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Improving Vaccination Rates Through Community Partnership

By

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Abstract

Background & Significance: Underimmunization among school-aged children is an ongoing challenge. Parents refuse vaccination because of lack of knowledge and poor access to immunization services. According to the current San Diego County, 2015 vaccination coverage statistics, compliance is only 80%. Approximately 42,000 adults and 300 children in the United States die each year from vaccine-preventative diseases. According to Mortality and Morbidity Weekly Report, San Diego County is below the Healthy People 2020 target rate of 90% and Elementary School in Southern California compliance rate is 80%. According to the Community Preventive Services Task Force, recommendation includes the provider or system-based interventions implemented in combination with the health care system-based interventions on the basis of strong effectiveness in increasing vaccination rates in targeted client populations. Based on their findings from 37 of the 64 included studies, the Task Force further recommends a combination of interventions that include the following: at least one intervention to increase client demand for vaccinations, such as clinic-based client education or the manual outreach and tracking.

PICOT Question:

Population/Problem: In an Elementary School in Southern California, kindergarteners with decreased immunization of Measles, Mumps and Rubella (MMR) vaccine as documented in previous year

Intervention- Does providing education to parents using a PowerPoint presentation, educational brochure and follow-up telephone call regarding importance of MMR vaccine

Comparison- Compared to no education on importance of immunization

Outcome- Result in increased number of MMR vaccine uptake rates and vaccine series completion rates among school age kindergartens

Time- Within 4 months

Methods/Design: A quality improvement project will be used as method of study with an intervention design comparing outcomes with no education on importance of immunization for the parents or guardians of the Southern California Elementary School Age Kindergartens. The Iowa model is an appropriate tool for this project primarily because of its well-organized, efficient implementation and multidisciplinary team approach to promote change in practice.

Proposed Intervention: A system-based intervention will be implemented with the health care-based intervention which includes client-based education and increasing client demands for a response to vaccination. An Immunization Information System (ISS) will be utilized to provide reliable evidence of effective vaccination tracking mechanism. Conduct initial survey using needs assessment and barriers. Provide vaccination education classes according to the results of the assessment, then, conduct vaccine audit review to verify the compliance rates.

Expected Outcomes: The outcomes showed an improvement in the vaccination uptake rates and vaccine series completion rates 95%. The results of the study showed that vaccination education is necessary to improve the knowledge of parents on the importance of vaccines. Community partnership is vital to increase public awareness in improving vaccination rates.

Improving Vaccination Rates Through Community Partnership

Background & Significance

Vaccines remain one of the most useful tools available for the prevention of childhood and adult diseases. One of the most efficient medical interventions affecting children's health when coverage is adequate is the vaccination compliance. According to the Morbidity and Mortality Weekly Report (MMWR) (2021), for most vaccinations, coverage is high and remains similar to levels seen in the previous years. The MMWR for October 2021 found coverage for ≥ 3 doses of poliovirus vaccine at 92.7%, ≥ 3 doses of hepatitis B vaccine at 91.9%, ≥ 1 dose of measles, mumps, and rubella vaccine at 91.6%, and ≥ 1 dose of varicella vaccine at 90.9% (Centers for Disease Control Prevention [CDC], 2021). The national goal is 90% coverage reached for ≥ 3 doses of Poliovirus vaccine, ≥ 1 dose of Measles, Mumps, and Rubella (MMR) vaccine, ≥ 3 doses of Hepatitis B vaccine, and ≥ 1 dose of Varicella vaccine (Centers for Disease Control and Prevention, 2021). Children with low-income level have less coverage for almost all of the vaccinations assessed, compared with the children living at or above the poverty level (Centers for Disease Control and Prevention [CDC], 2021).

For the Southern California Elementary School system, vaccination compliance has been a problem. Many children have not received all vaccination, and some are missing their required vaccination (M. Bajet, personal communication, February 10, 2016). According to the most recent data, for the school years 2018-2019, the percentage of fully vaccinated kindergartners in California stood at 43.2%; although this represented an increase from previous years, it is well below optimal levels (Xie & Willis, 2019). Irregular vaccination of children serves as vectors for disease transmission for this age group which is vulnerable to Vaccine Preventable Diseases (PVD) thus resulting in vaccination gap for school age children.

