

Current Trends in Immunization

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2011 NCSL Meeting



Objectives

- Review the benefits of immunization
- Discuss where the immunization enterprise stands in protecting
 - Infants
 - Adolescents
 - Pregnant women
- Share how alternate immunization sites might complement the medical home
 - Increasing immunization rates and improving public health outcomes



Objectives

- The benefits of immunization
 - Where does the immunization enterprise stand in protecting
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Vaccines Have Transformed the Medical Landscape Over the Course of the 20th and 21st Centuries

Before vaccines parents in the US could expect that...

- **Polio** would paralyze 10,000 children
- **Rubella** (German measles) would cause birth defects and mental retardation in as many as 20,000 newborns
- **Measles** would infect about 4m children, killing 3,000
- **Diphtheria** would be one of the most common causes of death in school-aged children
- A bacterium called ***Haemophilus influenzae type b*** (Hib) would cause meningitis in 15,000 children, leaving many with permanent brain damage
- **Pertussis** (whooping cough) would kill thousands of infants

- **Today 12,000 babies will be born in US**
 - 17 diseases are now vaccine-preventable



Impact of Vaccination on Preventable Diseases Annual 20th century vs. 2010 reported cases

Disease	20th Century Annual Morbidity	2010 Reported Cases	Percent Decrease
Smallpox	29,005	0	100%
Diphtheria	21,053	0	100%
Measles	530,217	63	> 99%
Mumps	162,344	2,612	98%
Pertussis	200,752	27,550	86%
Polio (paralytic)	16,316	0	100%
Rubella	47,745	5	> 99%
Congenital Rubella Syndrome	152	0	100%
Tetanus	580	26	96%
<i>Haemophilus influenzae</i>	20,000	246	99%

Source: CDC, Sep 2011

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Routine Childhood Immunization is Cost Saving* Every dollar spent results in \$5.80 in cost savings

Vaccines Studied: DTaP, Hib, IPV, MMR, HepB, Varicella, HepA, PCV7 and Rotavirus vaccines	Direct costs (Million \$)	Societal costs (Direct+Indirect) (Million \$)
Costs averted	\$20,284	\$76,401
Program costs	\$6,724	\$7,514
Net Present Value (net savings)	\$13,560	\$68,887

- The routine childhood immunization program prevents . . .
 - 20 million cases
 - 42,000 deaths
- . . . Per birth cohort of ~4 million children

Source: Zhou F. Updated economic evaluation of the routine childhood immunization schedule in the United States. Presented at the 45th National Immunization Conference. Washington, DC; March 28-31, 2011

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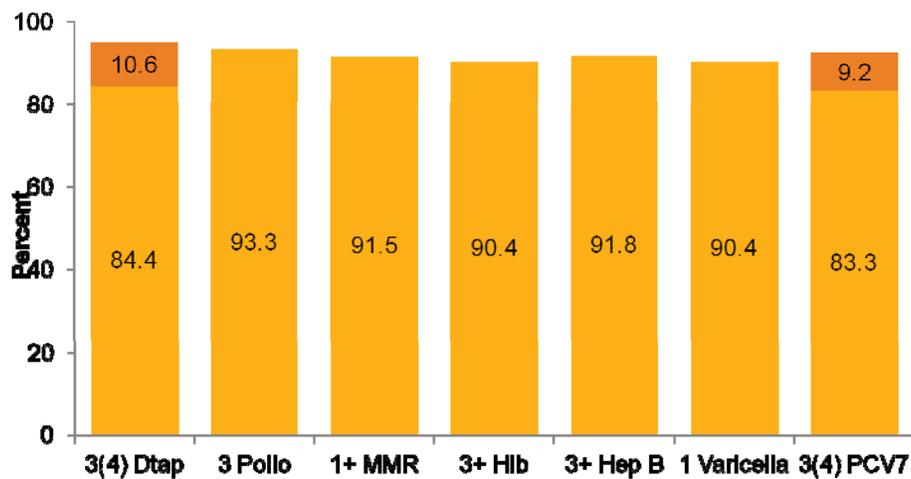
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We are very good at immunizing children by age 2 2010 coverage at or near 90% for most routine vaccines

