

**VACCINES AND THE EVOLUTION OF SOCIETY'S
ATTITUDES TOWARD THEM: IMPLICATIONS FOR
FUTURE NURSING PRACTICE**

Honors Thesis

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Abstract

The various controversies surrounding vaccines are a pertinent topic in our society today and have increased fear related to immunization. Despite advances in medicine and the development of life-saving vaccines, diseases that were thought to be long gone have crept back into our society and become a public health concern once again. As the anti-vaccination movement gains momentum and parents choose not to vaccinate their children, there are increasing numbers of reported cases of once-eradicated diseases like Pertussis and Measles.

A systematic literature review was done to explore immunizations and the evolution of their impact on society as well as to identify vaccine-related fears and their validity. Using Nola Pender's Health Promotion Model as a theoretical framework, the goal of this review was to discuss implications for future nursing practice and to identify possible interventions for decreasing immunization fears.

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Introduction

Vaccines are regarded one of the ten greatest achievements of public health for their part in the eradication and control of disease. These ten achievements have contributed to an added 25 years to the life expectancy of individuals in the U.S. (Anderson & McFarlane, 2015). According to the CDC, from 2000-2008 an estimated 13,000 deaths were prevented with the use of the pneumococcal conjugate vaccine alone (Koppaka, 2011). According to the World Health Organization, immunization prevents approximately 2 to 3 million deaths every year from various diseases including tetanus, diphtheria, measles, mumps, polio, rotavirus, and pertussis (Immunization Coverage, 2017). Immunization remains the primary method of disease prevention and has been proven to be effective, and yet, suboptimal vaccine uptake remains a global health concern.

Background/Significance

Edward Jenner is credited with the creation of the first vaccination against smallpox in 1796 (Riedel, 2005). Using pus from fresh cowpox lesions on a young dairymaid with active cowpox, Jenner infected an eight year old boy who developed symptoms but recovered. Months later Jenner infected the boy again, this time with fresh smallpox. The boy not only developed no symptoms, but he never contracted smallpox. Jenner concluded that his method was successful at protecting the boy from the disease, and after many similar experiments his work was recognized and has been the foundation for modern vaccination. Jenner's method of disease protection was not enough on its

own, however. In order to be successful, it needed one critical piece: individuals willing to accept it.

The success of vaccination is dependent on uptake and immunity. Immunity is protection; it is the body's own natural defense. When white blood cells find an invading germ, they mount a defense and rapidly replicate, sending antibodies to find and mark the germ for destruction. The army of white blood cells then attacks all of the tagged germs and disposes of them. The key to the success of immunization is that the process does not end there. When the white blood cells finish their fight, they leave behind memory cells – cells responsible for remembering the particular pathogen and triggering the immune response if it ever appears. If it does reappear, the memory cells recognize it and assemble their defense much faster than when first introduced, and the pathogen is destroyed.

A vaccine is used to pre-arm the body with memory cells that will recognize and destroy a number of pathogens the individual could be exposed to. A weakened or dead version of the disease is introduced to the body, just enough to be recognized. The immune defense easily destroys the weak pathogen, but still creates memory cells. If the person is later exposed to the actual disease, the memory cells recognize it and destroy it (Pemberton, 2015)

Despite our era of modern medicine and the proven success of vaccination, we are still facing the challenges presented by infectious and preventable diseases. As celebrities publicly promote scientifically unsupported claims of a vaccine-autism link and anti-vaccination literature and media become more prominent, there is an ever-growing lack of confidence and confusion on the part of parents in regards to vaccine

safety. For some, the fear of the vaccine and its proposed risks has become greater than the fear of the disease it prevents. Generally considered a public health miracle, vaccination is becoming a public health issue as an increasing number of parents decide to delay or skip their children's immunizations. As a result, once eradicated diseases are reappearing in society and lives are at risk. Addressing parent's concerns regarding vaccinations, continuing to examine vaccine safety, and proper education regarding immunizations can improve vaccination rates and decrease vaccine related fears.

