

Changing Minds, Saving Lives: Changing Parent Perceptions on Childhood Immunizations

by

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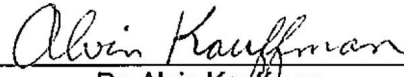
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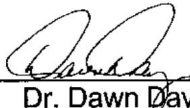
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Executive Summary

Purpose of Communication

Once a problem is identified in healthcare, the goal is to improve health outcomes. A solution to the problem was created for future practice scholarship using evidence-based practice skills.

Results

On a macro level, nation-wide data has been published stating that “the rate of childhood immunizations completed during this pandemic has decreased significantly” (Daley, 2020). Versus on a micro level, the local health department has been running into some barriers since COVID-19 hitting the nation, of having the children population continue to be able to receive their scheduled immunizations (such as Hepatitis A or Measles, Mumps, and Rubella (MMR)).

Recommendations

Provide thorough education during the immunization wavier education sessions at the local health department to attempt to change the perceptions of parents/guardians regarding routine scheduled immunization compliance for their child/children 18 years of age or younger.

Conclusion

There is a severe problem at hand that the author has identified. It needs to be addressed at a local level. If vaccine rates continue to decline currently, there will start to be a more significant concern for a decrease in HERD immunity, possibly leading to the measles or whooping cough outbreak, leading to another pandemic.

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Changing Minds, Saving Lives: Changing Parental Perception on Childhood

Immunizations

There is an immense amount of literature and data on the phenomenon of childhood vaccinations. Data dates back to 1796 when the first smallpox vaccine was discovered and when there was such a powerful argument about “should children be vaccinated” (Riedel et al., 2005).

Background/Significance

More importantly, this author is focused on the decline in routine, scheduled childhood immunizations (such as Hepatitis A or Measles, Mumps, and Rubella (MMR)) since the COVID-19 global pandemic, starting around March 2020. In fact, there have been a significant number of studies supporting this trend. The Center for Disease Control and Prevention (CDC), the World Health Organization (WHO), United Nations Children's Fund (UNICEF) all have recently reported a decline in children's immunizations. This decline in children's immunizations is significant because it can lead to a decrease in the community (HERD) immunity, which can, in turn, lead to another pandemic occurring in regards to lack of community (HERD) immunity through the decrease in immunizations being given. The World Health Organization (WHO) states:

'Herd immunity', also known as 'population immunity,' is the indirect protection from an infectious disease that happens when a population is immune either through vaccination or immunity developed through the previous infection. WHO (World Health Organization) supports achieving 'herd immunity' through vaccination, not by allowing disease to spread through any segment of the population, as this would result in unnecessary cases and deaths. (WHO, 2020, p. 1)

Problem Statement/Clinical Question

Figure 1.

The Well Built, Patient-Oriented Clinical Question

Question Components	Your Information
P – Patient or Population Describe the most important characteristics of the patient. (e.g., age, disease/condition, gender)	Childhood ages, ranging from birth to adulthood
I – Intervention; Prognostic Factor; Exposure Describe the primary intervention. (e.g., drug or other treatment, diagnostic/screening test)	Publicly educate on the importance of getting children immunized even during a pandemic.
C – Comparison (if appropriate) Describe the main alternative being considered. (e.g., placebo, standard therapy, no treatment, the gold standard)	The alternative is that children don't receive their immunizations, and another pandemic arises with another disease, such as whooping cough or measles, from them not getting vaccinated.
O – Outcome Describe Describe what you're trying to accomplish, measure, improve, affect. (e.g., reduced mortality or morbidity, improved memory, accurate and timely diagnosis)	Instead of seeing the decline in the childhood immunization rate, it would be better to see an increase. It's such a small responsibility we all as a community can take part in, preventing other diseases.
T = Time frame (e.g., how long does it take for the intervention to reach an outcome?) Not always include	Unsure of the time frame, it would need to be an ongoing trial and error process, maybe adding more education sessions as time goes on until immunization rates start to increase instead of that decrease.
The well-built clinical question: For parents/guardians of children less than 18 years old, does immunization compliance education via immunization waiver education sessions and educational handouts change the parent's/guardian's perception of their decision on vaccinating their child?	

Review of Literature

The Centers for Disease Control and Prevention (CDC), the World Health Organization (WHO), United Nations Children's Fund (UNICEF) all have recently reported a significant decline in children's immunizations. In addition, Olorunsaiye et al. (2020) performed and conducted a rapid review and synthesis of the literature on immunization provision and utilization since the onset of COVID-19. Olorunsaiye et al. (2020) state, "Close the emerging immunization coverage gaps" (p. 381).

Presently an expanded model of the WHO's Global Routine Immunization Strategic Plan has been implemented to help countries quickly adapt to immunization challenges in COVID-19. The World Health Organization (WHO) director states, "But it doesn't have to be that way as vaccines can be delivered safely even during the pandemic, and we are calling on countries to ensure these essential life-saving programs continue" (Schnirring, 2020, p. 2). To illustrate the decline in immunization rates, Daley et al. (2020) quotes the Centers for Disease Control and Prevention (CDC):

In May, the U.S. Centers for Disease Control and Prevention said that recurring orders of pediatric vaccines had dropped because of the pandemic. Later that month, the agency released a report showing that, compared with previous years, Michigan's vaccination coverage among children under two years old declined in the months after Governor Gretchen Whitmer issued a stay-at-home order.

