

How can a healthcare provider such as a physician assistant (PA) educate the caregiver about the importance of scheduled pediatric immunizations?

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How can a healthcare provider such as a physician assistant (PA) educate the caregiver about the importance of scheduled pediatric immunizations?

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The University of Toledo

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Dedication

I would like to thank my wonderful wife and family, and the pastoral staff at my local Parish for all of their support with all of my academic endeavors.

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Table of Contents

Introduction.....	1
Background.....	1
Literature Review.....	6
Pain Management.....	6
Vaccine Safety	9
Internet Health Information	13
Governmental Action.....	16
Eradicated Diseases	19
Conclusion	21
References.....	23
Abstract.....	28

Introduction

Background

Bacteria and viruses have the ability to enter the body through the spread of germs and attack the immune system causing illness. The immune system is called into action to fight off the illness. Sometimes illnesses can be dangerous. Vaccines were developed to help prevent the risk and spread of infection by building a natural defense mechanism in the body to develop immunity to a particular disease. The vaccine may present in the same way as a particular infection, but does not cause a person to develop an illness. As a result of receiving the vaccine, the immune system can develop a defensive response to this vaccine created infection to detect and fight off the vaccine-preventable disease in the future (Centers for Disease Control and Prevention [CDC], 2016c). After receiving an injectable vaccine, a person may develop a mild fever or have soreness in the area of the body the needle was inserted. These are common side effects. However, the vaccine may also cause an allergic reaction causing itching, hives on the body, or a severe allergic reaction called anaphylaxis which requires immediate medical attention.

Additional doses for particular vaccines may be needed as children get older to provide ongoing protection. The Centers for Disease Control and Prevention (CDC) provides a schedule of immunizations for all ages, and this is especially important with the pediatric population as a schedule for ages birth through eighteen years should be followed as the child grows older. The first hepatitis B vaccine should be administered to a child at birth. Rotavirus, DTaP, PCV, IPV, and Hib vaccines should be administered when a child is two months of age, and the influenza vaccine annually beginning at six months. When the child reaches twelve months, the MMR, varicella, and hepatitis A vaccinations should be administered (CDC, 2016a). Immunizations for

pre-kindergarten and school-aged children is a current healthcare topic that has been in the news recently and has conflicting opinions. Nationally, most caregivers are in favor of having their child immunized, but there is a small group of caregivers who are choosing not to immunize their children. There are health risks associated with the child who is not immunized and others around them. Caregivers of pediatric patients are either in favor of vaccination, are hesitant about vaccination, or are not in favor of having their pre-kindergarten children receive scheduled immunizations. There are several theories in the literature that may help explain the reasons why caregivers are choosing not to immunize their children such as: pain inflicted to the child with immunizations (Taddio et al., 2009); adverse effects of the immunizations themselves (Wheeler & Buttenheim, 2013); concern that immunizations are not protective (Leib, Liberatos, & Edwards, 2011); belief that the government should not impose upon a caregiver's personal choice or religious freedoms (Rota et al., 2001); and belief that immunizations target diseases that have been eradicated (Serpell & Green, 2006). The best practices to educate caregivers about the health risks and benefits for receiving scheduled immunizations is a topic that should be explored further (Constable, Blank, & Caplan, 2014).

The prevention of diseases by immunizations is one of the most significant public health interventions in history, but immunizations have generated public controversy as well (Wang, Clymer, Davis-Hayes, & Buttenheim, 2014). Vaccinations can reduce the risk of contracting vaccine-preventable diseases (VPDs) on an individual level, and when immunization coverage is high within the general population, it can also help create herd immunity and protect those in the community who cannot be vaccinated. A key strategy to ensure that all children receive their recommended scheduled vaccinations in the United States has been through the use of state

legislative mandates that require children to be immunized before entering daycare or school (Rota et al., 2001).

