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Prospectus Elements: Increasing Pediatric Immunization Rates

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Clinical Leadership Theme

This project is aimed at the CNL curriculum element of Interprofessional Collaboration for Improving Patient and Population Health Outcomes. The aim is to improve vaccination rates at Tri City Health Center for children ages 23-35 months old, because these are the ages where they are vulnerable to diseases and require the most vaccinations. The CNL role function is information and outcomes manager. I will be using data obtained for the patient population at the pediatric clinic in order to address these patients to improve immunization rates.

Statement Of The Problem

During a child's life, particularly birth to age two is when the majority of vaccines should be given. This young age makes them vulnerable to these diseases that can potentially make them ill and cause death. Also the spreading of these diseases increase also because children at this young age are exposed to other children and adults. The problem with the lack of knowledge with the community on the vaccine schedules, the importance of receiving the full doses and at the right intervals, and that even without insurance, they are able to be vaccinated. Our patient demographic may have difficulty with transportation and a lack of knowledge of vaccines, and the problem is the clinic's lack of following up on care for the patients. Patients who are not fully immunized, run the risk of contracting that disease and spreading it to others, causing an outbreak within the community. California lawmakers passed a law requiring children to be vaccinated with Dtap, Hepatitis B, Varicella, Measles, Mumps, and Rubella, and Polio, without these vaccines, patients cannot go to school which increases patients coming in after this age group of 23-35 months to catch up on vaccines to enroll their child into school. The purpose of this project is to fully immunize this age group so their immunity is not compromised and the community is kept safe and healthy.

Rationale

The indication for this project began when the clinic noticed that the immunization rates for this age group fell to the 60th percentile. Every month resulted in inconsistent rates ranging from sixty to eighty percent. Increasing this immunization rate can benefit the clinic and the patient population by providing them the protection they deserve regardless of their inability to pay. The clinic receives Vaccine For Children (VFC) vaccines which are intended to be used on this populations to keep them disease free, protect the community, and allowing them to enter school by meeting school requirements. There has been a record number outbreak of measles in 2014, and the number of measles from January 2015 to September 18, 2015 has been 189 cases (CDC, 2015). According to the CDC, the majority of the people who contracted measles were unvaccinated and it is common in other countries, so travelers are able to bring it to the states (CDC, 2015). With this evidence, vaccinating a child at the appropriate age, can reduce the risk of spreading the disease and promotes a healthy lifestyle. In 2014, there was an increase of Pertussis cases of 32,971 cases (CDC, 2015). Pertussis-related deaths mostly occurred in babies, which can be prevented if everyone were vaccinated against this disease (CDC, 2015). In 2010, there were 9,000 cases of Pertussis, which is more than the state of California has seen (Diekema, Douglas S., 2012). With outbreaks of pertussis, measles, and haemophilus influenza B disease, this indicates vaccination levels to be inadequate and this is proven by our low rates at the pediatric clinic (Diekema, Douglas S., 2012).

The strengths of this project are we have the ability and means through our VFC programs to provide these vaccines to those who have Medi-Cal, underinsured, or uninsured. The weakness of this project is meeting the demands of the children who are behind in their vaccinations. With limited availability due to the high patient population ratio, we must use the

opportunity to hire more staff to create more appointment slots to accommodate. The threats of this project is creating a frenzy or scare for parents whose children are behind in their vaccine schedule, parents may become upset when their child cannot be accommodated, and may create a disease outbreak.

Literature Review

There is literature involving the lack of fully vaccinated children and the risk this imposes on the child's health and the community's safety. Searching for articles including the words pediatric, children, babies and infants for the population, immunization, benefits of vaccines, vaccinations for the intervention, unvaccinated vs vaccinated children for the comparison, and lastly for the outcome, phrases such as increased immunization and prevent outbreaks were used to find the following articles. In an article by Hill, Holly A., et al, routine childhood vaccination will prevent 322 million cases of disease, 732 early deaths among children, and a net societal cost savings of \$1.38 trillion (2015). The introduction of the Vaccine For Children (VFC) program in 1994, assisted with routine vaccination for children, however there needs to be more attention and education to monitoring vaccine safety, coverage, and effectiveness and managing supplies will assist in improving routine vaccinations for children and reduce the risk of disease outbreak (Whitney, Cynthia G., et al, 2014).

Another article suggests other benefits for fully vaccinated children. The Center for Disease Control and Prevention states there are still serious diseases out there and vaccines are a safe to administer, they recommend that children need protection early when they are due for it to protect them at their most vulnerable stage in life, vaccinations protect families and communities and can prevent missed work and school days (CDC, 2015).

