HPV Vaccination Quality Improvement Projects and Implementation Science Working Together, For the Win!

Centers for Disease Control and Prevention
National Center for Immunization and Respiratory Diseases
Friday, September 18, 2015
11:00 AM – 12:00 PM ET
Presenters

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Orlando Health Physician Associates

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Clinical Management Consultant – Pediatrics, Rheumatology
WellStar Health System Medical Group
Webinar Logistics

• **Audio**: All participant lines are muted.

• **Webinar Recording**: We are recording this webinar. We will notify all participants when the recording and presentation are available online.

• **Q&A Session**: Type your question into the “Chat” panel. We will read selected questions out loud for the presenters to answer.
Improving HPV Immunization Performance: Insights and Guidance from Implementation Science

September 18, 2015

Brian S. Mittman, PhD
Dept of Veterans Affairs, Center for Implementation Practice and Research Support
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UCLA Clinical and Translational Science Institute (CTSI)
The research-implementation “pipeline”
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Basic Science → Pre-Clinical/Translational Research → Clinical Research → Implementation Research → Improved Health Processes, Outcomes

Type 1 Translation

Type 2 Translation
Implementation research is the scientific study of methods to promote the systematic uptake of research findings and other evidence-based practices into routine practice, and, hence, to improve the quality and effectiveness of health services.

It includes the study of influences on healthcare professional and organizational behavior.

Eccles and Mittman, 2006
The *Tower of Babel* problem

- Knowledge translation
- Translational research
- Research utilization, knowledge utilization
- Knowledge-to-action, knowledge transfer & exchange
- Technology transfer
- Dissemination research
- Quality improvement research
- T-1, T-2, T-3, T-4
- Etc.
Improvement science generally focuses on the “here and now” – local quality problems addressed via rapid-cycle, iterative improvement.

Implementation science attempts to develop, deploy and rigorously evaluate a fixed implementation strategy to close an implementation gap across multiple sites, emphasizing theory, contextual factors, (sometimes) mediators, moderators, mechanisms.

Implementation science aims to develop generalizable knowledge.
General insights, principles

Improvement and implementation science demonstrate that clinical practices and quality gaps (and solutions) are:

- Highly stable and slow to change; *clinical inertia, conservatism*
  - *With notable exceptions (CT scans, robotic surgery)*
- Variable and heterogeneous (across time, place, problem)
- Multi-faceted, multi-level
- Not responsive to simple practice change strategies
Levels of influence on clinical practice

- Point of care (MD knowledge, patient demand)
- Microsystem, team (norms, culture)
- Clinic, hospital (policies, leadership)
- Delivery system (organizational/fiscal policies, leadership, resources)
- Professional norms (local, regional, national)
- Patients, businesses, other stakeholders (community, region, province/state, nation)
- Local, regional, national regulations
- Contrast with “1950s medicine”
A short history of quality improvement in health care

- Most QI initiatives address no more than 2-3 causes of quality gaps at 1-2 levels
- The result: considerable effort, occasional impact – typically on mediating factors – but limited change in practices
- The classic case: “intervention physicians displayed improved knowledge and attitudes but no change in clinical practices”
Requirements for practice change

1. Valid, legitimate, accepted evidence
2. Clinician/staff knowledge, skill
3. Supportive professional norms
4. External expectations, monitoring, pressure/incentives
5. Patient acceptance
6. Evidence of quality gaps
7. Etiology of practices, quality gaps
8. Feasible methods/systems
Condition 1. Evidence-based practice standards, guidelines, recommendations

- legitimate, accepted (acceptable)
- appropriately developed, sponsored
- fully endorsed
- consistent with prevailing beliefs, consensus – or sufficiently compelling to replace current beliefs
- not easily dismissed
Condition 2.
Clinician and staff knowledge, skill

- requires education, training
- physician response to newer forms of guidance (evidence-based medicine) vs. results of individual studies
- “education” often conveys professional norms in addition to information and knowledge
- *education is necessary but not sufficient*
Condition 3.
Professional norms and peer influence

- adherence is appropriate, legitimate, expected, normative
- non-adherence is improper, unacceptable, counter-normative
Condition 4. External pressure, incentives and expectations for improvement

- “external” includes leadership/senior management and other influential entities
- adequate to overcome competing demands and to focus attention/interest
- meaningful consequences
- requires measurement, reporting
- broad, comprehensive, pervasive (external stakeholder, institutional senior leadership, supervisor, peer, patient)
Condition 5.
Patient acceptance