All 50 states in the U.S. have mandates that require caregivers to provide immunization documentation in order for a child to be enrolled in school. At the same time, all states allow caregivers to utilize medical exemptions for a child if the child is unable to receive vaccines due to medical contraindications such as an allergy or an anaphylactic reaction from the vaccines. Nonmedical exemptions (NMEs) such as a caregiver's philosophical or religious beliefs are also allowed in many states. Wang et al. (2014) found rising rates of NMEs, and many states are making the vaccine exemption process more restrictive for caregivers that want to be exempted from having a child vaccinated for any reason. NMEs are currently valid in all states except West Virginia, Mississippi and California. During the 2011-2012 legislative session, California, Washington, and Oregon introduced legislation in order to reduce or eliminate all NMEs. In June 2015, the State of California passed Senate Bill 277 which disallows exemptions based on religious and philosophical beliefs making only medical exemptions allowed (Mello, Studdert, & Parmet, 2015).

Religious exemptions were originally intended for members of certain recognized and/or organized religions that do not permit the use of modern medical practices such as immunizations (Rota et al., 2001). Personal belief or philosophical vaccine exemptions are not related to religious beliefs and allow a caregiver the ability to refuse vaccines by completing a statement that they oppose having their child vaccinated based upon their own belief system. Each state has various procedures that a caregiver needs to observe to obtain a personal belief exemption. Some states simply require a caregiver's signature on a pre-printed form. However, in the State of Arkansas, there is a three-step exemption process that requires a notarized

statement, completion of an educational component, and approval by the Arkansas Department of Health (Wang et al., 2014). In comparison to the State of Arkansas, the State of Washington has recently changed their exemption process. A caregiver in the State of Washington is required to meet with a nurse or a licensed physician to discuss the benefits involved with having a child vaccinated, and then obtain the nurse or physician's signature on the vaccine exemption form to signify that a healthcare discussion about the benefits and risks involved with non-vaccination was held.

Three states that previously had exemption policies that were once considered to be lenient included the states of Washington, Oregon, and California. As a result of their lenient exemption process, all three states had high exemption rates, which prompted legislative changes during 2011-2012. In 2012, the State of Washington had the largest outbreak of pertussis since 1942, and unvaccinated clusters of people led to the largest pertussis outbreak since 1947 in California in 2010 (Constable et al., 2014). Wang et al. (2014) state, "Where NME rates are high enough to compromise herd immunity at the local level, the risk of vaccine-preventable disease outbreak increases." Most of the exemption clauses within each of the states' vaccine literature includes caregiver education about the risks and benefits of vaccinations provided by their healthcare provider in order to help raise awareness and address concerns about the documented factual health benefits of immunizations for a child.

If caregivers research vaccines through the use of the Internet, they may become hesitant to vaccinate their children (Gellin, Maibach, & Marcuse, 2000). Vaccine information obtained through the use of searching the Internet can provide caregivers with vaccine information that is readily available, but with no oversight in regards to the accuracy of health information about the various researched vaccines, confusion for factual and non-factual vaccine information may

occur. Factual information about vaccines can be found through websites from professional medical societies such as the American Academy of Pediatrics (AAP), and government websites such as the CDC, and the World Health Organization (WHO). Differentiating between factual and non-factual health information in regards to vaccines should be addressed during a child's healthcare visit between the healthcare provider and the caregiver (Bauchner, Simpson, & Chessare, 2001).

Literature Review

Pain management

Immunization injections are the most common source of medically caused pain in a child's life, and as a result can cause a significant source of stress and anguish for the child who is receiving a vaccine injection (Taddio et al., 2009). The pain caused from vaccine injections has been identified as one of the main reasons caregivers offer for their child not to receive vaccine injections. Untreated pain for the child from the vaccinations themselves, and a lack of caregiver plus patient education about pain management with vaccines, may also lead to a child not receiving all of their scheduled childhood immunizations (Connelly, Wallace, Williams, Parker, & Schurman, 2016). According to Taddio et al., "Although various pain-relieving interventions for vaccine injections exist, they are not routinely used in clinical practice." Barriers to pain management for vaccine injections include lack of knowledge about effective pain management techniques and attitudes, and misbeliefs about pain and its effects. Efforts to reduce the gap between research knowledge and clinical practice in regards to pain management are needed to improve current practices.

