Evidence-Based Strategies to Increase Adult Vaccination Rates

Recommendations of the Task Force on Community Preventive Services

Megan C. Lindley, MPH
National Adult Immunization Summit
May 15, 2012

The findings and conclusions in this presentation are those of the authors and do not necessarily represent the official position of the Centers for Disease Control & Prevention.

Presentation Outline

- Task Force on Community Preventive Services Recommendations
  - As of October 2011
  - Presented by intervention type
    - Summary table
    - One slide per recommended intervention

- Priority strategies to increase coverage
  - Evidence from recent studies
Categories of Task Force Recommendations

- **Recommended**
  - Strong or sufficient evidence that intervention is effective
  - "Strong" and "sufficient" indicate confidence in evidence, not magnitude of expected benefits

- **Recommended against**
  - Strong or sufficient evidence that intervention is harmful or not effective

- **Insufficient evidence**
  - Available studies do not provide sufficient evidence to determine whether intervention is effective or not
  - Does not mean that intervention does not work

http://www.thecommunityguide.org/about/methods.html
Group 1: Strategies to Enhance Access to Vaccines

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Status of Task Force Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home visits to increase vaccinations</td>
<td>Recommended</td>
</tr>
<tr>
<td>Reducing client out-of-pocket costs for vaccinations</td>
<td>Recommended</td>
</tr>
<tr>
<td>Expanded access in healthcare settings when used alone</td>
<td>Insufficient evidence</td>
</tr>
</tbody>
</table>

http://www.thecommunityguide.org/vaccines/universally/index.html

Strategy: Home Visits to Increase Vaccinations

- Can be used alone or as part of a multicomponent intervention
- Includes providing vaccinations in home or promoting vaccination with referral to available immunization services
  - May be conducted by vaccination providers or other providers (e.g. social workers)
  - May include assessment of vaccination status & brief discussion of importance of vaccination
Strategy: Reducing Client Out-of-Pocket Costs for Vaccinations

- Effective in a range of populations, settings, and scales (individual up to state level)
  - Alone or as part of a multicomponent intervention

- Includes:
  - Paying for vaccines or administration
  - Providing insurance coverage
  - Reducing co-payments at point of service

Group 2: Strategies to Increase Community Demand for Vaccines

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Status of Task Force Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client or family incentive rewards</td>
<td>Recommended</td>
</tr>
<tr>
<td>Client reminder/recall systems</td>
<td>Recommended</td>
</tr>
<tr>
<td>Client-held paper immunization records</td>
<td>Insufficient evidence</td>
</tr>
<tr>
<td>Clinic-based client education when used alone</td>
<td>Insufficient evidence</td>
</tr>
<tr>
<td>Community-wide education when used alone</td>
<td>Insufficient evidence</td>
</tr>
<tr>
<td>Monetary sanctions</td>
<td>Insufficient evidence</td>
</tr>
</tbody>
</table>
Strategy: Client or Family Incentive Rewards

- Can be used alone or as part of a multicomponent intervention

- Includes:
  - Monetary or non-monetary awards: e.g. food vouchers, gift cards, lottery prizes
  - For keeping an appointment, getting a vaccination, returning for a series dose, or producing documentation of vaccination status

Strategy: Client Reminder/Recall

- Effective in a range of populations, settings, and scales (individual up to state level)
  - Alone or as part of a multicomponent intervention

- Includes:
  - Reminders (vaccine due) or recalls (vaccine late) for target population
  - Varying content: most involve specific notification for specific client & may include educational message
  - Delivered via telephone, letter, postcard, etc.
Group 3: Healthcare Provider- or System-Based Strategies

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Status of Task Force Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health care-based interventions when implemented in combination</td>
<td>Recommended</td>
</tr>
<tr>
<td>Provider reminder systems</td>
<td>Recommended</td>
</tr>
<tr>
<td>Provider assessment and feedback</td>
<td>Recommended</td>
</tr>
<tr>
<td>Standing orders when used alone</td>
<td>Recommended</td>
</tr>
<tr>
<td>Provider education when used alone</td>
<td>Insufficient evidence</td>
</tr>
<tr>
<td>Immunization information systems</td>
<td>Recommended</td>
</tr>
<tr>
<td>Community-based interventions when implemented in combination</td>
<td>Recommended</td>
</tr>
</tbody>
</table>