- patient knowledge, attitudes, beliefs:
  - affect acceptability, feasibility of preferred practice
  - underlie patient expectations, demand
Condition 6. Evidence of deviations from recommended practices

- valid, accurate (casemix adjusted)
- credible
- accepted (acceptable)
- timely
- relevant
- appropriate benchmark
Condition 7. Etiology of deviations (causes/influences, barriers, facilitators)

- provides guidance in addressing deviations
- thorough diagnosis of (1) multifaceted influences on current practices and (2) causes of quality gaps
- reliable broad spectrum practice change interventions do not exist
Condition 8.
Feasible, operational methods

- logistical arrangements/processes to implement and utilize recommended practices
- elimination of financial, organizational and operational constraints (staffing, time, technology)
- examples: collaborative care models (Chronic Care Model), reminders, group visits, re-engineering
## Implications for HPV vaccination

**Improving HPV vaccination performance requires:**

1. Strong evidence base & consensus regarding appropriateness
2. Comprehensive diagnosis of barriers (*root cause analysis*)
3. Clinician knowledge, training, skill, ability
4. Monitoring, expectations, pressure from key stakeholders
5. Supportive patient knowledge, beliefs, attitudes, preferences, expectations
6. Required time, space, equipment, additional resources
7. Multi-level, multi-stakeholder campaigns requiring comprehensive planning, plan deployment, monitoring
Improving HPV Immunization Rates in a Large Pediatric Practice: Implementing Effective Quality Improvement

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Medical Director of Pediatrics
Orlando Health Physician Associates

Assistant Clinical Professor of Pediatrics
University of Central Florida, Florida State, University of Florida Colleges of Medicine
The National Problem: Inadequate HPV Vaccination

• HPV vaccine coverage from 2011-2014 has not increased substantially

• HPV vaccination coverage for ≥1 dose could easily have reach 92.6%

• Every year that increases in coverage are delayed, another 4,400 women will go on to develop cervical cancer

  • Sources: MMWR July 26, 2013 / 62(29);591-595, MMWR July 31, 2015 / 64(29); 784-792.
Disclosures

• Speaker and consultant: Merck
• Speaker and consultant: Sanofi Pasteur
Objectives

• Know your rates
• Set specific goals
• Identify areas of weakness and/or opportunity
• Implement effective and sustainable process improvement
Description of the Practice

• Orlando Health Physician Associates:
  • Large multi-specialty healthcare group
  • 22 pediatricians, 2 pediatric ARNPs, 80 pediatric staff, 11 offices
  • Over 57,000 active pediatric patients
  • Over 23,000 patients aged >=11 years
  • NCQA level three Patient Centered Medical Home (PCMH)
Our problem (2013): Low Rates, Large Variation

<table>
<thead>
<tr>
<th></th>
<th>Any HPV</th>
<th>Any HPV</th>
<th>3 HPV</th>
<th>3 HPV</th>
<th>n</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age 13</td>
<td>585 (17.5%)</td>
<td>353 (10.8%)</td>
<td>239 (7.2%)</td>
<td>80 (2.4%)</td>
<td>3336</td>
<td>3272</td>
</tr>
<tr>
<td>Age 14</td>
<td>678 (21.4%)</td>
<td>368 (11.5%)</td>
<td>359 (11.3%)</td>
<td>82 (2.6%)</td>
<td>3165</td>
<td>3120</td>
</tr>
<tr>
<td>Age 15</td>
<td>781 (25.2%)</td>
<td>369 (12.2%)</td>
<td>473 (15.2%)</td>
<td>106 (3.5%)</td>
<td>3102</td>
<td>3031</td>
</tr>
<tr>
<td>Age 16</td>
<td>850 (27.1%)</td>
<td>380 (12.4%)</td>
<td>561 (17.9%)</td>
<td>111 (3.6%)</td>
<td>3135</td>
<td>3053</td>
</tr>
<tr>
<td>Age 17</td>
<td>927 (28.7%)</td>
<td>329 (11.1%)</td>
<td>605 (18.7%)</td>
<td>86 (2.9%)</td>
<td>3230</td>
<td>2954</td>
</tr>
<tr>
<td>Age13-17</td>
<td>3821 (23.4%)</td>
<td>1799 (11.7%)</td>
<td>2237 (14%)</td>
<td>465 (3%)</td>
<td>15968</td>
<td>15430</td>
</tr>
<tr>
<td>NIS TEEN</td>
<td>53.8%</td>
<td>20.8%</td>
<td>33.4%</td>
<td>6.8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PA OH Best Data</td>
<td>71%</td>
<td>61%</td>
<td>53.5%</td>
<td>29.6%</td>
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</tr>
</tbody>
</table>

