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Parent Education on Childhood Vaccinations: Implications for Nursing Practice

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Abstract

Early childhood vaccination rates in Ohio have been stagnant in the past couple of years. The purpose of this project was to use current evidence regarding early childhood vaccination rates to identify how nurses can effectively educate parents to increase childhood vaccination rates. The findings from this project helped establish an educational brochure for pediatric nurses as a nurse-led intervention to address vaccination adherence among parents at the point of care. The ultimate goal is to improve vaccination coverage among early childhood populations in Yellow Springs, Ohio. The educational brochure was created and presented to pediatric nurse faculty at Wright State University for face and content validity. The final educational brochure was disseminated to nursing faculty to share with their nursing students during their clinical rotations in the region.

Keywords: vaccinations, immunizations, childhood, parent education, nursing

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Educating About Childhood Vaccinations

I. Introduction

When a parent takes their infant or child to the doctor's office for a check-up, they expect to find out the child's weight, height, and percentile status. The doctor asks questions about how the infant or child is doing at home and in daily life. As the parent get more comfortable with the doctor, the doctor continues to bring up needed vaccination shots. The doctor states the child will need 4-6 vaccinations at this visit and describes each vaccination. The parents question why their child needs this many vaccinations to prevent diseases and illnesses. They ask themselves, "I thought this disease eradicated in the United States?" or "I thought the human body was made to protect and naturally fight off such illnesses?" or even "Will this cause autism or other unwanted issues to my child?" Understanding the effects and need of vaccinations in early life is important for keeping communities safe and diseases at low levels, or even eradicated (Colorado Children's Immunization Coalition, 2017).

In the last several decades, scientific discoveries and technologies have led to advances in vaccine production and disease prevention. The definition of vaccine is, "a product that stimulates a person's immune system to produce immunity to a specific disease, protecting the person from that disease. Vaccines are usually administered through needle injections but can be administered by mouth or sprayed into the nose" (Centers for Disease Control and Prevention [CDC], 2017). Today, there are 16 diseases that can be prevented with vaccines and hopefully more are on the way (CDC, 2017). Looking over the childhood vaccination schedule can be confusing and overwhelming. Following the schedule, a child could receive up to twenty-six vaccinations by the age of two if using individual antigens (Colorado Children's Immunization Coalition, 2017). This may seem like a lot, but these vaccines do help *prevent* communicable

diseases. Through prevention, the vaccine works with the body's natural defenses to help safely develop immunity to disease (CDC, 2017).

The Centers for Disease Control (CDC) vaccination schedule is specifically designed to protect children from diseases when they are most at risk (Colorado Children's Immunization Coalition, 2017). The vaccines do not overload the immune system, and in fact, a child is exposed to more antigens in their environment than in all of their vaccinations combined (Colorado Children's Immunization Coalition, 2017). Parents or guardians must make the decision regarding whether the child should receive the vaccine or not if the patient is under the age of eighteen, unless the child is legally emancipated in the state of Ohio (Thomson Reuters, n.d.). Parents and guardians also have the right to know about possible side effects related to the vaccination. This information is available via a Vaccine Information Statement (VIS) that is presented to parents. This document, made by the CDC, discusses the risks and benefits of the vaccine and must be given prior to vaccine administration (Centers for Disease Control and Prevention [CDC], 2016).

Vaccinations are necessary not only to protect children from communicable diseases, but also the community in which children live through herd immunity. Herd immunity or community immunity is when a majority of the community is vaccinated against a certain disease, and therefore, protects those who are not vaccinated due to little opportunity for an outbreak (U.S. Department of Health and Human Services [HHS], 2017). Herd immunity benefits those who are not able to receive a vaccination, such as: pregnant women, infants, or the immunocompromised, because the spread of the contagious disease is contained (HHS, 2017). Considering the accumulation of information on vaccinations, caregivers of children must decide what is best for their child. This paper will look at why parents are not vaccinating their children, either not at all

or not properly, and interventions nurses can use to educate parents to increase childhood vaccination rates.

Purpose

Current childhood kindergarten vaccination rates in Ohio have become stagnant. As reported by the United States (U.S.) Census via private voluntary responses, in the 2015-2016 school year, the vaccination rate was 92.1% and in 2014-2015 the rate was 91.9% (Centers for Disease Control and Prevention [CDC], 2016). Specific nursing interventions to increase childhood vaccination rates to 100% in Ohio need to be identified to help decrease the likelihood of communicable diseases and increase the need for vaccination education and awareness. In the Miami Valley area, Yellow Springs, Ohio reported their kindergarten vaccination rate to be 60.98% in 2015. While Beavercreek, Ohio reported their kindergarten vaccination rate to be 97.73% in 2015 (Ohio Department of Health [ODH], 2015). There is only a twenty-minute drive apart from these two locations, yet there is a 37% difference in childhood vaccination rates. The purpose of this project was to use current literature regarding early childhood vaccination rates to identify how nurses can effectively educate parents to increase childhood vaccination rates. This will help establish effective nursing interventions to increase childhood vaccination rates and provide supplemental education for nurses regarding these interventions.