With the new California vaccination law put into place in June 2015, children are mandated to be vaccinated for school entry (Parker, Clifton B., 2015). Children must be vaccinated against measles, pertussis, and other diseases whether enrolled in public or private schools and it is believed that lack of vaccinated children caused a measles outbreak in 2015 (Parker, Clifton B., 2015). With this new law in place, updating vaccinations in children around the 23-35 month age, will keep them compliance for day care and school entry.

According to vaccines.gov, childhood vaccines are important because they can save a child's life from diseases that can injure or kill children, saves money due to preventable diseases that can cause financial burden on families to treat, and can protect others and especially future generations (2015). In an article titled "Straight Talk About Vaccines", there have been outbreaks of measles and pertussis in under-vaccinated communities and but education on vaccines protecting fatal diseases and are safe to use is key to increase vaccine rates (Daley, Matthew F. & Glanz, Jason M., 2011). According to Daley, Matthew F. & Glanz, Jason M., "These troubling statistics show that the failure to vaccinate children endangers both the health of children themselves as well as others who would not be exposed to preventable illness if the community as a whole were better protected" (2011).

An article published on the World Health Organization website states that the benefits of vaccines create disease control benefits, control mortality, morbidity, and complications, mitigates of disease severity, prevents infections and lastly extends life expectancy, and creates safer travel (Andre, F.E., et al, 2008). Some articles described the pros and cons of vaccines such as the article titled "Vaccines: Both Sides of the Same Coin", the author suggests that though there may be cons to vaccinations in children at a young age, he mentions the benefits of vaccines, specifically with the reduction in polio cases since the vaccine was created (Campbell,

Andrew William, 2015). These articles support the project and its purpose of fully vaccinating each child to prevent disease outbreaks.

Cost-Analysis

By providing vaccine updates, the total direct cost of \$295 billion and societal costs of 1.38 trillion from vaccinated children could potentially be saved (Whitney, C.G., et al., 2014). The salary of \$80,000 per one nurse and \$17/hour MA in one clinic to provide vaccine updates for children is a small amount to pay for a huge savings in testing cost for these diseases and treatment. Using medical assistants to assist with calls and adding this to their daily duties will not require the clinic to hire an extra medical assistant. The vaccines are given to the clinic through our Vaccines for Children Program (VFC) program and the only costs inputted if for freezer, refrigerator, and thermometer purchases. The costs for vaccines range \$11/dose to over \$80/dose (CDC, 2015).

Preventable costs associated with testing for diseases such as measles, chickenpox, pertussis, and other diseases will be saved as well. Since vaccines are administered, this requires fewer tests performed, which reduces costs for both the clinic and for the patient. This improves funding and grants for our clinic with the increase in patients that we are able to serve which could lead to increase in hiring staff and expansions within the clinic. The qualitative benefits with this project provides a higher quality of life for our pediatric patients by providing them vaccines to protect them diseases that are possibly life-threatening.

Project Overview & Methodology

This project takes place at a Federally Qualified Health Center (FQHC) in Fremont, CA. It is the only FQHC in the city of Fremont with services involving primary care, pediatrics, prenatal, women's health, women's health, HIV/ Hep C, chronic disease management, nutrition

counseling, vision, care coordination, transgender health, and health insurance counseling (TCHC, 2015). The unit specifically is a pediatrics unit with six providers caring for patients ages 0-18 years old. The providers include four pediatricians, one nurse practitioner, one registered nurse, a clinic manager, medical assistant lead, medical assistants, and receptionists. There are also behavioral health providers on the unit serving pediatric patients also.

The schedules of the providers are meant to fit seven well child checks or physicals unless during the summer season where each provider sees twelve physicals or well checks. At these visits, the patients meet with the providers and receive vaccines that are due. Immunization visits are only done on the registered nurse's schedule and cannot be put on the providers because they are not billable visits. The registered nurse's schedule is Monday through Friday from 8am to 5pm. Established patients are seen every 15 minutes and new patients are half an hour appointments. With all these available appointment slots, provides opportunity for patients to return for immunization updates to get them caught up for their vaccines. Patients ages 23-35 months have the opportunity to get the vaccines they are past due for without having to be denied by providers not being able to see them for immunization updates. With this immunization schedule, patients are able to be scheduled and come in for just vaccines.

Before the semester began, the protocol for contacting patients due for immunizations update was running a report and sending reminder cards instructing patients in English and Spanish to schedule appointments (Appendix G). A repeat of this process was suggested, however since the immunization rates have not increased consistently, a change in the protocol was set to initially call and make appointments. Patients whose parents did not pick up and were left messages, were sent a letter of reminder to make appointments once it was confirmed there were no future appointments made for immunization updates (Appendix F and G). This process

continues until our rates have reached 80% or more every month consecutively for the 23-35 month age group. Month after month patients are checked to determine if there are upcoming appointments, if not another phone call is made followed by a reminder letter.