Aim of Study

The purpose of this work is to review the literature and examine the evolution of society's attitudes toward vaccination. Attitudes of concern regarding vaccine safety were examined, as well as parental hesitation to vaccinate, and the implications this has for future nursing practice. Although vaccines have been shown to protect and save millions of lives, people still opt out of receiving them or giving them to their children, or delay having their children immunized. Individuals who are not vaccinated for various reasons depend on herd immunity for their own protection, but herd immunity only works if a certain percentage of individuals are immunized. If immunization rates drop, we will see herd immunity fail to protect and diseases that were once gone will come back. We have diseases and ways to prevent them, and not all people are utilizing them. Using Nola Pender's Health Promotion Model, studies were reviewed to examine individual experiences with vaccines that affected barriers to immunization, perception of immunizations, commitment (or lack thereof) to immunization, and individuals health-promoting behavior regarding immunizations.

Methods

A systematic review of the literature was conducted to examine attitudes in regards to vaccines and how they have evolved, as well as the reason for these changes. Data sources including CINAHL, Medline, PubMed, NLM, and the CDC were searched to find peer reviewed studies pertaining to childhood immunization, parental concerns, and the benefits of vaccination. Keywords and phrases used in the search process included: immunization safety, childhood immunization, vaccines and autism, vaccine adverse effects, parental concerns and vaccines. The articles and studies searched were not limited to one country, as disease prevention and immunization is a pertinent health topic worldwide. For the same reason, there were no specific search criteria regarding ages of participants of studies. Studies published in 2000 or more recently were searched, but those published in 2006 or more recently were included for review. In regards to basic information on the history of immunization that is addressed in this review, the search was broadened and was not limited by publication year. The population of interest was parents or future parents who either refuse to vaccinate their children or delay immunizations because of a safety concern, but studies involving parents who supported and complied with the current recommended vaccination schedule were not excluded. Studies were not limited to the type, route, or dose of vaccine but included any vaccination study involving parental concern or hesitation or vaccine safety. The focus of the review was to examine the reasoning for skipped or delayed immunizations, examine validity of vaccine-related fears, and address how parents' decisions relating to vaccine-fears can affect the future.

Results

Studies included in the review are described in Table 1. According to the literature reviewed, attitudes toward vaccination have shifted for some individuals and parents from trust to doubt and concern; from eagerness to hesitation. There is a rising fear amongst some individuals, mainly parents, of the risks of a vaccination rather than the disease that it prevents.

One common theme identified in the reviewed literature was an attitude of hesitation toward immunization. Where parents were once eager to have their children immunized as soon as possible, a smaller but growing percentage of them report concerns of vaccine safety and fears related to vaccine adverse effects. According to a study by Luthy, Beckstrand, and Callister (2010) parents in Utah reported they were most concerned that vaccines may cause autism, overload the immune system, and cause serious adverse reactions. Almost 25% of the parents were hesitant to vaccinate because of vaccine-safety concerns, the major concern being the development of autism. Of the 86 parents participating in the study, 79 stated that they themselves had been vaccinated as children. They reported an understanding of the importance and necessity of vaccination, but that they were unsure of how to balance this desire for protection with their doubts of vaccine safety. In an effort to address both sides, hesitant parents delayed immunizations or altered the recommended immunization schedule for their child, trying to avoid any unwanted reactions (Luthy, Beckstrand, & Callister, 2010).

In a second study by Saada, Lieu, Morain, Zikmund-Fisher, and Wittenberg (2014) mothers in Northern California also reported hesitation to vaccinate due to doubts about vaccine safety. Their concerns were related side effects of vaccination, believing

that vaccines could cause mild short-term effects such as a fever or rash, but also that there was a risk of long-term harm, such as cancer or autism. Parents were suspicious of the ingredients in vaccines, believing that they were random materials that were “pumped in” to their children (Saada, Lieu, Morain, Zikmund-Fisher, & Wittenberg, 2014). The same hesitation related to fears of vaccine side effects was found in a study by Delkhosh, Negarandeh, Ghasemi, and Rostami (2014). Mothers who were referred to a health center in Tehran, Iran, were interviewed and reported that their greatest concerns were febrile seizures after vaccination (Delkhosh, Negarandeh, Ghasemi, & Rostami, 2014).

