Barriers to Early Childhood Vaccination: Concerns and Facts Regarding Vaccination Safety

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May 2008
To the Faculty of Washington State University:

The members of the Committee appointed to examine the non-thesis of LEANNE M. WILLIAMS find it satisfactory and recommend that it be accepted.

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Abstract

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Nurse practitioners in primary care are in a position to ensure their patients stay up to date on their early childhood vaccinations. Some parents have fears or concerns about vaccine safety and efficacy leading them to choose not to vaccinate their children. This paper identifies reasons parents decide not vaccinate their children and gives evidence based information to improve parents' confidence in the safety of vaccinations. Strategies are provided to promote parental education by nurse practitioners regarding the safety and importance of vaccinations. The goal is to reduce vaccine-preventable diseases outbreaks and their associated levels of morbidity and mortality in the US.
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Barriers to Early Childhood Vaccination: Concerns and Facts Regarding Vaccinations

Introduction

The purpose of this article is to provide nurse practitioners (NPs) with current information on vaccine safety, identify some of the reasons parents refuse to vaccinate their children, and provide strategies for promoting parental confidence in the safety and efficacy of vaccines. NPs using an evidence based approach to vaccination and their safety are more likely to develop an effective working relationship with parents concerned about vaccinating their children. This focus on disease prevention can reduce vaccine-preventable diseases (VPD) outbreaks and their associated morbidity and mortality in the US.

Since the first vaccination was developed in 1798 to control outbreaks of smallpox, the effect of vaccines has been one of the greatest achievements of the 20th century, saving millions on a global scale from death and disability every year (World Health Organization, nd). Throughout the world, smallpox has been completely eradicated and the Americas have been free of wild polio virus since 1994 (Kimmer, 2002). Campaigns to eradicate vaccine-preventable diseases by the World Health Organization (WHO) have been conducted since 1956 and continue to make strides toward eradication, control, and surveillance of VPD (World Health Organization, nd). This success, however, has also created a paradox. Many in the U.S. have never seen a VPD. They are 'myths of the past'-'ghost diseases' which seem to pose no real threat to today's children. As a result some parents fail to recognize the benefits of vaccinations, instead focusing on the potential or perceived adverse effects associated with vaccinations. This has lead some parents to choose not to vaccinate their children, increasing the risk for disease outbreaks which carry high levels of mortality and morbidity (Bardenheier et al., 2004).

NPs are in a position to have an impact on the day-to-day health decisions of individuals and
families. NPs work as primary care providers to children, often serving as the primary source of education for parents on the importance of fully vaccinating their children and the potential for adverse effects. NPs need access to the most current evidence-based information regarding vaccinations to educate and collaborate with parents, in order to help prevent the spread or recurrence of VPD.

Importance of Immunizations

Before the development of vaccinations, communicable diseases were extremely prevalent. People died from outbreaks of diseases like influenza, diphtheria, pertussis, measles, mumps, chickenpox, smallpox, and rubella. Others died from complications of the diseases such as paralysis, encephalitis, meningitis, severe dehydration, pneumonia and liver failure (Immunization Action Coalition, 2006). In addition to protecting an individual from VPD, vaccines also protect the community at large through herd immunity. Herd immunity refers to a communicable disease having less of a chance of spreading among a group of individuals who have antibodies to the disease. Unvaccinated individuals who do not possess the antibodies still gain protection as the disease is less likely to spread and infect them. When fewer children are vaccinated, the herd becomes weakened and VPD can spread more quickly, affecting more people. It is in the best interest of the community to keep vaccination rates at a high level to ensure maximum protection against VPD (Kennedy, Brown, & Gust, 2005).

An average twelve-year-old child can be vaccinated for thirty-four different diseases through the administration of approximately thirty to thirty-five doses of vaccine, preventing that child from the unnecessary risk of severe health complications and even death from VPD (National Network for Immunization Informations, Multiple Vaccinations, 2008). Routine vaccination guidelines are established and updated yearly by the Centers for Disease Control and Prevention (CDC) in conjunction with the American Academy of Pediatrics and the American Academy of Family
Physicians (Centers for Disease Control, Media Relations, 2008). The CDC and other professional medical and nursing associations recommend routine vaccinations for all infants and children. Only individual states however, can enforce these recommendations by making vaccinations mandatory for entrance into the public school system or daycare facilities. All fifty states allow for medical exemption from vaccination. In addition, forty-eight states allow for religious exemptions and twenty allow for philosophical exemptions (Offit, 2007).