Timeline

The project began in September 2015 and will continue monthly. These immunization rates are monitored and need to be ran every month to change procedures on updating patients on their immunizations, if the goal is not reached (Appendix E). The most difficult part is calling patients in a timely manner and getting their appointments set up. Sharing the tasks to call patients for immunization update appointments will get the patients in sooner and promise more success for the project.

Expected Results

The strength of this projected is having the vaccines and staff to contact patients, however our weakness may be not having enough providers and appointment slots to meet this demand.. With that being said, the expected results for this project is to reach greater than 80% or more each month for the immunization rates in children 23-35 months. In the month of May, immunization rates were 67.44%, in June they were 69.41 percent, in July the rates were 73.68% and in August the rates were 81.82%. The increase in rates could have resulted from the hire of an immunization nurse to provide immunization update appointments.

Evaluation

With the process of calling patients and sending immunization appointment reminders, running a report in September resulted in 54 patients who needed to be recalled for immunizations updates. In October, the same report was ran with the same criteria, and this resulted in 44 patients who needed immunizations updates. With regards to the list having a

couple of patients who were updates and some that have moved on to other clinics to update their vaccines, we saw an approximate 19% decrease in patients needing immunization records.

These results prove that the method of calling and sending immunization update letters works by a decrease in the generated list. It will not be known if this method will be successful in the months to come since another report will need to be generated next month in November. More letters will need to be generated as well.

Running the report for children in this age group who are fully immunized from the period of 9/1/2015 to 9/30/2015, the percentage is 72.5%, while the report from 10/01-2015 and 10/31/2015 is 74.5%. The report from 11/1/2015-11/30/2015 is 71.43% of patients in this age group who are fully immunized. This is a drop from August and July, however still an increase from June and May. We can put into account that children age four and older were possible seen more, taking up more appointment slots to get their vaccines for school entry. We can also take into account appointments made for this age group and some not showing up. Lastly, the numbers can be adjusted for the next report when we recognize patients who are no longer with the clinic and have moved on to other providers. Another factor is the addition of the flu clinic leaving eight hours less of immunization clinic appointments slots provided solely for the flu clinic.

Nurse Relevance

Increasing immunization rates for patients results in reaching out to the community and improves patient quality of care. It gives the clinic the opportunity and funding to provides justification in keeping current staff, while having the opportunity to hire more employees to meet this demand. Since the clinic is expanding with the number of patients who are patients, we must hire more providers and medical assistants to give the patients a chance to be seen and

given a high standard of quality of care. Also this project is beneficial to nurses because it increases the role with more responsibility to continue care and follow up with established patients and to run immunization clinics for immunization updates. It also grants nurses who are in charge of these immunization reports the ability to make changes in order to increase immunization rates.

With more children who are vaccinated, less become ill and reduces unnecessary treatment costs for clinics, hospitals, and patients. We shift our focus to preventative medicine rather than the treatment of an outbreak. Vaccinations amongst this age group reduces their chance of mortality and illness due to their vulnerable age. According to Hill, Holly A, et al, “The reduction in morbidity and mortality associated with vaccine-preventable diseases in the United States has been described as one of the 10 greatest public health achievements of the first decade of the 21st century” (2015). With this statement, the need for nurses and providers to provide immunization clinics to vaccinate children can save lives and costs due to prevention of disease.

Conclusion

This project benefits not only children who need these vaccines, but also the community around them and the infants who are not old enough to be vaccinated (Daley, Matthew F. \$ Glanz, Jason M., 2011). For children to be fully vaccinated keeps them healthy and disease free, reducing their risk of compromising their health from this potentially fatal diseases. For the infants who cannot get specific vaccines until they reach a certain age, they are also vulnerable to diseases from an under-vaccinated community. With the measles and pertussis outbreak, most deaths were in infants (Daley, Matthew F. \$ Glanz, Jason M., 2011). The project saves the clinic and society money from treating these preventable diseases, with minimal costs to the clinic