Vaccination rates are dropping globally, and indications are that the rates are falling to levels that reduce herd immunity. This may result in both local and global pandemics, as described by Ducharme and associates. TIME Health writers Ducharme et al. states:

International survey data from the Institute for Health Metrics and Evaluation shows that scores of children worldwide missed vaccination appointments this spring, compared to last. Last year, 84% of the world's children received all the vaccines recommended by the World Health Organization. Now, it's around 70%. In some cases, these vaccinations are delayed, and kids can 'catch up' later without much consequence, the Gates Foundation's report reads. However, some infections, such as measles, spread quickly, and even short-term disruptions can lead to immediate increases in illness and death. (2020)

Many people believe that social distancing and stay-at-home orders are protective against infectious disease. In fact, these measures do provide some protection. But the insidious nature of some airborne infections such as measles still makes infection a possibility in unvaccinated individuals. The National Foundation of Infectious Diseases (NFID) supports this in their recommendation seen here:

Social distancing does not guarantee protection against vaccine-preventable diseases. The risk may be lower, but the viruses still circulate and infect children. Parents or guardians should be familiar with the recommended immunization schedule and ensure their children stay up-to-date on all recommended vaccines. Recently reported are an alarming 50 percent drop in measles, mumps, rubella vaccinations; a 42 percent drop in diphtheria and whooping cough vaccinations; and a 73 percent drop in HPV vaccinations, according to a pre-and post-COVID-19 comparison of electronic health records from 1,000 pediatric practices nation-wide. (NFID, 2020)

At the local level, childhood vaccination rates are tracked by state departments of health. In Michigan, this is done through the Michigan Care Improvement Registry, which compiles vaccination information. In May of 2020, at the height of the stay-at-home orders, Bramer and

associates (2020) found significant information regarding how this affected local vaccination rates:

Strategies to maintain immunization services include dedicating specific clinics, rooms, or buildings for sick visits and well visits; reducing the number of patients on-site at any one time; closing waiting rooms or registration areas, and having patients check-in by phone and receive vaccinations from their vehicles in the parking lot. Providers can use their patients' electronic health records and immunization information systems to work with families to schedule in-person appointments, identify children who have missed recommended vaccinations, and assure parents/guardians that strict infection control practices are in place. The observed declines in vaccination coverage might leave young children and communities vulnerable to vaccine-preventable diseases such as measles. Michigan continues to work with local health departments, and vaccine providers to regularly assess patient populations for vaccination coverage, promote tools to conduct reminders and recalls, and develop provider and parent education regarding the continued need for vaccination during pandemics. (p. 630-631)

It is evident that the decline in childhood immunizations isn't just a nation-wide problem; it is at local levels specifically.

Organizational Assessment

In this community, the Jackson County Health Department is a large provider of children's immunizations. Several immunization clinics are offered, and they participate in the Vaccines for Children program, providing free vaccines to vulnerable families. In order to assess the feasibility of partnering with this organization and implementing a vaccine education program, an organizational assessment was done. Moran (2020) describes organizational assessment as a

systematic evaluation of an organization's ability to address a problem, and to identify both opportunities and challenges that might affect the proposed implementation. The tool selected for use in this assessment was the SWOT analysis.

SWOT Analysis

According to Mindtools, "SWOT Analysis is a simple but useful framework for analyzing your organization's strengths, weaknesses, opportunities, and threats. It helps you to build on what you do well, to address what you're lacking, to minimize risks, and to take the greatest possible advantage of chances for success" (n.d.).

Figure 2.

SWOT Analysis, Jackson County Health Department

Strengths: • Have community trust through the mission, vision, value statements, and a cultural motto. • Have financial stability • Have a well put together professional organizational structure	Weaknesses: • Lack of immunization clinic hours and availability now due to COVID-19 • Limited staffing is currently allowed in the building at one time due to COVID-19. • Lack of community education
Opportunities: • Conduct immunization educational waiver sessions. • Try to include more clinic hours and availability.	Threats: • Continued hindrance of expanding hours and availability due to the continuous COVID-19 • Continued problem with limited staffing due to COVID-19

The use of a SWOT analysis is well supported in the literature as a data-driven analysis of an organization or an initiative. Parsons (2018) says that using a SWOT analysis, or analyzing strengths, weaknesses, opportunities, and threats, allows a clearer view as to how to succeed and provides a fresh perspective. This writer performed a SWOT analysis for the Jackson County Health Department. It can be seen in Figure 1, with discussion of the findings.

Strengths

The Jackson County Health Department has done a great job at gaining the community's trust and being able to serve them. They have gained this trust through their mission, vision, and value statements, not to mention their cultural motto as well. The community knows they are able to walk in the doors of their local health department and not be judged.

Furthermore, the Jackson County Health Department has also done a good job with their financial stability. Appendix F shows the financial stability of the Health Department. It can be seen that the largest portion (64%) of their revenue is from federal and state grants, and that 21% is from Medicaid and Medicare. County funding and local grants make up a small but important portion of their revenue. Their operating budget in 2018 was \$6,895,925.00, and these expenses were covered by the revenue. They are aware of what their total budget is for the year, so their gains and losses are in balance. However, they also know where they are receiving their revenue as well so they can balance themselves out. This leads them to financial stability.

Lastly, the Jackson County Health Department has an overall organizational structure that really serves and meets the needs of their organization. All employees and staff know who to

report to and where to go for resources. It appears to be an organization that runs like a well-oiled machine, with little glitches in the system.

Weaknesses

Even though the Jackson County Health Department excels at many things, they do have some weaknesses. Many of these weaknesses have developed since the onset of the COVID-19 pandemic. The first of these is limited immunization clinic hours. Prior to COVID-19, they provided a walk-in clinic for immunizations, no appointments needed, Monday through Friday during their normal business hours of 9-5. Since the onset of the pandemic, clinic times are only available by appointment once a week, with a break for lunch. The appointments are scheduled 45 minutes apart to provide for social distancing. This more limited appointment availability has resulted in reduced patient numbers, which has contributed to a decline in the community's immunization rates.