Statement of Project

This project aims to identify current research regarding nursing interventions that aim to increase childhood vaccination rates. The current evidence was used to help produce an educational brochure for pediatric nurses providing interventions about educating parents in efforts to increase childhood vaccination rates. An example of this brochure is found in Appendix C.

Significance of Project

Significance to patients.

When giving childhood vaccinations, it is important, as with all patients and families, to take personal choice, values, and beliefs into account. Some health care providers may just "go through the motions" and administer ordered vaccinations. However, health care providers must first look at the child's vaccination history and current well-being. There are numerous reasons children may not be getting their vaccinations as scheduled or at all. Some of these reasons may include: parental lack of healthcare access, long distances to a clinic, parental lack of finances, lack of parents trust toward vaccines or the health care workers who give them, or parental belief that vaccines are unnecessary (Ames, Glenton, & Lewin, 2017). Therefore, in order to address childhood vaccination adherence, one must understand what beliefs and perceptions parents and families have regarding vaccines. Alternatively, children with high vaccination adherence rates have parents that cite reasons such as receiving balanced information between vaccination benefits and harms (Ames et al., 2017). This concludes that understanding current beliefs about vaccines and further education about vaccines can be beneficial to improving vaccination rates.

Significance to nursing and health care.

Parents have expectations of health care workers and interactions with them. Likewise, parents rely on health care workers to provide vaccination information at their children's visits (Ames et al., 2017). Failure to adequately provide parents vaccination information and have a positive relationship may impact their vaccination decisions (Ames et al., 2017). Nurses are commonly the care providers for patients in many health care settings. Therefore, nurses need to make sure they are well educated on vaccines and that they are providing their patients with the best experience possible in order to encourage proper vaccination.

The CDC (2014) states that vaccinations will prevent more than 21 million hospitalizations and 732,000 deaths among children born in the last 20 years. Similarly, the CDC (2014) also states that these avoided hospitalizations and lives saved due to vaccinations will save the U.S. nearly $295 billion in direct costs and $1.38 trillion in societal costs. These statistics show that vaccinations can reduce healthcare spending and prevent morbidity and mortality (Vaccines Today, 2016).

Furthermore, recommendations by the CDC (2017) include being up to date on all recommended vaccinations before international travel. Many vaccine preventable diseases, such as the measles, have become rare in the United States. Though some of the diseases are in the U.S., the same diseases are still common in other countries and can be spread easily due to the increase in air travel (CDC, 2017). Looking out for the health of the population in the U. S. is important because these diseases could be re-introduced if not vaccinated properly causing an increase in morbidity and mortality.

PICOT Question

The following clinical question was developed: *In parents of children receiving childhood vaccinations, how does effective parent education about childhood vaccinations compare to ineffective parent education about childhood vaccinations affect childhood vaccination rates?*

Summary

In summary, childhood vaccination can have many benefits to a child's life, the community, and health care system. Vaccination can impact a patient's quality of life and help prevent communicable diseases. Nurses can influence patients' vaccination rates by providing parent education on the importance of vaccinations as well as having a positive relationship with

the parents. The following sections include a review of the literature and description of the proposed project.

II. Literature Review

The purpose of this chapter is to review existing literature related to childhood vaccination rates. The information sought out included: patient-focused factors influencing vaccinating or not vaccinating, factors related to health care providers and provider influence about vaccinating, and techniques used to increase childhood vaccination rates. This section will use existing literature to establish a foundation for an undergraduate honors project. The literature was critically appraised and will help demonstrate the impact of interventions to increase childhood vaccination as well as identify characteristics related to proper childhood vaccination and improper childhood vaccination. The level of evidence of the reviewed articles is summarized in Appendix A.

The peer review articles were found using the Wright State database. The three databases used were the Cochrane review, PubMED, and CINAHL. On each of these databases, year limits of 2012 to present and use of only English language articles were applied. The search had no exclusions and used any geographic subset.

In Cochrane, the keywords comprised of *vaccination* with the Boolean connectors *child* AND *parents* AND *education* AND *nursing*. This acquired three results, two of which applied to the clinical question. In PubMED, the keywords consisted of *children* with Boolean connectors *vaccination* AND *immunizations** AND *parents* AND *education* AND *nursing.* 55 results found were academic journals. From these 55 hits, three peer reviewed journals were used. In CINAHL, the same search method was used as in PubMED. 30 results were obtained, and two peer reviewed journals were used.

