Analysis of Barriers to Childhood Immunization Compliance in Patients Served by a Community Health Center

A Dickinson College and Sadler Health Center Community Study

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Presentation Overview

- Background information on immunization
- Barriers to immunizations
- Results of compliance survey
- Purpose: to provide Sadler Health Center with information about barriers that patients face in keeping their children up to date with vaccinations and wellness visits.

Sadler Health Center Corporation is a Federally Qualified Community Health Center serving parts of Cumberland, Perry, Adams and Franklin counties.
Importance of Childhood Immunizations

* If child **is** immunized...
  * Child’s body prepared to fight illness
  * Antibodies developed to fight disease
  * Chance of illness greatly reduced
  * Spread of disease prevented
  * Diseases become less common

* If child **is not** immunized...
  * Child’s body is not prepared or strong enough to fight disease
  * Disease can be spread, putting others at risk
  * Diseases previously controlled by vaccination can resurface
<table>
<thead>
<tr>
<th>Vaccine-Preventable Diseases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anthrax</td>
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<tr>
<td>Cervical Cancer</td>
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<tr>
<td>Diphtheria</td>
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<tr>
<td>Hepatitis A</td>
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<tr>
<td>Hepatitis B</td>
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<tr>
<td>Haemophilus influenzae type b (Hib)</td>
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<tr>
<td>Human Papillomavirus (HPV)</td>
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<tr>
<td>H1N1 Flu (Swine Flu)</td>
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<tr>
<td>Influenza (Seasonal Flu)</td>
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<tr>
<td>Japanese Encephalitis</td>
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<tr>
<td>(JE)</td>
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<tr>
<td>Lyme Disease</td>
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<tr>
<td>Measles</td>
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<tr>
<td>Meningococcal</td>
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<td>Monkeypox</td>
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<tr>
<td>Mumps</td>
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<tr>
<td>Pertussis (Whooping Cough)</td>
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<tr>
<td>Pneumococcal</td>
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<tr>
<td>Poliomyelitis (Polio)</td>
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<tr>
<td>Rabies</td>
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<tr>
<td>Rotavirus</td>
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<tr>
<td>Rubella (German Measles)</td>
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<tr>
<td>Shingles (Herpes Zoster)</td>
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<td>Smallpox</td>
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<tr>
<td>Tetanus (Lockjaw)</td>
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<tr>
<td>Tuberculosis</td>
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<td>Typhoid Fever</td>
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<tr>
<td>Varicella (Chickenpox)</td>
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<td>Yellow Fever</td>
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</tbody>
</table>
Reasons for Noncompliance

- Barriers and Concerns
Administrative and Logistical Barriers

- Lack of standardization of immunization information
  - Pediatricians more likely to administer the varicella immunization than family doctors.

- Difficulty tracking immunization history
  - Only 3% of primary physicians use the Immunization Registry (Kimmel et al., 2007).
Safety Concerns

* In a study of 13,500 parents, as much as 22.6% of parents cited safety as a major barrier (Burns et al., 2005).

* Thimerosal Controversy
  * Prevented 12% of parents from consenting to thimerosal-containing influenza vaccine (Edwards et al., 2011).
Safety Concerns

* Thimerosal-Autism Controversy

**Figure 1:** Number of children who received the first dose of hepatitis B vaccine less than 5 days after birth (USA, 1999–2000)

Data from the US Centres of Disease Control and Prevention’s morbidity and mortality weekly report. 38
Barriers for Low-Income Patients

- Lack of knowledge of immunization schedule
- Clinic hours
- Missed appointments and scheduling conflicts
- Misconceptions about vaccinations
- Lack of transportation
  - One study found as many as 11.6% of parents reported this problem (Rosenthal et al., 2004).
Rising Cost of Immunizations

* Cost of vaccine (paired with new vaccines and increased dosages)
  * $10 in 1975
  * $385 in 2001
  * Will be $1225 2020
Childhood Immunization Compliance Survey
Overview

Purpose: to provide the Sadler Health Center with information about barriers that patients face in keeping their children up to date with vaccinations and wellness visits.