Iatrogenic pain, or pain that is a result of the actions from a healthcare provider, can be a significant source of distress for a child receiving a vaccination injection (Taddio et al., 2009). Pain that is inflicted by a vaccine injection has been identified in various articles as one of the direct causes of vaccine non-adherence by caregivers (Connelly et al., 2016). If the pain inflicted by immunizations in childhood has not been treated effectively or has not been addressed by a healthcare provider in the past, this may lead to fear of needles and may alter the response to inflicted pain from injections in the future (Taddio et al.).

Distress and pain experienced by a child during medical procedures, such as immunization injections, can affect a child's comfort level and cooperation with the healthcare provider during the procedure, and as a result the child may need to be physically restrained by the caregiver to allow for the completion of the immunization procedure during the healthcare visit (Taddio et al.). Preparing the child and caregiver ahead of time for the pain caused by the vaccine injection may lead to more positive experiences in the future for not only the child and their caregivers, but for the healthcare provider performing the immunization injection (Chambers, Taddio, Uman, & McMurtry, 2009). Other potential benefits for treating pain caused during immunizations include caregiver improved compliance with childhood immunization schedules and reducing the perception of fear for the child in future healthcare visits that may involve painful procedures such as immunization injections (Taddio et al.).

As long as vaccination programs rely on caregivers to have a child vaccinated, the issue of immunization injection pain should be addressed. A child's pain and discomfort during immunization injections has the potential to be reduced when caregivers are calm and relaxed, talk with their child about a topic other than the immunization procedure, move a child's attention away from the procedure being performed, and coach the child through the immunization (Taddio et al., 2009). Pain and discomfort caused by the immunization injection can be increased when the caregiver appears anxious during the procedure or creates added stress by making apologies to the child about having the vaccine injection or focusing the child's attention on the procedure.

Taddio et al. (2009) discussed four strategies that can be implemented by the healthcare provider during the child's immunization procedure including: preparing the child for the immunization injection before the procedure using effective pain management interventions such

as using topical local anesthetics and distracting the child away from the injection procedure; being in the presence of calm caregivers who have the ability to coach the child during the immunization procedure; and creating a relaxed and comfortable environment for the child and caregiver as well as the healthcare provider performing the immunization (Taddio et al.). The authors discuss teaching and coaching the child through the use of breathing exercises during the healthcare visit which can be effective at reducing pain and potential stress to the child (Chambers et al., 2009). Techniques used during the immunization procedure such as nurse-led distraction, breathing exercises, distracting the child away from the injection by showing videos and playing music which are age appropriate, and incorporating cognitive as well as psychological behavioral techniques can also be helpful in reducing pain and distress for the child (Chambers et al.). For a PA performing an immunization injection with a child, implementing breathing exercises during the healthcare visit can be effective because the breathing exercises can be taught to a child as young as three years old with minimal instructions. Three breathing exercises that can be implemented during the healthcare visit is having the child and caregiver utilize deep breathing prior to the injection, have the child blow the pain away with a party blower, and blowing bubbles with a toy bubble maker (Chambers et al.).

The healthcare provider can improve the patient encounter further by adopting a child-focused approach. The healthcare provider can attempt to do this by recognizing and treating the pain caused by the immunization that does not involve distressed children, parents, or the healthcare provider (Taddio et al., 2009). Caregivers should be given written information about the immunization procedure in the form of pictures and demonstration techniques showing ways to minimize pain. Caregivers should also be educated on demonstrating positive behaviors such

as remaining calm during the procedure, maintaining a calm atmosphere for everyone in the room, and not focusing on the procedure during the immunization procedure. These techniques may promote coping and reducing distress with their child so they can effectively manage potential distress caused during the immunization procedure.

The role of the healthcare provider or PA performing the immunization procedure is a vital one. There may be hesitancy on the part of the healthcare provider to address the issue of pain management during an immunization procedure because it involves more than applying topical local anesthetics to limit the perception of pain for the child. Establishing open lines of communication with the caregiver and the child through the history taking portion of the healthcare visit during the immunization procedure can help strengthen the patient relationship (Clochesy, Dolansky, Hickman, & Gittner, 2015). Working in collaboration with the caregiver to create a positive experience for everyone during the immunization procedure is important. A positive relationship between the healthcare provider and with the child's caregiver helps to develop trust. "Without a level of trust there is little that can be done to help children and their caregivers" (Levi, 2007).