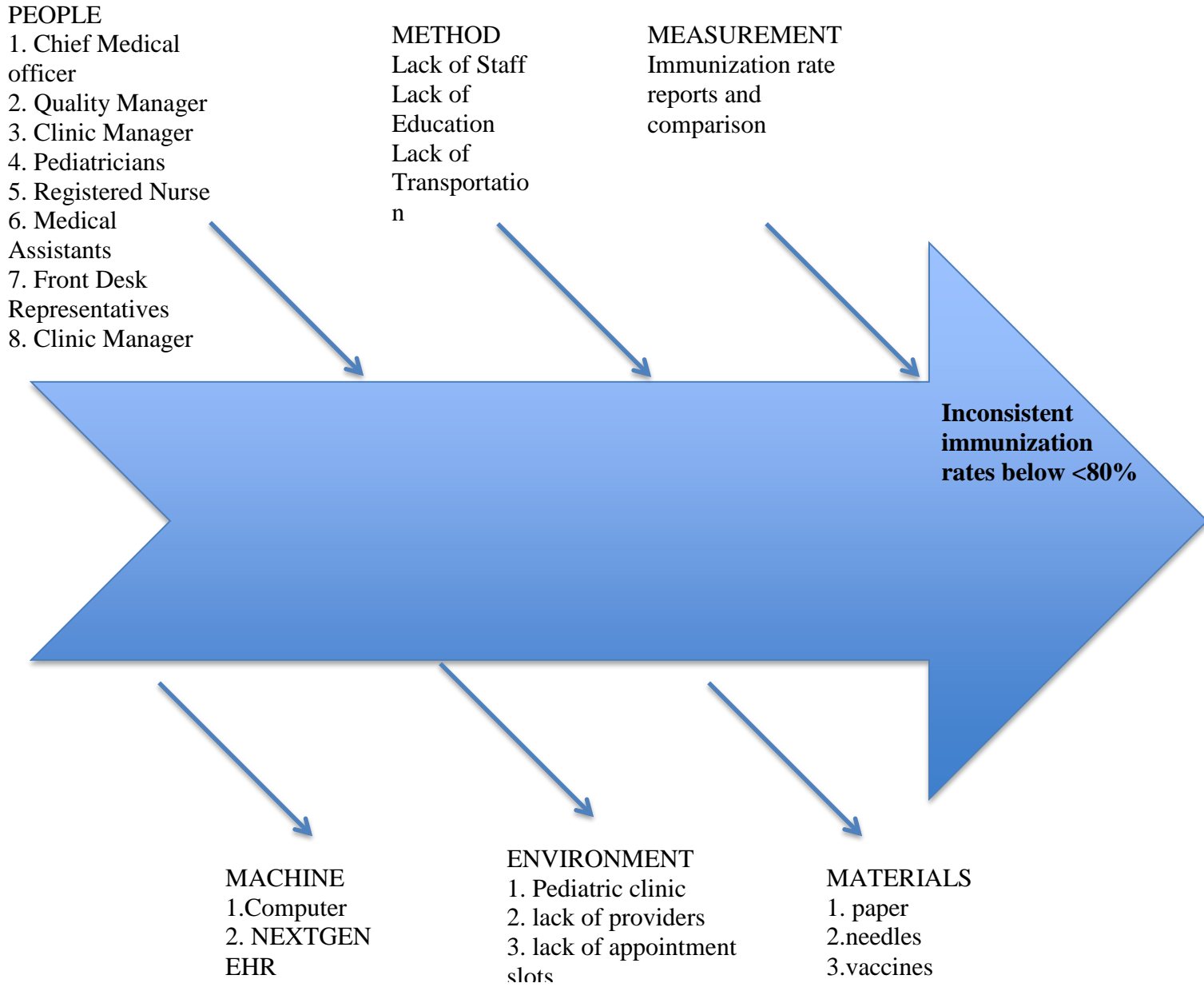
itself. With the patient population, it may be difficult for them to have transportation to appointments for vaccine updates and may be difficult to send reminders to their homes or phones for vaccine updates, those that can be reached, are more than willing to get their child's vaccines updated. With the constant reminders, there is an increase in a healthier community and less disease spreading. The goal in reaching immunization rates of 80% or more keeps our clinic reaching CHCN averages and the clinic is then rewarded. Also the more rewards we get, the more we are able to expand and reach more people within the community for more services other than vaccines.

As a CNL, I realized that though not every goal set may be achieved, the most important aspect of any project is to continue to make adjustments to reach the end goal. The challenges that were faced are some that involve every aspect of the clinic that could prevent this project from reaching its goal and the clinic from benefitting from it. There were limitations to scheduling, reaching patients, and maybe challenges for patients to have the transportation necessary to get their child fully vaccinated. There are tons of factors, and as the project progressed, I was able to identify the problems and know which changes to make for the future success of this project. While I am still relatively new to this clinic environment, the issues surrounding the project will need to be changed with time and patience.

I would like to acknowledge and thank my preceptor, staff, and quality manager for being hands on and supporting me through this project. Without their help, this project would not have been implemented as planned and I would like them to know how much I appreciate their time and efforts put into this project.