Another weakness caused by the pandemic is a limitation in the number of available staff for immunization clinics. Because there is a cap on the number of people allowed in the building at one time, clinics are staffed with fewer people in order to accommodate more community members on site. Workloads are therefore increased, so work output has declined. Less staff means fewer patients are seen per day.

Finally, the pandemic limited the amount of community outreach being done. Because of the "stay at home" orders, nurses were no longer able to provide outreach education in person, and clients no longer came to the physical facility for educational offerings. This educational gap contributed to the decline in immunization rates, and this writer hopes to bridge that gap.

Opportunities

One opportunity to increase immunization rates is for this writer to provide focused education sessions at community members' immunization waiver appointments. This education would be specific to keeping children's immunizations up to date and the importance of this, according to WHO, CDC, and UNICEF.

Another opportunity is that this writer can brainstorm with clinic leaders regarding ways to increase the numbers of patients seen for immunization appointments. Whether this is through additional staffing or more days per week for vaccination clinics, it's obvious that increasing the number of patients seen can result in an opportunity to increase the numbers of immunizations given.

Threats

Threats to improving vaccination rates in this community still revolve around the ever-present threat of COVID-19. If numbers of community infections rise, more lockdowns may become necessary. This would make increasing the staffing and the available days for clinics impossible to accomplish. Thus, the importance of providing educational sessions for the clients that are seen, no matter how small the number, becomes an important intervention that could make a difference in the immunization rates in this community.

Purpose of the Project

The writer's phenomenon of interest focus on the data that shows a decrease in routine and scheduled childhood immunizations (such as Hepatitis A or Measles, Mumps and Rubella (MMR) since the pandemic of COVID-19 has started. The data was collected nation-wide, as well as locally. An intervention needs to provide educational material to parents/guardians of children who need to have their immunizations completed whether the nation is amid a pandemic. Other data compiled by the CDC show that when compared to 2016 through 2019,

vaccination rates have declined almost 50% for children above 2 years old in 2020. This abrupt decline had multiple causes most likely stemming from pandemic-fueled societal changes. Certainly, stay-at-home orders coupled with reduced healthcare services and a drop in available personnel were instrumental in causing people not to schedule vaccination appointments. In fact, Bramer et al. (2020) found that during this time period, immunization rates declined for all diseases and all age cohorts, except for the initial hepatitis B immunization, which is routinely given to newborns at birth. This is further depicted in Appendix C.

Looking at the problem locally, data about the current immunization profile for Jackson County has been compiled by Jackson County, as can be seen in Appendix A. It shows the number of doses required for full vaccination status for various diseases. For children between 24 and 36 months, there are 1149 children in the county that are considered fully vaccinated for these diseases. There are 642 children who do not meet the fully vaccinated criteria. (Jackson County, 2021). Thus, it can be seen that there is room for improvement in vaccination rates for 36% of the eligible population in that age cohort. This represents an opportunity to improve the immunization profile for the county. This investigator was interested in knowing whether educating parents/guardians on the importance of staying up-to-date with children's vaccinations would make a difference in the parent or guardian's perceptions of the necessity of getting their children vaccinated. An intervention was designed in partnership with the Jackson County Health Department. Education on the importance of childhood immunizations was given to parents coming in to sign vaccine waivers in the hope of mitigating the gap in the county's immunization profile.