Problem Description

The parents' refusal of the required or mandated vaccination program for the children is one of the biggest challenges today for a health care provider. Refusal to participate or to adhere to the vaccination program of their children will leave their children vulnerable to the disease itself, pose a threat to their family's wellbeing, and will also be a significant threat to other children and the entire community. Vaccination exemption law allows some exception from vaccination whether medical, religious belief and personal/conscientious belief (National Vaccine Information Center). Although the 2016 California Senate Bill 277 eliminated nonmedical exemptions from school entry requirements, MMR coverage in California increased by only 3.3% in the post-policy period, with medical exemptions correspondingly increasing (Nyathi et al., 2019). The vaccination exemption rates for kindergarteners are small for most states compared to infant vaccination rates, which are high nationally in a report published in the *Morbidity and Mortality Weekly Report*. Exemption levels remain low with a median level of 1.7 percent nationally for the school year 2014-2015 compared in Mississippi with state exemption levels ranged from as low as less than 0.1 percent to a high as 6.5 percent in Idaho (CDC, 2014).

A mandated and required annual vaccination of the nation's school children resulted to an enormous of reduction of reported cases of different diseases including Diphtheria, Polio, Pertussis, Measles, Mumps and Rubella that were once responsible for the death of hundreds of children yearly (Johnson, 2013). In the areas where once child immunization rates have fallen below standards is considered acceptable by public health authorities to maintain law and health safety against infection, cases of diseases such as Measles and Pertussis are on a rise (Johnson, 2013). There have been many outbreaks reported, which are associated with under-vaccination

and vaccination refusal such as measles and pertussis. As of February 11, 2015, an outbreak in a California theme park confirmed a total of 125 measles cases (CDC, 2015). In June 2019, the CDC reported 1,044 measles cases in 28 states, already setting the record at the time for highest annual case count since measles was declared eradicated from the US in 2000 (Quinn et al., 2020). Greater effort should be focused on the following: immunization education and promotion, assessment and tracking of vaccination status, referral of unvaccinated students to a school nurse or vaccination providers, provision of immunizations and use of immunization information systems, all of which will help increase vaccination compliance among parents and guardians.

Additional intervention includes the State Kindergarten Exemption Law and the State Vaccination Exemption Law, which will have a significant effect in reducing vaccine exemption. In California, on June 30, 2015, Governor Brown signed SB 277 stating that personal and religious belief exemptions will not be allowed unless a parent has filed a belief opposed statement to immunization before Jan 1, 2016 (National Vaccine Information Center). Proven strategies recommended in the Community Preventive Services Task Force, the Guide to Community Preventive Services should be implemented. Community Preventive Services Task Force (2016) is an essential resource for people who want to know what are accomplished by public health services. It provides policies and evidence-based interventions to improve health and promote personal and public safety (Bradford & Mandich, 2015).

Literature Review & Supporting Evidence

Systematic literature reviews to obtain evidence-based interventions on childhood vaccination was used. Among the 225 articles retrieved and reviewed, 28 articles included

pertinent information; of those, 15 reports were used in this paper. The keywords were vaccination, immunization rates, refusal, school age and promotional strategies. I searched the PubMed, CINALH Plus, Cochran library and the following websites and reports: World Health Organization, MWWR, CDC, San Diego County Public Health and the Community Preventive Services Task Force.

Multiple reasons were noted for refusing or delaying vaccinations found in the literature review which includes immediate short-term adverse effects such as pain, fever, current illness and the possibility of autism development and potential experience for long-term complications with negative results from vaccines. There is also the perception of non-child vaccination severity of the Vaccine Preventable Disease (VPD) that warrants non-control over the child's health decision; lack of awareness for published schedules or use of alternative vaccination schedule; concerns of vaccine weakness for the immune system: and the beliefs that there is minimal research and evidence-based guidelines supporting the effectiveness of vaccine. Increased parental hesitancy is associated with parent's decision to delay or refuse vaccinations for their child (Smith et al., 2011), (Level I). Consequently, the parents are less likely to believe that VPDs are an important health concern and more liable to have concerns about vaccine efficiency and safety which hinders the vaccination process for their child.