From 1995 to 2000 the estimated number of children aged 19 to 35 months who did not receive vaccinations in the US rose from 14,719 to 24,073 (Zimmerman, 2005). Between 1991 and 2004 the percentage of parents who chose not to vaccinate their children using exemptions increased from 0.99% in 1991 to 2.54% in 2004 (Omer et al., 2006). This was a 2.5-fold increase in the number of vaccination exemptions, resulting in fewer children being protected against VPD (Offit, 2007). For every 1% increase in unvaccinated children in a given population, there is a 60-90% annual increased risk of measles and pertussis among vaccinated children ages three to eighteen years old due to the fact that vaccinations are only effective in 95% of the population that receives them (Kimmer, 2002). These figures do not account for home schooled children who are not receiving some or all of the CDC's recommended vaccinations because they do not enter the public school system or daycare facilities (Offit, 2007). The result of this trend away from vaccinations has been several outbreaks of measles, mumps and pertussis in the US over the last twenty-five years (Offit, 2007).

In 1991 a measles outbreak in Philadelphia, Pennsylvania resulted in the death of nine children. A pertussis outbreak in Colorado and Washington was also noted in the late 1990s (Offit, 2007). In 2005, individuals in Indiana were infected with measles after a 17-year-old unvaccinated girl became infected while on a church mission to Romania. This resulted in the hospitalization of three individuals, one who ended up requiring ventilator support, at a total cost of $167,685 to contain the
outbreak (Parker et al., 2006). In January 2008 in San Diego a measles outbreak was linked to a 7-year-old unvaccinated boy who had recently visited Switzerland. Eleven individuals subsequently became infected, including three infants who were too young to be vaccinated. One of the infants required hospitalization for two days (Center for Disease Control, MMWR, 2008). The largest outbreak of mumps, encompassing 6,584 cases, occurred in 2006. This was the largest outbreak of mumps in two decades and resulted in 85 hospitalizations from complications (Dayan, 2008). With decreased rates of children receiving vaccinations and the frequency of travel to other countries where many VPDs are still extremely active, it is likely the US will experience more VPD outbreaks in the future (Offit, 2007).

Parental Concerns and an Evidence Based Response

To attain and maintain high levels of national vaccination rates it is important to understand why some parents are resistant to vaccinations. A literature search identified parental concerns and fears that interfere with confidence in the safety of vaccinations for their children. The search looked at evidence based responses to these parental concerns and fears surrounding vaccinations. Ways to educate and collaborate with such parents was also investigated in order to enhance vaccinations rates and prevent VPD. A literature search was performed using the search engines of CINHAL and Pub Med and the websites for the CDC, WHO, and Institute of Medicine (IOM), and the National Network for Immunization Information. Addressing parental concerns with evidence based knowledge assists the NP in discussing vaccination safety with parents reluctant or refusing to vaccinate their children. The following sections focus on key parental concerns and how NPs can respond based on strong research.
Parental Concern #1 Thimerosal in vaccinations causes autism

Thimerosal, which contains ethylmercury, is used as a preservative in some vaccine vials to prevent fungal and bacterial growth. Researchers postulated there is a direct relationship between the amount of mercury a child receives from thimerosal in vaccinations and the prevalence of autism (Geir, & Geir, 2004, Harris, 2005). In July 1999 the American Academy of Pediatrics and the US Public Health Service jointly called for the immediate removal of thimerosal from vaccine preparations. The recommendation was based on a Food and Drug Administration (FDA) study of mercury in infant vaccines which concluded the amount exceeded the government guidelines for safety (Harris, 2005). In November 2000 the television show '60 Minutes' featured a story proposing a link between the measles-mumps-rubella (MMR) vaccine and autism (Kimmer, 2002). These events, in conjunction with the increase in the incidence of autism, caused some parents to conclude that the MMR vaccine was causing autism (Harris, 2005).

Evidence

Several epidemiological studies in Britain, Sweden, Denmark, Canada, and the U.S. have looked at a positive association between ethylmercury in thimerosal and autism using cohort and ecological studies. These studies were performed by the CDC, the Institute of Medicine (IOM), the World Health Organization (WHO) and the FDA. None of these studies showed any causal relationship between autism and thimerosal exposure (Fombonne, Zakarian, Bennett, Meng, & McLean-Haywood, 2006, Harris, 2005, Offit, & Bell, 2003, Silverman, 2008). In Britain a study of 109,863 children found those exposed to the highest level of thimerosal had the lowest incidence of developmental disorders similar to autism (Harris, 2005). In Canada, a study of 27,749 children both exposed and not exposed to thimerosal showed the highest level of autism-like disorders among those not exposed to any thimerosal (Fombonne et al). The largest study to investigate a possible relationship...
between autism and the MMR vaccine compared approximately 537,000 children with and without MMR vaccination over a six year period (Offit, & Bell, 2003). The incidence of autism was the same for both groups (Offit, & Bell, 2003).