Conceptual and Theoretical

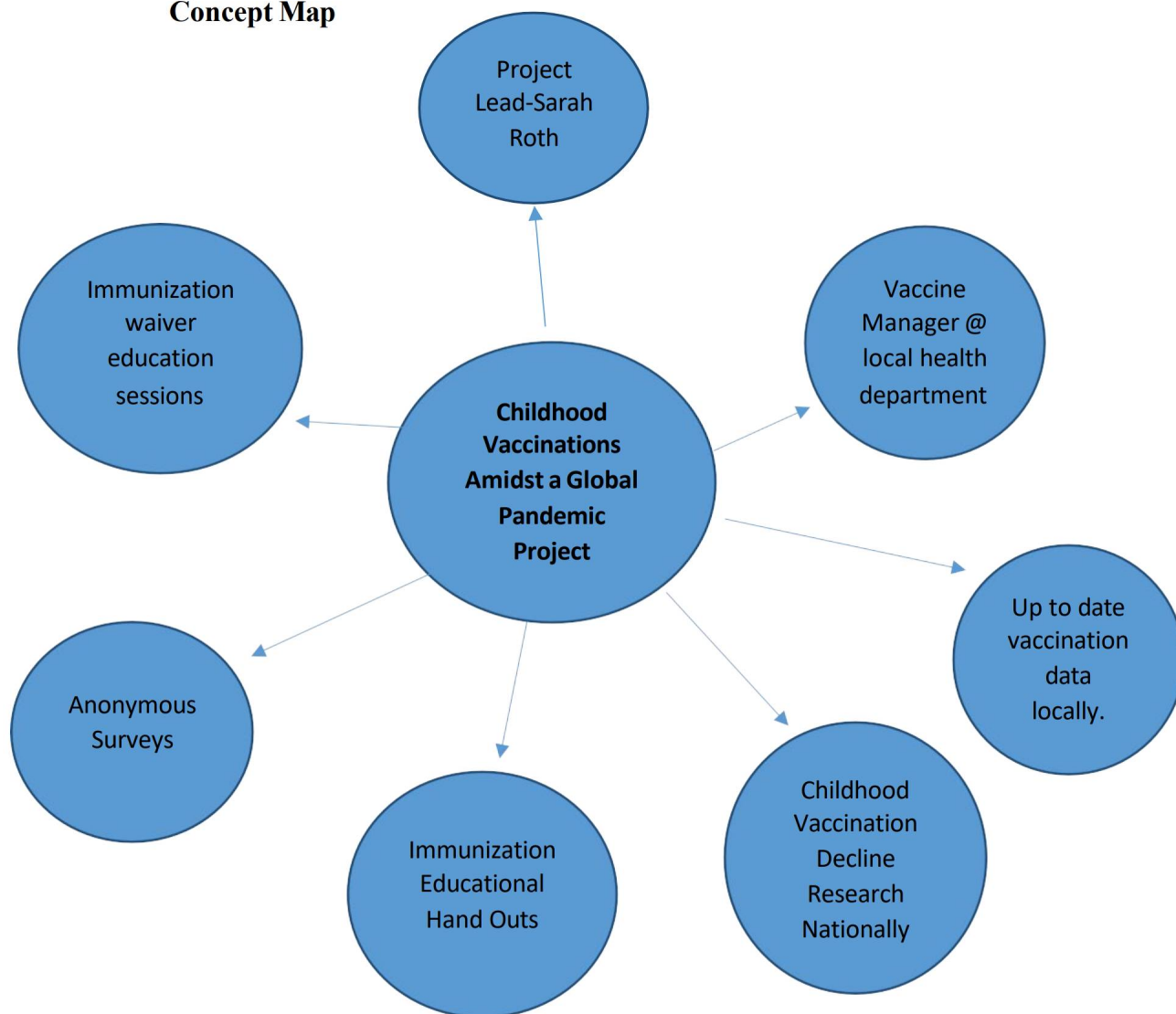
Concept Map

Concept maps are a graphic representation of ideas. They are used in many areas of nursing to encapsulate complex concepts and make it easier to develop a deeper understanding of phenomena (Moyo et al., 2020).

A concept map of this project has been developed. It depicts the complex factors involved in declining immunization rates, the key stakeholders in the project and the interventions necessary to achieve increased childhood vaccination rates in the selected population. See this writer's concept map below in figure 2.

Figure 3.

Concept Map

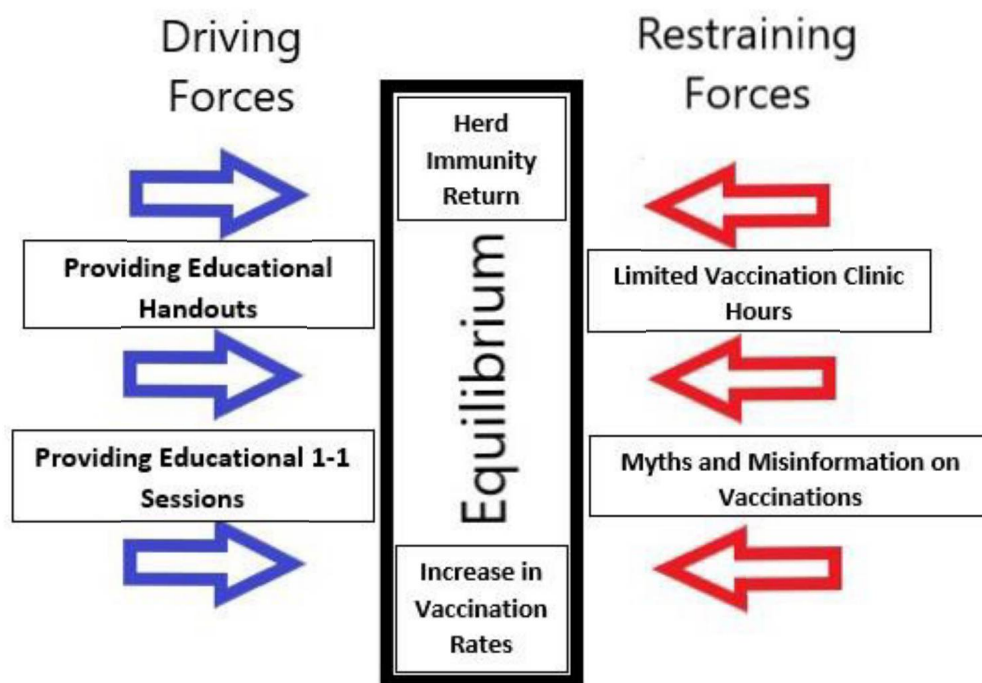


Theoretical Framework

Making a change can be a critical yet essential task for an organization. Transition is easier to implement and has a better chance of success if first an organizational needs assessment is completed. Weisburg (2017) states, "Needs assessment is important because it helps an organization determine the gaps are preventing it from reaching its desired goals (para. 3)." Once completed, the needs assessment will then support the change agent. To achieve a needs assessment, one must associate a model or framework with the needs assessment to support it. Lewin's Force Field Analysis model is what this author chose to help complete the assessment of the organizational needs at hand. Lewin's Force Field Analysis model focuses on driving and restraining forces of the organization. Furthermore, it focuses on this disequilibrium that occurs during change, but equilibrium is reestablished once the change has become norm.

The author's DNP project is taking place at the local health department. The onset of the COVID-19 pandemic caused a change in childhood immunization rates. The conditions of the pandemic represent Lewin's restraining forces, keeping immunization rates from achieving acceptable rates for herd immunity. Hopefully, this project will show that education will be a driving force, one that will help reestablish equilibrium.

According to the Organizational Intelligence Institute (2014) Lewin's Force Field Analysis model shows that when adding driving forces and limiting restraining forces, equilibrium can be achieved. It's important for organizations to identify these forces and develop appropriate interventions that move them in the desired direction. See this writer's theory depiction below in figure 3.

Figure 4.**Theory Depiction****Methodology****Setting**

The local health department has been serving the local communities for several years. They first began offering just a few of their services. They have expanded and have created many new community health initiatives. They have also received several grants for specific programs they offer, such as women, infants, and children (WIC), Early On, and MIBridges. The local health department has a good relationship and rapport with the community and their mission is to improve the community's overall health status.