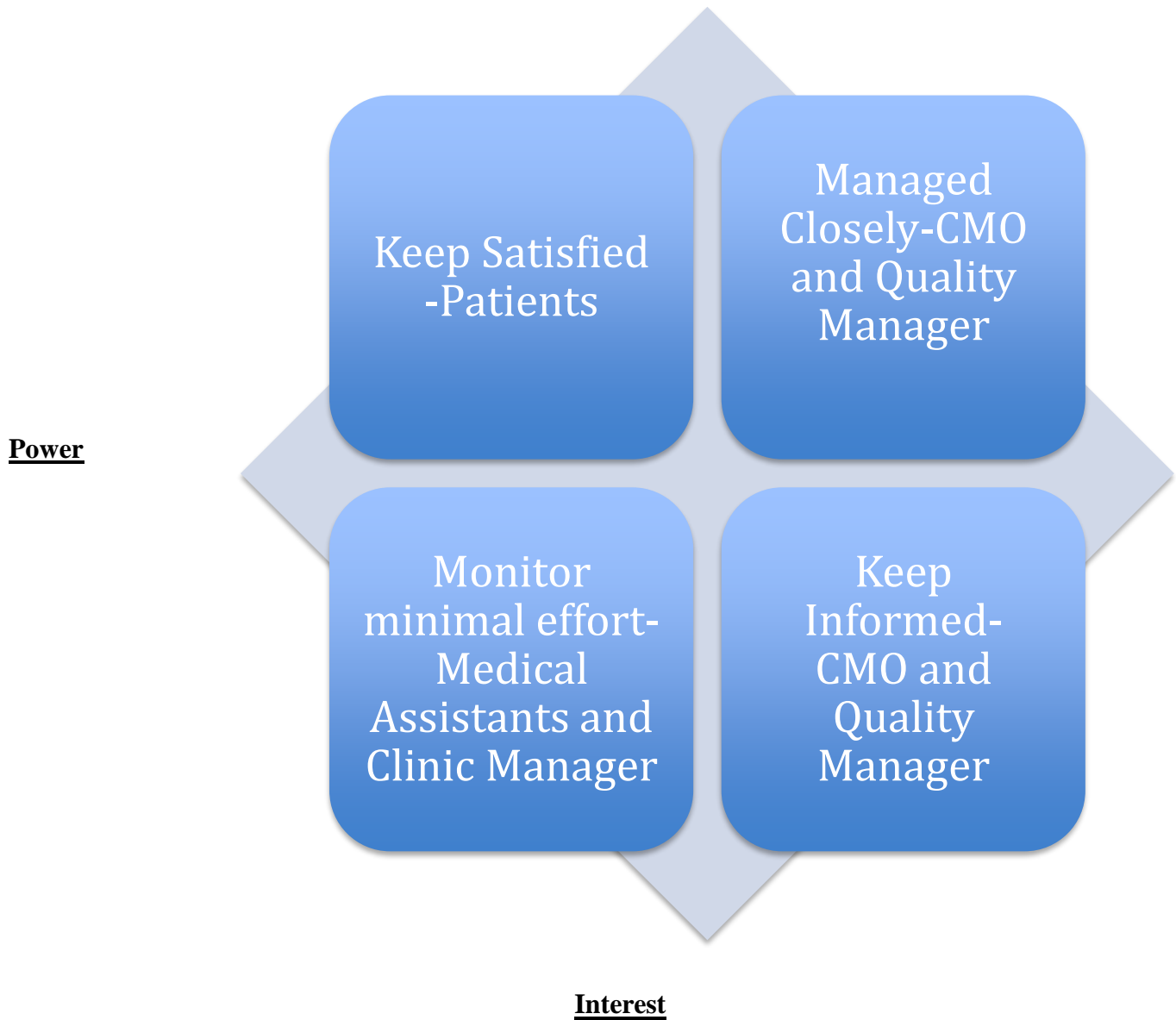
APPENDIX A

FISHBONE DIAGRAM



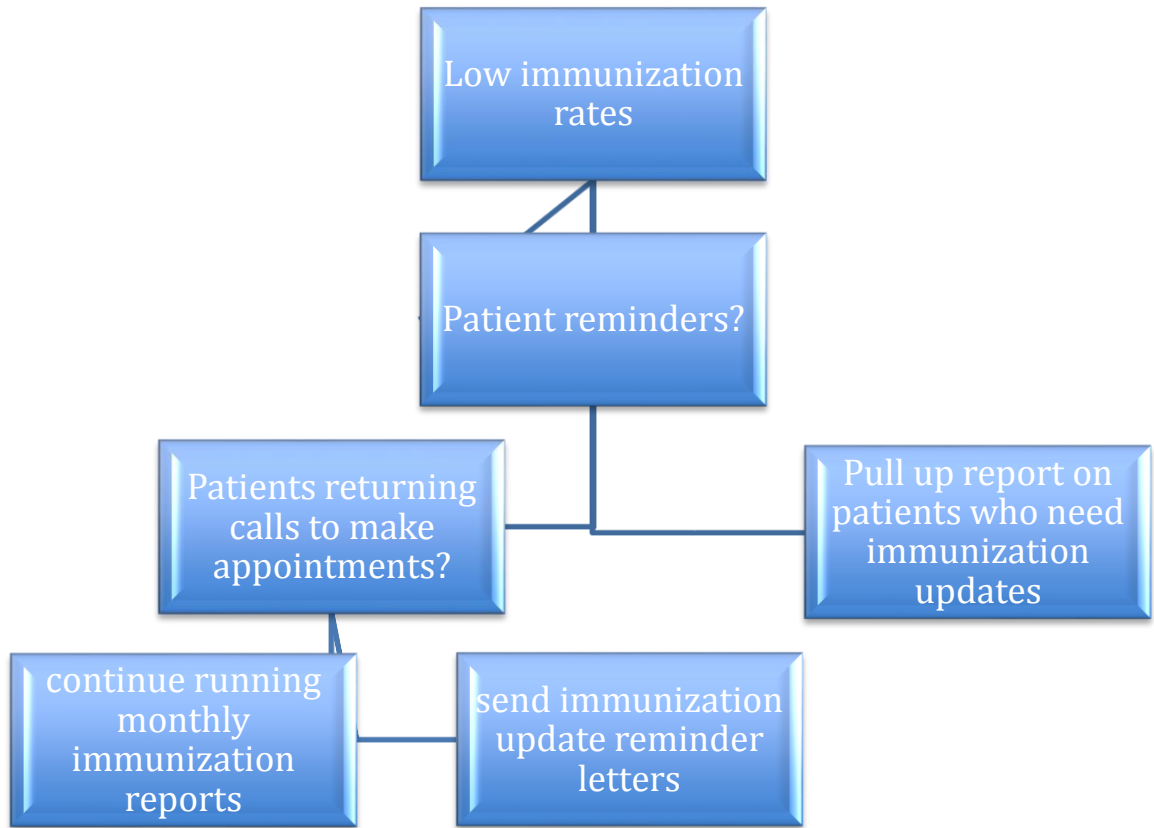
Appendix B

Stakeholder's Analysis



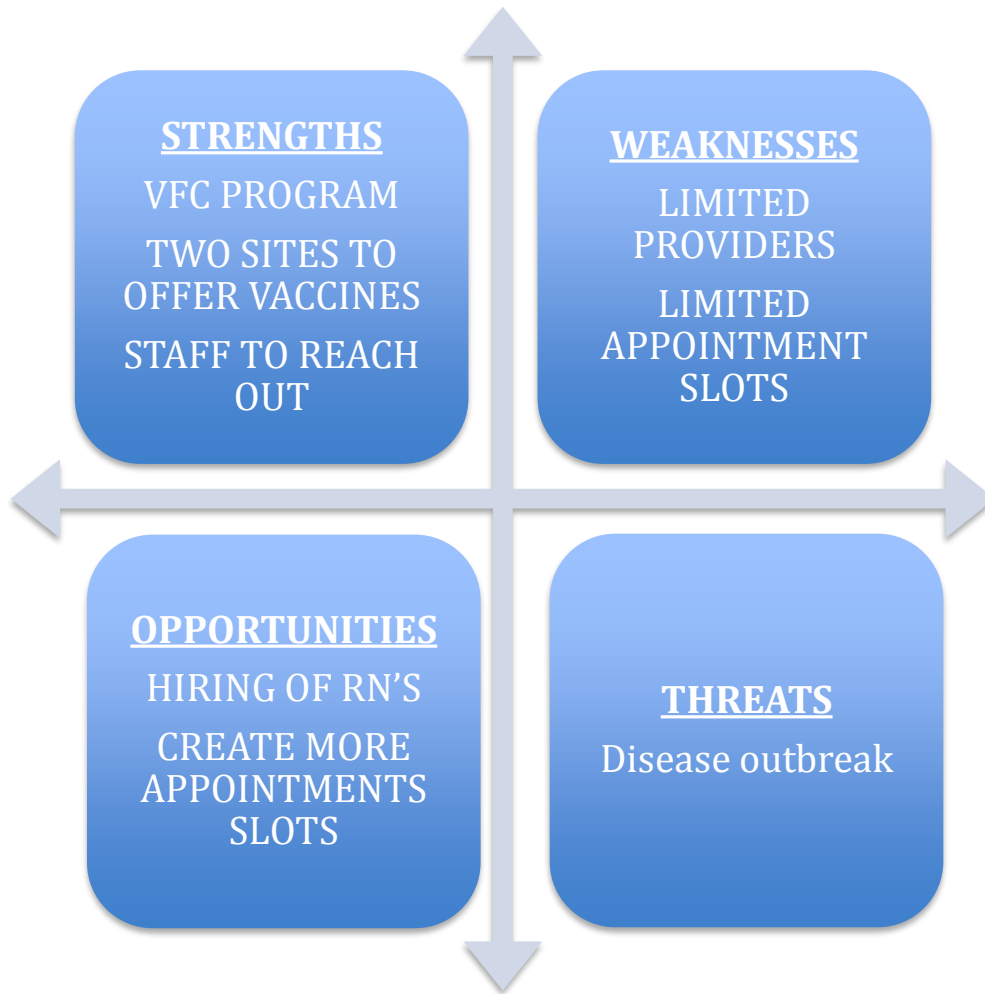
Appendix C

FLOW CHART



Appendix D

SWOT ANALYSIS



APPENDIX E**Work flow for Immunization and CAIR tracking:****Work flow for Immunization and CAIR tracking:**