In a study by Freed, Clark, Butchart, Singer, and Davis (2009) this hesitant attitude to vaccinate was again seen when 1552 parents responded to a vaccine survey and more than half (54%) expressed concerns regarding adverse effects of vaccines. Like parents in the previously mentioned studies, some believed that vaccines could cause autism in healthy children – 25% in fact (Freed, Clark, Butchart, Singer, & Davis, 2009). A national study of HPV vaccination of adolescent girls by Kester, Zimet, Fortenberry, Kahn, and Shew (2012) continued to show this attitude when, yet again, participants reported hesitation towards vaccination because of the risks of adverse effects. The study is consistent with the previously mentioned ones in that girls who had not completed the shots or been vaccinated had done so because of parental concern about vaccine side effects or a fear that the vaccine could be dangerous to their daughter.

Another reason for an attitude of hesitation to vaccinate identified in the literature was that individuals' feared an immune system overload in their child from too many vaccinations at once, or in close succession. Many parents follow the recommended schedule for immunizations for their children, but others feel that it is not necessary to

give so many vaccines at once. The CDC recommends at least 15 vaccines by the time a child is 2 years old, a number of vaccines in a relatively short time period that is concerning to many. As vaccines were discovered and developed for various diseases, individuals were eager to get them and parents were eager to have their children immunized. Since children's immune systems are more vulnerable between birth and two years old, health professionals are concerned that children exposed to diseases won't be protected and they want to give the child as much protection as possible. For the same reasons, some parents hesitate to deliver so many vaccines to their child for fear of an overloaded under-developed immune system.

The study by Luthy et al. (2010) demonstrates this, given that 20.9% of participants reported hesitation to vaccinate due to concerns of too many immunizations at one time. Though parents had these fears of adverse effects of vaccines such as a system-overload, they believed that modifying the immunization schedule would reduce complications. Parents believed that vaccination was necessary, but that altering the vaccine schedule to deliver fewer immunizations at once could avoid the potential development of autism. As one mother stated, immunizations "should be more spread out so the child's body has time to process it all" (Luthy et al., 2010). Other parents felt that even starting the vaccine schedule should be delayed altogether, recommending that parents "do not start until they are two and then go slowly" (Luthy et al., 2010). The study by Saada et al (2014) also supports parental hesitancy to vaccinate due to fear of an immune system overload. Part of parents desire to alter the vaccine schedule for their child was a desire for control; some parents wanted to choose which vaccines the child got and when. For others, it was a desire to isolate each vaccine administration so they

could monitor the child for any reactions and know what caused the reaction. Parents reported fears that their children's systems were "too young" or that their children were too small to receive many immunizations. They feared that an overload of immunization would be exhausting, too much for their children to handle (Saada et al., 2014).

A second theme identified in the literature reviewed was an attitude of doubt and mistrust regarding vaccination information and medical sources. Vaccines were once seen as a miracle – a source of relief, peace of mind that one was protected from disease. In recent years however, the controversy that surrounds the autism-vaccine link has become a popular focus of news media and has created a doubt in the minds of many as to whether or not vaccines are safe, and if the benefits outweigh the perceived risks of vaccines. Despite the fact that science has found no link between vaccines and autism it is a doubt of vaccine safety that has had such a profoundly permanent effect in the minds of many. In a study done by Dixon and Clarke (2012), participants were asked to read different articles that presented the autism-vaccine link in different lights. After reading the articles, the individuals were then asked to complete a questionnaire assessing their views of vaccine safety, their opinions of scientists' certainty of vaccine safety, and their intentions to vaccinate their future children. The articles participants read each presented one of three perspectives: that vaccines do not cause autism, that vaccines could cause autism, or a conflicting claim that vaccines could cause autism but do not cause autism. Participants who read the articles that balanced claims for and against a link and introduced the possibility of autism were not only less certain to believe that vaccine were safe, but they then believed that experts were less certain that vaccines are safe.