The following strategies are outlined to help increase the vaccination rates among school-age children at Elementary School in Southern California. First, number of vaccinated children against the unvaccinated ones will first be identified; the reason for refusal; collect demographic information including ethnicity, language at home, and their socio-economic status. With the help of the information system staff, an immunization tracking system will be put in place to identify the unvaccinated and vaccinated school-age children. An assessment of the needs and

barriers of the reason for the refusal of vaccination and the possibility of knowledge gap, and evaluate the medium of communication used at home as well as their access to health care which may be related to economic burden. A strong of coordination with the ancillary support personnel the follow-up telephone calls, scheduling education and training, tracking and updating data. A follow-up reminder log will be developed to document responses or feedbacks. An educational and training tools based on the results of the assessments such as PowerPoint, Posters, Flyers, and Brochures will be developed. The CDC patient education immunization guidelines and all applicable related resources will be incorporated in the program. Available time, space, equipment, and support personnel needed (translator) for the meeting will be coordinated with community partners (school principal, teachers and staff, and budgetary support).

According to the Community Preventive Services Task Force (2010), recommendations should include a provider or system-based intervention in combination with the health care system-based intervention. In addition, the task force further recommended a combination of interventions which would include client-based education with manual outreach and tracking, open access to health care, co-sharing of cost and home visitation, and prevention providers or system intervention, such as reminders, protocols, and feedback from the provider (Guide to Community Preventive Services, 2010).

Immunization Information System (IIS) provides reliable evidence of efficient and increasing vaccination rates according to Community Preventive Services Task Force (Level 1). The geographic, political areas are an active factor in this project by using the IIS, which is confidential, population-based computerized databases that record all immunization doses administered by providers in their specific geographical areas. Such geographic regions will be

involved in vaccination programs found in school or child care center. The Immunization Information System is a part of a multicomponent intervention which will help deliver on-site protection that improves the immunization rates for children and adults and is also a critical factor in achieving our goal to increase vaccination compliance.

A Community Preventive Services Task Force recommends that the school and organized child care center located in a particular vaccination program demonstrates high, and adequate evidence in increased vaccination rate and decreased communicable disease rates associated with morbidity and mortality (Guide to Community Preventative Services, 2016). The Task Force indicated that schools and organized childhood centers located within vaccination program could have the most improve immunization rates among children and adolescent for new and expanded vaccines (Guide to Community Preventative Services, 2016). A meta-analysis study (Level 1) by Shefer et al., (1999) on school-based Hepatitis B program for adolescents utilized multiple components including teacher education, classroom lessons, written patient education materials, and peer and individual incentives.

Moreover, Kimmel, Burn, Wolfe, & Zimmerman, (2007) meta-analysis (Level 1) noted that the basis of indicating progress is through an active participation of the patient to receive the vaccine and update on their required immunizations as part of the medical provider's treatment plan. The Federal, State and local government programs such as Women, Infant, and Children (WIC), Cash Aid Program, and Child Health and Disability Prevention (CHDP) Programs have mandated immunization requirements for the low-income population particularly the pediatric age population. Compliance with these programs is critical to being able to continue the program. Participation and compliance rates significantly improved through parents' education and increase knowledge (Kimmel et al., 2007).

Theoretical Framework

The Iowa model is the best practice model which can provide guidance in the implementation of this EBP project. Its primary purpose is to guide practitioners in the use of evidence to improve health care outcomes (Rycroft-Malone & Bucknall, 2010). Moreover, the Iowa model provides the practitioner a framework for knowledge transformation and guides implementation of research into clinical practice offering the most up-to-date evidence-based care to the patient within the clinical setting. Nurses with varying degrees of experience can quickly follow the Iowa model intuitive design as a logical flow and is easily understood. Moreover, I have chosen the Iowa model as an appropriate tool for my selected project primarily because of smooth implementation and multidisciplinary team approach to promote change.

Specific Aim

The specific aim of this quality improvement project is to determine whether education using an education powerpoint presentation, educational brochure, and follow-up telephone call improve the MMR vaccine uptake rates and vaccine series completion rates among kindergarteners in an Elementary School in Southern California.

