Common Barriers to Childhood Immunizations:
Addressing Parental Concerns Regarding Vaccinations

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Objectives

• Discuss vaccination rates in Connecticut
• Discuss barriers to immunization, including:
  – Vaccination Exemptions
  – Parental Concerns
    • General Safety (side effects, ingredients)
    • Vaccine Specific Concerns (Varicella, MMR)
• Acquire strategies to talk to parents about vaccinations
## CT Vaccination Rates

<table>
<thead>
<tr>
<th>Kindergarten Vaccination Coverage for Selected Area(s)</th>
<th>Vaccine</th>
<th>States</th>
<th>N</th>
<th>% Surveyed</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>School Assessment</td>
<td></td>
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<tr>
<td></td>
<td>MMR Vaccination</td>
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<tr>
<td>All kindergartners</td>
<td>Connecticut</td>
<td>39,533</td>
<td>100.0</td>
<td>97.0</td>
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<tr>
<td></td>
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<td>97.0</td>
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<tr>
<td></td>
<td>1 dose Varicella Vaccination (unknown disease history)</td>
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<td>100.0</td>
<td>NA</td>
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<td></td>
<td>2 doses Varicella Vaccination (unknown disease history)</td>
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<td></td>
<td>Hepatitis B Vaccination</td>
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<td></td>
<td>Polio Vaccination</td>
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<td>39,533</td>
<td>100.0</td>
<td>97.0</td>
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## CT Exemption Rates

<table>
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<th>Exemption Type</th>
<th>States</th>
<th>N</th>
<th>No.</th>
<th>%</th>
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<td><strong>School Assessment</strong></td>
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<td><strong>Medical Exemption</strong></td>
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</table>
State Vaccination Requirements

- Exist, but states offer non-medical exemptions
  - WV, MI, CA - only states to offer ONLY medical exemption
  - Prior to 2015 (Senate Bill 277)
    - CA: 1,000 medical
      - 18,000 non-medical “personal belief” exemptions

- Connecticut Exemptions:
  - Medical
  - Religious
Connecticut Department of Public Health Medical Exemption Certification Statement

According to State statutes (Connecticut General Statutes Sections 19a-7f and 10-204a), no child may be admitted to a licensed child care program or school without proof of immunization or a statement of exemption. Parents or guardians claiming a medical exemption on the basis that a given immunization is medically contraindicated should complete the following statement and attach a letter signed by a physician licensed to practice medicine stating that in the physician’s opinion, such immunization is medically contraindicated and return it to the school or child care facility. The letter must include the child’s name, birth date, the vaccine(s) for which exemption is being filed and the condition that contraindicates vaccination, as well as the physician’s signature and contact information.

To Whom It May Concern:

As the parent(s)/guardian(s) of ________________________________ , (Name of student)

I/we are submitting the enclosed documentation from a physician that immunization of this child is medically contraindicated. Therefore, this child is exempt from receiving the required immunization as specified by the physician, and shall be permitted to attend a licensed child care program or school except in the case of a vaccine-preventable disease outbreak.

_________________________________________ / __________ Signature of Parent(s)/Guardian(s) Date

_________________________________________ / __________ Signature of Parent(s)/Guardian(s) Date

________________________________________________________________________ Address

________________________________________________________________________ Telephone #

Children with medical exemptions shall be permitted to attend a licensed child care program or school except in the case of an outbreak of vaccine-preventable disease. In the event of an outbreak of vaccine preventable disease, all susceptible children will be excluded from child care or school settings based on public health officials’ determination that the child care facility or school is a significant site for disease exposure, transmission and spread into the community. Children without proof of immunity, including children with religious and medical exemptions shall be excluded from these settings for this reason and will not be able to return until (1) the danger of the outbreak has passed as determined by public health officials, (2) the child becomes ill with the disease and completely recovers, or (3) the child is immunized.
State of Connecticut
Department of Public Health
Religious Exemption Statement

(Printed full, legal name of student)

I, the undersigned, do hereby swear or affirm, as the case may be as follows:

1. I am making this Religious Exemption Statement pursuant to Conn. Gen. Stat. § 10-204a so that the student may enroll in school for the first time or enter seventh grade at ______________________ school.

