Small Practice Integration of Immunizations

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SHOTS Immunizations Mobile App

SHOTS Immunizations mobile app is a downloadable application for iPhones and Android devices that was developed to serve as a point of care tool. It is available for FREE on the iTunes App Store and the Google Play Store.

All medical students, residents, physicians, PAs, CNPs, and healthcare personnel and anyone providing vaccines or vaccine information should have ready access to reliable information about all routine vaccines. Shots Immunizations mobile app serves this purpose exceptionally well.

Shots Immunizations includes the unified CDC childhood and adolescent schedule, the catch-up schedule, the adult schedule, and the adult medical indications schedule. Each vaccine is covered in sections on the basics, special indications, catch-up, side effects, contraindications, precautions, and contents with additional sections on epidemiologic information about each disease. This app has a proven history as a reliable and useful source of information about all routine vaccines.

http://www.immunizationed.org/
Adult Immunizations: the Problem

- Immunization rates among adults are considerably lower than those for children.
- Economic and racial disparities exist.
- Rates of influenza immunization are unacceptably low among some healthcare providers, an important target population.
- Improvements in adult immunization rates have tapered off.

Source: CDC; Reminder Systems and Strategies for Increasing Adult Vaccination Rates

CDC Recommendations to Improve Rates

- based on Community Preventive Services Task Force
- 15 member independent panel appointed by Director of the CDC

The Task Force recommended a combination of interventions that include 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
CDC Task Force Recommendations

Plus: 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

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Physician Burnout

“A significant proportion of doctors feel...frustrated by the fact that any gains in efficiency offered by electronic medical records are so soon offset by numerous, newly devised administrative tasks that must also be completed on the computer.”


Adding technological devices to the home, like the vacuum cleaner and washing machine, rather than reducing the time needed for housework, caused a rise in standards of cleanliness and caused more work and stress for the average housewife.


Percentage of burned-out physicians by specialty.
• Problem: how do we get physicians to pay special attention to “just one more thing to do: order vaccines!”?

• Solution: don’t ask the physician to do it…ask someone else.

Tale of Two Models

• First model: Adult Immunization Toolkit Project 2010-2011 (funded by sanofi pasteur) using Medical Assistants to enter adult vaccine orders, guided by EMR
  • designed by Ari Robicsek, MD (Infec. Dis., Clin. Informatics) and R.M. Wolfe, MD

• Second model: HPV call-back system combined with standing orders, Oct. 2015 to present
  • based on model designed by Rajiv Naik, MD (Pediatrics, Gunderson Clinic)
**Adult Immunization Toolkit**

**Idea of Build:**

- Most of the work should be done by the computer
- Clerical work should be done by MA
  - Entire workflow in one place: office visit navigator
  - Computer “remembers” which vaccines are due
  - Simple documentation of prior vaccinations
  - Simple ordering of new vaccinations
- Final decision should rest with physician

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**MA sees ‘Best Practice Alert’ highlighted during rooming**

If nurse hits “Accept”, a ‘SmartSet’ opens that shows contraindications, can click to enter vaccine order and administration charge, which is automatically associated with correct ICD code. Also link to print AVS on same page.
Performance comparison:
Nov 23, 2010 to Feb 3 2011

2010

2011

p<0.01

p=NS

p=0.06
Flu vaccine

Percentage of Encounters

- Flu given: Pre > Post
- Flu documented: Pre ≈ Post
- Flu standing order placed: Pre < Post

Tdap vaccine

Percentage of Encounters

- Tdap given: Pre < Post
- Tdap documented: Pre < Post
- Tdap standing order placed: Pre < Post
Time-and-Motion Study

- Medical assistants observed during patient encounters
- Pre:
  - 201 encounters
  - 343 seconds/encounter (5 min 43 sec)
- Post:
  - 154 encounters
  - 374 seconds/encounter (6 min 14 sec)

→ Added 31 seconds to average time MA spent with each patient
343 seconds/encounter (5 min 43 sec)

Vitals, 188

Allergies, 9

Health Maintenance, 1

Chief Complaint, 30

Medications, 28

Other, 20

Preparations (Outside Room), 9

Social/Substances, 11

Vaccine Rooming, 3

374 seconds/encounter (6 min 14 sec)