They next reported that they would be less likely to have future children vaccinated. (Dixon & Clarke, 2012)

In the study by Freed et al. (2009) parents continued to report concerns that some vaccines cause autism despite “peer-reviewed original scientific research and multiple expert committees that have reviewed all available data on this issue and have failed to show any association between vaccines and autism” (Freed et al., 2009). A study by Grandahl, Oscarsson, Stenhammar, Nevéus, Westerling, and Tydén (2013). continued to show the trend but in Sweden. Of five themes identified as to why parents did not want their daughter to receive the HPV vaccine one was “Who can you trust?” (Grandahl, Oscarsson, Stenhammar, Nevéus, Westerling, & Tydén, 2013). Parents reported a lack of trust in the Swedish government and even felt that it was using vaccination to control its people.

Discussion

All of the studies reviewed had limitations as described in Table 1. These limitations, such as a small homogenous sample size, are consistent with qualitative and exploratory descriptive research designs. There was no effort to generalize the findings but to identify themes, as described in the Results section.

Vaccination rates in the United States and most developed countries are good, and most people believe that immunizations are necessary and understand their importance in disease eradication and individual protection. In recent years however, many people have begun to doubt vaccine safety. The autism-vaccine link controversy put doubt in the minds of many parents and the doubt, once there, is hard to get rid of. Many public

figures have been vocal about their belief that vaccines cause autism and they have introduced a fear of vaccination rather than a fear of disease. Frightening stories of vaccine injury that circulate are, “the stories that have the emotional power” says Brian Zikmund-Fisher, “and what’s the most emotional story? The story of a child being hurt” (Pemberton, 2015). Based on the evidence collected from the reviewed literature, there are two main themes that explain individual’s evolving attitudes of hesitation when it comes to immunization. The first is an attitude of hesitation because of vaccine-related fears. The second is an attitude of hesitation because of doubt and mistrust of the medical community in regards to vaccine information.

In 1998 Andrew Wakefield published a study in a major medical journal claiming that there was a link between autism and the MMR vaccine. His findings were not able to be replicated and scientists could not find the links he claimed, and the study was actually shown to be fraudulent (Pemberton, 2015). Despite this, the controversy that resulted around the vaccine-autism link led parents to doubt vaccine safety, scientists, and their own health care providers. This doubt is especially outstanding in a generation that has not seen the devastating effects of some diseases firsthand. According to Brian Zikmund-Fisher, this is because “we’ve done such a good job of vaccinating most, not all, most people in our community, that they are rare” (Pemberton, 2015). Parents who have concerns about vaccine safety seem to think that their decisions to either delay vaccination or skip vaccinating altogether will not have any serious repercussions because the diseases are not seen anymore. Parents need to understand that it is vaccination that has caused diseases to go away, and these diseases will only stay away with continued vaccination uptake. The CDC summarizes this point:

“Most parents today have never seen first-hand the devastating consequences that vaccine-preventable diseases have on a child, a family, or community. While these diseases are not common in the U.S., they persist around the world. It is important that we continue to protect our children with vaccines because outbreaks of vaccine-preventable diseases like pertussis, mumps, and measles can and do occur in this country.” (CDC-*Vaccines for Your Children*, 2016).

Further research could be conducted to broaden the scope of parents and individuals involved, and explore cultural and religious variables.

Conclusions

Parental perception of immunization is the driving force for parents' decisions. This is consistent with Nola Pender's Health promotion model. The studies clearly validate the model addressing parental barriers to vaccination, perceived benefits of vaccination, parents' commitment to vaccinate or not, and health-promoting behavior related to immunization.