2. I am the lawful ☐ parent ☐ guardian of the student.

3. Immunizing said student would be contrary to ☐ student’s ☐ parent’s ☐ guardian’s religious beliefs.

4. I understand that by claiming this exemption the student shall be exempt from the immunizations required by Conn. Gen. Stat. §§ 10-204a and 19a-7f.

5. I understand that during a vaccine-preventable disease outbreak at the above-identified school, all susceptible children, including the student will be excluded from school if a public health official determines that the school is a significant site for disease exposure, transmission and spread into the community. In such case, such children, including the student shall be excluded from school until: (1) the public health official determines that the outbreak danger has ended; (2) the child becomes ill with the disease and completely recovers from it; (3) the child is vaccinated according to public health protocol; or (4) the child has proof of immunity to the disease.

Name(s) of Parent(s) ___________________________ Signature of Parent(s)/Guardian(s) ___________________________ Date ______________

Name(s) of Parent(s) ___________________________ Signature of Parent(s)/Guardian(s) ___________________________ Date ______________

Address (Street & House or Apt. no.) ___________________________ Telephone(s) no. ___________________________

City, State and Zip Code ___________________________

TO CLAIM A RELIGIOUS EXEMPTION, AN EXEMPTION FORM MUST BE SUBMITTED TO THE PUBLIC OR NON-PUBLIC SCHOOL BEFORE ENROLLING IN THE SCHOOL FOR THE FIRST TIME AND BEFORE ENTERING SEVENTH (7th) GRADE.
“I’ve never even heard of these diseases...why do we even need vaccines for them!”
Educate Parents

- Vaccines - victims of their own success
Educate Parents

- We live in a world of international air travel
- Travelers bring disease - measles outbreaks in Europe
Educate Parents

- Diseases are making a comeback

Whooping Cough:
CT: 81 confirmed cases in 2016

Measles:
US: 118 confirmed cases in 2017
Last in CT in 2014
Why would my un-vaccinated kids be a threat to your vaccinated kids, if you're so sure that vaccines work?
DANGER! DANGER!

We are dipping below

HERD IMMUNITY

Due to more and more parents opting out of vaccinating their kids
= not immunized but still healthy
= immunized and healthy
= not immunized, sick, and contagious

No one is immunized.

Contagious disease spreads through the population.

Some of the population gets immunized.

Contagious disease spreads through some of the population.
Contraindications to Vaccinations

- Infants
- Pregnancy
- Severe Immunodeficiency
- Hx of thrombocytopenia or TTP
- Severe allergic reaction to vaccine
MEASLES MADE A COMEBACK!

Change in MMR (Measles, Mumps and Rubella) Vaccination Coverage, 2006-2011 (children ages 19-35 months)

- Herd Immunity Threshold:
  - Mumps (75-86%)
  - Rubella (83-85%)
  - Measles (92-94%)

State met threshold for measles, rubella and mumps in 2006 (gray)

All states were above the safe mumps level and within the safe rubella level in 2011; many were below the safe measles level.

SOURCE: CENTERS FOR DISEASE CONTROL AND PREVENTION (various survey methods)
“Won’t all these vaccines be too much for my child’s immune system?”
VACCINE IMPACT ON THE IMMUNE SYSTEM

• Child’s immune system is incredibly strong

• Antigens are everywhere:
  ○ Vaccines - just a tiny fraction of antigens they encounter everyday
  ○ Perspective - Wheat Flour: 40 antigens vs Rubella: 5 antigens

• Vaccine antigens: “weakened or killed germs”
  ○ Imitate an infection, but do not cause serious illness

• Vaccinated children are not at greater risk of other infections
VACCINE IMPACT ON THE IMMUNE SYSTEM

- Children exposed to fewer immunological components in vaccines today

- Theoretical capacity of an infant's immune system
  - Ability to respond to about **10,000 vaccines** at any time
  - If 11 vaccines were given at once: using up **<0.1%** of the immune system
“Is the chickenpox vaccine really necessary? Isn’t natural infection better?”
Natural Infection versus Immunization