Vaccine safety

Another source of caregiver refusal of childhood vaccinations is the fear of the adverse effects of various vaccines. One misconception discussed in the literature is a child may have their immune system weakened by a vaccine (Zimmerman et al., 2005). The fastest growing source of consumer health information for vaccines is the Internet, and it can greatly influence a caregiver's perception about the use of vaccines. Chronic diseases such as multiple sclerosis, autism, and diabetes have been linked to adverse reactions through the use of children receiving

vaccinations on websites that do not provide factual information about the side effects of vaccinations (Zimmerman et al.). Caregivers who refuse to vaccinate their children often look to the Internet for healthcare information, and as a result, it may encourage them to express these newly discovered concerns to their healthcare providers (Fox, 2013). The authors discovered the majority of caregivers support the use of childhood vaccines, but a quarter of caregivers were concerned that their child may be receiving more vaccines than are actually good for them (Zimmerman et al.).

The high vaccination rate in the U.S. has been attributed to a decline in infant and childhood diseases such as rubella, polio, mumps, varicella, hepatitis, *Haemophilus influenzae* type b, and measles through the use of routinely administered childhood scheduled immunizations (Kennedy, Lavail, Nowak, Basket, & Landry, 2011). Caregivers who have concerns about the safety of vaccines and ignore scientific data about the safety of a vaccine have also been shown to have an effect with an increase in the number of vaccine refusals. This may lead to a possible recurrence of once eradicated diseases (Gellin et al., 2000). Measles, for example, is a highly contagious disease, and was declared eradicated from the U.S. in 2000. From 2001-2014, 1,822 measles cases were reported, and of these cases, only 50.2% of the infected patients sought medical evaluation (Fiebelkorn et al., 2010). An example of a compromise in herd immunity and decreased MMR vaccination coverage is the measles outbreak in Disneyland in California in 2014. As a result of this exposure, children in seven states and two countries were infected with measles. Having appropriate MMR vaccination coverage for schoolchildren is the key to reducing the possibility of a measles outbreak (Buttenheim et al., 2015).

Healthcare providers need to understand the backgrounds of their patient's caregivers who may have doubts about vaccines and the reasons for their doubts so they can be discussed with the caregivers during the healthcare visit (Gust, Darling, Kennedy, & Schwartz, 2008). Strategies can be implemented with a caregiver who is hesitant to have a child vaccinated due to safety concerns of the vaccines. Attempting to discover which caregivers have a limited amount of confidence with routinely recommended vaccines for their school aged child can be challenging. With the variety of vaccines in existence today, caregivers may be classified as having "vaccine confidence" or having "vaccine hesitancy" (Kennedy et al., 2011). Being able to identify a caregiver's perceptions of vaccines and determining a caregiver's confidence level in vaccines is worth investigating. Developing caregiver confidence with vaccines might not translate into acceptance or developing a high level confidence of a specific vaccine immediately and healthcare providers and vaccine policy makers need to recognize this concern (Kennedy et al.).

Pediatricians, family medicine physicians, PAs, nurse practitioners (NPs), and nurses need to be prepared to communicate with caregivers who are resistant or refuse to have a child vaccinated. Healthcare providers attempt to do everything they can to prevent infectious diseases and bad outcomes for their patients (Levi, 2007). Many healthcare providers are disappointed when a caregiver rejects a vaccine for a child that offers protection from a vaccine preventable infectious disease. One of the goals for healthcare providers when talking with caregivers who have a concern about childhood vaccines is to listen nonjudgmentally to their concerns and provide detailed information regarding each of the vaccines in question (Fredrickson et al., 2004). Caregivers who refuse vaccinations may be open to the possibility of future vaccines if there is clear communication and vaccine education is shared by the healthcare provider. Some

caregivers who initially refused a vaccine gave credit to their child's healthcare provider as the reason that they subsequently had a child vaccinated (Gust et al., 2008). This illustrates that a child's healthcare provider can play an integral role with an immunization program, and can help influence caregivers who may have doubts about their child receiving vaccines (Gust et al.).