Participants

The educational intervention directly targets parents/guardians with children under the age of 18, who live in Jackson County, MI. These parents/guardians are the decision-makers regarding their children's vaccine status, and must give consent for treatment. A Sample of convenience was used as a method to select participants. They were families who were scheduled for appointments and they participated in the intervention by choice. It was estimated that 10-20 parents would receive the education material, and it was estimated that there would be an 80% return rate for the anonymous survey.

Intervention and Data Collection

Fooladi (2015) states:

Access to multimedia through social networks at a global level, one wonders why some preventive healthcare services such as children and adult immunizations, annual screening for men and women, and prenatal and dental care for childbearing women and adolescents are not provided at a 100% rate. Community awareness is a crucial aspect of health initiatives seek to realize other key factors influencing community health. (p. 328).

The intervention consisted of immunization wavier educational sessions at the local health department. The education will be provided to parents/guardians who are already coming into the health department to sign the waiver form. These parents were not coming in to have their child or children vaccinated. During these educational sessions, this author will deliver any education regarding continuing to get children vaccinated and staying on track with their regular scheduled immunizations, even during the pandemic. This writer will stress how important it is, now more than ever, to have the children continue with their immunizations and on schedule in order to avoid resurgence of other childhood diseases in pandemic form. Blood Cross Blue Shield

Association (2020) states, "If current trends continue, the U.S. will fall dangerously below the vaccination levels for measles, and whooping cough that the CDC says are needed to protect community health (p. 2)." See Appendix B for a chart that shows the CDC benchmarks for vaccinations. In 2020, estimation of vaccination rates versus herd immunity requirements showed the United States fell short of the levels required for herd immunity in measles and whooping cough, but was in the satisfactory range for polio vaccination rates. (Blue Cross Blue Shield Association. (2020). It is incumbent upon community health personnel to observe these deviations from benchmarks and to develop appropriate interventions to address them.

The educational sessions will be based on providing information to parents/guardians on the importance of keeping children's well visits even during the pandemic of COVID-19. Tools used for this education include an educational handout showing recommended immunization schedules. Some parents may feel that children risk getting COVID during vaccine appointments, but this can be addressed as a risk/benefit ratio where the benefit far outweighs this risk. Not only will immunization schedules be reviewed, but recommendations for how to keep track of these will be discussed, so that children stay up-to-date. Factual information will be provided on the WHO, UNICEF, and CDC data regarding the declining vaccination numbers and what that could mean for communities. Lastly, contact information for this writer was given to the parents in case of further questions. Handouts will also be left that community members can pick up regarding a childhood vaccination schedule and the local health department information and current hours of operation to provide the vaccinations.

Additionally, parents who consent will participate in an anonymous survey which asks parents their perceptions about the benefits of routine vaccinations for children. This survey was created by this writer and can be seen in Appendix D. Another aspect of this project was that

benchmark data was provided to the author by the vaccination nurse manager for up-to-date data on numbers of children vaccinated and types of vaccines given. Comparisons of this data to the CDC recommendations were made.

Measures/Instruments/Tools

The focus of interest is whether education changes parents' perceptions of getting their children vaccinated. They are asked to answer Yes or No to 7 questions about the educational material they received, and if it changed their mind about getting their children vaccinated. They were also asked if the education was clear, and if it was new information. Direct, qualitative responses will be reported, as will trends and numbers of answers.

In addition, an educational handout was given to all participants. Please see Appendix E for the handout provided.

Ethical Consideration

Institutional Review Board approval was needed and was obtained.

Risks

There are little to no risks for the research subjects as no identifiable information was disclosed based on this investigator's data.

Participant Confidentiality

No identifiable information will be solicited or recorded from survey participants. The survey instrument that this investigator will be collecting is anonymous and doesn't disclose any identifiable information.

Data Storage

There are no additional software or hardware requirements needed for the security of this project. All the data shared with the investigator has no identifying factors.

Budget Plan

No cost was accrued to this writer through this DNP project. The health department needed to be open to offering the vaccine waiver education sessions, which cost them money. Many of the population they serve is covered by Medicaid and Medicare; therefore, they are reimbursed by Medicaid and Medicare. The percentage of this reimbursement can be found in their financial charts in Appendix F.

Analysis

The local county has currently lost 35% of its community (HERD) population for childhood vaccinations. The local health department is very concerned by this number, and through this project author's partnership with the department, an attempt was made to increase education to a selected population in order to encourage childhood vaccinations. The problem is that the county has a 5% waiver rate for childhood immunizations, which represents a significant community problem. This author will determine if immunization wavier educational sessions are effective in changing parents' perceptions regarding immunizations.

Return Rate

Of the sixteen appointments, all were willing to fill out a survey. The return rate goal was 80%. The return rate outcome was 100%, therefore, this writer's goal was exceeded.

Perceptions Changed

After the educational sessions, a total of 7 out of 16 stated their perceptions changed regarding vaccinating their child or children. Not everyone provided comments. However, some words that were provided include the following: "Child will be getting the vaccinations," "Am going to vaccinate now," "Plan to vaccinate now instead," and "Was given information not knowing about at the meeting and will vaccinate now." This represents a 43.75% change in

perception regarding the benefit of vaccinating their child/children that can be directly attributed to the educational intervention.

Other Comments

Other comments that were recorded from the surveys were the following, “Religious reason,” “Only delayed, still vaccinating,” “Not opposed to vaccinating, this is a special circumstance,” “Moral reasons/religious. Prefer natural immunity” and “Trust in the body's natural immune system.”

Sustainability

Moran (2020) states, “Sustainability speaks to the potential for the project to endure over time” (p. 293). This project is easily sustainable through the partnership that this project author has established with the vaccine nurse manager at the local health department. The vaccination nurse manager can pass along up-to-date local vaccination raw data to this project author through that partnership. The vaccination nurse manager can generate a daily, weekly, monthly childhood vaccination rate report. With the ability of that information to be developed anytime and then compared and trended with previous data, it will be evident if the immunization rate is trending upward or downward.