Proper Childhood Vaccination versus Improper Childhood Vaccination

One study was designed to estimate the rate of immunization coverage at national and province levels in Afghanistan and to identify why children are not getting immunized. Using a community-based cross sectional survey design, the researchers studied 6,125 mothers from all 34 provinces of the country in Afghanistan. The mothers were interviewed at the time of the survey to calculate the child's immunization status (Mugali et al., 2017). This study found that 50% of children were properly vaccinated. However, for the 31% of children who were only partially vaccinated the mothers listed the following reasons: health care access too far away (23%), not aware of need to vaccinate (17%), no faith in vaccination (16%), mother was too busy (15%), and fear of side effects (11%) (Mugali et al., 2017). In this study, immunization coverage was 61.8% for children living in urban areas and 49.0% for children living in rural areas. This difference is statistically significant ($p < 0.001$) (Mugali et al., 2017). Furthermore, full immunization status for the wealthiest quintile equaled 60% while immunization status for the poorest quintile equaled 38%, indicating that wealth and socio-economic status are statistically significant ($p < 0.001$) (Mugali et al., 2017). Nurses need to be aware of the variety of barriers parents and families face regarding proper childhood vaccination in order to adequately support and help these patients. Limitations in this study are potential measurement bias from training of surveyors and possible information bias relying on the recall of mothers in some cases (Mugali et al., 2017). Evidence produced in this study was a level VI.

Another qualitative research study examined pediatrician experiences with parental requests for vaccine delays and refusals. The surveys from 2006 and 2013 were designed to estimate the amount of parental vaccine refusal of one, some, or all vaccines. The researchers studied 629 pediatricians in 2006 and 627 pediatricians in 2013. This study did find that urban, inner-city populations are less likely than other locations to encounter requests for delayed

vaccination administration. Confidence intervals were wide with the rural populations due to the high percentages of parents requesting vaccination delays (98.7%) (Hough-Telford et al., 2016). This study also reported the increase of parental vaccine refusals from 2006 to 2013. In 2006, 74.5% of pediatricians reported parental vaccine refusal in the past 12 months; however, in 2013, 87.0% of pediatricians reported parental vaccine refusal in the past 12 months (Hough-Telford et al., 2016). Similarly, in 2006, only 63.4% of pediatricians believed vaccine refusal was due to parents believing vaccines were not necessary; but, in 2013, 73.1% of pediatricians believed vaccine refusal was due to parents believing vaccines were not necessary. This difference was statistically significant ($p < 0.002$). Pediatricians believe vaccine delays are occurring due to parental concern for child discomfort (75.0%) and the fear that too many vaccines will burden their child's immune system (72.5%) (Hough-Telford et al., 2016). Nurses and pediatricians need to continue to educate parents about the risks of vaccine refusal or delay, and why children benefit from vaccinations. Limitations in this study came from the potential for recall bias from the pediatricians inquired. Also, the survey results represent the pediatrician's perception about parental vaccine hesitancy and may not accurately reflect the true parental beliefs and attitudes about vaccines (Hough-Telford et al., 2016). Evidence produced in this study was a level VI.

One reason for proper vaccination adherence in children could be related to state-mandated requirements for school entry. These data came from federally funded immunization programs that collect and report kindergarten vaccination data to the CDC. Vaccination coverage from all 50 states and the District of Columbia (DC) were included from the 2015-2016 school year. From the 51 programs, 32 used their own research census to gather kindergarten vaccination data; 10 used a sample; three used a voluntary school response; and six used a mix of sampling methods (Seither et al., 2016). A sample total of 4,087,187 kindergarteners in the U.S.

were used to draw statistics. Throughout the 2015-2016 school year, the median kindergarten rate for the MMR vaccine was 94.6%, DTaP vaccine was 94.2%, and the varicella vaccine was 94.3% (Seither et al., 2016). The MMR vaccine increased in 32 states during the 2015-2016 school year. However, the national median exemption rate increased from 1.7% to 1.9% in the 2015-2016 school year (Seither et al., 2016). *Healthy People 2020* has a vaccination goal of 95% for kindergartners for the three previous vaccinations and each are in close to reaching the goal (Seither et al., 2016). In order to meet this goal, nurses need to be aware of the state and local vaccination assessments to help identify schools and communities with lower than average levels. Nurses can use these data to focus attention on improving vaccination rates in the community and raise awareness of community vaccination coverage needs (Seither et al., 2016). Limitations in this study are due to possible negatively affected representations of data because of different data collection methods, possible improper or absent documentation that may under- or overestimate data, and variations in state requirements causing limited comparability (Seither et al., 2016). Evidence produced in this study was a level VI and this was a qualitative research study.

Interventions to Increase Childhood Vaccination Rates

A Cochrane review (level I, systematic review) of 38 studies discusses parental preferences and vaccination education. This review searched MEDLINE, MEDLINE In-process, and Other Non-Index Citations such: Embase, CINAHL, and Anthropology Plus. The main objectives of this review were to examine parents' or informal caregivers' views and experiences regarding communication about childhood vaccinations and the influence this communication has on parents' or informal caregivers' decision regarding childhood vaccinations (Ames et al., 2017). This study found that parents believe information and communication about vaccinations

is important. Parents want to receive this information *before* each vaccination appointment and not while their child is being vaccinated. Parents would also prefer vaccination information to be available at a wider variety of locations and would like help from health care workers on knowing where to find vaccination information (Ames et al., 2017). This study also found that parents requested health care workers to have a respectful discussion with them in a sensitive, caring, and non-judgmental way. Parents wanted clear answers to their questions, a supportive environment for decision making, and genuine concern for the best interest of their child by the health care providers as opposed to financial incentives (Ames et al., 2017). Nonetheless, this study found that parents believe they receive inadequate information about vaccinations. This lead to not only lack of knowledge about vaccinations but poor parental guidance and potential mistrust toward sources providing vaccination information. If nurses and other health care providers are able to provide proper vaccination information, parents may be more likely to properly vaccinate their children (Ames et al., 2017). Parental perceptions on vaccinations depended on their idea of a trustworthy source. This study concluded that parents want to receive balanced information specific to the benefits and harms of vaccinations communicated in a clear and simple way and in a language they understand (Ames et al., 2017). Nurses should aim to acquire vaccination information specific to the needs and requests of the parents. Limitations in this study include a lack of descriptive depth and data in the studies due to limitations set by journals publishing the studies (Ames et al., 2017).