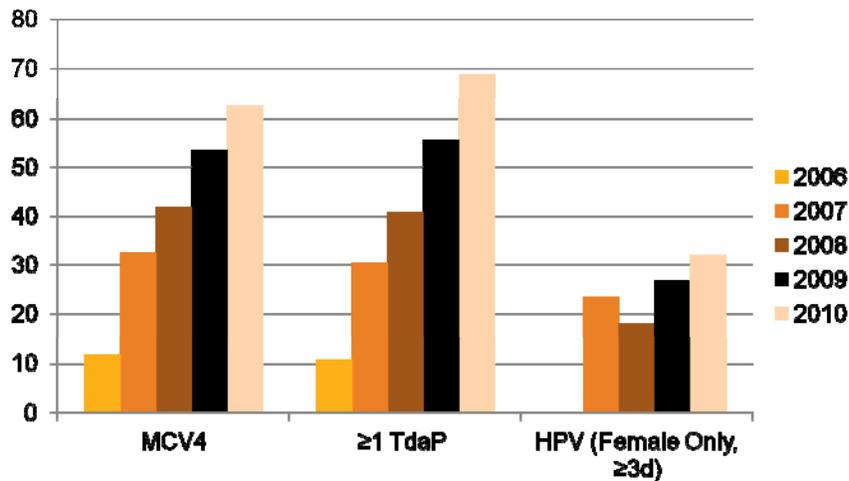


Source: CDC 2011 NIS Table Data. <http://www.cdc.gov/vaccines/stats-surv/nis/default.htm#nis>. Accessed 21Nov11



Progress has been made in protecting adolescents

Coverage lags behind infant/toddlers – HPV uptake low



Source: CDC 2011 NIS Table Data. <http://www.cdc.gov/vaccines/stats-sur/nis/default.htm#nisteen>. Accessed 21Nov11



Maternal Immunization

An emerging platform to protect mothers and newborns

- Maternal immunization protects in several ways
 - **Active Immunity:** The mother and unborn child are protected from disease as a result of the mother's immune response to the vaccine
 - **Passive Immunity:** The newborn baby is protected in the early stages of life through transfer of antibodies from the mother
- Two recommendations are currently in place for routine Maternal Immunization
 - **Influenza** has been in place for decades
 - The recommendation for **TdaP** was introduced in 2011
- Innovative new vaccines are under development for pregnant mothers

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Maternal Immunization

Influenza Recommendation

■ Influenza

- Pregnant women more prone to severe illness from flu and have a greater chance for serious problems for their unborn baby*
- A recent study concluded that infants of vaccinated mothers were 45-48% less likely to have influenza hospitalizations than infants of unvaccinated mothers**
- **ACIP recommends immunization for persons who are or will be pregnant during the influenza season.****

* CDC. Pregnant Women and Influenza. Accessed 16Nov11 at <http://www.cdc.gov/flu/protect/vaccine/pregnant.htm>

** CDC. Summary of Influenza Vaccine Recommendations. Accessed 16Nov11 at <http://www.cdc.gov/flu/professionals/acip/flu-vax.htm>

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Maternal Immunization

Pertussis Recommendation

■ Pertussis

- The majority of pertussis-related deaths in the past 30 years occurred in infants 0-1m old*
- Most transmission of pertussis in newborns is by family members (primarily parents)
- **ACIP recommends 3rd trimester maternal immunization with Tdap, as well as immunization of close contacts of infants**

* CDC. Pregnant Women and Influenza. Accessed 16Nov11 at <http://www.cdc.gov/flu/protect/vaccine/pregnant.htm>

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Maternal Immunization

Future trends

- Maternal immunization is the best way to protect a child in against diseases in early infancy
 - Difficult to develop vaccines that are effective in protecting children at birth
- Diseases for which maternal immunization is an attractive approach
 - Group B Streptococcus (GBS)
 - Meningococcal Disease
 - Respiratory Syncytial Virus (RSV)

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Alternate Immunization Sites

An tool to reach underimmunized/underserved populations

- Alternate Immunization Sites offer additional, accessible venues for immunization for adolescents and adults
 - All states allow some immunization at Pharmacies
 - School-based immunization programs benefit from a captive audience
- Value of Alternate Sites
 - Increase access to vaccines
 - Opportunity to educate on vaccines and vaccine preventable illness
 - Especially valuable in underpopulated areas and/or those with limited provider availability
- Concern
 - Immunization out of Medical Home will limit doctor/patient contact