The only study finding any statistically significant risk associated with thimerosal was published by the Canadian Communicable Disease Report which indicated a very weak association between repeated thimerosal exposure and the presence of speech delay and attention-deficit/hyperactivity disorder, not autism. However, a replication study failed to show the same association (Nelson, & Bauman, 2003). The incidence of pervasive developmental disorders (PDDs), which encompass the diagnosis of autism, has continued to rise in Denmark even though the country's vaccines have been free of thimerosal since 1992 (Harris, 2005). Thimerosal was removed from all childhood vaccinations, except for influenza, in the US in 2000 (Wharton, Hogan, Segal-Freeman, & Hinman, nd) however the rate of autism has continued to rise in the US (Harris, 2008).

**Parental Concern #2.** Vaccines are not safe because they result in diseases or death in children and adolescents.

Some parents are concerned that vaccination with the hepatitis B (HepB) vaccine can cause Multiple Sclerosis (MS) later in life (Kimmer, 2002). They also believe there is a correlation between the Hep B (Kimmer, 2002) and DTaP vaccination and sudden infant death syndrome (SIDS) (Center for Disease Control [CDC], Basic and Common, 2007). Parents note SIDS commonly occurs between birth and three months of age, which coincides with the administration of DTap and Hep B vaccinations. Such coincidence has led some parents to believe vaccinations are the cause of SIDS (Geir, & Geir, 2004). They are concerned the influenza vaccine causes Guillain-Barre Syndrome (GBS) after an outbreak of GBS in the 1970's from swine influenza vaccination (Kimmer, 2002). A study also showed a link between DTaP and Hib vaccination and the development of type 1 diabetes.
The single study claimed children given Hib and DTap vaccinations in four doses during the first one to two years of life were more likely to develop diabetes type 1 than those who received one dose of Hib at fourteen months, raising parents concerns about vaccination safety (Kimmer, 2002).

Parents are also concerned that vaccinations cause inflammatory bowel disease (Thompson, Montgomery, Pounder, & Wakefield, 1995) and aggravate mitochondrial disorders, which can lead to autism (Harris, 2008). Andrew Wakefield, a British physician and researcher, along with several colleagues, published research in 1998 which claimed that the MMR vaccination caused inflammatory bowel disease. The mechanism of action was hypothesized to be trapping of the measles virus in intestinal tissue, leading to inflammatory diseases of the bowel (Thompson, Montgomery, Pounder, & Wakefield, 1995). The US government announced in 2008 it will pay the family of nine-year old Hannah Poling for the cost of her care, conceding that vaccinations caused her harm. In 2000, when Hannah was 19 months old, she received five standard childhood vaccinations. Two days later she developed a fever, cried inconsolably, and would not walk. In 2001, after seven months of progressive developmental decline, she was diagnosed with a mitochondrial disorder and autism (Harris, 2008). Parents and groups against vaccinations believe this case is proof vaccinations are harmful due to the ruling by the US government.

Evidence

While a link between the hepatitis B vaccine and MS among adolescents and young adults has been purported, MS is typically a disease of young adults, not children (Offit, & Bell, 2003). The National Multiple Sclerosis Society reviewed studies and concluded the incidence of MS is the same whether a person received the hep B vaccine or not (Kimmer, 2002). A study also revealed no scientific evidence that vaccines cause the formation of antemyelin antibodies that cause the symptoms of MS (Kimmer, 2002). The incidence of SIDS has actually decreased since the hep B vaccine was
introduced and given to infants (Offit, & Bell, 2003). Studies conducted in the 1980's demonstrated that children who had recently received their DTaP vaccinations were less likely to die from SIDS than those who had not (Brotherton, Hull, Hayen, Gidding, & Burgess, 2005). In light of these studies, the IOM concluded that there was no evidence to support a causal relationship between DTaP vaccination and SIDS (CDC, Basic and Common, 2007).