A level II systematic review included two cluster-randomized trials that compared routine immunization practices with the community interventions. These trials took place in India and Pakistan. Children, families, teachers, and village leaders in India were asked to attend a childhood vaccination information meeting. In Pakistan, trusted community members were

invited to meetings to learn about vaccine coverage rates in their community and the benefits and costs of childhood vaccination (Saeterdal, Lewin, Austvoll-Dahlgren, Glenton, & Munabi-Babigumira, 2014). Both of these trials showed low certainty evidence that the interventions used in the communities to inform and educate about childhood vaccinations may increase knowledge about vaccinations or vaccine-preventable diseases (adjusted mean difference 0.121, 95% confidence interval (CI) 0.055 to 0.189). The community interventions did possibly increase the number of children vaccinated in India (risk ratio (RR) 1.67, 95% CI 1.21 to 2.32; moderate certainty evidence) (Saeterdal et al., 2014). This increase was also seen in Pakistan for the measles vaccine (RR 1.63, 95% CI 1.03 to 2.58) and diphtheria, pertussis, and tetanus vaccine (RR 2.17, 95% CI 1.43 to 3.29) (Saeterdal et al., 2014). However, there is low evidence that these community interventions change attitudes about vaccination in parents with young children (adjusted mean difference 0.054, 95% CI 0.013 to 0.105) and may make little or no difference in the parent's decision making about their child's vaccines (adjusted mean difference 0.043, 95% CI -0.009 to 0.097) (Saeterdal et al., 2014). From this information, community wide vaccine information sessions may not have the most efficacy. There was evidence that increase in vaccination rates may occur, but the evidence is not sound; therefore, nurses could combine this information panel with others, such as at a community health fair. Nurses need to be able to know how their community learns best and the most accurate way to get valuable information to parents. Limitations in this study are small number of studies in the review. This leads to no meta-analysis being conducted and no sensitivity analysis to look at the effects of removing those at overall high risk of bias (Saeterdal et al., 2014).

A cross-sectional study, level VI, was conducted in a pediatric primary care center regarding influenza vaccines. This primary care center in Cincinnati, Ohio cares for

approximately 19,000 patients who are largely from low-income homes and are a racial minority (mostly African American). This study used the Parent Attitudes about Childhood Vaccine (PACV) survey to identify vaccine-hesitant parents and to help identify under immunization at 19 months old (Orr & Beck, 2017). The PACV is a 15-item survey that addresses three elements of vaccination hesitancy: vaccine safety, belief, and behavior. Responses are scored as a two, zero or one. Hesitant responses are scored as a two, unsure responses are given a 1, and non-hesitant responses are given a zero. A summed score is calculated and converted to a point scale from zero to one-hundred. The higher the number, the more correlation to increased vaccine hesitancy (Orr & Beck, 2017). 86 surveys were completed, and 75% of these responses identified as African American. A PACV score of less than 50 had 28-times greater odds of receiving the influenza vaccine compared to a PACV score of greater to or equal to 50 (95% Confidence Interval (CI) 5.4- 144.3). Furthermore, for each one point decrease in the PACV score, the likelihood of receiving the influenza vaccine increased by 7.7% (95% CI 4-12%) (Orr & Beck, 2017). Nurses and health care members should realize that identifying vaccine-hesitancy is an important first step before responding to the hesitancy in a mannered fashion. Nurses should be aware of how to respond to vaccine hesitancy and how to provide family--centered care (Orr & Beck, 2017). Limitations in this study include that all caregivers were taken from a single pediatric facility, and the population is subject to selection bias due to convenience. Also, this data was only collected from October to November and the researchers only measured intent to vaccinate and did not confirm receiving the influenza vaccination (Orr & Beck, 2017).