Vaccine safety concerns as well as a lack of trust and perceived lack of need for vaccines has led some parents to delay or not vaccinate their children. But why is this so important? Why does it matter that some parents choose not to vaccinate their children? When diseases like polio, diphtheria, tuberculosis, measles, pertussis, and smallpox were running rampant in our society, vaccines were a miracle. People did not fear the vaccines, because whatever risks they had, they were better than an iron lung, terrible suffering, and death. But now, diseases that were declared eradicated from developed countries like the United States are re-emerging. In 2011 Europe saw more than 30,000

cases of measles and eight deaths from the disease, which was declared eliminated in 2000. In 2012 measles spread to the United Kingdom, and in 2013 it reached the United States. In 2012 the United States also saw almost 50,000 cases of pertussis, another vaccine-preventable illness that took 20 lives (Pemberton, 2015). As parents hesitate to vaccinate, or skip vaccinating for lack of perceived need, herd immunity decreases and diseases that were once declared eradicated are able to sneak back into our communities. “The history of vaccines is clear. If you start to decrease vaccine immunization rates, you start to see the diseases re-emerge. It’s a history that we don’t seem to learn from” (Pemberton, 2015).

Another reason that it is so important to understand the changing views on vaccines is because we need to know how to address them. In the study by Luthy et al. parents reported vaccine fears and confusion about vaccination schedules and in the same study 70.9 % said that their primary source of vaccine info is their primary health physician (Luthy et al. 2010). Similarly, parents who reported a lack of trust in vaccines also said they got info from their physician. In the same study, 9.3% of parents reported that they go to the Autism Research Review International for information and only 1.2% said they went to the Centers for Disease Control and Prevention (Luthy et al. 2010). Healthcare providers need to recognize that they are a major influence in vaccination uptake and they need to address parents respectfully and realistically. They need to make sure parents are going to the right sources for information, and understanding what they find. Nurses play a key role in education of patients and they need to practice this as well and utilize time with patients to teach and answer questions.

Questioning vaccines and vaccine safety is not a bad thing. Questioning leads to examination and potential discovery of ways to improve. It gets people thinking, and “it’s the start of a conversation that says this is something worthy of being concerned about” (Pemberton, 2015). Research should continue to be done regarding vaccine safety, and parents’ concerns should be examined. Are fears regarding vaccines valid? One way to find out is to keep researching and questioning. The challenge with questioning a topic like immunizations, however, is educating individuals about the results. Based on the results of the reviewed studies, proper education regarding vaccinations is key to vaccine uptake. If individuals go to the wrong sources for results, they are left with the same doubt they had in the first place. If we don’t properly address education needs of parents, from healthcare providers and what is advertised, we could see increased vaccine concerns leading to more parent refusal to vaccinate and more eradicated diseases coming back. However, education and proper addressing of parental concerns could prevent this.

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Table 1
Summary of Studies

Citation Author(s)/ Year	Design	Target Population, Sample Size, Location	Type Intervention	Outcomes/Aims	Results	Limitations	Nursing Implications/Gaps
Delkhosh, M., Negarandeh, R., Ghasemi, E., & Rostami, H. (2014). Maternal concerns about immunization over 0-24 month children: a qualitative research. <i>Issues in Comprehensive Pediatric Nursing, 37(4)</i> , 235-249. doi: 10.3109/01460862.2014.951131	Qualitative research study	- Mothers who had been referred to a health center in south Tehran, Iran, who had a child 0-24 months; 26 mothers participated	- Individual semi-structured interviews	- to determine the concerns of mothers regarding immunizing their children	- 5 categories of mothers’ concerns: (1) Factors that cause mothers’ concerns (2) Factors that influence mothers’ concerns (3) Information, education, and communication barriers (4) Informational/educational needs and sources (5) The necessity of childhood vaccinations	- findings limited by location and target population; do not represent all levels of society. - interview method possibly a limitation	- Health care personnel must be educated and prepared to deal with concerns, questions, or negative attitudes of parents towards childhood immunizations to increase successful vaccine uptake.
Dixon, G. & Clarke, C. (2012). The effect of falsely balanced reporting of the autism-vaccine controversy on vaccine safety perceptions and behavioral intentions. <i>Health Education Research, 28(2)</i> , 352-359. doi:10.1093/her/cys110	Quantitative descriptive study	- 320 undergraduate students at a university in northeastern United States, recruited from an online database	- Experimental methods and questionnaires	- To investigate how a balanced reporting style of the autism-vaccine link influences judgments of vaccine risk	- participants who read the falsely balanced article reported lower certainty scores that vaccines are safe than participants in the no-link and the control group, but not the link group. - participants in the falsely balanced group reported that scientists were less certain of vaccine safety than those in the no-link group but not the link or control group - participants in the falsely balanced group reported a lower intention to have future children vaccinated than those in the control group	- participants were only undergraduate students and didn’t specifically include parents - the one-shot exposure to a news article is limiting in that it is not as long lasting as cumulative exposure over a longer period of time - participants were not measured for pre-existing perceptions and vaccine intentions - single item measure was used	- this study raises considerations for news reporting regarding health issues - certain reporting styles are shown to greatly influence people’s decisions on health related topics, further influencing future generations - understanding why individuals hesitate or forgo vaccination is a major concern to health officials, and can help identify ways to better educate individuals - adding context about the strength of evidence between conflicting views could increase certainty