If the data is trending upward, then the project is being sustained; if the information starts to trend down again, that allows this project author to know that possibly some additional educational sessions need to be completed again. Indeed, the ability to constantly, in real-time, evaluate the vaccination rates is what is easiest to determine the current sustainability of the project. Waiver education sessions will continue. Data will continue to be collected to see if perceptions can be changed on childhood vaccinations through education. Data will be collected on childhood vaccination rates both locally and nationally.

Implications for Nursing

Moran (2020) states, “Sustainability speaks to the potential for the project to endure over time” (p. 293). The goals and objectives of this project are that through immunization wavier education sessions and informational handouts, the perceptions of parents/guardians will change to agree to vaccinate their children. That will indirectly alter the number of childhood vaccinations, and the herd population will return to normal levels before the COVID pandemic. The alternative is that children do not receive their immunizations, and another pandemic arises with another disease, such as whooping cough or measles, from them not getting vaccinated.

Upstream Healthcare

Upstream medicine, which includes routine childhood immunizations, is the new revolving door that leads to better patient outcomes. Providing educational sessions regarding trying to change parents' or guardians' perceptions on whether or not to immunize their child with routine childhood immunizations is an excellent example of upstream healthcare. This writer tried to intervene before an outbreak of disease happened because of low immunization rates and low HERD immunity. James (2020) states:

“Simply put, upstream healthcare is any approach to disrupt these structural barriers and transform a person's quality of life and health outcomes. As known today, healthcare is hauling half-drowned people out of the water. Upstream healthcare is building a safety fence so that people don't fall into the water” (p. 1).

As a future DNP nurse leader, it's imperative to look upstream and prevent poor health outcomes before they can happen. Changing parents' perceptions about immunizations through education may lead to higher vaccination rates. This writer's education did have a 43% success rate in changing parents' perceptions about immunizations. This could contribute to bringing us

closer to the recommended levels for herd immunity, thus preventing other childhood diseases from finding their way back into the population after being mostly eradicated through immunizations.

Conclusion

This paper attempted to answer the question of whether education about vaccination changes parents' perceptions regarding vaccination their children. Through focused education to a convenience sample of parents, it was determined that education was effective in changing parents' perceptions in 43.75% of survey respondents. The WHO (2020) director states, "Vaccines are one of the most powerful tools in the history of public health. The avoidable suffering and death caused by children missing out on routine immunizations could be far greater than COVID-19 (para. 3)." If, indeed, vaccines are a powerful public health tool, then education about vaccines may be an important driver of change to help us achieve herd immunity.

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Appendix A- Current Immunization Profile for Jackson County

	Current Immunization Profile for the County	
	Report Date: June 17, 2021	
	Report For: Jackson (38) County	
	Immunization Schedule Specified for Clients	
People of at least (months)	24	
But not yet of age (months)	36	
Minimum Doses of DTaP/DT/Td/Tdap	4	
Minimum Doses of IPV	3	
Minimum Doses of MMR	1	
Minimum Doses of HIB	3	
Minimum Doses of HepB	3	
Minimum Doses of Varicella	1	
Minimum Doses of PCV7/13 Prevnar	4	
Minimum Doses of HepA	2	
Minimum Doses of Rotavirus	0	
Minimum Doses of Influenza	0	
Minimum Doses of Meningococcal	0	
Minimum Doses of HPV	0	
Gender	All	
Patient Status	Standard	
Migrant People	Exclude	
*: People may be considered compliant for HIB and PCV7 even if they do not meet a minimum number of doses stipulated if they are assessed as complete.		
Summary	Number	Percent
Clients that Meet above Criteria	1149	64
Clients Not Meeting Above Criteria	642	36
Total Number of Clients Evaluated	1791	100

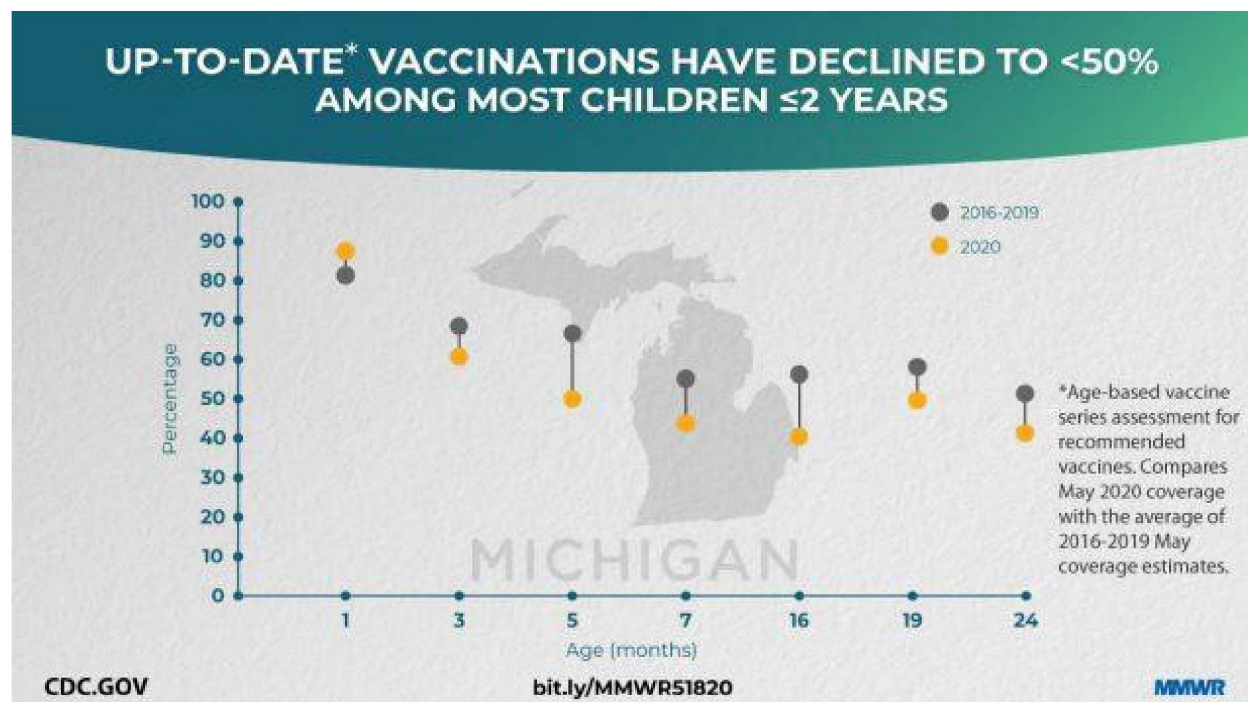
Source: Jackson County. (2021).