PICOT Question

The PICOT question for this quality improvement project is:

Population/Problem: In an Elementary School among Southern California kindergarteners, with decreased immunization of Measles, Mumps and Rubella (MMR) vaccine as documented in previous year

Intervention: Does providing education to parents using a PowerPoint presentation, educational brochure and follow-up telephone call regarding importance of MMR vaccine

Comparison: Compared to no education on importance of immunization

Outcome: Result in increased number of MMR vaccine uptake rates and vaccine series completion rates among kindergarteners

Time: Within 6 months

Methods

Design

A quality improvement project will be used as method of study with an intervention design comparing outcomes with no education on importance of immunization for the parents or guardians of the Southern California Elementary School Age kindergarteners. The Iowa model is an appropriate tool for this project primarily because of its well-organized, efficient implementation and multidisciplinary team approach to promote change in practice.

Setting and Sample

The setting for this project will be an Elementary school in Southern California while the sample for this project includes will be kindergarteners at the Elementary School in Southern California. The sample size will be 90 kindergarteners. The participants will be recruited by use of convenience sampling.

Aims

About 80% of the kindergarten students (n=75) have received the vaccination, and 20% (15 students) will need an MMR vaccination. My objective and goal will be to see an additional 50% of the remaining students (n=7) vaccinated two months after the educational intervention, 100% of the remaining students (n=8) vaccinated after a period of four months. The result will be that 15 students will be vaccinated at the end of four months. The inclusionary criteria will be

children in kindergarten. A secondary aim will be a statistically significant increase in vaccine knowledge at two and four months after intervention.

Human Subjects Protection

This program will require approval from the Southern California Elementary School principal and La Maestra Director. I will present to both the Southern California Elementary School principal and La Maestra Director the benefits of this project. The project's information will include the interventions, the people who will provide the responses, the program schedule, and duration, and the request for additional resources such as logistics and translators/interpreters during the presentation. I will complete the Institutional Review Board (IRB) application and in collaboration with my faculty chair. In my application, I will include all necessary IRB documents, and will obtain the required signatures from the IRB representatives, dean and faculty chair. I will submit my application for approval; once all the signatures are completed. Ethical consideration is necessary for all sampling, especially for the children.

Proposed Intervention

Indicators are trends, facts, or pre-set benchmark designed to measure accomplishment of objectives or criteria. Additionally, indicators may also specify the level of achievements attained. The term indicator is ambiguous at best and often mean different things in different context. In this proposal, the term indicator (process or outcome) implies an element used to derive a conclusion regarding the phenomenon of study such as effectiveness of MMR immunization program (Heink & Kowarik, 2010).

The first and foremost process indicator based on needs assessment conducted earlier revealed the need for parents' active participation in the immunization of their children. Blau et al., (2013) noted that activities included as process indicators were organizing meetings with stakeholders, data collection with regards to needs of the study site such as Southern California Elementary School, and responding to questions from decision-makers and stakeholders. The second process indicator is an educational presentation to parents of school children qualified to receive MMR immunization using PowerPoint presentation as well as question and answer to clarify misconception about immunization. A survey-based study among Minnesota parents of children aged 6-18 years in 2016 showed that only 67.8% of respondents were aware of herd immunity before educational intervention (Griffith et al., 2020). After educating these parents that MMR vaccination rates were lower than the measles herd immunity threshold of 95%, 27.0% expressed an increase in concern about measles (Griffith et al., 2020), indicating that education stands to have increase concern about VPDs. Additionally, a RCT that tested the effect of mobile phone-based educational interventions demonstrated that knowledge-based programs are appreciated most by parents and are most likely to affect decision-making (Fadda et al., 2018). Another process indicator is tracking the number of parents who attended the educational presentation class. Penn and Kiddy (2011) found that parents who did not received any information regarding immunization were unlikely to have their children immunized. A planned follow up phone call regarding the educational presentation is the last process indicator that will be employed. Although time consuming and labor intensive, phone call reminders were found to be the most effective approach to immunization uptake (Tickner, Leman, & Woodcock, 2006). Regularly meeting with the school staff and stakeholders on a monthly basis is mandatory until the completion of the goal, which is 100% immunization status on MMR.

Stakeholders

The stakeholders are individuals in the position of power which can influence the outcome of any project. The paper will discuss who are the primary stakeholders in the proposed immunization project at Southern California Elementary School. Boesso and Kumar (2016) clearly identified stakeholder culture as having significant effect in any project and how school principal alters the interactions between the school system and other stakeholders such as the school teachers, school nurse, committee members of the School Action Safety and Health (SASH), the parents of school children, and the children themselves. The members of the process stakeholders include the school principal, the school nurse, nursing interns, as well as members of School Action Safety and Health. Moreover, members of the outcome stakeholders comprised of school principal, school nurse, school teachers, administrative staff, parents of children receiving immunization, and the children themselves.