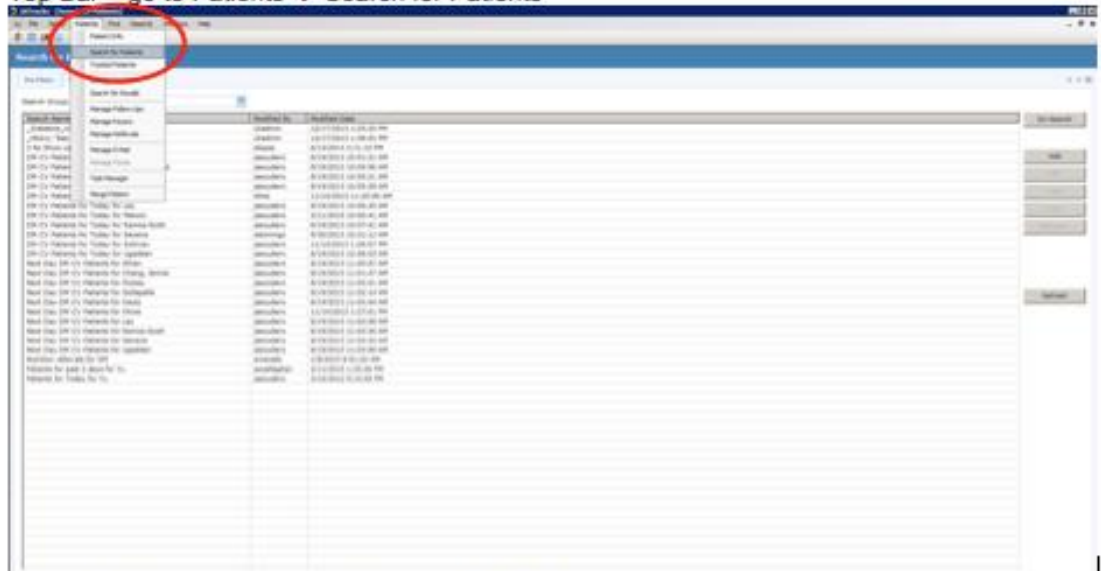
1. Immunization RN will generate patient search in i2i
 - a. Reference: [S:\Quality\Clinical QI\IZ\Cheat sheet - CAIR IZ \(i2i and nextgen\).docx](#)
2. Immunization RN will save report as Excel File & save in Clinical Quality/IZ folder
 - a. Save here: [S:\Quality\Clinical QI\IZ\Submit to CAIR lists](#)
3. Log into secure FTP website
 - a. Upload excel list to the FTP folder
 - b. Notify CAIR that list has been uploaded

Once list has been checked by CAIR and they upload revised list, retrieve list within 7 days of notice. After 7 days of notice, the list will EXPIRE.

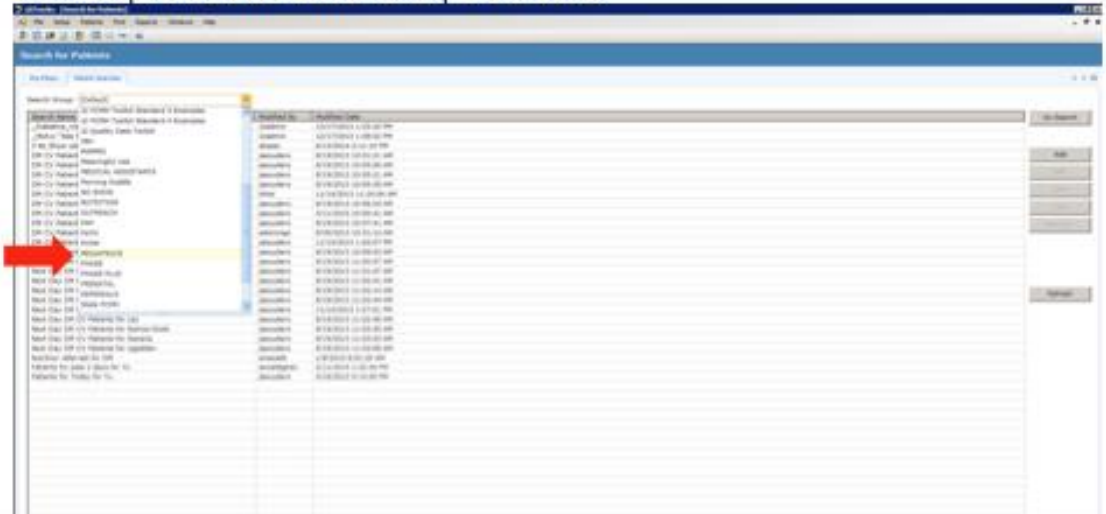
1. Immunization RN will cross check CAIR generated list.
2. Identify patients who need outreach
 - a. Document outreach efforts in patient's chart in ~~Nextgen~~ Electronic Health Record
 - i. 1st attempt – CALL
 - ii. 2nd attempt – CALL or send LETTER