Strategy: Healthcare System-Based Interventions in Combination

- **Task Force recommends combination of:**
  - One intervention to increase client demand
    - Client reminder/recall, clinic-based education, manual outreach & tracking
  - One or more interventions for enhanced vaccine access, provider/system-directed interventions, or both
    - Expanded access in healthcare settings, reduced out-of-pocket costs, home visits
    - Provider reminders, provider assessment & feedback, standing orders
Strategy: Provider Reminder Systems

- Effective in a range of populations, settings, and scales (individual up to state level)
  - Alone or as part of a multicomponent intervention
    - Across a range of delivery methods

- Includes:
  - Reminder to vaccination provider that an individual client is due for specific vaccinations
  - Variable delivery methods e.g. pre-printed notes in client charts, reminders in electronic medical records, or mailed letters

Strategy: Provider Assessment and Feedback

- Effective in a range of populations, settings, and scales (individual up to state level)
  - Alone or as part of a multicomponent intervention

- Includes:
  - Retrospectively evaluating performance of vaccination providers and giving feedback
  - Can include incentives or benchmarking
Strategy: Standing Orders

- Effective in a range of populations, settings, and scales (individual up to state level)
  - Alone or as part of a multicomponent intervention

- Includes:
  - Protocol enabling assessment of vaccination status and vaccine administration w/o direct physician order
  - Can include one or more specific vaccines
  - State laws vary as to which non-physician providers may administer vaccines under standing orders

Strategy: Immunization Information Systems

- Can be used at the clinic level or population level

- Majority of U.S. registries have lifespan capabilities

- Effectiveness depends on completeness, which varies by state/local area

- Capabilities include:
  - Support reminder/recall for clients or providers
  - Generate & evaluate public health response to outbreaks
  - Facilitate vaccine management and accountability
  - Determine client vaccination status
  - Surveillance of vaccination rates, missed opportunities, etc.
Strategy: Community-Based Interventions in Combination

- Activities coordinated in a community to increase vaccination rates in a targeted population
  - Focus on increasing community demand & enhancing access. May include provider-based interventions.

- May include:
  - Client reminder/recall
  - Manual outreach and tracking of clients
  - Educational activities
  - Mass and small media
  - Expanded access to vaccination services

Worksite Interventions to Promote Seasonal Influenza Vaccinations among Healthcare Personnel (HCP)

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Status of Task Force Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interventions with on-site, free, actively promoted vaccinations</td>
<td>Recommended</td>
</tr>
<tr>
<td>Interventions with actively promoted, off-site vaccinations</td>
<td>Insufficient Evidence</td>
</tr>
</tbody>
</table>
Strategy: Interventions with on-site, free, actively promoted vaccinations

- Can be implemented alone or as part of a multicomponent intervention
  - Multicomponent interventions included policy changes, providing information/education, etc.

- Influenza vaccines are:
  - Provided at facility where HCP normally work
  - Provided at no cost to workers
  - Formally announced via newsletters, e-mails, or paycheck inserts

Worksite Interventions to Promote Seasonal Influenza Vaccinations among Non-HCP

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Status of Task Force Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interventions with on-site, reduced-cost, actively promoted vaccinations</td>
<td>Recommended</td>
</tr>
<tr>
<td>Interventions with actively promoted, off-site vaccinations</td>
<td>Insufficient Evidence</td>
</tr>
</tbody>
</table>
Strategy: Interventions with on-site, reduced-cost, actively promoted vaccine

- Can be used alone or as part of a multicomponent intervention
  - Multicomponent interventions included health education, mobile carts, etc.