- Anonymous survey sheet distributed to patients
- Telephone interviews conducted using the survey as a script

Subjects: 84 Sadler patients
- 20 in-clinic
- 64 by phone
<table>
<thead>
<tr>
<th>Statement</th>
<th>Don't know</th>
<th>Not true</th>
<th>Somewhat true</th>
<th>Very true</th>
</tr>
</thead>
<tbody>
<tr>
<td>My child needs vaccines.</td>
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<tr>
<td>My child is too busy when the clinic is open.</td>
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<td>My child is too expensive.</td>
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<tr>
<td>I don't have reliable transportation.</td>
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<tr>
<td>The appointment takes too long.</td>
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<tr>
<td>I think vaccines are dangerous.</td>
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<tr>
<td>I have other children to take care of.</td>
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<td>I don't know when I should come in.</td>
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<tr>
<td>I don't agree with vaccinations because of my religion.</td>
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<tr>
<td>I do not want my child to experience pain.</td>
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<tr>
<td>I do not want my child to receive vaccinations.</td>
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<tr>
<td>Please check the source of information that you rely on most to get information about vaccinations.</td>
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</tbody>
</table>

**Please circle the answer that you agree with most.**

<table>
<thead>
<tr>
<th>Main reasons for your child not being up to date with vaccinations and wellness visits</th>
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<tbody>
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</tbody>
</table>
Geographic Distribution of Participants (by area code)

- 17013: 46%
- 17015: 17%
- 17055: 7%
- 17050: 6%
- 17241: 11%
- 17065: 9%
- 17026: 8%
- 17014: 7%
- 17257: 6%
- 17011: 5%
- 17010: 4%
- 17043: 3%
- 17315: 2%
- 17025: 2%
- 17541: 1%
“I do not have reliable transportation.”
"I am busy when the clinic is open."
“The appointments take too long.”

- Very true: 65%
- Somewhat true: 14%
- Not true: 8%
- I don't know: 1%
“I think vaccinations are dangerous.”

- Very true: 80%
- Somewhat true: 17%
- Not true: 17%
- I don't know: 80%
“I have other children to care for.”

- Very true: 64%
- Somewhat true: 27%
- Not true: 8%
- I don't know: 6%
“I do not know **when** I should come in.”

76% Not true
15% Somewhat true
4% Very true
4% I don’t know
“I do not want my children to experience pain.”
“I do not agree with vaccines because of my religion.”

97%

“The appointments are too expensive.”

90%

Very true
Somewhat true
Not true
I don't know
Sources of Information

- Doctor/Nurse: 80%
- Family/Friends: 15%
- Internet/T.V.: 3%
- Multiple sources: 0%
Patient Comments

* Parents would prefer more open clinic hours. Many reported that weekend hours would be “very helpful.”
* Appointments are scheduled too far in advance. This process takes too long (ex. teeth cleaning appointment could not be made for 6 months).
* Parents would like to receive the immunization schedule chart.
* Parents would like more information about vaccine benefits as well as potential risks.
* Misinformation:
  * One participant reported that his midwife didn’t recommend getting vaccines until children were at least 6 months old.
  * Another participant reported that they believe the flu shot is dangerous.
Top barriers in order of importance (out of 84):

- Busy while clinic is open (33)
- Other children to care for (30)
- Don’t know when to come in (25)
- Don’t want children to experience pain (22)
- Appointments take too long (19)
- Vaccinations are dangerous (19)
- Don’t have reliable transportation (15)
- Appointments are too expensive (4) and religion (2) were not significant barriers
Limitations

- Social desirability (especially for phone interviews)
- Responses to questions may be biased due to varying patient interpretations of questions
Recommendations

* Education about immunizations is important

* Main issue: clinic hours
  * Extended hours (more than Thursday)
  * Vaccination days
  * Weekend hours

* For parents with multiple children, provide childcare

* Parents confused about when to come in:
  * Complexity of child immunization schedules is an issue
  * Printed display both in clinic and to bring home
  * Call reminders
  * Social media mechanism and/or texting
    * Parents prefer a text message containing the child’s name, specific immunization, and physician (Schmidt et al., 2011).
Acknowledgements

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* Dickinson Institutional Review Board

* Prof. John Henson
References