An evidence-based, level I systematic review researched information regarding the goal of decreasing patient distress before, during, and after administration. This review included 41 clinical guidelines, reviews, and randomized controlled trials (Stevens & Marvicsin, 2016). A

literature search of CINAHL, Medline, PubMed, and the Cochrane Database was performed using the following terms: pediatric, vaccination, immunization, coping, and needle stick. Guidelines, reviews, meta-analyses, and randomized controlled trials (RCTs) were gathered to help make two educational handouts. These handouts summarize evidence-based findings via patient age groups; one is made specifically for parents and the other for the staff. The handouts recommend behavioral strategies for health care workers and parents to use in the primary care setting before, during, and after vaccinations and focus on techniques that are effective, cost-efficient, and adaptable (Stevens & Marvicsin, 2016). This study looks at simple instructions for the parent at the beginning of a visit, and may be helpful to both the parent and the child. These instructions include when to take deep breaths or how to position the child. Also, health care providers should incorporate parent and patient preferences for distraction techniques and comfort holds (Stevens & Marvicsin, 2016). These sheets also review the injection order and technique matter for the health care provider. Furthermore, this study found that when the vaccinations are over the provider should continue distraction techniques. The provider can also provide rewards for younger children and praise for things the child did well. Adolescents may respond well to positive feedback. Parents, and especially anxious ones, may take comfort in positive reinforcement from coaching their child (Stevens & Marvicsin, 2016). Nurses may use these handouts to help educate staff and families about coping strategies that are quick and easy to implement during vaccination administration. Nurses should also be aware that they may need to try several strategies before finding the best approach, and some parents may have set preferences for their child. Talking to parents about child preferences can be incorporated into patient-centered care and can help nurses become more knowledgeable about the strategies to manage anxiety and pain (Stevens & Marvicsin, 2016). Limitations in this study included lack of

research about combination vaccines and other routes of administration such as intra-nasal or transdermal.

Summary

The findings from the literature review conclude that there are multiple reasons why parents are not getting their child vaccinated properly: lack of access to health care, parental belief that vaccines are not necessary, child discomfort, or fear of vaccines. The reviews above also demonstrate the current levels of vaccination rates in the U.S. and how the U.S. is close to meeting the *Healthy People* 2020 goals but further vaccination education is still needed. Nurses must also be aware of the best way to provide their community and patient population with information. As discussed in the literature review, large community educational meetings may not be beneficial. Being able to provide vaccination information in multiple areas in the community and knowing where the information is located are more efficient in providing parents vaccine information.

As indicated by the literature review on interventions, health care providers can play a large role in helping parents make the best decision for their child. Having readily available information—even before the visit—having an open and honest discussion, and actually caring about the patient can help parents in their decision. Anticipatory guidance at a previous visit or a phone call at home can help parents prepare for their child's future vaccinations. Providing parents with coping techniques for themselves and their children may also be helpful when a parent is fearful a vaccination may hurt their child. Understanding the risks and benefits of childhood vaccination, a family's beliefs or situational crisis regarding vaccinations, and the ways to help a family through the vaccination visit are helpful for nurses and health care providers to implement to reach 100% childhood vaccination rate. This data could have

limitations from only searching three databases. However, the evidence is high with two level I systematic reviews.

III. Description of the Project

The project used current literature regarding early childhood vaccination rates to determine how nurses can effectively educate parents to increase childhood vaccination rates. This will help to identify effective nursing interventions to increase childhood vaccination rates. This section describes the honors project and includes: project implementation, ethical and legal considerations, time frame, budget, and evaluation and dissemination.

Definition of Terms

In order to understand the terminology presented in this paper, the clinical question will be examined in addition to other common terms. The population in the clinical question is parents or parental guardians. A parent is defined as one's own father or mother. A parental guardian is a legal relationship deemed via the court system. A guardian of a minor is under court supervision until the child reaches the age of 18 (US Legal, n.d.).The intervention of childhood vaccination includes those vaccinations given from birth to age 18 or younger (CDC, 2017). A child may be properly adhering to the vaccination schedule, delayed on the vaccination schedule, or not receiving vaccinations. The implementation and comparison of the PICOT question is the whether or not effective education is implemented. Receiving effective vaccination education means to review why the patient is receiving the vaccination, the risks and benefits of the vaccine, the advantage to the community in receiving the vaccination, and to allow inquire for any other questions or beliefs regarding the vaccine (Ames et al., 2017). The outcome measure is the childhood vaccine rates, which are rates that show the percentage of children who receive the respective vaccination in the recommended timeframe (Organization for Economic Co-operation and Development [OECD], n.d.). A nursing intervention is any treatment, based upon knowledge and clinical judgement, which a nurse performs to strengthen patient/client outcomes (Bulechek,

Butcher, Dochterman, & Wagner, 2013). Furthermore, according to Eustace, Gray and Curry (2015), family nursing is defined as a "time-limited, collaborative process, initiated and/or facilitated by nurses and directed at either the individual or the family to solve problems" (p.136). In this current project, parent education about childhood vaccinations administered by nurses will be considered as a family nursing intervention.

Plans for Implementation

Educational brochure.

In order to combine the needs of pediatric nurses with the objectives of this project and the information available from current research, a brochure was constructed. This brochure was constructed by utilizing information from the review of the current literature on education parents about childhood vaccinations. The educational brochure summarized vaccination strategies that can be used by nurses to increase adherence among early childhood pediatric clients. The brochure is a tri-fold with colors and pictures. A brochure was chosen because it provides an easy and quick reference about possible interventions to improve vaccination adherence rates, and it is a simple, familiar means of information dissemination for nurses.

Setting and population.