Price paid for natural immunity

- Chickenpox complications:
  - PNA
  - Meningitis
  - Necrotizing fasciitis
- Before vaccine:
  - 10,000 hospitalized
  - 100 deaths/year
“I heard there is formaldehyde and mercury in vaccines--how can that be safe?”
Vaccine Ingredient Safety

- Adjuvants: Aluminum
- Stabilizers: Gelatin
- Inactivating Agents: Formaldehyde
- Preservatives: Thimerosal (Mercury)

The lowest amounts necessary AND studied as part of the vaccine during safety testing

Substances found in certain vaccines cause no harm other than the rare instances of hypersensitivity reasons such as anaphylaxis in those with severe allergies to either gelatin or egg proteins
ALUMINUM

• Found in:
  ● Food (7 - 9 mg per day)
  ● Health Products

• Aluminum ingestion in the first 6 months of life:
  
  Breast-feeding: 7 mg
  
  Milk-based formula: 35 mg
  
  Soy formula: 117 mg

• All vaccines at 6 months - 4.4 mg of aluminum
FORMALDEHYDE

● Naturally produced by our body
  ○ 2 month old infant: 1.1 mg

● Found in food:
  ○ 4.6 mg/kg - turkey
  ○ 6.8 mg/kg - apples
  ○ 19.5 mg/kg - potatoes

● Formaldehyde in individual vaccines: < 0.1 mg
THIMEROSAL

- Removed from most childhood immunizations as a precaution in 2001
  - With exception of multi-dose influenza vials

- Research shows that Thimerosal does not cause ASD
  - Nine CDC studies found no link

- Studies have shown that there is no link between receiving vaccines and developing ASD
  - 2013 CDC study: total amount of antigens from vaccines received was the same between children with ASD and those that did not have ASD
The evidence is clear: thimerosal is not a toxin in vaccines, but merely a preservative, preventing contamination, that has been used in vaccines for decades. This fact sheet provides a summary of thimerosal-related studies that were conducted by CDC or with CDC’s involvement.

<table>
<thead>
<tr>
<th>Study</th>
<th>Summary and Citation</th>
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| Brain function, behavior, language, coordination and thimerosal Thimerosal exposure in early life and neuropsychological outcomes 7-10 years later | This study assessed whether prenatal thimerosal exposure or thimerosal exposure between birth and 7 months of age was associated with seven specific neuropsychological outcomes in children ages 7-10 years. The study found no associations with thimerosal and general intellectual functioning, verbal memory, fine motor coordination, executive functioning, behavior regulation and language. There was a small association between early thimerosal exposure and the presence of tics in boys, but no association among girls. It is necessary to perform additional studies examining the association between thimerosal and tics using more reliable and valid measures of tics.  
| Thimerosal exposure in the womb and in infancy: Prenatal and Infant Exposure to Thimerosal From Vaccines and Immunoglobulins and Risk of Autism | This study compared children with Autism to those without, and looked at prenatal and infant exposure to thimerosal from vaccines. This study found no difference in exposure to thimerosal between children with and without Autism.  
| Long-term results of thimerosal exposure Neuropsychological Performance 10 Years After Immunization in Infancy With Thimerosal-Containing Vaccines | CDC funded this follow-up study in Italy that compared neuropsychological outcomes of children who were randomly assigned to receive one of two forms of diphtheria-tetanus-acellular pertussis vaccine (DTaP) in the first year of life: one containing thimerosal and the other containing 2-phenoxethanol. Ten years after vaccination, the two groups were tested on 24 neuropsychological outcomes. Results show that thimerosal in children is not harmful to children.  
| Thimerosal in US, UK, and Denmark Thimerosal-containing vaccines: evidence versus public apprehension | Three large epidemiological studies that analyzed data from US health maintenance organizations, the UK General Practice Research Database, and the entire country of Denmark failed to find an association between exposure to thimerosal-containing vaccines and autism.  
“Why do so many children get diagnosed with autism right after getting vaccines?”
MMR and Autism

- Dr. Wakefield sparks a firestorm

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This article was retracted

RETRACTED: Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children

Dr AJ Wakefield FRCS a, SH Murch MB b, A Anthony MB, J Linnell PhD b, DM Casson MRCP b, M Muls MRCPath b, M Berelowitz FRCPsych b, AP Dhillon MRCPath a, MA Thomson FRCP b, P Harvey FRCP d, A Valentine FRCR e, SE Davies MRCPath a, JA Walker-Smith FRCP a

Summary

Background
We investigated a consecutive series of children with chronic enterocolitis and regressive developmental disorder.