An annual influenza vaccination is the most effective preventive measure one can take to reduce influenza. However, a caregiver may perceive it differently (Yang, 2015). For other caregivers, perhaps they lack knowledge about the benefits of the particular vaccine for their child. It is also important that policymakers and healthcare providers become aware of various caregivers' perspectives on the information about vaccines that might influence their decisions and the reasons that caregivers state for refusing immunizations (Fredrickson et al., 2004).

Allergic reactions from an immunization are possible, and may be a reason for caregiver refusal. The Advisory Committee on Immunization Practices (ACIP) states an influenza immunization may contain a trace of ovalbumin, but is not likely to cause an allergic reaction in a child with an egg allergy because the ovalbumin content is not sufficient enough to provoke an allergic reaction (Yang).

To enhance the patient and healthcare provider experience about vaccine safety, open communication needs to be implemented in each healthcare visit. Tools that can enhance the patient perspective in terms of communication are beginning to emerge. The Ask Me 3 (AM3) tool developed by The Partnership for Clear Healthcare Communication at the National Patient Safety Foundation was developed to improve communication between the patient and the healthcare provider. Healthcare providers and their patients can implement the AM3 educational program to enhance communication by ensuring three essential questions have been answered during each healthcare visit: What is my main problem?; What do I need to do?; and Why is it

important for me to do this? (National Patient Safety Foundation, 2016). Allowing the patient and healthcare provider to review the safety of a particular vaccine together and discussing each step that is included within a treatment plan may ensure that the caregiver and child are fully invested during each healthcare visit (Clochesy et al., 2015).

Internet health information

The World Wide Web (WWW) can be a vital resource that caregivers can utilize to research information about vaccines, including pediatric vaccine schedules published by the CDC. For many caregivers, websites such as the AAP can also provide credible information about pediatric immunizations. However, social media websites, such as Facebook and Twitter, combined with the increased use of the Internet to research immunization information, allows caregivers to discover misinformation about immunizations (Kennedy et al., 2011). A website may appear to be a credible source of vaccine information, such as the National Resource Center for Immunization Information, but may not contain factual information (Gellin et al., 2000). Media sources of information such as television and news articles have traditionally been used less commonly than the Internet to provide vaccine information. The information obtained through the Internet may supplement a caregiver's direct communication with a healthcare provider (Kennedy et al.).

Many caregivers who use the Internet for healthcare information may be unable to differentiate vaccine information that is scientifically supported in comparison to information obtained from websites that offer non-scientifically based immunization information (Serpell & Green, 2006). A caregiver who chooses to search the Internet using Google may discover an abundant number of websites related to the vaccine for measles, mumps, and rubella (MMR)

vaccine. Among the search results from the Internet, there may be websites that contain both scientific and non-scientific viewpoints, and contain different interpretations about the MMR vaccine. For some caregivers, searching the Internet-credible sounding website names may attract them into searching further for immunization information, even if the information itself does not contain factual information about a particular vaccine (Gellin et al., 2000).

Social media websites are often used for searching healthcare information. Social media broadly defined is a form of electronic communication in which people can communicate with others by sharing information, sending and receiving personal messages and ideas, and join online communities (Merriam-Webster, 2016). Social media includes websites such as Twitter, YouTube, blogs, and Facebook. When a caregiver accesses a social media website, they are able to discuss healthcare information, share, and comment on a variety of healthcare issues with other people (Moorhead et al., 2013). Although social media sites may contain non-factual information, they also offer an opportunity for caregivers, patients, and medical providers to communicate about factual health issues and possibly improve health outcomes at the same time. The information that is shared, however, needs to be screened for quality and reliability (Moorhead et al.). The confidentiality of the various individuals who are sharing the information with one another is something that needs to be protected, but social media users need to recognize that the information shared can be personally identifiable to other users. One of the benefits of using social media to discuss healthcare topics allows a caregiver the opportunity to collaborate with other caregivers about health topics such as childhood immunizations. With the increasing use of social media on the Internet, there will be future opportunities in healthcare to explore new means of communication between patients and healthcare providers such as healthcare blog sites, YouTube videos, and medical office Facebook pages (Moorhead et al.).

