Immunization Safety: Addressing Parental Safety Concerns

Andrew Gallagher
University of Vermont

Follow this and additional works at: https://scholarworks.uvm.edu/fmclerk

Part of the Community Health and Preventive Medicine Commons, Epidemiology Commons, Medical Education Commons, Primary Care Commons, and the Public Health Education and Promotion Commons

Recommended Citation
https://scholarworks.uvm.edu/fmclerk/310

This Book is brought to you for free and open access by the College of Medicine at ScholarWorks @ UVM. It has been accepted for inclusion in Family Medicine Block Clerkship, Student Projects by an authorized administrator of ScholarWorks @ UVM. For more information, please contact donna.omalley@uvm.edu.
Immunization Safety: Addressing Parental Safety Concerns

Hardwick Area Health Center
Andrew Gallagher, MS3
October- November 2017
Faculty Mentors: Dr. LeClerc, Dr. Sher, Dr. Buckley
Problem Identification

- Rumors and misinformation regarding vaccine safety have circulated since 1998, when a study published by Andrew Wakefield alleged a link between autism and vaccines. The study had no “control” groups, only studying twelve children with autism who had been vaccinated as children. The paper was retracted by publishing journal as well as the majority of the co-authors. Later, Wakefield was found guilty of fraud, as it was discovered he had falsified data and received payments from law firms seeking to sue vaccine manufacturers.

- A study published in 2011 found that parents’ top vaccine-related concerns included the number of vaccines during the first 2 years of life, administration of too many vaccines in a single doctor visit, and a possible link between vaccines and autism.

- More than 10% of parents of young children refuse or delay vaccinations, with most believing that delaying vaccine doses is safer than providing them in accordance with the Centers for Disease Control and Prevention’s recommended vaccination.

- Even among parents who do vaccinate, more than a quarter believe that delaying vaccines is safer.

- In Vermont, while parents can no longer claim Philosophical Exemption for their children, they are still able to claim Religious Exemption to op-out of vaccinations.

- In Vermont in 2015:
  - 89% DTaP vaccine (≥4 doses) in children 19-35 months old
  - 95% MMR vaccine (≥1 dose) in children 19-35 months old
  - 87% Varicella vaccine (≥1 dose) in children 19-35 months old
In the US, the rates of both measles and pertussis are on the rise. Measles, once declared eradicated from the United States, has recently resurfaced, with 667 cases in 2014 and 189 in 2015, according to the CDC. Pertussis dropped to fewer than 2,000 US cases for several years in the 1970-80s before increasing to 48,000 cases in 2012, a 60-year high, according to the CDC.

Costs to families: during a pertussis outbreak in New York during 1995-96 and found costs to families were $2,822 per ill infant (4044 in 2017 dollars) and did not include cost to insurers or costs of possibly infecting others.

Costs to insurers: with congenital rubella syndrome over his or her lifetime is estimated to be about $143,000 in 2014 dollars.

Costs of containment: in one instance during the 2005 measles outbreak cost of containment for ONE individual costs public health authorities $62,216.

Cost to society: illness and lost productivity from unvaccinated individuals, 18 years and older, is estimated to be $7.1 billion in 2015.
Community Perspective on Issue

Community Interviews:

- Dr. Mackalyn LeClerc, MD, Family Medicine Physician, Hardwick Area Health Center
- Martha Marshfield FNP, Family Medicine Nurse Practitioner, Hardwick Area Health Center

Important Themes:

- Anecdotally, fairly low vaccination rates, anti-vaccination sentiment present in area which tends to be vocal about beliefs
- Patients may not fully understand risks, especially with diseases avoided by vaccines are difficult to comprehend, as they are not currently in community
- Patients do not see mumps, measles, and polio; therefore, the threat seems remote, may not grasp severity of diseases
- Provider Goals: Education on the true risks and benefits of vaccination, but respect the rights of parents to make health decisions for children
- Area of contention, difficulty walking the line between education and confrontation
- Epidemic certainly possible here, especially in pockets where vaccination rates can be below average
Intervention and Methodology

- Create patient education materials regarding:
  - Past and current research
  - Common misconceptions
  - Current guidelines

- Supply reading materials in Waiting Room
- Post copies in Exam Rooms to read while waiting for clinician
- Make copies for patients wishing to take information home
- Provide further resources to patients and parents
**Results**

- Educational materials, entitled, “Vaccines and Safety: Your Questions Answered” complied and distributed in waiting and examination rooms
  - Aim to educate parents while waiting for the doctor
  - Help physicians point to data about vaccine safety
  - Allow physicians to distribute materials for at-home reading
  - Staff and clinicians made aware of informative materials

---

**Vaccines and Safety: Your Questions Answered**

Making health decisions for a child can be a difficult task. As a parent, it is understandable to have questions about treatments your child might need. Therefore, it is important to have access to accurate and reliable sources of information.