The interventions identified in this project are aimed at pediatric nurses and how nurses can work to improve vaccination adherence and eventually rates. Wright State University pediatric nurse faculty members will be utilized as content experts for this project. These nurses will be helpful because they also have an educational background in pediatrics. The brochure will be considered by each faculty member to determine its efficacy and whether he/she believes the brochure could be utilized as informed by his/her experience. Feedback from the faculty members will be used to improve the brochure during re-evaluation.

Ethical and legal considerations.

No live patients will be included in this project; therefore, international review board (IRB) approval is not necessary. All presented information will be appropriately referenced, and the presentation will not include any copyrighted material. The brochure will include all references from the review of literature that were used to create the educational presentation.

Timeline.

This project was started in March 2017 with the formation of the clinical question and collection of background information about childhood vaccination rates and parental education. Literature was then gathered to begin critical appraisal and develop a collection of evidence. The literature review was completed by July, 2017. A brochure was developed and created by October, 2017. The brochure was sent to Wright State pediatric nurse faculty in November, 2017. Results were collected during the month of November, 2017 and the final brochure was completed in December, 2017.

Evaluation and Dissemination

Wright State University pediatric nurse faculty members were utilized to evaluate the effectiveness of the educational brochure. This brochure will be presented to these nurses via an attached word document in an e-mail. These pediatric faculty members were provided with a self-developed evaluation checklist to evaluate clarity of material and usefulness in practice. The checklist had seven statements pertaining to the brochure in its entirety. The checklist can be found in Appendix B. The final brochure is available in Appendix C.

Summary

Vaccination education interventions were researched in regards to influencing factors and nursing interventions to implement to help increase childhood vaccination rates. Educational

brochures were provided for pediatric nurses to reference on how to educate parents in efforts to increase childhood vaccination rates. The Wright State University pediatric nurse faculty evaluated the brochure for clarity and usefulness of the presented material. The following sections will analyze the data and draw conclusions regarding the project.

IV. Evaluation of the Project

The brochure consisted of six different sections for nurses to help increase childhood vaccination rates. There was the front page with the title, a page with a nurses to do list, a page with parental expectations, a page on how nurses can increase childhood vaccination rates, a page on administering vaccinations, and a reference page (see Appendix C). The brochure was designed to be an easy read with main points provided. The significance of this project was for pediatric nurses to have a quick reference guide for discussing with parents of children how to increase childhood vaccination rates. The overall presentation was designed to last less than five minutes. The brochure was shared with six Wright State University pediatric nursing staff for review and analysis. An evaluation checklist was also attached with the brochure with seven statements to rate the brochure. The checklist had a scale from 1-5 with an area for comments (see Appendix B).

Results

For the statement, "*The message content is relevant to practicing pediatric nurses*", the average response was 4.6 and the mode response was 5. For the statement, "*The cover is attractive to the intended audience*", the average response was 4.3 and the mode response was 5. For the statement, "*The visuals are simple and instructive rather than destructive*", the average response was 4.8 and the mode response was 5. For the statement, "*The visuals help explain the message in the text",* the average response was 4.8 and the mode response was 5. For the

statement, "*The text appears large enough for the audience to read*", the average response was 4.6 and the mode response was 5. For the statement, "*The information is presented in an order that is logical to the audience*", the average response was 4.3 and the mode response was 5. For the statement, "*The language and content is appropriate for the nursing audience*", the average response was 4.1 and the mode response was 5.

Furthermore, faculty gave recommendations on how to improve the brochure. One faculty suggested a link to be included in the brochure for nurses or parents to find the most current vaccination schedule. Another faculty recommended adding more pictures and changing font colors to make the colors appear brighter. There were also recommendations to include more culturally sensitive language for patients. An additional recommendation was to state if the parental expectations that nurses can meet increase childhood vaccination rates and parental compliance. Overall, the brochure received positive remarks such as, "Nice job!" and "Well done!"

Significance to Nursing

This brochure can be used to help nurses know what parents expect in regards to vaccination information. Nurses need to be able to know and understand vaccination information before presenting information to parents. Also, nurses can also use this brochure as a quick and convenient reference guide on how they should interact with parents to give their patients and their parents the best experience possible. This brochure also has techniques for administering vaccinations to a child. Finally, the all-purpose use of this brochure by nurses can help increase childhood vaccination rates.

Summary

The brochure was well received by the pediatric nursing faculty at Wright State University regarding how nurses can educate parents to increase childhood vaccination rates. As stated in the results section, the material presented was relevant to the nurses' work and was logical and easy to read. If the nurses are successfully able to integrate this information into their practice with their patients and their parents, they could help increase childhood vaccination rates in the Miami Valley and in Yellow Springs, Ohio. This increase would have many benefits for patients, families, and the community.

V. Conclusion, Limitations, and Discussion

In conclusion, this brochure can be used to help instruct nurses about how to educate parents to increase childhood vaccination rates. If more nurses are educated on vaccination information, these nurses can educate other nurses, healthcare personnel, and parents. Nurses are also capable of making sure the information in the brochure is followed through at each visit. Also, more reference material on vaccinations should be available to parents. This includes having the material available at more locations, such as a grocery store.