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Pharmacy Based Immunization

Convenient and accessible

- Pharmacies are increasingly able to offer vaccines
 - 13 States allow pharmacists to provide all vaccine to all age groups
 - 38 States and the District of Columbia have varied age restrictions
- Pharmacy immunization offers benefits . . .
 - Accessibility: widespread and broad open hours
 - Potential to cross check with prescriptions to identify at risk patients and recommended needed vaccines
- . . . And challenges
 - Securing in-network reimbursement from insurers
 - Gaining the support of local physicians and health departments
 - Limited systems to keep records up to date across providers

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School-Based Immunization

Provide underserved populations access to vaccine

- A study in NYC evaluating the impact of school based vaccination establishes benefit*
 - Children vaccinated in schools were
 - Less likely to have received a seasonal influenza vaccine in the past than those vaccinated in provider offices
 - Less likely to be up-to-date on routine childhood immunizations
- School-based Immunization has challenges
 - Parental permission must be obtained *and brought with the child to school*
 - Providers must navigate the sometimes challenging task of obtaining reimbursement from Insurers

*Source: Geevarughese, A. Expanding Access to Influenza Vaccine: Importance of School-Located Vaccination. Presented at the 45th National Immunization Conference. Washington, DC; March 28--31, 2011

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Conclusions

- **Immunization is a highly effective Public Health intervention**, second only to availability of clean water
- In the US, we have made tremendous progress in protecting our **young children**
- **Adolescent immunization** rates are increasing, but challenges remain
- Recent recommendations for **Maternal Immunization** offer an exciting opportunity to protect mothers and newborns
 - Innovative new vaccines for this population are under development
- **Alternate Immunization Sites** are one tool that can be used to increase access to underimmunized / underserved populations

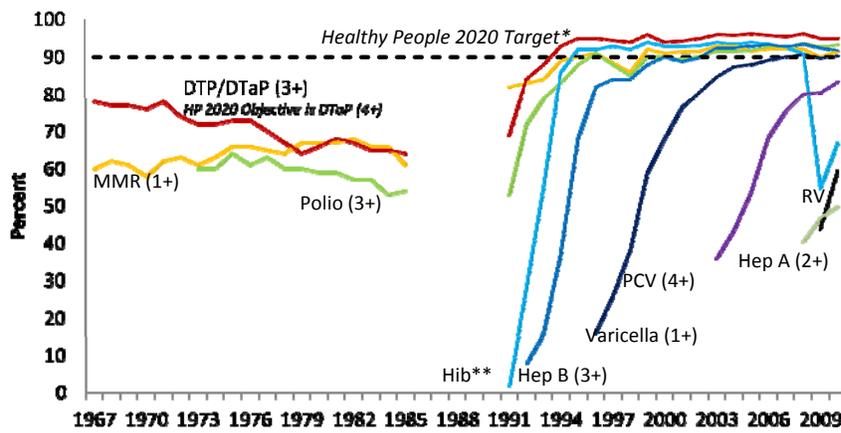
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THANK YOU!



Estimated Vaccination Coverage Children 19-35 Months, 1967-2009



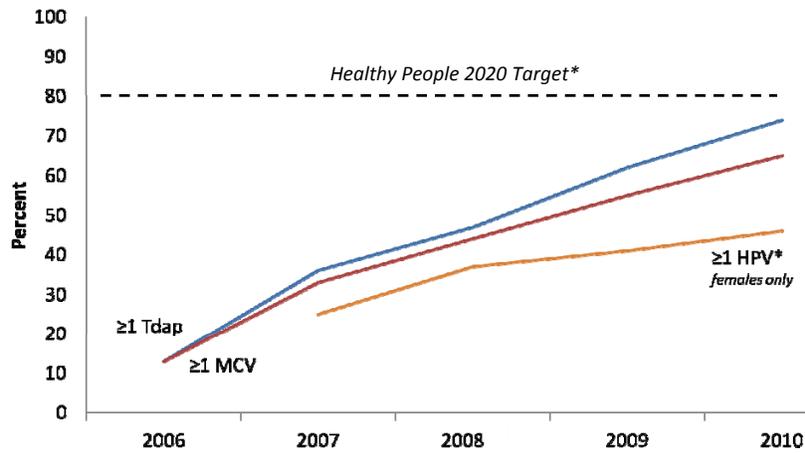
* Target is 80 percent for Rotavirus and 60 percent for Hepatitis A

** Reflects 3+ doses through 2008; Full Series (3+ or 4+ doses, depending on brand) 2009 and later

Source: CDC, Sep 2011



Estimated Vaccination Coverage Adolescents 13-15 years, 2006-2010



*≥1 HPV is not a Healthy People 2020 objective

Source: CDC, Sep 2011

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