In 1976 the swine influenza vaccine was considered as the cause of an outbreak of GBS. A later study revealed no significant increase in the risk of GBS from the vaccine (Kimmer, 2002). A critique of the study linking type I diabetes and the DTaP vaccination concluded incorrect analytic methods were employed (Offit, & Bell, 2003). A ten-year follow-up study also showed the same incidence of diabetes in children who received vaccinations at younger, versus older ages (Offit, & Bell, 2003). A study in Denmark using the immunization records of 4,720,517 people determined there was no causal relationship between the Hib vaccine and type 1 diabetes (Hviid, Stelfeld, Wohlfart, & Melbye, 2004).

No subsequent clinical study has confirmed Wakefield's findings (Madsen, K.M., Hviid, & Vestergadd, 2000, Muhle, Trentacoste, & Rapin, 2004, Taylor, Lingman, & Simmons, 2002). In 2004 ten of the twelve experts who collaborated with Wakefield retracted the claims they made through the studies (Lett, 2007). Wakefield and two of his colleagues were brought before Britain's General Medical Council in 2007 for possible misconduct in his research protocol and for not disclosing his link to lawyers actively involved in vaccine litigations (Sugarman, 2007). There are no studies which support or disprove a causal relationship between mitochondrial diseases and vaccinations (Centers for Disease Control [CDC], 2006). It is known that the manifestations of mitochondrial disorders mimic that of autism, leading to a diagnosis of autism in many children with mitochondrial disorders (CDC, 2006).
**Parent Concern #3** Vaccinations are not safe.

Some parents are concerned multiple vaccines overwhelm or weaken the immune system of children as seen by side effects of fevers, rashes, irritability and drowsiness, and even death from severe reactions after vaccinations (Salmon, Moulton, Omer, deHart, Stokley, & Halsey, 2005; Zimmerman, 2005). These parents believe the child is in danger of subsequent illness because the vaccinations have weakened the child's immune system. Parents also believe their children receive more vaccinations than they need (Bardenheier et al., 2004) leading to further immune system compromise and possible disease exposure from the vaccines themselves (Salmon et al., 2005). As a result, some parents do not believe vaccinations are safe for their children.

**Evidence**

Vaccines work by stimulating the immune system to create antibodies against various diseases. After receiving a vaccination a fever is one indication that the body's immune system is being stimulated and creating immunity (Taylor, Lingman, & Simmons, 2002). A child can receive multiple vaccines at a time without any interference with the immune system's ability to respond (National Network for Immunization Informations, Multiple Vaccinations, 2008). Children receive fewer antigens in vaccinations now than they did twenty-five years ago, making it less likely that vaccinations damage the immune system (Offit, & Bell, 2003). Vaccinations do have side effects, most of which are minor such as irritability, drowsiness, rash, and pain, redness and swelling at the injection site (Kimmer, 2002). A rare side effect of the pertussis vaccination is the onset of persistent, inconsolable crying or high fever after vaccination (National Network for Immunization Information [NNII], Vaccine Information, 2008) All of these symptoms are self-resolving (NNII, Vaccine information, 2008).
Parent Concern #4- Multiple vaccinations are not necessary. Most VPD have been eradicated in the US and therefore pose no risk to children (Bardenheier et al., 2004). VPD present in the US are not serious or life threatening (Salmon et al., 2005). Children should be allowed to develop natural immunity to some VPD diseases when possible since natural immunity to diseases is better than immunity developed from vaccinations (Kennedy, Brown, & Gust, 2005).

Evidence

Except for the vaccinations for Hib and tetanus, natural immunity from infections is superior to immunity by vaccination (Offit, & Bell, 2003). There is a risk associated with achieving natural immunity, rather than choosing acquired immunity. Data from 2006 by the WHO shows pertussis infects approximately 13,000 people a year in the US and mumps infect approximately 6,000 people a year nationwide (World Health Organization, 2007) Mortality from both of these diseases is rare, yet morbidity occurs more frequently and often leads to long term, irreversible complications (Dayan, 2008, Sotir, 2008). The effects of pertussis include hypoxemia and encephalopathy (Sotir et al., 2008) while parotitis, orchitis, oophoritis, mastitis, meningitis, encephalitis, pancreatitis, and deafness may result from mumps (Dayan, 2008).