Additionally, the school principal may have different and competing interests from other stakeholders which can negatively affect the proposed project. Hence, the PI needs to get all stakeholders involved in the decision-making early on to promote ownership of the project. The stakeholder salience theory postulates that school principal or the person in position of power has a claim to legitimacy and urgency and hence need to be involved in stakeholder group's claims such as the proposed immunization project (Mitchell, Agle, & Wood, 1997). Establishing rapport with school administrator and staff as well as parents is a priority to be dealt with very early in the process.

Outcome Measurements

Process Indicator (s) Data Monitoring

Indicators are trends, facts, or pre-set benchmark designed to measure accomplishment of objectives or criteria. Additionally, indicators may also specify the level of achievements attained. The term indicator is ambiguous at best and often mean different things in different context. In this proposal, the term indicator (process or outcome) implies an element used to derive a conclusion regarding the phenomenon of study such as effectiveness of MMR immunization program (Heink & Kowarik, 2010).

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staff and stakeholders monthly is mandatory until the completion of the goal, which is 100% immunization status on MMR.

Outcome Indicator (s) Data Monitoring

According to ITAGs, the primary outcome indicator for immunization project is the evidence-based recommendation provided directly to the consumer of health care which can influence the health and well-being of the recipients. However, in this study, the outcome indicators will be the vaccination rate of the target population. With the assistance provided by the PI, the goal of increasing immunization rate is expected to increase. Penn and Kiddy (2011) also found that health care professionals' active participation in immunization program produced significant results in increased immunization of school children.

Educational presentation is planned to start in the middle of the semester so that students, parents, school nurse, teachers, and the school principal have adjusted to the semester and are more likely open to another activity on campus. Additional use of knowledge, attitudes, and practice (KAP) scale can be utilized to specifically measure parents' awareness of pediatric immunization. Al-lela et al., (2014) indicated that the level of education of the parents plays a significant influence on whether the child receives immunization. Brown et al., (2011) also suggested using MMR attitude measurement instrument for qualitative research method.

After the program is completed, results of the project will be shared with all stakeholders including the school board members. The hope for the project is increased immunization uptake up to 100% by the end of the year. Tracking immunization uptake will be done by the school

nurse and the PI who will regularly convene with the school's stakeholders every semester until full implementation of the program occurs.

Possible Limitations

This study will use convenience sampling of current kindergarteners during the study period. The individuals who are conveniently available may not represent the population who may cause convenience sampling limitation. Therefore, the use of convenience sampling may possibly increase bias in the study (Polit & Beck, 2014). There are no expected changes in the composition of the study unit's population. Sample results will be compared and analyzed with previous data collected prior to the implementation of the immunization program. The quality improvement project is being conducted in one Elementary School.