Methods
12 children (mean age 6 years [range 3–10], 11 boys) were referred to a paediatric gastroenterology unit with a history of normal development followed by loss of acquired skills, including language, together with diarrhoea and abdominal pain. Children underwent gastroenterological, neurological, and developmental assessment and review of developmental records. Ileocolonoscopy and biopsy sampling, magnetic-resonance imaging (MRI), electroencephalography (EEG), and lumbar puncture were done under sedation. Barium follow-through radiography was done where possible. Biochemical, haematological, and immunological profiles were examined.

Myths, once released - are hard to reign in..
MMR and Autism

- Studies have found no link between the MMR vaccine & ASD

- **CORRELATION does not equal CAUSATION**
  - First dose of the MMR vaccine = 12 to 15 months
  - Autism symptoms can become noticeable = 15 months
  - 18 month developmental screen ASQ-SE:
    - If abnormal: blame the last new thing to happen = VACCINES
"Everywhere I go, someone is talking about the danger of vaccines. There are moms posting about their kids' side effects on just about every online parenting forum!"
VACCINE SIDE EFFECTS

YES - They happen!
Nothing is 100% safe

- Discuss common side effects with parents
- Complications - extremely rare & should be weighted against vaccinations enormous benefits
- Vaccines tested in more children over a longer period of time than any other drug
  - US Vaccine Adverse Event Reporting System (VAERS)
  - RotaShield and intussusception
VACCINE SIDE EFFECTS

- **MMR**: febrile seizures 1:2500
  - Studies found no long-term effects of simple febrile seizures

- “IF IT BLEEDS - IT LEADS”

  - HPV PROTECTS AGAINST CERVICAL CANCER!!
  - HPV CAUSES FAINTING!!
Vaccine Safety: Epidemiological Evidence


The most comprehensive examination of the immunization schedule to date

Uncovered NO evidence of major safety concerns associated with adherence to the childhood immunization schedule
“Can we space out the vaccines? Seems like a lot to give in 1 day...”
Spacing out Vaccination/Alt Schedules

- Vaccine schedules are in place for a reason - CDC recommended schedule determined by clinical trials

- Immunize **as early as possible** to protect during the vulnerable early months most susceptible to diseases
  - Whooping Cough outbreaks, most are <6 months

- Fewer office visits for immunizations
  - Saves parents time and money
  - Results in less stress/trauma for the child
  - Less exposure to sick people with less clinic visits
“I don’t have time for this…. a well child visit is only 20 minutes!”

For the most part, the point of a WCC is to see that the child is:

- Alive
- Growing and developing appropriately
- Addressing parental concerns and providing guidance
Have a respectful conversation and address all parental concerns fully.

If you succeed and properly address fears, changes are greater you will be able to change their minds!

There is POWER in this question.

What is it that frightens you?
Conversation Strategies

● Take time to listen
● Solicit and welcome questions
● Ask “where did you get this information?”

● Science versus anecdote
  “Measles requires quarantine...for weeks!”
  “4 cases of pertussis at CCMC recently, let's give dTap today”

● Acknowledge benefits and risks
● Success = keeping the conversation going
Conversation Strategies

● Compromise:
  ○ Pediatrician Alternative to Sears Schedule (PASS)

“When adopting a Physician's’ Alternative to the Sears’ Schedule (PASS), we are acknowledging both that we have found a way to compromise within limits, and that we still insist upon providing the best possible care for our patients, families and the community”

-AAP Bioethics Committee
References


References