Furthermore, one limitation from this project included a small and a homogenous evaluation sample size. Only six nurses evaluated the brochure from the Wright State pediatric faculty. In order for the brochure to have reached a wider population, other healthcare facilities in the Miami Valley could have been used. Finally, all nurses who evaluated the brochure were educators. Finding nurses who help work the floor or have their masters in another program would be helpful.

Additionally, implications for nursing include nurses educating themselves and staying up-to-date on the most current literature regarding vaccination education. Nurses have a responsibility to themselves and their patients to educate and know proper resources regarding

the education. Nonetheless, using this brochure and the listed interventions can help educate pediatric nurses. This brochure can also be used to help create a training for nurses and healthcare personnel on how to educate parents about vaccinations, parental expectations, and techniques for administering vaccinations. Additional research could then be completed to evaluate the effectiveness of well-trained nurses on vaccination education. Also, nurses need to learn to be culturally sensitive, respectful, non-judgmental, and supportive. This includes communicating in a clear and simple way when presenting information and developing strong therapeutic communication skills.

Recommendations for a future project would include making an additional page to the brochure. This additional page would help increase font size, help include more pictures, and help include links for resources. Also, using more facilities and nurses to evaluate the brochure in the Miami Valley area. This could include: health departments, pediatric clinics, and hospitals. Finally, including more cultural and family centered care recommendations in the brochure to help nurses see their patients and parents holistically.

To sum up, this project consisted of current evidence-based information and literature regarding the methods nurses can educate parents to increase childhood vaccination rates. A brochure was constructed utilizing this information and disseminated to Wright State pediatric nurse faculty for evaluation. This brochure is a convenient guide for nurses to have to educate themselves on parental expectations, how they can increase childhood vaccination rates, and administering techniques. The brochure was well received by the faculty at Wright State and results were documented. Lastly, this project can be used to help develop an educational program for nurses to know how to educate parents regarding vaccinations.