Ninety percent of children born to hepatitis B infected mothers will develop hepatitis B, which can eventually lead to chronic liver disease, cirrhosis and possibly liver cancer which carry a high degree of morbidity and mortality (Offit, & Bell, 2003). From 1989-1991 measles infected approximately 55,000 people in the US, resulting in 132 deaths. According to 2006 data, measles kills roughly 500,000 children annually worldwide (Immunization Action Coalition, 2006). After the fall of the former Soviet Union, a diphtheria outbreak infected 97,000 people, killing 2,500 (Silverman, 2008). Prior to a chickenpox vaccine approximately forty-three children died yearly from the disease from 1990 to 1994 (Immunization Action Coalition, 2006). During the influenza season of 2003-2004,
152 children under the age of 18 died in the US (Immunization Action Coalition, 2006). These statistics do not account for the number of children who developed conditions requiring hospitalization or producing lasting sequelae.

Some children will develop a VPD despite immunization. Vaccine failure occurs when a person does not make antibodies in response to a vaccine or when a person initially makes antibodies but the levels of antibodies diminish over time, leaving the individual susceptible to VPD later in life. Vaccine failure can be reduced by ensuring everyone eligible is vaccinated and initial and booster vaccinations are given at appropriate intervals (Newland, 2006). Anaphylactic reactions are rare and have been seen with varicella, inactivated polio virus (IPV) and MMR vaccinations possibly due to the presence of neomycin in the vaccine components. The influenza vaccine can cause an anaphylactic reaction in individuals with egg allergies and therefore should be avoided in such individuals (Kimmer, 2002).

Table 2 shows the risk of vaccinations in relation to the risk of contracting a VPD (CDC, Basic and Common, 2007).

Recommendations

Allowing families to comfortably and openly discuss their concerns about vaccinations gives the NP an opportunity to build a trusting relationship with the parents and their families. Such communication may make parents more receptive to the advice NPs have regarding the importance and safety of vaccinating their children. Parents often receive information about vaccinations from websites and circulated literature that may not be factual or evidence based. NPs can discuss these resources and suggest ways parents can critique information about vaccinations. Advising them to identify the credentials of the people putting forward the information to determine if it was expertly reviewed, assess if it is up to date, look for possible biases, and discuss what constitutes a well designed and valid research study are all ways to help parents gain accurate information (CDC, Basic
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Practitioners can provide parents with a list of credible Internet resources such as websites for the CDC, IOM, WHO, and the National Network for Immunization Information. These sites provide information about VPD, current vaccine guidelines, ongoing research regarding vaccination safety and efficacy, and answers to common questions and concerns regarding vaccinations. Practitioners can also offer parents a list of well-designed research articles to help them examine the evidence behind vaccination safety.

NPs can inform parents concerned about vaccination safety about safety systems and government monitoring programs. The FDA established the Vaccine Adverse Event Reporting System (VAERS) to track reported adverse reactions that may be associated with vaccinations. The FDA, in conjunction with the CDC, investigates whether the symptoms were actually adverse reactions caused by vaccinations. Events can be reported by vaccine manufacturers, health care professionals, state health coordinators, or parents. The US also has the Vaccine Injury Compensation Program (VICP), adopted by Congress in 1988 to provide compensation to children who have had serious complications as a result of childhood vaccinations.

Discussing vaccinations with reluctant parents can be challenging for the NP. Start by assessing how strongly a parent feels about their decision to not vaccinate and allow the parent to provide the reasons and feelings associated with the decision. Determine the sources of information such as journals, websites, word of mouth, or from personal experiences. For example, a parent may be concerned about vaccinations causing autism because of a friend or family member who developed autism shortly after receiving childhood vaccinations. The parent may believe certain VPD are no longer a risk to their child's health. Allowing the parent to talk about the reasons behind their concerns without interjecting one's own opinions will allow the parent to feel their experiences are meaningful and develop trust in the NPs ability to listen.
After allowing the parent to voice concerns, the NP should then validate the parent. For example, the NP could respond by saying: "I hear that you are concerned about your child's health and well-being. I want you to know that I am concerned as well and would never expose your child to any substance that was known to be dangerous. I base my decisions about treating and caring for your child on evidence-based-practice and solid research. Following evidence-based-practice means I only use information that has been backed by reliable research that can be repeated in various settings and is not based on guessing or hunches." Even if a parent does not agree to vaccinate their child during this visit, the groundwork is laid toward a positive parent-practitioner relationship. Continue to address the issue of vaccinations at each visit, providing parents with up to date information on vaccination efficacy and safety. By identifying a parent's primary concern over vaccinations the NP can gain insight into why a parent is reluctant to vaccinate and work on ways to educate the parent around this concern. (See figure 2 for tips on how to talk to parents resistant to vaccinating their children).