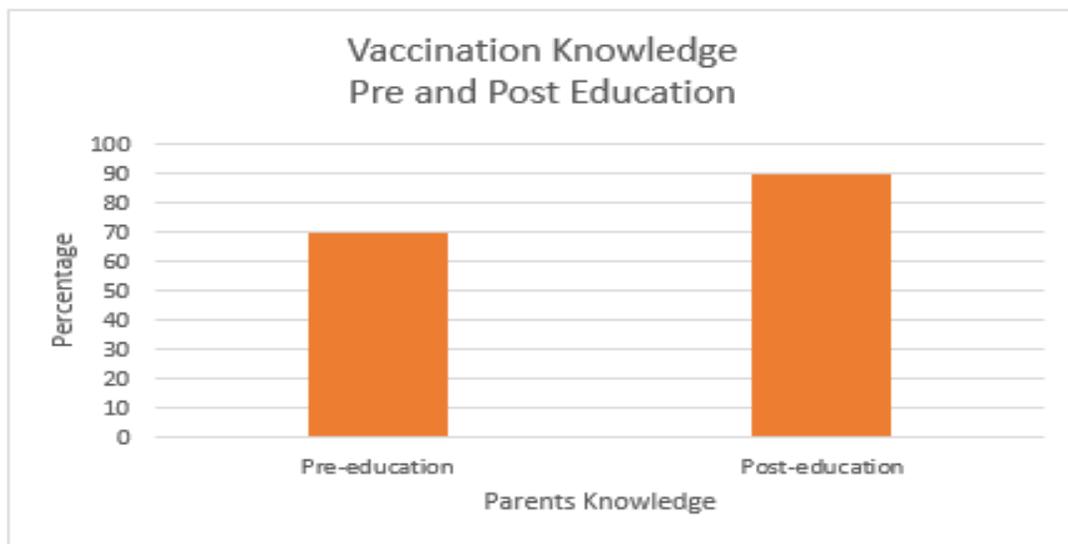
Outcomes

The anticipated project outcome includes the following: 80-90% of the Southern California Elementary School parents/guardians of unvaccinated children will attend education presentations on vaccination to increase the number of vaccine uptake rates and vaccine series completion rates for kindergarteners within 4 months of implementation for Measles, Mumps, and Rubella (MMR), Varicella and Influenza. My long-term goal, Rose Parks Elementary School parents/guardians of unvaccinated children will continue to attend presentations on vaccination education and will increase the number of vaccine uptake rates and vaccine series completion rates for kindergartens to 100% for measles, Mumps, and Rubella Varicella and Influenza.

Data Analysis

Collected data will be analyzed using SPSS version 23. Moreover, the PI plans to use measures of central tendency specifically, the mean, median, and the mode as well as frequency distribution and the percentage. Furthermore, data on the number of unvaccinated school children before the educational intervention will be compared to the data of unvaccinated school children after the educational intervention. To determine how effective the MMR immunization program will be, data extraction from school records on the kindergartens will be collected and analyzed. The global aim for the project is 100% uptake of MMR immunization by the end of the first year after the implementation of the project. In addition, statistical support will be solicited to facilitate interpretation of results. The data analysis approach to evaluate effectiveness of the intervention identifies the response rate of immunization after an educational intervention.

Figure 1.



Initial survey using needs assessment and barriers is conducted in February 2016. Once needs assessments and barriers were completed, a pre-assessment and post-assessment was conducted

for the parents whose children are non-compliant. The pre-educational assessment and post-educational assessment are the same 5 multiple questions asking:

- What is the first age that you need to take vaccine?
- What is a measles?
- How do you prevent measles?
- What is the most important sign of measles?
- What is a sign of measles?

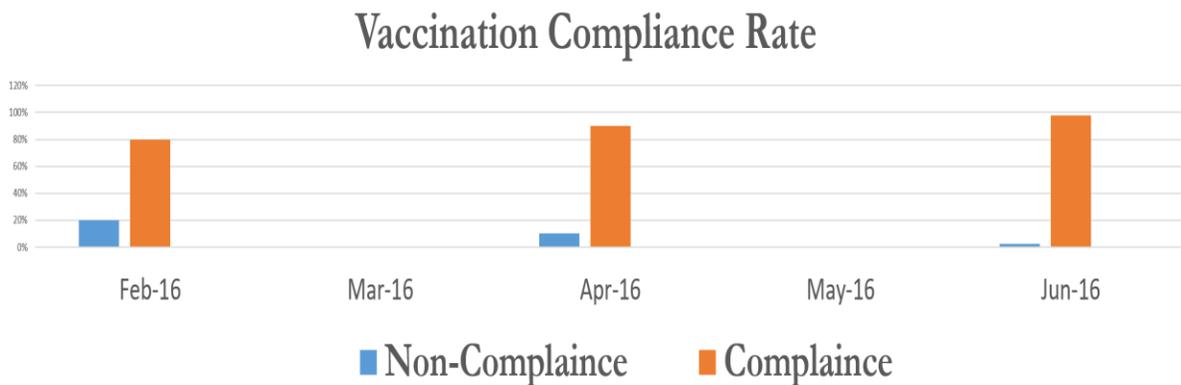
Once pre-assessment completed, additional education re: 1) measles is dangerous and can lead to Pneumonia, lifelong Brain Damage and Deafness 2) How measles spread? and 3) Measles outbreaks in the United States? The post-assessment is conducted as the final process. All the questions are from the Center for Disease Control information regarding Vaccine (Shot) for Measles