What are the benefits of vaccinations? Vaccines prevent childhood diseases, many of which can be deadly or disabling. While pain, redness, and swelling at the injection site are possible, serious side effects are rare. Vaccines are one of the most effective and safest medical treatments available. Over the last century, vaccines have eliminated diseases such as smallpox and have nearly eliminated diseases such as polio.

Are vaccines safe? What about autism? "Yes. Vaccines are safe, among the safest medical treatments available. Over decades, literally thousands of studies including millions of children have shown that vaccines do not cause autism."

The World Health Organization, the European Medicines Agency, Health Canada, and other national and international health groups have concluded that there is no link between vaccines and autism. In 2011, an Institute of Medicine report confirmed a lack of scientific evidence to support the notion that vaccines cause autism. In 2012, a large U.S. market study included 1.2 million children and also found no increase in autism. A study in the journal Pediatrics found that children who were vaccinated had fewer serious health issues than those who were not vaccinated.

But there are so many vaccines, is there such a thing as too much? Too few? Evidence-based research has shown no relationship between number of vaccines received and any adverse effects. Beginning at birth, your child is coming into contact with countless immune stimulants, called "antigens," which lead to antibody production, allergic reactions, etc. It is a big and possibly confusing idea that an immune system could respond to thousands of antigens at once. The idea that adding additional antigens to what your child is exposed to in a given day is harmful is not supported by evidence and is not possible given what is known about the immune system or the neurology of children.

While it may seem like a good idea to spay or neuter the vaccinated child, the American Academy of Pediatrics recommends against it. The only effect of delaying vaccine doses is making your child more susceptible to vaccine-preventable diseases. This delay in vaccination also means that your child will be exposed to more disease before they are vaccinated.

---

**Sources**

Evaluation of Effectiveness and Limitations

- **Effectiveness:**
  - May need to be evaluated over time
  - Data could be collected regarding vaccination rates at the clinic before and after educational materials provided
  - Patients could be surveyed about their beliefs about vaccine safety before and after reading educational materials

- **Limitations:**
  - Limited data has been collected previously on a county by county, clinic by clinic basis to assess significant impacts
  - Intervention is reliant on distribution of information and parents willingly reviewing materials
  - Small population would be reached
Recommendations for Future Interventions

- Public health studies have found that parents who delayed or refusing vaccinations because of safety concerns were significantly more likely to seek additional information about their decision from the Internet (11.4% vs. 1.1%), and significantly less likely to seek information from a doctor (73.9% vs. 93.9%). Therefore, this may indicate that vaccine safety education before and during pregnancy could be an effective intervention.

- Continued research can focus on which interventions and educational resources would most effectively encourage parents to vaccinate their children.

- Refine and update educational materials.

- Distribute educational materials to other offices.
References

- Davis MM. Toward high-reliability vaccination efforts in the United States. (Editorial) JAMA 2016 Mar 15;315(11):1115-7
- Lee LH, Pichichero MA. Costs of illness due to Bordetella pertussis in families Archives of Family Medicine 2000, 9 (10): 989-960
- Images:
- Vermont Immunization Program 2016 Annual Report, Vermont Department of Health
- Vermont Immunization Program 2015 Annual Report, Vermont Department of Health
- Vermont Immunization Program 2014 Annual Report, Vermont Department of Health
Thank you for agreeing to be interviewed. This project is a requirement for the Family Medicine clerkship. It will be stored on the Dana Library ScholarWorks website. Your name will be attached to your interview and you may be cited directly or indirectly in subsequent unpublished or published work. The interviewer affirms that he/she has explained the nature and purpose of this project. The interviewee affirms that he/she has consented to this interview.

Yes ___X___ / No _____