						instead of multi-item scale	regarding health issues and improve trust in scientists.
Freed, G. L., Clark, S. J., Butchart, A. T., Singer, D. C., & Davis, M. M. (2009). Parental vaccine safety concerns in 2009. <i>PEDIATRICS</i> , 125(4), 654-659. doi: 10.1542/peds.2009-1962	Qualitative study	- 1552 parents of children aged 17 or younger from around the US	- online surveys	- to characterize the current prevalence of parental vaccine refusal and specific vaccine safety concerns and to determine whether such concerns were more common in specific population groups	- 11.5% of parents refused at least one recommended vaccine - women were more likely to believe vaccines caused autism and adverse effects - HPV was the most commonly refused vaccine - Hispanic parents were more likely than black or white parents to report following the recommended vaccine schedule but also reported more concerns regarding vaccination	- selection bias - recruitment limited by random-digit dialing - self-administered survey and therefore subject to response bias	- Information is available for parents about immunizations, but it isn't reaching parents effectively - Public health officials should design vaccine information programs that address safety concerns, targeting specific groups of parents - if parents' concerns aren't addressed, childhood immunization rates will be at risk of decreasing.
Grandahl, M., Oscarsson, M., Stenhammar, C., Nevéus, T., Westerling, R., & Tydén, T. (2013). Not the right time: why parents refuse to let their daughters have the human papillomavirus vaccination. <i>Acta Paediatrica</i> , 103, 436-441. doi: 10.1111/apa.12545	Explorative, qualitative study	- 25 parents who had been offered but not consented, to let their daughters receive the HPV vaccine in Sweden	- face-to-face interviews	- to explore why parents refused to allow their 10- to 12-year old daughters to receive the HPV vaccine from the Swedish school-based vaccination program	- five themes: 1. she is just a little girl 2. inadequate information 3. not compatible with our way of life 4. skepticism about the vaccination 5. who can you trust?	- selection bias- most participants had university degree and were born in Sweden - mainly mothers, not fathers, participated - language barriers-interviews were conducted in Swedish	- strategies to improved vaccination uptake could be implemented, including a more flexible vaccine schedule, more transparent information about HPV and the vaccine, and more information about who to contact to get vaccines at a later date - mass media coverage greatly influences individual's perceptions of the vaccine and therefore individuals need to be properly educated - public trust in the government regarding healthcare programs is critical and greatly influences vaccine uptake