Under the needs assessment, out of 170 students only 80% compliance rate with total number of 136 students are vaccinated and 34 are unvaccinated. The 1st phase was conducted between February 2016 and March 2016, a total of 24 parents/caregivers had a pre-educational assessment and post educational assessment. There were 12 parents/caregivers who had face-to-face encounters and the other 12 parents/caregiver had telephone encounters. Under the Pre-educational assessment outcome, there were total of 16/24 parents/caregivers (67%) scored at least 80% or greater while 8/24 parents/caregivers (33%) scored less than 80%. While the post-education assessment, there were 23/24 parents/caregivers (96%) scored at least 80% and above while 1/24 parent/caregiver (4%) scored less than 80%.

While the 2nd phase was conducted on April 2016, a total of 6 parents had a pre-educational assessment and post education assessment. Three parents/caregivers had face-to-face encounter

while the other remaining three had telephone encounter. There were four parents/caregivers who were unable to be reached by phone. Under the pre-educational assessment outcome, there were total of 4/6 parents/caregivers (67%) who scored at least 80% and above while 2/6 (33%) scored less than 80%. While the post-education assessment, there are 6/6 parents (100%) scored at least 80% and above.

Figure 2.



Vaccination Compliance Rate:

- 1st phase/audit: In April 2016, the compliance rate increase to 10% (total compliance 90%) with total number of 17 additional student vaccinated
- 2nd phase/audit: Final audit survey done in June 2016, there were additional increase compliance rate of 7.6% with total number of 13 student vaccinated

Additional Intervention conducted were: follow-up telephone call, texting as reminders and reminder cards, brochures provided working together with the school personnel and community health clinic staff (team effort)

Cost/Benefit Analysis

The Department of Health and Human Services has a continual challenge of budget crisis to protect scarce resources for important programs such a vaccination of school children (Lydon et al., 2008). A cost benefit analysis is crucial to implementation of any project. School-based health centers (SBHC) offers free health services to diverse students of low-income communities such as the Southern California Elementary School (Ran, Chattopadhyay, & Hahn, 2016). Theoretically, SBHC enhances children’s’ health outcomes including the dispensing of immunization and other preventive care. The anticipated resources in the project are time, labor, equipment, and miscellaneous expenses to conduct the activities. The basic cost of the proposed MMR immunization program at the Southern California Elementary School includes: cost of communication paper, cost of ink for printing, cost of the printer, distribution and publication cost, education intervention-related cost such as copy of the PowerPoint presentation, cost of incentives to participate in the educational session, cost of NP hours, and cost for using school facility.

Table 1.

Below is the estimated comprehensive cost analysis of resources needed for this project:

COSTS	
Category	Amount
Computer system – existing computer	Free
Communication paper (2 reams)	\$ 6.99
Cost of Ink	\$ 8.00
Printing reminders, flyers, survey letters	\$ 25.00
Cost of distribution of Reminders, Flyers, Survey, Newsletter	\$ 20.00
Basket drawing- children; pens, pencil and books	
Business donation (Vons, Walmart, McDonald’s and IHOP)	
Gift certificates (SeaWorld, San Diego Zoo)	\$ 20.00
Family Attendees (10.00 each parenting brochures)	\$ 100.00
Barnes and Nobles - Parenting Brochures	
Books, Child reading	\$ 75.00
Donations - Family Reading books bedtime stories	\$ 150.00

McGraw-Hill and Barnes & Noble (\$600 value)	
Reception for Stakeholder meeting (2 meetings paid by the DNP Student)	Free
Coffee, tea, water, cookies, and fruits	Free
Principal, teachers, school employees, nurse & custodian (AM meeting)	
Rolls, coffee, and fruit	\$150
Hours of DNP and Employees	
20 hours- DNP Student	
2 hours- School Nurse	\$100
4 hours- Medical Assistance	\$936
Information Technician	43
	\$56
	\$16
Net Total	\$1,705.99
ANNUAL COST OF VACCINATION	\$ 4,350
GROSS TOTAL	\$ 1,990.99

BENEFITS

Savings of ADA ((\$29 x 15 students= \$435.00 X 10)	\$ 4,350
Epidemic control- One MMR outbreak cost	<u>\$10,376</u>
Benefit-cost for ADA and outbreak prevention	\$14,726