The benefits of keeping children vaccinated are enormous. Moving forward in this new century, it is important to remember the lessons of the past. NPs are in a key position to help educate patients on the overwhelming benefits of vaccinations. By identifying key parental concerns and providing evidence-based information. NPs can continue to work with and educate parents and families who are resistant to vaccinate their children. Keeping our country, and the world vaccinated is a goal that NPs are well prepared to take on.
Table 1

Risk from Disease Versus Risk from Vaccines

Disease Risk

1. Measles: Pneumonia 6 in 100
   Encephalitis 1 in 1,000
   Death 2 in 1,000

2. Rubella: 1 in 4 of Congenital Rubella Syndrome

3. Diphtheria: Death 1 in 20

4. Tetanus: Death 2 in 10

5. Pertussis: Pneumonia 1 in 8
   Encephalitis 1 in 20
   Death 1 in 1,500

Vaccine Risk

MMR: Encephalitis or severe allergic reaction 1 in 1,000,000

DTaP: Continuous crying, then full recovery 1 in 1,000
   Convulsions or shock, then full recovery 1 in 14,000
   Acute Encephalopathy 0-10.5 in 1,000,000
   Death - None proven

(Center for Disease Control, Basic and Common Questions, 2007)
Useful Internet Resources for Immunization Information

**Center for Disease Control**: [http://www.cdc.gov/vaccines/](http://www.cdc.gov/vaccines/) (Information on VPD, immunizations, tools for practitioners, information for parents, etc)


**Morbidity and Mortality Weekly Report**: [http://www.cdc.gov/mmwr](http://www.cdc.gov/mmwr) (Weekly reports and updates about disease control)

**National Association of Pediatric Nurse Practitioners**: [http://www.napnap.org/index_home.cfm](http://www.napnap.org/index_home.cfm) (Past and current articles on immunizations and the role of the nurse practitioner)

**National Center for Immunization and Respiratory Diseases**: [http://www.cdc.gov/vaccines](http://www.cdc.gov/vaccines) (Information about precautions and contraindications for immunizations)

**National Network for Immunization Information**: [www.immunizationinfo.org/parents/evaluationWeb.cfm](http://www.immunizationinfo.org/parents/evaluationWeb.cfm) (Immunization information)

**The Advisory Committee on Immunization Practices (ACIP)**: [http://www.cdc.gov/vaccines/recs/ACIP/default.htm](http://www.cdc.gov/vaccines/recs/ACIP/default.htm) (Committee that meets periodically to review and make recommendations about new vaccinations)

**The Healthfinder Web Site**: [www.healthfinder.gov](http://www.healthfinder.gov) (Displays sites on consumer health and human services that have been reviewed by federal government for reliability and credibility)

**The Health on the Net Foundation**: [www.hon.ch/HONcode/](http://www.hon.ch/HONcode/) (Not-for-profit organization working to standardize the reliability of information on the web)

**Vaccine Adverse Event Reporting System**: [http://vaers.hhs.gov/](http://vaers.hhs.gov/) (Link to reporting adverse reactions to immunizations) Can also call 24hr national toll free line at 1-800-822-7967

**Vaccine Information Statement (VIS)**: [www.cdc.gov/nip/publications/vis/default.htm](http://www.cdc.gov/nip/publications/vis/default.htm) (Direct link to information sheets required to be provided to any child's legal guardian who has vaccinated)

**Vaccine Injury Compensation Program**: [http://www.hrsa.gov/vaccinecompensation/](http://www.hrsa.gov/vaccinecompensation/) (Information on how the program works and how to file a claim)

**World Health Organization**: [http://www.who.int/en/](http://www.who.int/en/) (Information on VPD, immunization goal, immunization rates, etc.)
Figure B

Tips for Communicating with Parent's Regarding Immunizations

1. **Initiate the Conversation**- Initiating the conversation about immunizations helps to discover possible barriers to immunization early in the parent-practitioner relationship and conveys.

2. **Listen First**- Allow parents the opportunity to express their feelings and concerns about immunizations and why they think they should be avoided.

3. **Validate**- Validate the parents concern for their child's safety.

4. **No Action Without Evidence**- Discuss the use of evidence based practice to direct use of immunizations.

5. **Safety Measures**- Discuss the different safety measures and monitoring systems in place to ensure immunizations are safe.

6. **Educate**- Provide parents with resources to gather accurate information about immunization safety.

7. **Persistence with Respect**- Continue to bring up the importance of immunizations at every office visit in a respectful manner.
References


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