How to run PATIENT SEARCH on i2i:

- 1. Log into 'i2i Tracks'
- 2. Search already created on i2i to be run as needed
- 3. Top Bar – go to Patients → Search for Patients



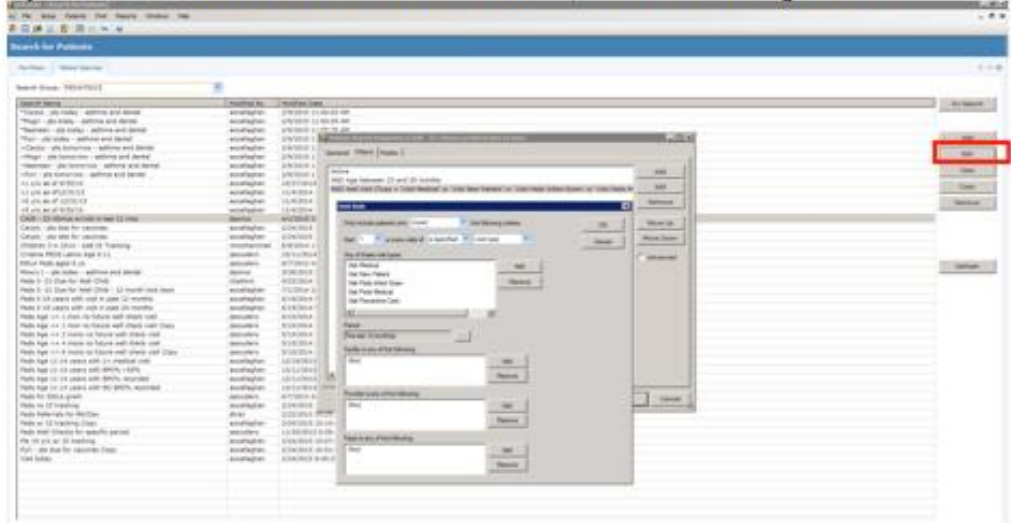
- 4. Select drop down menu: Search Group → Pediatrics



5. Search is seen as:

CAIR - 23-35mos w/visit in last 12 mos dponco 4/1/2015 10:29:10 AM

6. If you would like to review the FILTERS for the search, click EDIT on the right side bar



Filters are currently set at the following:

- ACTIVE (Patients seen within the past 2 years)
- Age 23-35 months (as of day you run search)
- Had visit (Includes: Medical, New Patient, Peds Infant Exam, Peds Medical, and Preventive Care) in the last 12 months *if you would like this changed, please let me know*

If you don't wish to change any of the filters, keep as is and click OK

7. Your patient search will have the following columns:

APPENDIX F**Immunization Script**

Hi this is _____ calling from Tri City Health Center. I am calling to inform you your child is due for vaccines and to please call 510-770-8040 to make an immunization update appointment. Please also bring your immunization records. Thank you and have a great day.

APPENDIX G
IMMUNIZATION REMINDER LETTER

Dear parents or guardian of _____,

We are sending this letter to remind you that your child's immunization is due.

Please contact us to make an appointment for your child for immunization.

Serious vaccine-preventable diseases still occur and immunization can save your child's life. Due to advances in medical science, your child can be protected against more diseases than ever before. Vaccination is safe and effective and vaccines are approved for children only after careful research.

Please contact our clinic at 510-770-8040 for appointment.

Thank you and we hope to serve you soon.

Tri-City Health Center

APPENDIX G**Immunization letter reminder in Spanish**

Queridos padres o tutores de_____

Estamos enviando esta carta para recordarle que la vacunación de su hijo se acerca. Por favor póngase en contacto con nosotros para hacerle una cita para su hijo(a) para las vacunas.

Enfermedades graves todavía ocurren, pero pueden ser prevenibles con la vacunación y pueden salvar la vida de su hijo. Debido a los avances en la ciencia médica, su hijo puede estar protegido contra más enfermedades que nunca antes. Las vacunas son seguras y eficaces y las vacunas están aprobadas para niños sólo después de una cuidadosa investigación.

Por favor, póngase en contacto con nuestra clínica al número 510-770-8040 para una cita.

Gracias y esperamos servirle pronto.

Tri-City Health Center

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