This NIS data is 2012 data, reported in 2013
# Results Preview: Vaccination rates 2012-14

<table>
<thead>
<tr>
<th></th>
<th>Males &gt;= 1 doses</th>
<th>Females &gt;=1 Doses</th>
<th>Males &gt;=3 dose</th>
<th>Females &gt;=3 doses</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIS Increase 2012-14</td>
<td>50.2%</td>
<td>5.8%</td>
<td>109%</td>
<td>7.9%</td>
</tr>
<tr>
<td>Our Increase 2012-14</td>
<td>204%</td>
<td>119%</td>
<td>589%</td>
<td>179%</td>
</tr>
</tbody>
</table>
Implementation and Improvement Science

- PDSA: measuring small, incremental change
- Strategic Parallel Processing: a larger scale alternative
- Keep it simple with an eye to workload
- Scalability
- Sustainability
The Approach: Vaccination Rates Revealed

• Departmental HPV vaccination rates reviewed September 2013
• Individual physician rates shared privately at first (September 2013)
• Individual physician rates subsequently shared with the department
• Rates published monthly at first, now quarterly
The Approach: Goal-Setting

- 2013: Show Improvement
- 2015: Meet highest NIS Teen national immunization rates
- 2017: Meet Healthy People 2020 goals (80%)

*for all patients 11-18
The Approach: Interventions

- Data verification and “clean-up”
- Physician education
- Physician incentives
- Staff education
- Pre visit planning
- Electronic follow up orders for doses 2 and 3
- Schedule doses 2 and 3 at the time of first dose
- Reminder Calls
- Manufacturer Tools
- Clinical Summaries
- Other
Physician and Staff Education Programs

• Key Points
  • Multiple competing priorities
  • Physician and staff unawareness of HPV impact
  • General discomfort with discussing HPV
  • Physician and staff unawareness of routine 11-12 recommendation and its implications
  • UNTAPPED RESOURCE IN STAFF: IMPLICATIONS OF EMPOWERMENT
Physician Incentives

• Competition
• Wine
• Quality Bonus Structure
## Daily Pre-visit Planning

<table>
<thead>
<tr>
<th>Time</th>
<th>Code</th>
<th>Notes</th>
</tr>
</thead>
</table>
| 09:10a | PEDC 324 | HAV w/flu med n o 18 MONTH CHECK**
| 08/10/15 | ILNP | well handout |
| 09:40a | PEDC 324 | all shots UTD |
| 08/10/15 | ILNP | all shots UTD |
| **BMI PHQ smoking wellness nut/activ asthma control**
| 10:00a | PEDC 324 | ADHD F-up
| 08/10/15 | ILNP | all shots UTD |
| 08/10/15 | ILNP | ADHD F-up
| 10:40a | PEDC 324 | men(1) HPV(1) deferred
| 08/10/15 | ILNP | PHQ smoking wellness nut/activ
| *defer PHQ* smoking wellness
| 01:10p | PEDC 324 | men(2)
| 08/10/15 | ILNP | PHQ smoking wellness
Subsequent Doses Scheduled

- Second and third doses were scheduled the day dose one was administered
- These appointments:
  - Print on patients’ clinical summaries
  - Generate reminder phone calls
  - Can be tracked if “no show” or cancelled
  - Can be reminded using manufacturer tools
- All practices committed to keeping schedules open at least six months ahead
Orlando Health Physician Associates HPV Rates Patients Aged 13-17, 2013-2015
# Tdap and MCV4 Rates

*Measured for August of each year

<table>
<thead>
<tr>
<th>Year*</th>
<th>Tdap %</th>
<th>Men %</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>74</td>
<td>73</td>
</tr>
<tr>
<td>2014</td>
<td>80</td>
<td>79</td>
</tr>
<tr>
<td>2015</td>
<td>86</td>
<td>85</td>
</tr>
</tbody>
</table>
Lessons Learned

• Highest rated interventions:
  • Physician and staff education programs
  • Scheduling subsequent doses real time
  • Manufacturer-supplied tools, especially magnets and cling posters