Communication efforts should focus on clarifying beliefs about immunizations and modifying misconceptions. In today's use of the Internet to share healthcare related information, clinicians and public health officials need to understand a caregiver's thought processes about vaccine-preventable diseases, vaccines, and immunization policies in order to design effective public education programs that can help caregivers make informed decisions about a child's health. In terms of providing health information to the public, it is important to provide clear information about the risks that are involved with vaccines (Serpell & Green, 2006). For example, a caregiver needs to discuss the serious vaccine adverse events (VAE) from the MMR vaccine such as severe allergic reactions. An important determinant of caregiver acceptance of vaccines sometimes depends upon the process in which healthcare providers initiate the conversation with the caregiver and child about the vaccine recommendation (Opel et al., 2013). A statement such as vaccines are safe may be viewed as untruthful and unlikely to be trusted. No medical procedure is considered to be risk-free, including the administration of childhood vaccines. It can help the healthcare provider's credibility to be forthcoming about the risks and benefits for the administration of a vaccine to a child (Serpell & Green).

For a healthcare provider to make a statement to a caregiver about a vaccine such as there is no evidence for adverse events to a child is something that needs to be reconsidered (Gellin et al., 2000). If this MMR vaccine above all reasonable doubt does not cause a child who receives this vaccine to develop autism, then this disclosure statement needs to be clearly stated within the vaccine disclosures about side effects and contraindications to the caregiver (Gellin et al.). Another strategy that can be implemented with a healthcare provider's medical practice are caregiver-patient focus groups (Clochesy et al., 2015). Caregivers may be open to a discussion within a focus group and share their individual experiences of perceived barriers about

immunizations or health visits they have experienced so they can promote effective communication during each healthcare visit. These discussions may enable the caregivers to share strategies with other caregivers on how to handle difficult healthcare situations such as the issue of pain during a vaccination and what may be done to achieve positive healthcare visits in the future (Clochesy et al.).

Governmental action

All 50 states have established laws for vaccine requirements prior to a child entering daycare or elementary school. These laws help lower the rates of vaccine-preventable diseases (VPD) and promote higher vaccine coverage rates among school age children (Davis, Varni, Barry, Frankowski, & Harder, 2016). Nineteen states allow for exemptions based on philosophical reasons, 48 states allow for religious exemptions, and all states allow medical exemptions (CDC, 2016b). One common concern expressed by caregivers who were reluctant to have a child vaccinated was the concern that vaccines can cause autism (Kennedy et al., 2011). It is imperative that several health organizations such as the CDC, AAP, and WHO play a pivotal role in educating the public about vaccines and dispelling the misconception about immunizations causing a child to develop autism (Kennedy et al.). Caregivers continue to have concerns about childhood vaccines and many state their child's healthcare provider was influential in their decision-making process whether or not to vaccinate their child (Opel et al., 2013).

ACIP played a major role with the development of the U.S. immunization policy (Walton, Orenstein, & Pickering, 2015). They periodically make revisions to immunization recommendations as additional vaccine information is reviewed and revised (Walton et al.,

2015). Immunization recommendations made in the future may face several policymaking challenges in terms of cost effectiveness, and may need to be addressed by the ACIP in the future (Walton et al.). When these immunization recommendations are made, national or state immunization programs should place a high priority to share this information with each healthcare provider so they are able to provide updated educational materials during each healthcare visit. A respectful provider and patient relationship may develop as a result of new guidelines and help alter a caregiver's negative point of view about misinformation concerning immunizations (Gust et al., 2008).