Appendix B-CDC Benchmarks

Vaccination	BCBS 2020 Estimated Vaccination Rate	BCBS % Decrease from 2019	CDC Herd Immunity Requirements	BCBS 2020 Estimated Vaccination Rate vs. CDC Herd Immunity Requirements
Measles	88.2%	-26%	93.0%	-4.8
Whooping Cough	79.3%	-26%	92.0%	-12.7
Polio	88.9%	-16%	86.0%	+2.9

Source: Blue Cross Blue Shield Association. (2020).

Appendix C- Michigan Data Vaccination Decline



Source: Bramer, et al. (2020).

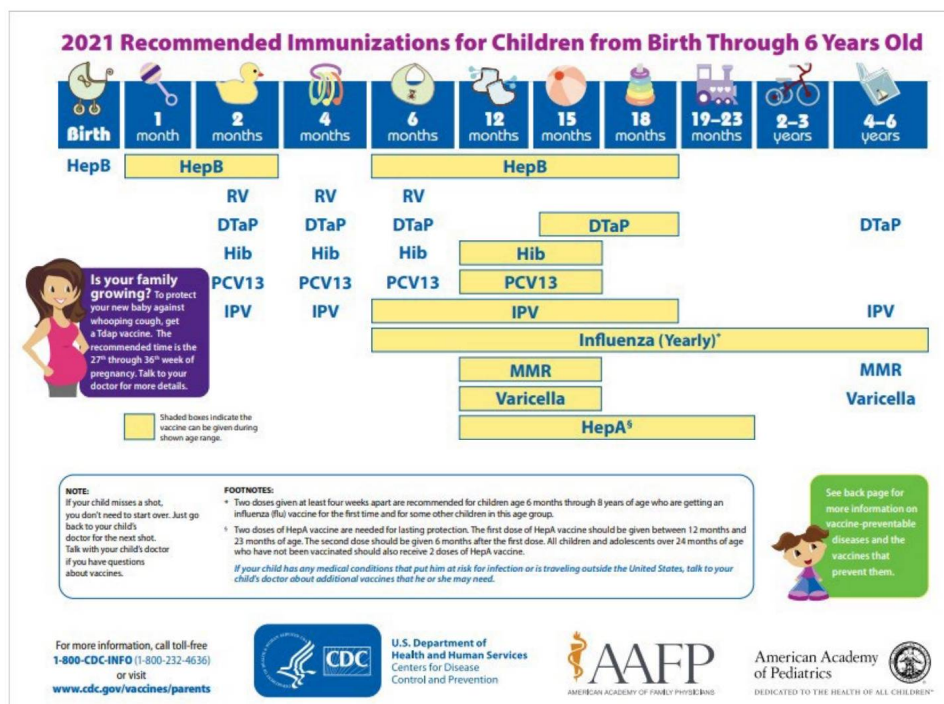
Appendix D- Anonymous Survey

Anonymous Education Survey

1.	How many children do you have?		
2.	If you have more than one child, did you sign the wavier form for your other children as well?	Yes	No
3.	Was the education material presented in a way you could understand it clearly?	Yes	No
4.	Was the education material helpful in regards to the topic of childhood vaccination compliance information?	Yes	No
5.	Did you learn any new information during the education session you didn't already know in regards to the topic of childhood vaccination compliance?	Yes	No
6.	Since listening to the educational session, do you now need additional time to process new information and knowledge to make a decision later on your child's/children's vaccination status?	Yes	No
7.	Now after the educational session, do you want to discuss with your family members before making a further decision on your child's/children's vaccination status?	Yes	No
8.	Since you came to the health department to sign the immunization wavier, after the educational session has your perception now changed at all in regards to vaccinating your child?	Yes	No
9.	Would you be willing to share in the comment section why you are choosing not to have your child/children vaccinated?	Yes	No
	Comments:		

Please fold and place in sealed box when complete, thank you for your time.

