowed by state law, to assess a client's immunization status and administer vaccinations according to a protocol approved by an institution, physician, or other authorized practitioner. The protocol enables assessment and vaccination without the need for examination or direct order from the attending provider at the time of the interaction.

Standing orders can be established for the administration of one or more specific vaccines to clients in health care settings such as:

- Clinics
- Hospitals
- Pharmacies
- Long-term care facilities

In settings that require attending provider signatures for all orders, standing order protocols permit assessment and vaccination in advance of the provider signature.

Summary of Task Force Recommendations and Findings

The Community Preventive Services Task Force recommends standing orders for vaccinations based on strong evidence of effectiveness in improving vaccination rates:

1. In adults and children
2. When used alone or when combined with additional interventions; and
3. Across a range of settings and populations

Results of the Original and Updated Systematic Reviews

The Task Force finding is based on evidence from a Community Guide systematic review published in 2000 (search period 1980-1997) combined with more recent evidence (search period 1997-2009). The systematic review was conducted on behalf of the Task Force by a team of specialists in systematic review methods, and in research, practice, and policy related to increasing appropriate vaccination.

Previous Review (Search Period 1980-1997)

Eleven studies qualified for the systematic review. Included studies examined the effects of standing orders alone or as part of a broader intervention that included additional components.

- Vaccination coverage: median increase of 27 percentage points (Interquartile interval [IQI]: 16 to 61 percentage points; 10 study arms)
    - Standing orders when used alone: median increase of 53 percentage points (range: 27 to 81 percentage points; 5 study arms)
    - Standing orders with additional components: median increase of 16 percentage points (range: 6 to 26 percentage points; 4 study arms)
- Only one study looked at the use of standing orders with childhood vaccinations and found no overall improvement in vaccination rates.

Updated Evidence (Search Period 1997-2009)

Twenty-nine studies qualified for the updated systematic review. Included studies examined the effects of standing orders alone or as part of a broader intervention that included additional components. Interventions were evaluated in a wide range of clinical settings and among diverse populations.

- Median increase in vaccination rates:
  - Overall: 24 percentage points (IQI: 14 to 37 percentage points; 24 studies, 25 study arms)
  - Standing orders when used alone: 17 percentage points (IQI: 13 to 32 percentage points; 8 studies, 8 study arms)
  - Standing orders with additional components: 31 percentage points (IQI: 13 to 43 percentage points; 17 studies, 17 study arms)
    - Among children: 28 percentage points (Range: 8 to 49 percentage points; 4 studies, 4 study arms)
  - Standing orders were effective in increasing vaccination rates when implemented in a range of clinical settings, among various providers and client populations.
  - Standing orders were effective for vaccine delivery to children (universally recommended vaccinations) and adults (influenza and pneumococcal).
  - Few studies evaluated the impact of standing orders on vaccination rates for the delivery of Hepatitis B and tetanus vaccines and immunizations administered for adolescents.

Economic Evidence

Two hospital-based studies from the updated search period qualified for the economic review. Monetary values are reported in 2009 U.S. dollars.

- One study evaluated standing orders against provider reminders for influenza and pneumococcal vaccinations of high risk patients.
  - Program cost per patient was $4.66 for standing orders and $6.25 for provider reminders.
  - Cost per additional vaccinated patient was $65.42 for standing orders and $101.87 for provider reminders.
- Another study evaluated standing orders for pneumococcal vaccinations for elderly patients.
  - The program cost ranged from $4.85 to $5.36 per patient.
  - The intervention was found to be cost-effective at $2,836 to $10,329 per QALY, based on a conservative threshold of $50,000 per QALY.

Task Force Finding and Rationale Statement

Intervention Definition

Standing orders authorize nurses, pharmacists, and other healthcare personnel where allowed by state law, to assess a client's immunization status and administer vaccinations according to a protocol approved by an institution, physician, or other authorized practitioner. The protocol enables assessment and vaccination without the need for examination or direct order from the attending provider at the time of the interaction. Standing orders can be established for the administration of one or more specific vaccines to clients in health care settings such as clinics, hospitals, pharmacies, and long-term care facilities. In settings that require attending provider signatures for all orders, standing order protocols permit assessment and vaccination in advance of the provider signature.

Task Force Finding (December 2009)

The Community Preventive Services Task Force recommends standing orders for vaccinations based on strong evidence of effectiveness in improving vaccination coverage: (1) in adults and children; (2) when used alone or when combined with additional interventions; and (3) across a range of settings and populations.

Rationale

In 1997 the Task Force found strong evidence of effectiveness for standing orders. Based on the findings of this 2009 update, the Task Force reaffirms their original recommendation.

Our previous review (search period 1980-1997) included 11 studies. Of these, 10 studies provided a common measurement of change in vaccination coverage, with a median absolute percent increase of 27 percentage points (interquartile interval [IQI]: 16 to 61 percentage points). Five study arms that evaluated standing orders when implemented alone documented a median absolute percent increase of 53 percentage points (range: 27 to 81 percentage points). Four study arms that evaluated standing orders with additional components had a median absolute percent increase of 16 percentage points (range: 6 to 26 percentage points).

The updated review identified 29 additional studies (search period 1997-2009). Of these, 24 studies provided a common measurement of change in vaccination coverage rates with a median absolute percent increase of 24 percentage points (IQI: 14 to 37 percentage points). Eight study arms that examined the impact of standing orders alone documented a median absolute percent increase of 17 percentage points (IQI: 13 to 32 percentage points). Seventeen study arms that evaluated standing orders when combined with additional interventions documented a median absolute percent increase of 31 percentage points (IQI: 13 to 43 percentage points).

The reviewed studies evaluated the effectiveness of standing orders in a wide range of clinical vaccination settings and client populations.

No evidence of harms regarding the use of standing orders was identified in either the original or the 2009 review.

The Task Force notes that in the original review, insufficient evidence was identified to support a conclusion regarding standing orders for children. However, the 2009 review identified four studies with children that had a median absolute percent increase of 28 percentage points (range: 8 to 49 percentage points). Based on this finding the Task Force now recommends the use of standing orders to increase vaccination coverage among children.

In addition, a subset of the included evidence suggests that standing orders may be more effective in improving vaccination rates in both inpatient and outpatient settings when compared to a provider reminder system.

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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