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Appendix A

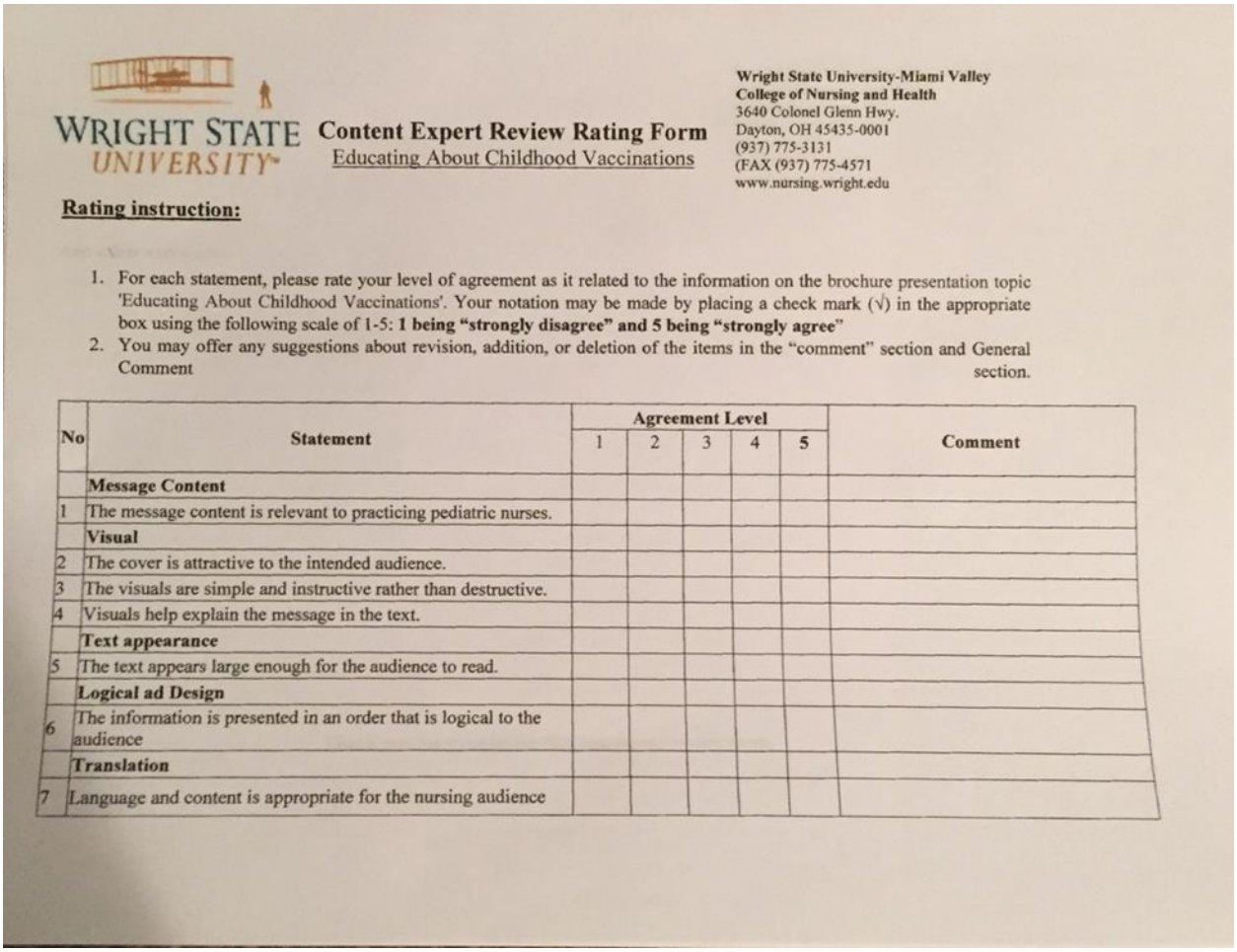
Leveling the Evidence

	Level I – Systematic Review/ Meta-synthesis	Level II – Randomized Control Trials	Level III – Controled Trial without Randomization	Level IV – Case Control or Cohort Study	Level V – Systematic Review of Qualitative Studies	Level VI – Single Descriptive or Qualitative Study	Level VII – Expert Opinion	None
Ames, H. H., Glenton, C., & Lewin, S.	X							
Hough-Telford, C., Kimberlin, D. W., Aban, I., Hitchcock, W. P., Almquist, J., Kratz, R., & O'Connor, K. G.						X		
Mugali, R. R., Mansoor, F., Parwiz, S., Ahmad, F., Safi, N., Higgins-Steele, A., & Varkey, S.						X		
Orr, C., & Beck, A. F.						X		
Saeterdal, I., Lewin, S., Austvoll-Dahlgren, A.,		X						

Glenton, C., & Munabi-Babigumira, S.								
Seither, R., Calhoun, K., Mellerson, J., Knighton, C. L., Street, E., Dietz, V., & Underwood, M.						X		
Stevens, K. E., & Marvicsin, D. J.	X							

Appendix B

Content Expert Review Form



WRIGHT STATE UNIVERSITY

Content Expert Review Rating Form
Educating About Childhood Vaccinations

Wright State University-Miami Valley
College of Nursing and Health
3640 Colonel Glenn Hwy.
Dayton, OH 45435-0001
(937) 775-3131
(FAX (937) 775-4571
www.nursing.wright.edu

Rating instruction:

1. For each statement, please rate your level of agreement as it related to the information on the brochure presentation topic 'Educating About Childhood Vaccinations'. Your notation may be made by placing a check mark (√) in the appropriate box using the following scale of 1-5: **1 being "strongly disagree" and 5 being "strongly agree"**
2. You may offer any suggestions about revision, addition, or deletion of the items in the "comment" section and General Comment section.

No	Statement	Agreement Level					Comment
		1	2	3	4	5	
	Message Content						
1	The message content is relevant to practicing pediatric nurses.						
	Visual						
2	The cover is attractive to the intended audience.						
3	The visuals are simple and instructive rather than destructive.						
4	Visuals help explain the message in the text.						
	Text appearance						
5	The text appears large enough for the audience to read.						
	Logical ad Design						
6	The information is presented in an order that is logical to the audience						
	Translation						
7	Language and content is appropriate for the nursing audience						

Appendix C

Brochure

TO DO LIST:

- Recognize parental expectations regarding vaccines
- Identify vaccine hesitancy and how to respond
- Be respectful, sensitive, caring, and non-judgmental
- Recognize how you can influence vaccination rates
- Give anticipatory guidance about vaccinations
- Know where to find vaccination information and resources

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Parent Education on Childhood Vaccinations: TIPS FOR NURSES

"Parental perceptions on vaccinations depend on their idea of a trustworthy source" (Ames, Glenton, & Lewin, 2017).

By Kristen Sevier
WSU CONH
Honors Project 2017

"Parents have expectations of health care workers and interactions with them" (Ames, Glenton, & Lewin, 2017).

Parental Expectations

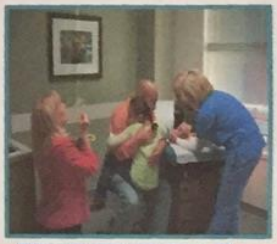
- Vaccination information ***prior to*** each appointment
- Balanced information between vaccination benefits and harms
- Clear, simple answers to questions, communicated in a language they understand
- A supportive environment for making decisions
- A positive relationship with healthcare providers
- Genuine concern for the child's best interest

How Nurses Can Increase Childhood Vaccination Rates

- Understand what beliefs and perceptions parents and families have regarding vaccinations
- Provide vaccination information in an understandable, transparent manner and know where to find vaccine information
- Ensure parents are contacted with vaccination information before each appointment
- Educate parents about the Centers for Disease Control (CDC) vaccination schedule, how it is specifically designed to protect children from diseases when they are most at risk, and make sure they know their child's schedule
- Educate about 16 vaccine preventable diseases
- Be non-judgmental, respectful, caring, and sensitive during visit to promote patient satisfaction and family centered care

Administering Vaccinations

- Incorporate parent and patient preferences for distraction techniques and comfort holds
- Educate parents on quick and easy coping strategies
- Review the injection order and technique with the parents
- Provide rewards for younger children and praise for what their child did well



CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION