

Educate to Vaccinate: Closing the Educational Gap.

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A Directed Scholarly Project Submitted to the Department of Nursing in the Graduate School of
Bradley University in partial fulfillment of the requirements for the Degree of Doctor of Nursing

Practice. Peoria, Illinois

2018

DNP Project Team Approval Form

**Bradley University
Department of Nursing
Doctor of Nursing Practice Program**

DNP Project Team Agreement Form

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Proposed Scholarly Project Title:
Educate to Vaccinate - Closing the Education Gap on Immunization

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Acknowledgements

Thank you to my project mentor for supporting me and helping me navigate through this project.

Abstract

An ongoing community health issue is the lack of vaccination compliance among parents of young children and adolescents. A review of literature revealed that parents are hesitant to vaccinate due to lack of knowledge of how vaccines work and the safety of vaccines. With ease of access to the internet and unreliable information the vaccine debate continues. This project was designed to provide education to parents and caregivers at a community education event to empower them to make the best decision for their families. The event was advertised with flyers sent to multiple day camps, schools, day cares, posted at the health department, and given to WIC clients. There were also a newspaper article and social media posts. Despite these efforts, attendance at the event was poor (n= 5 families). The event consisted of three different tables set up with information about the vaccinations that are needed for each age group. Bradley University dietetic students were on site to cook for event goers and to talk to the families about healthy eating. Participants completed a pre and post-test regarding vaccination information. A paired-samples t-test was conducted to compare the raw scores of the pre-tests and post-tests. There was not a significant difference in the raw scores for the pre-tests (M=6.6, SD=2.6) and post-tests (M=5.2, SD=3.0) conditions; $t(4) = 1.121, p = .325$. It is not possible to draw any conclusions from this data due to limited sample size (n=5).

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Educate to Vaccinate: Closing the Educational Gap

Chapter I**Background and Significance**

Vaccines have been the greatest public health accomplishment to date (Bromberg Bar-Yam, 2002). When the number of individuals that are vaccinated outnumber those who are not there is said to be herd immunity. Herd immunity is where those that are not vaccinated are still protected because of those that are vaccinated protects them (Johnstone, 2017). When the number of people not vaccinated outnumber those who are vaccinated herd immunity cannot be effective. Immunizations are the most cost-effective preventive measure in reducing deaths (Bromberg Bar-Yam, 2002). Therefore, there are national and global initiatives to increase vaccination rates. The Office of Disease Prevention and Health Promotion each decade rolls out a ten -year initiative to improve the health of the nation. Healthy People 2020 has an overall goal of increasing immunizations and decreasing vaccine preventable diseases (Immunization & Infectious, 2018).

The question becomes why are people not being vaccinated. There are many factors, but one that can be improved upon is the gap in educating people about vaccines. For more than 15 - years there has been a myth that vaccines, especially those such as Measles, Mumps, Rubella (MMR), cause autism and the safety and efficacy are lacking despite multiple studies disproving this misconception (Demicheli, Rivetti, Debalini, & Di Pietrantonj, 2016). Where are these misconceptions coming from? Why are patients not being properly educated on the risks and benefits of vaccines? I have also found through personal experiences that many misconceptions come from other people and word of mouth. For example, someone once said that the flu vaccine gave them the flu so they refuse to get the vaccine. This person told their friends and now their

friends believe they will get the flu if they receive the vaccine, so they now refuse the flu vaccine as well. People are also turning to the Internet where they can find information that supports their position either pro-vaccine or anti-vaccine. As healthcare providers, we need to be more proactive in dispelling these myths and get people the facts so that they can make an accurately informed decision.

The project was designed to try to dispel some of these myths and increase vaccination rates by providing appropriate resources and education to families with children. I collaborated with a rural Midwest health department to offer an *Educate to Vaccinate* day that took place in July 21018. During this time, I planned to provide PowerPoint presentations, handouts, and have content experts available to educate and discuss vaccines. I also planned to provide information of the need that has been identified to providers in hopes that they can continue to provide better education to families.

Problem Statement

Even though immunization rates have traditionally been high, not everyone is receiving the recommended immunizations (Fraleigh, 2009). Many factors contribute to this trend, but the gap in education regarding risk and benefits of vaccines continues to be a significant problem according to multiple sources. Lack of immunizations is a public health problem that can lead to re-emergence of diseases that were thought to be essentially eradicated. According to the Center for Disease Control (CDC), in 2000, measles had been declared eradicated in the United States, but by 2014 there were 668 cases of measles in the United States (CDC, 2017). These cases could have been avoided if everyone had been vaccinated. The CDC estimated that 732,000 American children were saved from death and 322 million cases of childhood illnesses were prevented between 1994 and 2014 due to vaccination (CDC, 2017). According to the project's

rural health department's website, in 2015 there were 3,461 immunizations given. In 2016 that number dropped to 3,246 immunizations given (Tazewell County, 2017).

Project Aims

The objectives of this project were to increase vaccine knowledge, decrease vaccine hesitancy and increase vaccination compliance for clients served by a rural Midwest health department.

Clinical Question

How does increased parental education on childhood vaccinations affect their vaccination hesitancy?

Congruence with Organizational Strategic Plan

The project's health department has their strategic plan for 2017-2020, which encompasses community by creating partnerships that promote involvement in department programs. They are also working to increase 'Public Partners Awareness of Health Department Services', through the website and social media. The project is intended to bring more people to the health department by holding an educational event for the public. By bringing more people to the health department, they will have an opportunity to not only be educated on vaccinations, but they will also be able to find out about other services and programs that are available at the health department. The project was promoted by using the health department's website and social media to spread the word more effectively to the community. Another department goal is to implement and use new technology. I would like to explore the options for using electronic notifications for vaccine compliance. Currently, postcard reminders are mailed out. I would like to explore the option of using some type of technology, preferably automated that would send vaccine reminders to clients of the health department.

Three area counties have developed a *Partnership for a Healthy Community-Community Health Improvement Plan for 2016-2019*. The project will help assist the group's health priority for reproductive health. This project was designed to educate families on human papillomavirus vaccine, its effects, and the importance of vaccinating children and teens. This healthy community partnership also states that in the project's county, the percentage of people covered by insurance; private and public such as Medicare or Medicaid, has decreased from 95.9% in 2007-2009 to 88.1% in 2010-2014 (Health Department, n.d.). One of the long-term goals of promoting an *Educate to Vaccinate* day at the county health department was to increase immunization rates by promoting awareness for the federal *Vaccine for Children* program, which provides free immunization to those children on Medicare or Medicaid.

Review of Literature

A review of literature was performed for this proposal. Multiple databases were searched, such as CINAHL, the Cochrane Library, and Health Source. Keywords and phrases that were used included: vaccines, immunizations, pro-vaccine, anti-vaccine, vaccine education, gaps, children & teens, science, barriers. The total number of articles found through these searches were more than 1,000. These articles included research studies, peer-reviewed journal articles, and periodicals. With so many returns it was important to decide what articles were going to be beneficial to my research. Many articles were excluded because they did not provide information about education, did not provide background information, and did not enhance the project in any way. The total number of articles reviewed was more than 50. Of these 50, I narrowed the articles down to the ones that are in the Evidence Evaluation Table.

Vaccinations have been one of the greatest breakthroughs for public health. Some authors stated that vaccinations are the “next best thing to clean water”, ‘better than antibiotics’, and the

greatest public health achievement of the 20th century (Espeleta, Beasley, Ridings, Smith, & Shields, 2017; Patchay, 2017). World Health Organization (2018) estimates that vaccinations have saved 2-3 million lives per year. Although immunization rates have been historically high, the World Health Organization also estimates that 1.5 million children under 5 years of age die from vaccine preventable diseases worldwide.

Multiple researchers have studied the barriers to vaccination and vaccine compliance. The barriers identified included: confidence of the effectiveness and safety, availability, accessibility and affordability of vaccines, religious, philosophical, and personal beliefs, and the desire for more information from health care providers, along with poor knowledge of immunizations (Fraleigh, 2009; Johnstone, 2017; Mckee & Bohannon, 2016; Oku, 2017). To overcome these barriers, researchers concluded that effective communication from the healthcare provider was critical. Espeleta et al. (2017) found that 5% to 10% of parents had strong antivaccination beliefs, while 20%-30% were vaccine hesitant. More research investigating effects of increasing vaccine education with parents who are vaccine hesitant still needs to be completed (Fraleigh, 2009; Johnstone, 2017; Mckee & Bohannon, 2016; Oku, 2017). Ames, Glenton, and Lewin (2017) found that parents had a perception that there was lack of communication about what vaccinations were recommended and when the vaccinations would be taking place. They discovered there was lack of time during the well child visit to discuss vaccinations fully, and that parents wanted more information. Parents wanted to make informed decisions when it comes to their children, but this can be difficult when there is not enough time to discuss all issues at well-child visits. Ames et al. (2017) reported that when parents did not have sufficient information they often felt regret and worry over their decision to vaccinate. Parents need to be able to make informed decisions about their children's health and they also need to realize that it

is simply not just about their children but about the entire community (Johnstone, 2017). Patchay (2017) concluded that communities with vaccination programs that emphasized effective communication and education were more successful. Individuals living in these communities were found to be better educated and therefore healthier. Children who were vaccinated in these communities scored higher on language and IQ tests compared to those who were unvaccinated (Patchay, 2017).

Forshaw et al. (2017) performed a systematic review and meta-analysis and concluded children of mothers who had secondary education or higher were 2.3 times more likely to have full childhood vaccination than those mothers who had less than a secondary education. Although it is impossible to ensure parents have higher education, it is the healthcare providers' job to educate the parents on vaccines and their child's health (Forshaw et al., 2017).

Oku (2017) performed a qualitative study between two states in Nigeria and concluded effective communication was essential to improve vaccination coverage and reduce vaccine hesitancy.

Mckee and Bohannon (2016) stated that one-third of parents felt that they did not have sufficient access to reliable information regarding vaccines. Sak, Diviani, Allam, and Schultz (2016) reported that when there is a lack of education and communication from healthcare providers, parents listen to family, friends, mainstream media, or the Internet for recommendations on vaccines, and are potentially going to choose to not vaccinate or delay vaccinations because of misleading or misunderstood information. Sak et al. (2016) also reported the anti-vaccine websites had more unreliable information that was not evidence based on the sites compared to pro-vaccinations sites. Sak et al. (2016) concluded due to false and misleading information, along with the consumer not being able to evaluate the quality of this information, these anti-vaccine debates continue. Multiple studies done in Malasia and China offered vaccination

education interventions and did show significant positive effects (Awadh et al., 2014; Y.H., 2015).

Conceptual or Theoretical Framework

The Donabedian Outcome Model of Quality was used to guide this project. This model is used to define quality of outcomes in the health care setting. The model distinguishes three aspects of care: structure, process, and outcomes. Structural measures give consumers of the health care system a sense of the organizations' ability to provide high quality care. Process measures indicate the measures providers go through to improve health, either for those that are healthy or those with a certain condition. Outcome measures reflect the impact of the intervention on the population. Structure refers to the setting and the resources where the project will take place; process refers to the methodology of the project; and outcomes are the measured results (DesHarnias, 2011). In this project, the structure was the rural Midwest health department along with the many resources there, the process was the actual implementation on the project, and outcomes were vaccination rates and knowledge participants received from the project. This model was chosen because it is flexible and can assess the quality of many different interventions. In this proposal, the intervention was education about vaccinations.

Chapter II: Methodology

Needs Assessment

According to the Illinois state-wide I-Care system, the project's health department's childhood and adolescent immunization coverage levels do not reach the Healthy People 2020 goal. For the children and adolescents under 18 years of age, there currently are 15 vaccines recommended by the CDC. The project's health department currently only has three vaccinations that reach the Healthy People 2020 Goal of 90% coverage. All other vaccination coverage rates

range from the lowest being 8% for flu vaccinations this current season to MMR, Varicella, and pneumococcal all being 87.4% (Illinois Department, 2018). It is unclear the reasons why these coverage rates are so low, but through this project that identifies multiple gaps in vaccine compliance, education being the most important and influential, I hoped to increase coverage by 10%. Increasing vaccination rates by 10% can lead to a healthier community for us all to live in.

Project Design

This project was a quality improvement project. The first phase of this project was to assess the parents' state of knowledge about vaccinations. The next step was to hold a vaccine education day at the health department where the public could come and get reliable, easy to understand information about vaccines. Education was provided in the form of handouts, in-person presentations, and question and answer sessions. The goal of this day was to increase vaccine knowledge, which was measured by a pre- and post-survey that participants were asked to complete. It is hoped that an increase in knowledge will lead to an increase in vaccination rates and compliance.

Setting

The setting of this project was a rural, Midwest health department. The county that the health department is in is the 15th most populated county in the state, with a population of roughly 135,000 people, and a poverty rate of 8.4% (DataUSA, 2017). The health departments' community health priorities include informing, educating, and empowering the public about their health. This setting was chosen because they have an immunization clinic for both adults and children. The nurses here are excellent resources for immunizations. They are content experts and extremely knowledgeable because immunizations are one of the main services that the health

department provides. The health department also has excellent resources pertaining to public health and the priorities.

Population

The project's county has 24 communities within its 658-square mile radius. The population is 96% Caucasian with 8% of the total population existing below the poverty line (DataUSA, 2017). The per capita income for the county is \$27,036. All residents of the project's county and the surrounding counties are welcome to attend our education day. The target population will be parents of children and adolescents. However, everyone was invited to attend, nobody was excluded. We had planned to advertise this day extensively through social media, the newspaper, and TV to recruit as many participants as possible. There are very few researchers that identify the formal education level of participants in their study, although those that did stated increased education after high school equaled higher vaccination rates (Forshaw, 2017). The only comparison that can be made between this sample and ones from previous studies will be the target group of parents of children and adolescents.

Tools or Instruments

Tools for this type of project have proven to be difficult to find. I found a comprehensive sample assessment called *Parent Attitudes about Childhood Vaccines Survey Item Response* by Opel et al. (2011) (see Appendix A). Permission from the author to use this survey in this project was obtained (see Appendix B). The authors compared immunizations records with parental attitude scores and found that hesitant parental response on 14 of the 15 questions had higher association with the mean percentage of days that children were under immunized (Opel et al., 2013). This tool will be used to assess parent's attitudes about vaccinations and will also be used as the pre-test and post-test (see Appendix C).

Project Plan

When the public arrives to the health department they were handed a packet containing the *Parent Attitudes about Childhood Vaccines Survey Item Response*, pre-test, and then post-test. There were multiple tables set up, labeled by age group, birth to one year, school aged children, and teens. Each table contained the specific immunizations for that age group. At each station, there was a content expert available to answer any questions participants might have. There were also handouts available that included a combination of information from various sources such as the CDC. Information included the diseases that specific vaccines prevent, if the vaccine contains a live virus or not and what that exactly means, and signs and symptoms of an allergic reaction to look for. The original plan was to also have a presentation given multiple times throughout the day that talked about vaccines in general, how vaccines are made, what are the components of vaccines, how vaccines affect the immune system and how it differs from when the disease is acquired (See Appendix D). However, due to low attendance, this was not done. After the participants visited the stations of their choosing, they were instructed to complete the post-test. When they submitted the completed packets, they were given a ticket to be entered into different drawings that were available.

This project had two objectives: one was to increase knowledge of vaccinations by providing reliable information. The second objective was to increase vaccination rates at the health department for the calendar year 2018.

Data Analysis

Data were collected by having participants complete a pre-and post-test. Data were analyzed using SPSS. Results from the pre-and post-test were compared by computing a paired-samples t-test to identify if there was a significant change in the knowledge of vaccinations after

attending the vaccine education fair. See Appendix E for how to score the *Parent Attitudes about Childhood Vaccines Survey Item Response*. The plan was to assess vaccination rates at the end of December 2018. The number of vaccinations given for 2018 will be compared to the number of vaccinations given in 2017. Myself along with my project mentor will be working together to assess the vaccination rate data.

Institutional Review Board and/or Ethical Issues

Immunizations can be a controversial subject depending who you talk to. Some people are highly pro-vaccine while others are highly anti-vaccine. When it comes to talking ethics and immunizations, there must be a balance between the parents being the decision makers and the good that vaccinations can do for public health. Permission to conduct this project from the Committee on the Use of Human Subjects in Research (CUHSR) was obtained (see Appendix F). A cover letter was included in the participant packet to explain the project and how the information will be used (see Appendix G). It also explained that completion of the survey, pre/post tests will indicate participants giving informed consent. To protect participants' right to privacy, they were not required to put their names or any other identifying information on any of the forms. Participants could choose not to complete the pre/post-test, but still participate in the program. However, they were not be eligible to enter the drawings.

Chapter III: Organizational Assessment and Cost Effectiveness Analysis

Organizational Assessment

From talks that I have had with my project mentor I learned that she is newer in her role as the director of the clinic at the health department and she is very open to new ideas for the clinic. I think that overall the clinic is ready for a change. One possible barrier may be that there is a lot of PRN staff who are all retired nurses from the clinic. This may be a barrier because

these nurses have been doing things the same way for years. Another possible barrier is time. The clinic uses cards that have the times of each step in their process from when the client checks in to when the client checks out. The perception is that some of the nurses are trying to get clients in and out as fast as possible. This may be a reason for lack of education regarding vaccinations within the health department and could be barrier to taking the time to fully discuss vaccinations. I believe that my project mentor will be my biggest facilitator in helping change the way clients are educated.

When discussing risks and failures, there was no way to know how many people would come and participate in our vaccine fair. The client participation rate relied heavily on marketing efforts, giveaways, and diversity of other health department offerings at the event.

Cost Factors

Cost factors were minimal for the project's health department to host our education sessions. I had planned to advertise on social media, the newspaper, and possibly television or radio, which had no expense (See appendix H). All copies, handouts, and printing needs were completed through the county. Our set up time and IT needs were also completed through the county. These are resources of the health department that are free of charge. My project mentor and I discussed having snacks and refreshments for which we budgeted \$100. To draw people to the educational day and the clinic we planned drawings and giveaways. For the school age population, we planned to get school supplies from back to school sales. For the younger population, we considered diaper donations, crayons, coloring books, and stickers, for which we budgeted \$100. For the older teen population, we considered getting coupon donations for fast food places such as Subway or McDonalds. The biggest budgetary need was extra staff for the day to staff the clinic and help man the stations. We budgeted for two extra clinic nurses and one

extra clerk, (\$475 for 7.5 hours). In total, we budgeted \$675 (See Appendix I). I applied for a local Kiwanis grant (up to \$500) to help pay for expenses. This grant is funded to help the local health of community (See Appendix J).

Chapter IV: Results

Analysis of Implementation Process

The implementation process for this event went smoothly. I chose to not use the parent attitude survey by Douglas Opel in its entirety because I did not want to include demographic information and I simply wanted to measure vaccine hesitancy. There were some limitations to being able to advertise for the event effectively due to waiting on IRB approval from Bradley University's CUHSR. Approval came just a month before the event was scheduled. Flyers were sent out to multiple day camps, schools, day cares, posted at the health department, and given to WIC clients. The flyer was sent to roughly 15 places and only two voiced interest in helping advertise the event. There were also a newspaper article and social media posts. On the day of the event, there were three different tables set up with information about the vaccinations that are needed for each age group. Two nurses and myself were available to answer questions during the event. Bradley University dietetic students were on site to cook for event goers. They cooked some great snacks including sautéed peppers and a healthy version of a pizza bite which consisted of a wheat thin diced tomatoes, oregano, and mozzarella cheese. The students were also able to talk to the families about healthy eating. Event goers were entered into a drawing to win a \$50 gift card, which was purchased by me. The first five people received book bags filled with school supplies, which were provided by the health department. The local TV station WMBD came out to the event and did a short interview that aired later that night.

Analysis of Project Outcome Data

Data for the project were limited. There was not good attendance for the event, and only five pre-test and post-tests were completed. Those that did come through the event were already at the clinic for vaccinations. There were not people there just for the event. Due to poor attendance we have also chosen not to assess vaccination rates for 2018 to compare them to 2017 as originally planned.

Chapter V: Discussion

Findings

A paired samples t-test was conducted to compare the raw scores of the pre-test and post-test. There was not a significant difference in the raw scores for the pre-tests ($M=6.6$, $SD=2.6$) and post-tests ($M=5.2$, $SD=3.0$) conditions; $t(4) = 1.121$, $p = .325$. It is not possible to draw a conclusion from this data due to limited sample size ($n=5$).

Limitations or Deviations from Project Plan

The project plan was changed slightly for the event. Prior to the event we did not receive the Kiwanis grant or donations from any local vendors, so we were unable to purchase snacks or refreshments due to budgetary constraints. I also was unable to give the presentation as planned due to the low attendance. The five families that attended came in at all different times. I changed my plan by just sitting down with the families and asking them if they had any questions, comments, or concerns about vaccinations and answered the questions. I gave a brief overview of how immunizations work to each participating family, but individualized the talking points based on each family's needs. The poor turnout could have been due to the location of the event. The health department is in a rural location and it could have been difficult for those that were interested to secure transportation to the health department. Another limitation could have been that the subject of vaccinations can be sensitive for some people and there could have been

an unwillingness to participate or attend. Also, although we were inside for the event, it did rain that day, so people may have not wanted to come out in the storm. Finally, as mentioned earlier, advertising was limited due to time constraints.

Implications

Although, my findings were not statistically significant in this project, there was clinical significance in that I was able to spend quality time with each participating family to give vaccination education and answer questions and address concerns and dispel misinformation. Due to these results, I think that further research should be done to see if with a larger sample size, the results would be statistically significant. Previous research has shown that providing education does slightly decrease vaccine hesitancy which indicates that we should be providing more education to parents during routine prenatal and well-child visits. I proposed that the education material used for this project be used by the staff at the project's health department when they are educating clients about vaccinations. I also had planned to share the results with other healthcare providers in the county so they are able to better educate their clients on vaccines, but due to poor results this was not done.

Chapter VI: Conclusion

Value of the Project

Although the event did not get the turn out that was hoped for, this project still has value because vaccinations are important for the health of our community. It is an important topic to discuss at every doctor and clinic visit. The more we are willing to talk about vaccinations and shed light on the important aspects and give factual, reliable information, the more we can dispel some of the myths that continue to be talked about. Even though the event wasn't as successful as hoped for, I still feel like I was able to give those who did participate honest, factual

information in a way they had not heard before. Although at this point the health department has no plans to try to put on an event like this again, attendance could be improved by having multiple events at different times and locations or in a more central location. Another idea could be to include mini-events like this in the immunization clinics during peak immunization times.

DNP Essentials

One of the DNP Essentials achieved through this project was DNP Essential I - *Scientific underpinning for practice*. This was achieved by gaining extensive knowledge about how vaccines work, about how the immune system works, and learning the strict safety standards and practices for vaccinations. This project also addressed DNP Essential - VI *Interprofessional Collaboration for Improving Patient and Population Health Outcomes*. This was achieved through the communication with many different disciplines over the course of the project. I collaborated with clinic nurses, school nurses, a science journalist with extensive knowledge about vaccinations, and an epidemiologist. Finally, this project addressed DNP Essential VII- *Clinical Prevention and Population Health for Improving the Nation's Health*. This was achieved through the event itself, trying to improve the health of the county's population by raising awareness and giving creditable information to dispel myths about vaccinations.

Plan for Dissemination

This project will be shared with the Bradley University Community in the form of a formal presentation. A presentation was given to staff at the health department where they were able to ask questions about the project and the results. There is the possibility of presenting a poster at the Bradley University and the OSF Research Symposiums that occur in the spring and also at a Pediatric Symposium held by OSF in the fall for next year. This project will be discussed with my pediatric preceptor also.

Attainment of Personal and Professional Goals

I achieved my personal and professional goals by doing tremendous research on vaccinations. I now have extensive knowledge about vaccinations, the reasons why people do not vaccinate, and how to talk about vaccinations accurately and confidently. I purposefully chose a project that was in the realm of pediatrics because I want to continue working with the pediatric population in the future and vaccinations are a hot topic for this population of patients. I believe that this project has prepared me to be able to confidently discuss vaccinations with all my future patients.

References

- Ames, H., Glenton, C., & Lewin, S. (2017). Parents and informal caregiver's views and experiences of communication about routine childhood vaccinations: a synthesis of qualitative evidence. *Cochrane Database of Systematic Reviews*, 2, 1-140 doi: 10.1002/14651858.CD011787
- Awadh, A. I., Hassali, M. A., Al-Iela, O. Q., Bux, S. H., Elkalmi, R. M., & Hadi, H. (2014). Does an educational intervention improve parents' knowledge about immunization? experience from Malaysia. *BMC Pediatrics*, 14. <https://doi.org/10.1186/1471-2431-14-254>
- Bromberg Bar-Yam, N. (2002) Calling the shots: a brief look at the vaccination controversy. *International Journal of Childbirth Education*, 15(1), 39-41
- Center for Disease Control and Prevention (2017). For parents: vaccines for your children. Retrieved from: <https://www.cdc.gov/vaccines/parents/index.html>
- DataUSA: Tazewell county. (n.d.). Retrieved February 7, 2018, from Data USA website: <https://datausa.io/profile/geo/tazewell-county-il/#>
- Demicheli, V., Rivetti, A., Debalini, M.G., Di Pietrantonj, C. (2016). Vaccines measles, mumps, rubella in children. *Cochrane Database of Systemic Reviews*. doi: 10.1002/14651858.CD004407.pub3
- DesHarnias, S. I. (2011). *The Outcome Model of Quality*. Retrieved from <http://samples.jbpub.com/9780763781545/Chapter5.pdf>
- Espeleta, H.C., Beasley, L.O., Ridings, L.E., Smith, T.J., & Shields, J.D. (2017). Immunizing children: a qualitative analysis of future parental decision making. *Clinical Pediatrics*, 56(11), 1032–1039 doi: 10.1177/000992281770117

- Forshaw, J., Gerver, S. M., Gill, M., Cooper, E., Manikam, L., & Ward, H. (2017). The global effect of maternal education on complete childhood vaccination: a systemic review and meta-analysis. *BMC Infectious Disease, 17*. Doi: 10.1186/s12879-017-2890-y
- Fraleigh, J.M. (2009). Vaccination & compliance. *RN, 36-40*
- Johnstone, M.J. (2017). Ethics, evidence, and the anti-vaccination debate. *Australian Nursing & Midwifery Journal, 24(8), 27*
- Health Department Peoria, Tazewell, and Woodford Counties. (n.d.). *Community Health Improvement Plan*.
- Illinois Department of Public Health Tazewell County Health Department. (2018). *Childhood Coverage Levels*.
- Immunization and infectious diseases. (2018). Retrieved February 12, 2018, from <https://www.healthypeople.gov/2020/topics-objectives/topic/immunization-and-infectious-diseases>
- McKee, C., & Bohemond, K. (2016). Exploring the reasons behind parental refusal of vaccines. *Journal of Pediatric Pharmacological Therapies, 21(2), 104-109*.
- Oku, A. (2017). Perceptions and experiences of childhood vaccination communication strategies among caregivers and health workers in Nigeria: a qualitative study. *PLOS One, 12(11)*.
- Opel, D. J. (n.d.). *The parent attitudes about childhood vaccines (PACV) survey tool research and applications*. Retrieved from <file:///D:/Perceptions%20and%20experiences%20of%20childhood%20vaccination%20mmunication%20strategies%20among%20caregivers%20and%20health%20workers%2>

in%20Nigeria_%20A%20qualitative%20study_files/opel_iaim_verfinal_dist_redacted%
0(1).pdf

Opel, D., Taylor, J., Zhou, C., Catz, S., Myaing, M., & Mangione-Smith, R. (2013). The relationship between parent attitudes about childhood vaccines survey score and future child immunization status: a validation study. *JAMA Pediatrics*, *167*(11), 1065-1071.

Opel., D., Taylor, J., Mangione-Smith, R., Soloman, C., Catz, S., & Martin, D. (2011). Construct validity of a survey to identify vaccine-hesitant parents. *Vaccine*, *29*, 6598-6605.

Patchay, A. (2017). The economic benefits of vaccination. *Kai Tiaki Nursing New Zealand*, *23*(2), 17-19

Sak, G., Diviani, N., Allam, A., Schultz, P. (2016). Comparing the quality of pro- and antivaccination online information: a content analysis of vaccination-related webpages. *BMC Public Health*, 1-12, doi: 10.1186/s12889-016-2722-9

Tazewell Count Health Department (2017). Annual Report. Retrieved from <http://www.tazewellhealth.org/data-a-reports/annual-report.html>

Tazewell County Health Department Strategic Committee. (n.d.). *Strategic plan 2017-2020*.

Appendix A

Parent Attitudes about Childhood Vaccines Survey Item Response by Douglas Opel

20. What is the highest level of education that you have reached?

- 8th grade or less
- Some high school, but not a graduate
- High school graduate or GED
- Some college or 2 year degree
- 4-year college degree
- More than 4-year college degree

21. What is your approximate household income?

- \$30,000 or less
- \$30,001-50,000
- \$50,001-75,000
- \$75,001 or more

22. How many children are in your household?

- One
- Two
- Three
- Four or more

23. What is your race/ethnicity? Please check all that apply.

- White
- Black or African American
- Hispanic/Latino
- Asian
- Native Hawaiian or other Pacific Islander
- American Indian or Alaska Native
- Other: _____

Thank you!

	Strongly Agree	Agree	not Sure	Disagree	Strongly Disagree
6. Children get more shots than are good for them.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. I believe that many of the illnesses that shots prevent are severe.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. It is better for my child to develop immunity by getting sick than to get a shot.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. It is better for children to get fewer vaccines at the same time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Not at all Concerned	Not too Concerned	Not Sure	Somewhat Concerned	Very Concerned
10. How concerned are you that your child might have a serious side effect from a shot?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. How concerned are you that any one of the childhood shots might not be safe?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. How concerned are you that a shot might not prevent the disease?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Yes	No			
13. If you had another infant today, would you want him/her to get all the recommended shots?	<input type="checkbox"/>	<input type="checkbox"/>	Don't Know		
	Not at all Hesitant	Not too Hesitant	Not Sure	Somewhat Hesitant	Very Hesitant
14. Overall, how hesitant about childhood shots would you consider	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Treuman Katz Center for Pediatric Bioethics

Parent Attitudes about Childhood Vaccines



READ THIS FIRST:

We are interested in your opinions about childhood shots (vaccines). Your child's doctor or nurse gives shots like MMR (measles, mumps and rubella) or Polio at check-ups to help keep your child from getting sick.

THIS SURVEY IS NOT ABOUT SEASONAL FLU OR SWINE FLU (H1N1) SHOTS.

When filling out the survey, please answer each questions with the child whose appointment is today in mind. The answers to these questions will help us improve how doctors and nurses talk to parents about childhood shots.

Please check only one answer to each of the questions below.

1. Is this child your first born? Yes No
2. What is your relationship to this child? Mother Father Other _____

	Yes	No	Don't Know
3. Have you ever delayed having your child get a shot (not including seasonal flu or swine flu (H1N1) shots) for reasons other than illness or allergy?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Yes	No	Don't Know
4. Have you ever decided not to have your child get a shot (not including seasonal flu or swine flu (H1N1) shots) for reasons other than illness or allergy?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Not at all Sure											Completely Sure
	0	1	2	3	4	5	6	7	8	9	10	
5. How sure are you that following the recommended shot schedule is a good idea for your child? Please answer on a	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
15. I trust the information I receive about shots.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. I am able to openly discuss my concerns about shots with my child's doctor.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Do Not Trust at All											Completely Trust
	0	1	2	3	4	5	6	7	8	9	10	
17. All things considered, how much do you trust your child's doctor? Please answer on a scale of 0 to 10, where 0 is Do not trust at all and 10 is Completely trust.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

The last questions are about you. Please check only one answer to each question.

18. How old are you?
- 18-29 years old
 - 30 years or older
19. What is your current marital status?
- Single
 - Married
 - Living with a partner
 - Widowed
 - Separated
 - Divorced

Appendix B

Permission to Use Survey

Hello Dr. Opel,

My name is Kayla Bowen, I am currently in the DNP-FNP program at Bradley University in Peoria, IL. I am working on my capstone project which is trying to research if an increase in vaccine education will result in less vaccine hesitancy and therefore higher vaccination rates. I came across your parental attitude survey in my research and I wanted to get your permission to use your survey in my project. I look forward to hearing from you.

Thank you for your time,
Kayla Bowen BSN, RN, DNP-FNP Student.

Kayla

Thanks for your email and interest. Happy to have you use the PACV. The survey, scoring instructions and related material are attached. Please cite accordingly.

Douglas J. Opel MD, MPH
Seattle Children's Research Institute
University of Washington School of Medicine
Seattle, WA

Appendix C

Pre-Test & Post-test

1. Children get more shots than are good for them.

Strongly Disagree Disagree Agree Strongly Agree

2. I believe that many of the illnesses that shots prevent are severe.

Strongly Disagree Disagree Agree Strongly Agree

3. It is better for my child to develop immunity by getting sick than to get a shot.

Strongly Disagree Disagree Agree Strongly Agree

4. It is better for children to get fewer vaccines at the same time.

Strongly Disagree Disagree Agree Strongly Agree

5. How concerned are you that your child might have a serious side effect from a shot?

Not at all Concern Not too Concern Somewhat Concern Very Concerned

6. How concerned are you that any one of the childhood shots might not be safe?

Not at all Concern Not too Concern Somewhat Concern Very Concerned

7. How concerned are you that a shot might not prevent the disease?

Not at all Concern Not too Concern Somewhat Concern Very Concerned

8. If you had another infant today, would you want him/her to get all the recommended shots?

Yes No

9. Overall, how hesitant about childhood shots would you consider yourself to be?

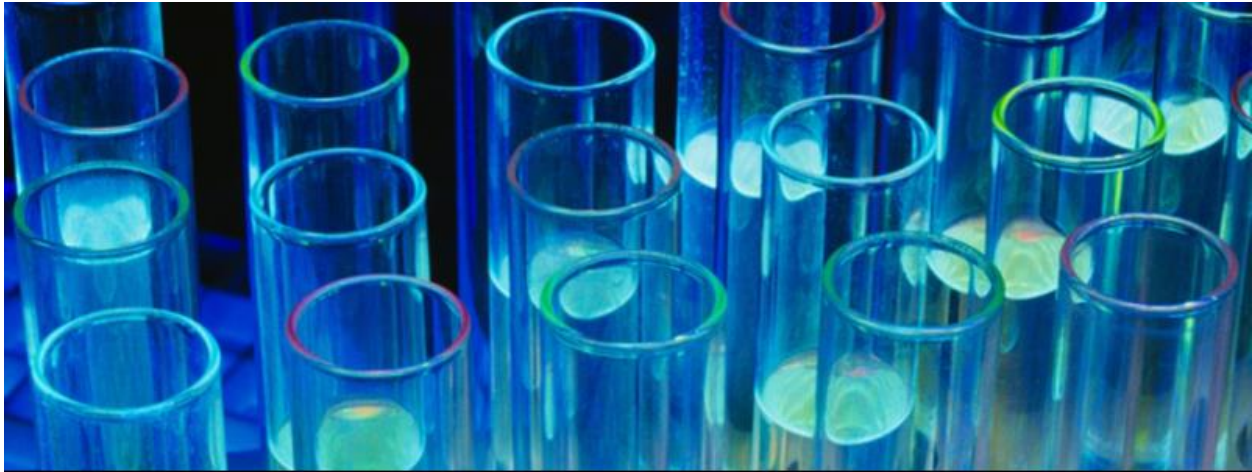
Not at all hesitant Not too hesitant Somewhat hesitant Very Hesitant

10. I trust the information I receive about shots.

Yes No

Appendix D

PowerPoint Presentation



How Vaccines Work

By: Kayla Bowen, RN, BSN, Bradley DNP-FNP Student.

Disclaimer

Education today is provided to give you the most reliable information to be able to make the best decision for you and your family.

Your Immune System

- Immune Response
- Natural Immunity v. Acquired Immunity

How Vaccines Work

Story of Chip and Dale:

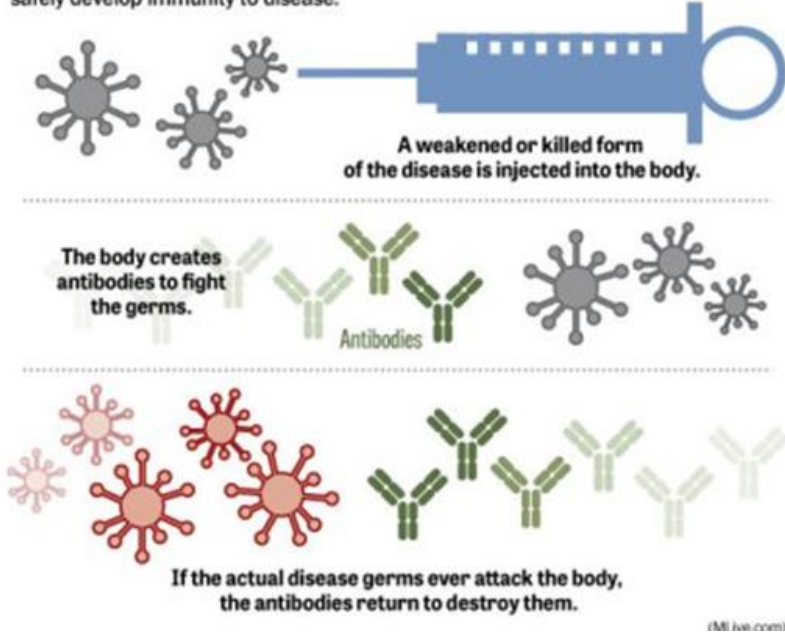
5 year males

Both play with child who has measles. Chip gets measles and pneumonia. Chip has immunity.

Dale: is vaccinated asymptomatic infection, develops immunity.

HOW DO VACCINES WORK?

Vaccines reduce the risk of infection by working with the body's natural defenses to safely develop immunity to disease.



Vaccine Safety

Ensuring Safety

- U.S. has safest most effective supply
- FDA ensures safety
- Lab, animal, clinical trails
- Monitoring after licensing

Common Concerns

- Contains Aluminum
- Autism
- Contains Thimerosal
- Too many vaccines/multiple at one time

Appendix E

PACV Scoring Instructions

Score each of the 15 PACV survey items (Q3-Q17; see attached scored version of PACV).

Hesitant responses are assigned a 2, ‘don’t know or not sure’ a 1, and non-hesitant responses a 0.

The two items in which the ‘don’t know’ response was excluded as missing data (Q3 and Q4) are scored as 2 for the hesitant response and 0 for the non-hesitant response. 2. Calculate the raw total PACV score by simply summing each item. The total raw score will range from 0 – 30 if all items have responses and Q3 and Q4 are not excluded as missing data. If there is at least one item without a response or Q3 or Q4 are answered as ‘don’t know’ and therefore are excluded as missing data, the total raw score needs to be adjusted. For instance, if there is one response missing or excluded, the total raw score will range from 0 – 28; if there are two responses missing or excluded, the total raw score will range from 0 – 26; etc. 3. Convert the raw score to a 0 – 100 scale using simple linear transformation accounting for items with missing values (see attached score conversion chart).

A		B		C	
If both Q3 and Q4 are Yes or No and items Q5-Q17 have no missing responses		If either Q3 or Q4 are Don't Know or Q5-Q17 has one missing response		If both Q3 and Q4 are Don't Know or Q5-Q17 has two missing responses	
Raw Score	Converted Score	Raw Score	Converted Score	Raw Score	Converted Score
0	0	0	0	0	0
1	3	1	4	1	4
2	7	2	7	2	8

3	10	3	11	3	12
4	13	4	14	4	15
5	17	5	18	5	19
6	20	6	21	6	23
7	23	7	25	7	27
8	27	8	29	8	31
9	30	9	32	9	35
10	33	10	36	10	38
11	37	11	39	11	42
12	40	12	43	12	46
13	43	13	46	13	50
14	47	14	50	14	54
15	50	15	54	15	58
16	53	16	57	16	62
17	57	17	61	17	65
18	60	18	64	18	69
19	63	19	68	19	73
20	67	20	71	20	77
21	70	21	75	21	81
22	73	22	79	22	85
23	77	23	82	23	88
24	80	24	86	24	92
25	83	25	89	25	96

26	87	26	93	26	100
27	90	27	96		
28	93	28	100		
29	97				
30	100				

Appendix F

Committee on the Use of Human Subjects in Research (CUHSR)

Dear Investigators:

Your proposed study (CUHSR 37-18) Educate to vaccinate has been reviewed and was found to be exempt from full review under Category 2.

Your vita and ethics certificates are on file.

Be aware that future changes to the protocols must first be approved by the Committee on the Use of Human Subjects in Research (CUHSR) prior to implementation and that substantial changes may result in the need for further review.

While no untoward effects are anticipated, should they arise, please report any untoward effects to CUHSR promptly (within 3 days).

As this study was reviewed as exempt, no further reporting is required unless you change the protocol or personnel involved.

This email will serve as notice that your study has been reviewed unless a more formal letter is needed. Please let me know, and I will provide the letter.

Ross L. Fink, Ph.D.
Chairperson, CUHSR`

Appendix G

Cover Letter

Educate to Vaccinate

You are invited to participate in a research study. The purpose of this study is to determine the knowledge and attitudes of parents and caregivers toward having their children vaccinated. I also want to offer vaccine education to help parents and caregivers make informed decisions about vaccinating their children. This study consists of surveys and a PowerPoint presentation. Your participation in this study will take approximately 30 minutes. This is an anonymous survey; there is no link between your name and the research record. Taking part in this study is voluntary. You may choose not to take part or may leave the study at any time, you may also skip specific questions.

You will be compensated for your participation by being able to enter a raffle drawing for school supplies.

Questions about this study may be directed to the researcher in charge of this study: Kayla Bowen at klbowen@mail.bradley.edu or Cindy Brubaker Faculty Advisor at cindyb@fsmail.bradley.edu. If you have general questions about being a research participant, you may contact the CUHSR office at (309) 677-3877.

You are voluntarily deciding to participate in this study. Your participation means that you have read and understood the information presented and have decided to participate. Your participation also means that all of your questions have been answered to your satisfaction. If you think of any additional questions, you should contact the researcher(s).

Appendix H

Advertisement

EDUCATE TO VACCINATE

ADD US TO YOUR BACK-TO-SCHOOL CHECKLIST

Health professionals will:

- Share why vaccines are safe & important to your health
- Discuss required vaccines for school attendance
- Immunize your child - from 2 months through 18 years

JULY 19, 2018

1:00 - 4:00 PM
TAZEWELL COUNTY HEALTH DEPARTMENT
21306 IL ROUTE 9
TREMONT, IL
309-929-0236

Enter to win door prizes!



FREE bookbags with school supplies to 1st 10 school-age children receiving a vaccine!

6/2018

Appendix I
Budget Table

Event Budget for Educate to Vaccinate

Expenses

		Estimated	Actual
Total Expenses		\$425.00	\$0.00

Site	Estimated	Actual
Room and hall fees	\$0.00	
Site staff	\$475.00	
Equipment	\$0.00	
Tables and chairs	\$0.00	
Total	\$475.00	\$0.00

Decorations	Estimated	Actual
Balloons	\$50.00	
Paper supplies	\$0.00	
Total	\$50.00	\$0.00

Publicity	Estimated	Actual
Graphics work	\$0.00	
Photocopying/Printing	\$0.00	
Postage	\$0.00	
Total	\$0.00	\$0.00

Miscellaneous	Estimated	Actual
Telephone	\$0.00	
Transportation	\$0.00	
Stationery supplies	\$0.00	
Fax services	\$0.00	
Total	\$0.00	\$0.00

Refreshments	Estimated	Actual
Food		
Drinks		
Linens		
Staff and gratuities		
Total	\$100.00	\$0.00

Program	Estimated	Actual
Performers	\$0.00	
Speakers	\$0.00	
Travel		
Other		
Total	\$0.00	\$0.00

Prizes	Estimated	Actual
Drawings	\$50.00	
Gifts	\$50.00	
Total	\$100.00	\$0.00

Appendix J

Kiwanis Grant

Kiwanis Grant Application 2018

Educate to Vaccinate: Kayla Bowen RN, BSN, Bradley DNP-FNP Student

Mission

My name is Kayla Bowen, I have collaborated with the Tazewell County Health Department to provide education on vaccinations to residents in the community. My mission is to provide reliable, quality information to parents of infants and children for them to be able to make the best decision for their families regarding vaccinations.

Grant Assistance

The Kiwanis Grant will be used to help provide extra staff who will be available as content experts to help families with questions. The grant will also be used to purchase items for giveaways, drawings, and refreshments. The drawings and giveaways are going to be used to draw people to the health department for this event. These items include backpacks, school supplies, crayons, coloring books, and diapers, to attract parents of infants to school age children. Snacks and refreshments will be provided during this event will collaborate with the Tazewell County Resource Center to provide refreshments.

Improving Wellness

Even though immunization rates have traditionally been high, not everyone is receiving the recommended immunizations (Fraleigh, 2009). Many factors contribute to this trend, but the gap in education regarding risk and benefits of vaccines continues to be a significant problem according to multiple sources. Lack of immunizations is a public health problem that can lead to re-emergence of diseases that were thought to be essentially eradicated. According to the Center for Disease Control (CDC), in 2000 measles had been declared eradicated in the United States, but by 2014 there were 668 cases of measles in the United States (CDC, 2017). These cases could have been avoided if everyone had been vaccinated. The CDC estimated that 732,000 American children were saved from death and 322 million cases of childhood illnesses were prevented between 1994 and 2014 due to vaccination (CDC, 2017). According to the health department website, in 2015 there were 3,461 clients who were immunized. In 2016 that number dropped to 3,246 clients (Tazewell County, 2017).

Member Involvement

Kiwanis members could have a direct role in the program by being available to assist staff with setup, food service, and guest facilitation on the day of the event. The biggest help members could provide is helping to promote the event. Telling their families and friends with infants and school age children about the event, or even members themselves attending the event, would be the best way to be involved.