Vitals, 182

Allergies, 6

Health Maintenance, 0

Chief Complaint, 30

Medications, 23

Other, 28

Preparations (Outside Room), 4

Social/Substances, 9

Vaccine Rooming, 30
Success and Failure

• Success:
  – adult vaccination rates improved

• Failure:
  – Medical Assistants inconsistent in their willingness to take on responsibility of ordering multiple vaccines
  – Many physicians felt uncomfortable with MA’s taking on this responsibility

• Final: medical group decided not to institute this system for enhancing adult vaccination rates

HPV Callback System

• Based on model developed by Dr. Rajiv Naik, Section Head, Dept. of Pediatrics, Gunderson Clinic, Onalaska, WI
• When physician orders first HPV, also enters two more standing orders for next 2 shots.
• HIT sends monthly reports – nursing staff contacts patient/parent, arranges follow-up appointments.
• EMR configured to allow ‘bulk messaging’ to everyone needing follow-up
NorthShore adaptation

• Dep’t. of Pediatrics instituted similar system independently. Physicians get monthly reports, reminders if they fall behind.
• Similar system instituted at my office in Lincolnwood, IL → 3 family physicians.
• HIT sends monthly reports
• STAFF:
  – Front desk: admin staff contacts patients, makes appointment
  – Nursing: RN or LPN enters orders
• ‘VACCINE CHAMPION’ can be great help!

Excel list is filtered to only include patients with at least 1 HPV vaccination. Administrative person contacts patients via telephone, email, or letter. When appointment is made, nurses are notified to enter standing orders.
Dr. Naik’s results

| % Success Calculated Utilizing Patient Status in EPIC (Includes internal and WR data) |
|---------------------------------|-------------|
| Status                          | Meets/Does Not Meet Measure |
| Overdue                         | Does Not Meet |
| Overdue ≥ 10                   | Does Not Meet |
| Completed                       | Meets Measure   |
| Noncompliant                   | Meets Measure   |
| Modifier                        | Meets Measure   |

3 dose completion at age 13 (males and females) as a % of all 13 year olds

Results at Lincolnwood Family Medicine

Measure: patients 19-26 years of age who received 1, 2 or 3 HPV vaccinations; denominator is all HPV-eligible patients age 19-26 years.

Comment: metric for HPV changed as this system was instituted. Initially metric was completion rate for series within 1 yr of receiving 1st HPV dose. Now it is completion of 3 shots by age 13.
Relative completion rates for target population

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<tr>
<th></th>
<th>ALL</th>
<th>MD1</th>
<th>MD2</th>
<th>MD3</th>
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<tbody>
<tr>
<td>HPV #2 completion</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-study</td>
<td>31</td>
<td>10</td>
<td>9</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>(31/61)</td>
<td>(10/24)</td>
<td>(9/14)</td>
<td>(12/23)</td>
</tr>
<tr>
<td>Post-study</td>
<td>42</td>
<td>19</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>(42/66)</td>
<td>(19/28)</td>
<td>(9/16)</td>
<td>(14/22)</td>
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<tr>
<td>change from baseline</td>
<td>12.8%</td>
<td>26.2%</td>
<td>-8.0%</td>
<td>11.5%</td>
</tr>
</tbody>
</table>

| HPV #3 completion|     |     |     |     |
| Pre-study        | 9   | 2   | 3   | 4   |
|                  | (9/61) | (2/24) | (3/14) | (4/23) |
| Post-study       | 10  | 4   | 1   | 5   |
|                  | (10/66) | (4/28) | (1/16) | (5/22) |
| change from baseline | 0.4% | 6.0% | -15.2% | 5.3% |

Challenges – Learning Points

- Immunizations are too important to leave to the physician! Doctors have too many other tasks to do.
- Health System needs to make vaccines a priority and dedicate the resources needed: staff, HIT, etc...
- Standing orders and call-back system can improve rates.
- Try to tailor EMR to be user-friendly. Ambulatory care is usually the “ugly sister” in terms of health system priorities; loses out to hospital interests.
- Know the limitations of the office personnel. Don’t give them more than they can handle.