<p>Kester, L. M., Zimet, G. D., Fortenberry, J. D., Kahn, J. A., & Shew, M. L. (2012). A national study of HPV vaccination of adolescent girls: rates, predictors, and reason for non-vaccination. <i>Matern Child Health J, 17</i>, 879-885. doi: 10.1007/s10995-01-1066-z</p>	<p>Cross-sectional qualitative study</p>	<p>- 501 mother-daughter pairs (daughters 14-17 years old) from across the United States</p>	<p>- survey questionnaires</p>	<p>- to evaluate the number of HPV vaccine doses received by each daughter aged 14-17 - to evaluate potential predictors of vaccination initiation and completion - to survey mothers whose daughters had not initiated vaccination to identify reasons for non-initiation of HPV vaccination</p>	<p>- 88.9% whose doctor strongly recommended the vaccine completed the vaccination series compared with 71.3% completion in those whose doctors only recommended the vaccine - 3 reasons for non-vaccination in daughters who did not receive HPV: concerns about vaccine side effects, fear that the vaccine could be dangerous to daughter, and provider non-recommendation.</p>	<p>- vaccination rates were based only on maternal reports and did not include confirmation from individual's medical records - evaluation of provider non-recommendation as a reason for non-vaccination did not differentiate between provider recommendations against vaccinations and total exclusion of any recommendation in either direction.</p>	<p>- HPV vaccination improves public health, but half the target population still remains unvaccinated - improved understanding of reasons why individual's do not get the vaccine can identify ways to better educate people and increase vaccine uptake - reduction in HPV related diseases needs uniform vaccination programs that not only deliver the HPV vaccine but educate individuals, decrease vaccine-related fears, and increase public awareness of the importance of the vaccine</p>
<p>Luthy, K. E., Beckstrand, R. L., & Callister, L. C. (2010). Parental hesitation in immunizing children in Utah. <i>Public Health Nursing, 27(1)</i>, 25-31. doi: 10.1111/j.1525-1446.2009.00823.x</p>	<p>Cross-sectional descriptive study</p>	<p>- 86 parents of under-immunized children in the county health department and local pediatric and family practice offices in Utah</p>	<p>- survey/hesitancy questionnaire</p>	<p>- to determine why parents in a Utah community hesitated in immunizing their children</p>	<p>- two major themes identified: 1. Hesitant parents have serious concerns regarding immunization safety 2. Hesitant parents discount the perceived need for having their children vaccinated - most common concerns regarding safety: causing autism, immune system overload, potential of serious adverse reactions</p>	<p>- limited to one state (Utah) and therefore does not represent views of all parents in the U.S. - excluded parents with children less than 6 months old - survey tool was not piloted</p>	<p>- Healthcare providers are key in providing education about vaccines to parents, and their comfort addressing parents' hesitations should be assessed - educating parents has become difficult given the mass media reports that reach them first, but healthcare providers have an opportunity to properly educate parents so that the media is not what they allow to influence their decisions - parents' perspectives need to be understood before</p>

							healthcare providers will be able to best convey information
<p>Saada, A., Lieu, T. A., Morain, S. R., Zikmund-Fisher, B. J., & Wittenberg, E. (2014). Parents' choices and rationales for alternative vaccination schedules: a qualitative study. <i>Clinical Pediatrics</i>, 54(3), 236-243. doi: 10.1177/0009922814548838</p>	<p>Qualitative study, analyzed using inductive approach stratified purpose sampling</p>	<p>- 60 parents of 12- to 36-month-old children in North California</p>	<p>- semi-structured telephone interviews</p>	<p>- to describe the taxonomy of parents' alternative vaccination schedules by illuminating the nuanced rationales and motivations underlying their approaches</p>	<p>- 5 alternative vaccination approaches were identified: "Dr. Sears" schedule, shot-limiting approach, selective delay or decline, visit-by-visit decisions, and refusal of all vaccines - parents who adopted alternative approaches expressed a desire for more control of exposure to vaccine ingredients - concerns were vaccine safety, immune system burden, and perceived disease risk</p>	<p>- the sample was small and select and included insured members of a health maintenance organization in one region of the U.S. - the absence of parents who reported delaying or opting out of the MMR vaccine limits the study's capacity to discuss alternative vaccine schedule approaches</p>	<p>- parents' attitudes regarding vaccines are varied and need to be addressed for proper education - communication about vaccination needs to be enhanced to ensure that parents are properly informed - specific interventions could be utilized to lay a foundation for clinical leaders to develop a systematic understanding of parents' concerns and preferences when it comes to making decisions regarding vaccination</p>