• Reveals:
  • Transparency, Competition, Reward: THE WHY?
  • Staff involvement: a critical resource
Next Steps

- Sustainability lectures
  - Iterate guidelines and goals
  - Personalize prevention office by office
  - Establish office champions

- Patient/Parent Surveys
  - Identify best practices

- Focused physician education
  - Improved scripting
  - Spread of best practices
Take-Away: TO DO LIST

• KNOW YOUR RATES!
• Set specific goals
• Define a CHAMPION
• Physician and staff education
• Incentives
• Process Improvement
Case Study of HPV Vaccine Campaign

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Clinical Management Consultant – Pediatrics, Rheumatology
WellStar Health System Medical Group
Our Offices

- 17 pediatric and 30 family practice offices that administer HPV
- Pediatric Cabinet
- IM/FP Panel
The Issue

- HPV vaccinate rates low
- 2014 National Immunization Survey – teen
  - Not vaccinated
    - 4 out of 10 adolescent girls
    - 6 out of 10 adolescent boys
- Georgia ranked the lowest for HPV vaccine administration
Adoption of Strategies

- Recognizing the issue
- Partnership for change
- Engagement activities
Goals

• Improve knowledge of the HPV vaccine
• Improve communication on the vaccine
• Improve immunization rates within the WellStar Medical Group by 5%
Planned Interventions

• Peer-to-peer discussions
• Review of immunization rates
• Immunize Georgia Conference
• CoCASA training
Implementation

• Multi-office, interdisciplinary approach
• Clinical Champions from each office performed CoCASA
• CoCASA submitted to Clinical Services for comparison and presented to the Pediatric Cabinet
One or More Vaccines

Percentage of Patients (Males & Females: 13-17 yo) Receiving 1 or More Doses of HPV By (date)

- National Average Female (13-17yo): 60%
- Georgia Average Female (13-17yo): 65%
- National Average Male (13-17yo): 42%
- Georgia Average Male (13-17yo): 41%

<table>
<thead>
<tr>
<th>Date</th>
<th>Males</th>
<th>Females</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>October 1, 2014</td>
<td>38%</td>
<td>49%</td>
<td>44%</td>
</tr>
<tr>
<td>April 1, 2015</td>
<td>42%</td>
<td>49%</td>
<td>45%</td>
</tr>
<tr>
<td>June 1, 2015</td>
<td>49%</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>September 1, 2015</td>
<td>50%</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>October 1, 2015</td>
<td>85%</td>
<td>91%</td>
<td>89%</td>
</tr>
<tr>
<td>April 1, 2016</td>
<td>89%</td>
<td>90%</td>
<td>90%</td>
</tr>
<tr>
<td>June 1, 2016</td>
<td>90%</td>
<td>91%</td>
<td>91%</td>
</tr>
<tr>
<td>September 1, 2016</td>
<td>91%</td>
<td>90%</td>
<td>90%</td>
</tr>
</tbody>
</table>
Series Completion Rates

Series Completion Rate (Males & Females: 13-17 yo)
Received 3 or more doses (among adol who had >=1 dose and >=24 weeks between 1st dose and compliance date)

<table>
<thead>
<tr>
<th>Month</th>
<th>A N=643</th>
<th>B N=1576</th>
<th>C N=1314</th>
</tr>
</thead>
<tbody>
<tr>
<td>October 1 2014</td>
<td>53%</td>
<td>62%</td>
<td>57%</td>
</tr>
<tr>
<td>April 1 2015</td>
<td>56%</td>
<td>76%</td>
<td>61%</td>
</tr>
<tr>
<td>June 1 2015</td>
<td>59%</td>
<td>79%</td>
<td>60%</td>
</tr>
<tr>
<td>September 1, 2015</td>
<td>57%</td>
<td>83%</td>
<td>69%</td>
</tr>
</tbody>
</table>

National Average Female (13-17yo): 69%
Georgia Average Female (13-17yo): 74%
National Average Male (13-17yo): 59%
Georgia Average Male (13-17yo): 56%
Missed Opportunities

Missed Opportunities to Administer Vaccine (Males & Females: 13-17 yo)
(lower percentage = less missed opp.)
Recap

- Offices utilize the recall lists monthly
- Vaccination rates reviewed quarterly
- Offices attend the Immunize Georgia Conference
- Goal met and new goal formulated
Audience Polling Questions
Questions and Answers
Thank you for participating!

For more information, visit www.cdc.gov/vaccines/teens