Missouri Immunizations: Victories and Challenges

Daryl A. Lynch, MD, FAAP, FSAM
Professor, University of Missouri—Kansas City School of Medicine
Chief, Section of Adolescent Medicine
Vice Chair of Ambulatory Medicine
Department of Pediatrics
Children’s Mercy Hospitals and Clinics
Victories

- New adolescent vaccines added
  - Intranasal influenza 2003
  - Conjugate MCV 2005
  - Tdap 2005
  - HPV4 2006
  - HPV2 2009

All covered by VFC and most by commercial insurance
## Trend in selected teen vaccines (Missouri vs. US) NIS data

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥1 Tdap Mo</td>
<td>N/A</td>
<td>44.1</td>
<td>60.1</td>
</tr>
<tr>
<td>≥1 Tdap US</td>
<td>30.4</td>
<td>40.8</td>
<td>55.6</td>
</tr>
</tbody>
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<tr>
<th>Vaccine</th>
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<th>2009</th>
</tr>
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<tbody>
<tr>
<td>≥1 MenACWY Mo</td>
<td>N/A</td>
<td>35.3</td>
<td>45.5</td>
</tr>
<tr>
<td>≥1 MenACWY US</td>
<td>32.4</td>
<td>41.8</td>
<td>53.6</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>Vaccine</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥2 MMR Mo</td>
<td>86.2</td>
</tr>
<tr>
<td>≥2 MMR US</td>
<td>89.1</td>
</tr>
<tr>
<td>≥3 HepB Mo</td>
<td>89.7</td>
</tr>
<tr>
<td>≥3 HepB US</td>
<td>89.9</td>
</tr>
<tr>
<td>≥2 Var/Dz Mo</td>
<td>78.8</td>
</tr>
<tr>
<td>≥2 Var/Dz US</td>
<td>75.7</td>
</tr>
</tbody>
</table>
Mo AAP/DHSS Adolescent Immunization Education Project

Fifth year of project

- First two years provider centered, lunch and learn approach
- Focused on HPV, Tdap, MCV
- Third year large venue audiences added
  - Grand Rounds, Immunization Conferences
  - Webcasts
- Outcomes measured showed excellent process measures, providers valued adolescent vaccines, did not support increased mandates, rates increased overall but difficult to show causality
Challenges

- Anti-vaccine movement
  - MMR and autism is not associated—but the damage is done
  - Continued “myth-information” by media
  - Hysteria breeds fear

- Registry issues
  - MOSAIC, private provider’s data input, city registries

- Lack of balanced marketing for vaccines
Challenges

- Provider issues
  - Immunization status not checked and updated at every visit. Many wait for preventive visit.
  - Defining their own schedule and recommendations
    - Really?? Smarter than career vaccinologists?
  - Mounting a concerted voice of reason for the public
  - Propagating “myth-information”
## Trend in selected teen vaccines (Missouri vs. US) NIS data

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥1 HPV Mo</td>
<td></td>
<td>31.6</td>
<td>32.7</td>
</tr>
<tr>
<td>≥1 HPV US</td>
<td>25.1</td>
<td>37.2</td>
<td>44.3</td>
</tr>
<tr>
<td>≥3 HPV Mo</td>
<td></td>
<td>15.1</td>
<td>19.9</td>
</tr>
<tr>
<td>≥3 HPV US</td>
<td>N/A</td>
<td>17.9</td>
<td>26.7</td>
</tr>
</tbody>
</table>
Challenges

- Dead last in the U.S. for immunization rates of 19-35 month olds in 4:3:1:0:3:1:4 (56%)
  - 4 DPT
  - 3 polio
  - 1 MMR
  - 0 Hib vaccine is excluded
  - 3 or more doses of HepB
  - 1 or more doses of varicella vaccine
  - 4 or more doses of PCV
Challenges

- But wait!
  - Virgin Islands were at 37%!

- Oh, yeah!
  - Iowa was number one!
Challenges

  - 4 DPT, 3 polio, 1 MMR, 0 Hib, plus 3 or more doses of HepB, 1 or more doses of varicella vaccine, and 4 or more doses of PCV. Hib vaccine is excluded (0)

- Should get better
  - New requirement for daycare starting 7/1/10
## New Daycare Requirement
**7/1/10**

<table>
<thead>
<tr>
<th>Vaccines Required for Child Care and Preschool Attendance</th>
<th>DOSES REQUIRED BY THE TIME THE CHILD IS 3 Months</th>
<th>5 Months</th>
<th>7 Months</th>
<th>19 Months and older</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTaP/DT</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4+</td>
</tr>
<tr>
<td>PCV (Pneumococcal)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>IPV (Polio)</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3+</td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>2</td>
<td>2</td>
<td>2 or 3+</td>
<td>3+</td>
</tr>
<tr>
<td>Hib</td>
<td>1</td>
<td>1+</td>
<td>2+</td>
<td>3+</td>
</tr>
<tr>
<td>MMR</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Varicella</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>
What works?

- **Meta-analysis of the literature**
- **United States studies of adolescents**
  - Included randomized controlled trial;
  - Descriptive comparative or correlational (including retrospective); or
  - Evaluation or impact (including record review following policy/regulation change)

What Works?

- **Strong** evidence for the use of school entry laws (mandates)
- Sufficient evidence for school-based immunization programs
- Sufficient evidence for media/educational/messaging efforts for parents and/or adolescents

What happened with Hep B in MO?

Results

- “Ninth graders in schools with the law had hepatitis B rates higher (72.8%) than those without the law (18.6%) (U = 2.0, p < .01).”

“Reaped what we sowed”

- Multiple unnecessary doses of vaccines
  - My personal knowledge of most doses for one patient after we pull the data together
    - 14 Hep B
    - 5 MMR
    - 3 Tdap (only available since 2005)

- “Well, the school says she’s up-to-date”

- “No thanks, that shot has killed a bunch of girls.” NOT TRUE!!!!
Children’s Mercy Teen Clinic process for obtaining patient immunization data

- See what is in our EMR (and print it out because the electronic version is too difficult to read)
- Print out a paper copy of the MOSAIC
- Call the current and/or past schools attended (contend with FERPA, multiple messages)
- Call the KCMO Health Department
- Call the Wyandotte Co. Ks Health Department
- Call other county or state health departments
- Call previous private offices
- Try to read the various “chicken scratches” on the little green frayed card that mom has in her purse
- Stumble onto other data (health fair, free shot)
Before we point fingers...

- Daryl A. Lynch’s immunization records
  - Rely on my employer (CMH Hospital) to tell me when a vaccine is due
  - My primary care physician relies on me to give him my data
  - Received off-label vaccines from another provider; records not at my primary care office
  - Received flu vaccine at free site and my physician nor my employer got this data
  - I don’t have a copy of my immunizations
Hope for the future

New delivery models of care within the medical home

– School located immunization clinics with data given back to medical home
– Consider alternate hours for vaccine clinics
– Consider immunizing parents and other care givers at pediatric practices
– Standing orders as appropriate
Hope for the future

- Immunize at each visit
  - Check immunization status before family arrives
  - Contact schools, health departments, check state registry for data
  - Note vaccines needed
Hope for the future

Nurses

– Lessons learned along the way:
  “Nurses rule, doctors drool!”
  “The physician is the head but the nurse is the neck, and she can spin the head!”
  If you want it done, get the nurses on it!
  If the patient tells the physician no thanks, send in the nurse

Improved registry (if used by all!)
Hallelujah!
Thanks to the choir!