Appendix E-Education Handout



Vaccine-Preventable Diseases and the Vaccines that Prevent Them

Disease	Vaccine	Disease spread by	Disease symptoms	Disease complications
Chickenpox	Varicella vaccine protects against chickenpox.	Air, direct contact	Rash, tiredness, headache, fever	Infected blisters, bleeding disorders, encephalitis (brain swelling), pneumonia (infection in the lungs)
Diphtheria	DTaP** vaccine protects against diphtheria.	Air, direct contact	Sore throat, mild fever, weakness, swollen glands in neck	Swelling of the heart muscle, heart failure, coma, paralysis, death
Hib	Hib vaccine protects against <i>Haemophilus influenzae</i> type b.	Air, direct contact	May be no symptoms unless bacteria enter the blood	Meningitis (infection of the covering around the brain and spinal cord), intellectual disability, epiglottitis (life-threatening infection that can block the windpipe and lead to serious breathing problems), pneumonia (infection in the lungs), death
Hepatitis A	HepA vaccine protects against hepatitis A.	Direct contact, contaminated food or water	May be no symptoms, fever, stomach pain, loss of appetite, fatigue, vomiting, jaundice (yellowing of skin and eyes), dark urine	Liver failure, arthralgia (joint pain), kidney, pancreatic and blood disorders
Hepatitis B	HepB vaccine protects against hepatitis B.	Contact with blood or body fluids	May be no symptoms, fever, headache, weakness, vomiting, jaundice (yellowing of skin and eyes), joint pain	Chronic liver infection, liver failure, liver cancer
Influenza (Flu)	Flu vaccine protects against influenza.	Air, direct contact	Fever, muscle pain, sore throat, cough, extreme fatigue	Pneumonia (infection in the lungs)
Measles	MMR** vaccine protects against measles.	Air, direct contact	Rash, fever, cough, runny nose, pink eye	Encephalitis (brain swelling), pneumonia (infection in the lungs), death
Mumps	MMR** vaccine protects against mumps.	Air, direct contact	Swollen salivary glands (under the jaw), fever, headache, tiredness, muscle pain	Meningitis (infection of the covering around the brain and spinal cord), encephalitis (brain swelling), inflammation of testicles or ovaries, deafness
Pertussis	DTaP** vaccine protects against pertussis (whooping cough).	Air, direct contact	Severe cough, runny nose, apnea (a pause in breathing in infants)	Pneumonia (infection in the lungs), death
Polio	IPV vaccine protects against polio.	Air, direct contact, through the mouth	May be no symptoms, sore throat, fever, nausea, headache	Paralysis, death
Pneumococcal	PCV13 vaccine protects against pneumococcus.	Air, direct contact	May be no symptoms, pneumonia (infection in the lungs)	Bacteremia (blood infection), meningitis (infection of the covering around the brain and spinal cord), death
Rotavirus	RV vaccine protects against rotavirus.	Through the mouth	Diarrhea, fever, vomiting	Severe diarrhea, dehydration
Rubella	MMR** vaccine protects against rubella.	Air, direct contact	Sometimes rash, fever, swollen lymph nodes	Very serious in pregnant women—can lead to miscarriage, stillbirth, premature delivery, birth defects
Tetanus	DTaP** vaccine protects against tetanus.	Exposure through cuts in skin	Stiffness in neck and abdominal muscles, difficulty swallowing, muscle spasms, fever	Broken bones, breathing difficulty, death

* DTaP combines protection against diphtheria, tetanus, and pertussis.

** MMR combines protection against measles, mumps, and rubella.

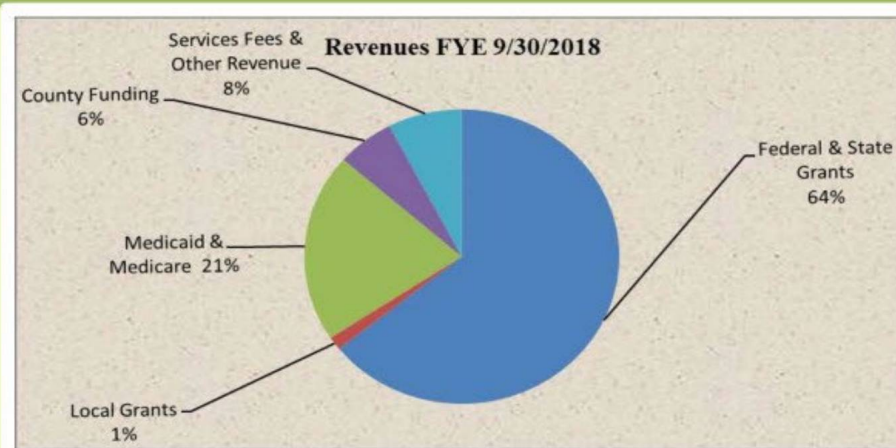
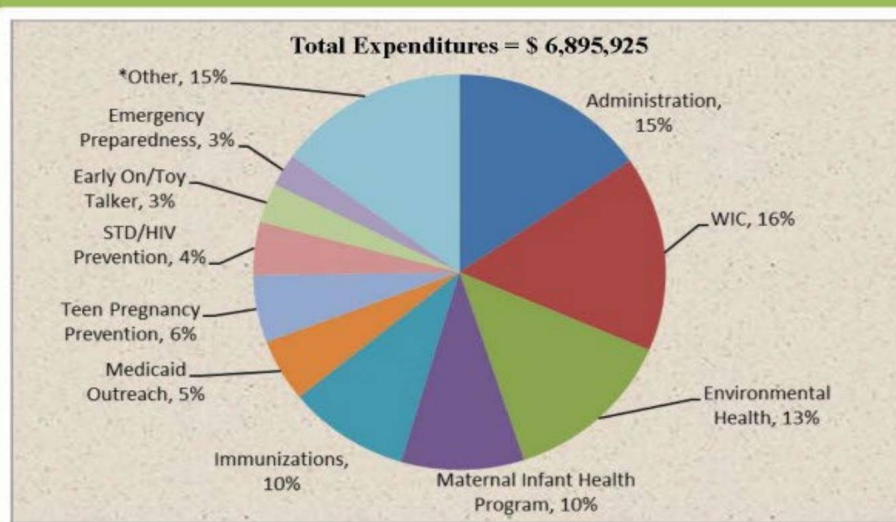
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Source: Centers for Disease Control and Prevention. (2021).

Appendix F- Financial Charts

2018 FINANCIALS

The Health Department operating budget was \$6,895,925 for the fiscal year ending September 30, 2018.
The charts reflect unaudited figures.



Source: Jackson County Health Department. 2020.