- Influenza vaccines are:
  - Provided at facility where recipients normally work
  - Provided at reduced cost to workers
  - Formally announced via newsletters, e-mails, or paycheck inserts

Limitations & Points to Consider

- Many studies were specific to influenza vaccination, although interventions should be applicable to other recommended adult vaccines

- Some studies were conducted only among older adults, i.e. persons ≥65 years old

- Certain interventions may be resource-intensive and should only be used when there is demonstrated need and available resources
PRIORITy STRATEGIES TO INCREASE COVERAGE

Characteristics of Priority Strategies

- Robust evidence of effectiveness
- Substantial potential impact
- Less resource-intensive
- Sustainable
## Meta-Analysis of Interventions to Increase Use of Adult Immunization

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Odds Ratio*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational change (e.g., standing orders, separate clinics devoted to prevention)</td>
<td>16.0</td>
</tr>
<tr>
<td>Provider reminder</td>
<td>3.8</td>
</tr>
<tr>
<td>Patient financial incentive</td>
<td>3.4</td>
</tr>
<tr>
<td>Provider education</td>
<td>3.2</td>
</tr>
<tr>
<td>Patient reminder</td>
<td>2.5</td>
</tr>
<tr>
<td>Patient education</td>
<td>1.3</td>
</tr>
</tbody>
</table>

*Compared to usual care or control group, adjusted for all remaining interventions


## Potential Impact of Strategies to Increase Adult Vaccination Coverage

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Population</th>
<th>Median increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immunization information systems</td>
<td>Adults</td>
<td>*</td>
</tr>
<tr>
<td>Client reminder/recall systems</td>
<td>Adults</td>
<td>6.1-12 percentage pts.</td>
</tr>
<tr>
<td>Health care-based interventions in combination</td>
<td>Adults</td>
<td>8 percentage pts.</td>
</tr>
<tr>
<td>Client or family incentive rewards</td>
<td>Adults</td>
<td>8.5 percentage pts.</td>
</tr>
<tr>
<td>Provider assessment and feedback</td>
<td>Adults</td>
<td>9-16 percentage pts.</td>
</tr>
<tr>
<td>Home visits</td>
<td>Adults</td>
<td>10 percentage pts.</td>
</tr>
<tr>
<td>Provider reminder systems</td>
<td>Adults</td>
<td>10-16 percentage pts.</td>
</tr>
<tr>
<td>Community-based interventions in combination</td>
<td>Adults</td>
<td>15 percentage pts.</td>
</tr>
<tr>
<td>Reducing client out-of-pocket costs</td>
<td>Adults</td>
<td>15-22 percentage pts.</td>
</tr>
<tr>
<td>Worksite: on-site, reduced-cost, actively promoted influenza vaccine</td>
<td>Adults, HCP</td>
<td>21 percentage pts.</td>
</tr>
<tr>
<td>Standing orders when used alone</td>
<td>Adults</td>
<td>27-28 percentage pts.</td>
</tr>
</tbody>
</table>
Provider Reminders

- In an RCT of older adults served by urban primary care centers, eligible seniors seen in practices using provider chart reminders and patient recall/outreach were more likely to receive influenza vaccination (64% vs. 22%)\(^1\)
  - Effective in patients of all races but did not eliminate disparities

- In one clinic, including a prompt to discuss influenza vaccination in the electronic medical records of pregnant women increased coverage\(^2\)
  - 61% of women vaccinated versus 42% the previous season
  - 90% of patients discussed influenza vaccine with provider


Standing Orders

- Use of a clinical decision support tool in an integrated urban healthcare system increased pneumococcal vaccination among adults ≥65 years and high-risk adults 18-64 years.\(^1\)
  - Searched ICD-9 codes in billing data and vaccination history to generate provider alerts, which also served as standing orders for certain non-physician providers

- Use of nurse standing orders to support an opt-out vaccination policy at a low-income urban family medicine center significantly increased influenza vaccination (to 49% from 36% the prior season).
  - Worked across gender, race/ethnicity, age, high-risk status

Provider Recommendation

Influenza vaccination of pregnant women, November 2011

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Coverage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommendation &amp; offer</td>
<td>75.0%</td>
</tr>
<tr>
<td>Recommendation only</td>
<td>37.5%</td>
</tr>
<tr>
<td>Neither</td>
<td>10.1%</td>
</tr>
</tbody>
</table>

- Women who reported that a provider recommended and offered influenza vaccine were twice as likely to be vaccinated as women who received a recommendation but no offer.

- Women who reported a provider recommendation for vaccination but no offer of vaccine were nearly four times as likely to be vaccinated as women who did not receive a recommendation.

http://www.cdc.gov/flu/professionals/vaccination/pregnant-women.htm
Questions?

Mlindley@cdc.gov