The perception and appreciation of vaccines may change over time in recognizing a health threat to children in the absence of visible diseases and may explain a caregiver's desire for submitting vaccine exemptions. In terms of vaccine exemptions, the State of California included with its new law when a caregiver makes a request for a vaccine exemption they must indicate the specific vaccine to be exempted and a healthcare provider's signature must appear on the application for vaccine exemption. Perhaps this method will help reduce the number of vaccine exemptions that parents obtain out of convenience versus conviction (Buttenheim et al., 2015). A commitment to communication and continual caregiver education may create confidence that school-aged children will continually receive the vaccines they need (Kennedy et al., 2011). Equally important is that policymakers and healthcare providers need to become more fully aware of caregivers' perceptions and reasons that might influence them to make vaccine refusal decisions and identify factors that contribute to national vaccine refusal rates (Fredrickson et al., 2004).

Caregivers have been able to use three different types of vaccine exemptions in the past. Some research shows that caregivers may be hesitant about vaccines because of government

intervention (Constable et al., 2014). On June 25, 2015, Governor Jerry Brown of California signed Senate Bill (SB) 277 which made the State of California the third state along with West Virginia and Mississippi to limit caregiver vaccine exemptions to medical exemptions. The law banned the use of religious and philosophical based exemptions in the State of California (National Vaccine Information Center, 2016). With the passage of this law, it not only affects California school-aged children, but it may create a passage of similar state laws to strengthen immunization requirements across the rest of the U.S. (Mello et al., 2015). Vaccine refusals should not continue to appear as a risk-free activity for the caregivers who refuse to have a child vaccinated (Constable et al.). In addition to states increasing their efforts in educating citizens about the importance of vaccines, states may have other options available for increasing the liability exposure for caregivers who refuse to have their children vaccinated, such as financial incentives with health insurance costs, private school funding, and taxation (Constable et al.).

The PA can use governmental policies as a means to educate the caregiver about vaccines, but another topic a caregiver may be open to learning about are facts about vaccines. A PA may discuss practice guidelines for a vaccine based on data with reliability, validity, clinical relevance or applicability, documented clinical experiences, and scheduled reviews of the vaccine (Bauchner et al., 2001). Caregivers want their healthcare provider to tailor vaccine information regarding the type of vaccine and to listen without passing judgment about their concerns to the vaccine. The caregiver may lack information about the benefits of the vaccine for their child, and wants to have an open discussion about the vaccine (Fredrickson et al., 2004). Caregivers who were originally in a vaccine refusal group and received vaccine tailored education combined with nonjudgmental open conversations with their PAs were more open to

the possibility of their child receiving the scheduled immunizations during a healthcare visit (Fredrickson et al.).

Eradicated diseases

Rosenstock et al. (1988) explored caregivers' perceptions of having a child vaccinated by taking into account factors such as the costs involved with taking preventive action, the likelihood of a person being inflicted with a disease, and how a caregiver perceives the severity of a disease as it applies to daily living. These factors are constructs of the Health Belief Model (Rosenstock, Strecher, & Becker, 1988). A caregiver may oppose a law or policy that mandates a child to be vaccinated if they do not perceive a health benefit to their child for receiving a vaccination (Kennedy, Brown, & Gust, 2005). If a caregiver lacks knowledge about VPDs, such as polio or measles, then they might not perceive illnesses such as these to be immediate health risks or threats to their child's health (Kennedy et al., 2005). A total of 557 confirmed cases of measles were reported in the U.S. during 2001-2008 in the U.S. (Fiebelkorn et al., 2010). As a result, low measles vaccination coverage may be indicative of these confirmed cases that were reported (Fiebelkorn et al.).

Caregivers surveyed nationally indicated their child had a low level of perceived susceptibility to acquiring VPDs (Kennedy et al., 2005). Caregivers may oppose having their child vaccinated based on the idea that natural immunity may be preferable to vaccine-induced immunity. A caregiver may only want to know what is the immediate risk involved of acquiring a particular disease for their child actually receiving vaccinations (Serpell & Green, 2006). Some caregivers consider vaccine risks more serious than a child actually developing a disease.