Total savings:

Benefit-cost (\$14,726) – Gross total (\$ 1,990.99) = \$12,735.01

Note: The key benefits in fiscal savings for the 15 Kindergarten students (for two weeks) at the Southern California Elementary School includes an Average Daily Allowance (ADA) savings of \$4,350. It should be noted that a student with perfect attendance is worth approximately \$5,230 to a school district per school year. Therefore, 15 students' X \$5230 = \$ 78,450. Because of unvaccinated student lack of attendance \$29 X 10 days X 15 students equals a fiscal loss \$ 4,350 for the 15 students. The cost of one MMR outbreak is \$10,376. The sum of ADA and outbreak prevention potential savings will be \$14,726. This results in a total savings of \$12,735.01 (14,726- 1,990.99). In summary, the total cost benefit of the Southern California Elementary School if vaccination program is implemented \$12,735.01 annually.

Dissemination

The most significant function of new knowledge from research is improved human health such as successful immunization program in underserved population. Dissemination requires active participation to expedite the transmission of evidence to a wider consumer of health care

services. Effective dissemination of research knowledge requires knowing the audience who can help share the information to others with similar interest. Another approach is to fully understand a suitable medium to which results of research can play a significant role. Maximizing the impact of research by understanding contextual relevance and audience receptivity is also an important function in research dissemination. Finally, a feedback mechanism in place is important to monitor uptake of research as well as clarification of related information (Kerner & Hall, 2009). Locally the PI plans to participate in educational health-related programs at the Southern California Elementary School. Nationally, poster presentation at the Western Institute of Nursing Research for the coming 2022 is in the plan. Moreover, participation at the California Association of Nurse Practitioner conference is also another target venue for poster presentation. The American Journal of Public Health as well as the Journal of Nursing Education are the two-prospective publication that the PI is interested in submitting manuscript because of their focus on education as well as public services. Tools for research dissemination include National Registry of Evidence-Based programs and Practices as well as Research tested intervention programs should be utilized by researchers (Glasgow et al., 2012).

Sustainability

Sustainability is viewed as continuing assimilation of proven interventions within a particular environment (Glasgow et al., 2012). The PI plans to integrate the role of monitoring for immunization status of school children with the school nurse who has the knowledge and the capability in health care delivery. Additionally, emphasis on cost-savings should motivate school principal to understand the need for continuing the program. Additional health information materials specific to the MMR immunization will be provided to the school nurse to facilitate role transition and reduce labor demand in initiating a program. The use of

Immunization Information System is in place and therefore facilitates updating immunization status for follow up.

Anticipated Project Impact

Communities are vulnerable to outbreaks with VPD when parents refuse or delay their children required vaccination. As a result of the outbreaks, the herd immunity within the school as well as the community is threatened. Herd immunity does not protect unvaccinated individuals both in schools and community where there is an outbreak among school age children. A high level of vaccine-induced immunity contributed to the reduced protection of unvaccinated populations, (Barclay et al., 2014). Vaccination helps prevent potential outbreaks and the benefit not only include the children but the family itself by reducing the need to seek medical care and avoiding the medical complications (Quadri-Sheriff et al., 2012).

Implications for Practice

Despite the effort and success of vaccination programs, we continue to struggle with the under-immunization of children and vaccine refusal, which pose a huge threat of outbreak to our schools and community. APRNs as leaders transformed research findings to practice or applying interventions that optimally improve patient care outcomes. APRNs as leaders to expand opportunities to lead and diffuse collaborative effort. By taking initial steps, such as early identification and monitoring, assessment and tracking of vaccination status, referral of unvaccinated students to the school nurse or vaccination providers, provision of vaccinations and use of Immunization Information Systems (IIS), vaccination compliance among the parents and guardians should improve and increase. By providing education and health promotion, our

vaccination rates will improve, which will increase and improve the herd immunity and prevent VPD, leading to a healthier environment for our children and community. Although it is less substantial or minimal impact in its relations and effects to our community and country as a whole, a healthy population through high compliance in vaccination programs is one of many ways to protect our way of life, our future, and a healthier community. The study also reinforces the goals of Healthy 2020 and the reports of the Institute of Medicine (2011).

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