Organizations such as the CDC and the AAP have been viewed by many caregivers as important sources of vaccine information (Kennedy et al., 2011). These organizations may be a vital link between PAs and caregivers in providing credible and up-to-date vaccine information. A PA who is able to educate a caregiver who uses social media as a means to research vaccine information and address a caregiver's vaccine questions by using data from credible websites such as the CDC and the AAP will build credibility and respect with that caregiver (Kennedy et al.). The ACIP recommends a childhood immunization schedule which provides caregivers a timeline for immunizations in order to protect the child and the rest of the population from VPDs (Wheeler & Bottenheim, 2013). Healthcare providers can then use this schedule to vaccinate patients on routine pediatric well-child visits. Caregivers are using the Internet to research a variety of health topics such as vaccines and a healthcare provider or PA treating pediatric patients will need to be prepared to discuss and educate caregivers about some of the unverifiable information found on the Internet and stress the importance receiving scheduled vaccines to reduce VPDs. There are several strategies that a PA may take when communicating with caregivers about vaccines. Strategies such as: listening to caregivers without passing judgment; maintaining an open and non-argumentative conversation; and sharing testimonials of patients that may have been affected by a VPD and what may have happened if a vaccine had been used can be shared during patient encounters (Zimmerman et al., 2005).

Conclusion

Achieving and maintaining high confidence among caregivers and children with their immunization schedules and recommended vaccines in the future may be challenging. Caregivers have the option to have a child vaccinated from VPDs and provide a reduced health risk to the overall population. States have laws in place that allow a caregiver to file for a vaccine exemption for a child, but this trend seems to be changing with three states allowing medical exemptions and eliminating exemptions based upon religious beliefs and philosophical reasoning. A caregiver may not see VPDs and the severity of potential health risks to a child who is not vaccinated. A PA will need to continue ongoing education and maintain a commitment to delivering vaccine communication with caregivers so that he can be confident that children will get all of the vaccines they need to remain healthy.

Communication between the healthcare provider and the caregiver is important. There may be several reasons for a caregiver's poor compliance with vaccinating a child such as: acknowledging that vaccines are painful for a child; researching vaccine information that is not factual on the Internet; following the advice of others through the use of social media; and poor communication skills. Caregivers may feel distressed because the healthcare provider lacks communication skills that are patient-centered and as a result this may alter the delivery of actual medical advice given to the caregiver (Hassali, Shafie, & Khan, 2012).

Continuity of care with a provider is an important goal in medicine and respect plays a vital role in maintaining a positive relationship which may influence the caregiver to adhere to the medical advice provided by the provider (Beach, Roter, Wang, Duggan, & Cooper, 2006). Beach et al., discussed the importance of respect within the caregiver and healthcare provider relationship as one that takes time to develop. The caregiver's adherence to medical advice for

following pediatric vaccination schedules is important. A PA who is able to provide facts, consistency, clarity, and openness when discussing childhood vaccinations along with a variety of resources and information promotes a positive relationship (Yarwood, 2006). Timely childhood immunizations are essential to maintaining our nation's public health. The prevention and eradication of diseases in the future is possible through the use of vaccines, and vaccines may be the key to an unavoidable health risk without their use in the general population (Gellin et al., 2000).

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Abstract

Objective: The objective was to educate caregivers about the importance of pediatric immunizations and research the rationale behind vaccine exemptions for children.

Method: PubMed was used for the literature review. Articles written in English and published within the past fifteen years were included. Articles not written in English and published over fifteen years ago were excluded.

Results: There were a total of thirty-two articles chosen for the scholarly project.

Major findings for caregiver education included making appointments easier for the child, caregiver and provider; establishing open communication; discussing Internet use; and patient education.

Conclusion: A healthcare provider has an important role in educating caregivers about the importance of performing pediatric vaccinations. Exemptions enable caregivers to opt a child out of receiving vaccinations and this can cause health risks not only to their child, but to other children as well. Open communication and providing caregiver resources is essential.

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Project Type (Circle one): **Doctoral Project** Masters Project **Senior Project**

Complete Title: HOW CAN A HEALTHCARE PROVIDER SUCH AS A PHYSICIAN ASSISTANT (PA) EDUCATE THE PEDIATRIC CAREGIVER ABOUT THE IMPORTANCE OF SCHEDULED

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