A Quality Improvement Intervention on Human Papilloma Virus Vaccination in a Pediatric Clinic

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Abstract

Human Papilloma Virus (HPV) related diseases, and cancers are increasing every year, but HPV vaccination rate is not increasing according to the National recommended rate. The Aim of this study was to improve HPV vaccination rate by improving staff knowledge by providing them education on the significance of HPV vaccination. This study was conducted in a pediatric clinic. Participants were the pediatrician, Nurse practitioners (NPs), Physician assistant (PA), Medical Assistants (MAs), and Medical Office Assistants (MOAs).

Methods: The Plan Do Study Act method of quality improvement was selected for this project. The data collected pre and post intervention are Vaccination education given, not given, and Vaccination given, not given. Comparison of the pre and post intervention percentage of education given, not given, and vaccination given, not given rate had proven how the impact of enhanced staff knowledge increased the HPV vaccination rate.

Intervention: The pre intervention data collected 6 weeks prior to implementation. During the first week of implementation, staff education was done on HPV vaccination, and its significance. Post intervention data collection started on the second week of implementation and ended on the fourth week. Pre and post intervention data are entered in a spread sheet. Code book was created to support the data and to feed in Statistical Package for the Social Science (SPSS) for detailed analysis. Data analysis was done on the fifth week by using the Chi-Squire test to evaluate how the knowledge among staff improved the HPV education to parents of teenagers, and young adults.

Results: The pre implementation HPV vaccination education was 50%, and the compliance of HPV vaccination education increased to 76% after the project implementation. The pre intervention HPV vaccination rate was 44%, and post intervention was 74%. There was

significant difference in pre and post intervention education and vaccination, which proved enhanced staff knowledge improved the vaccination education and vaccination rate.

***Keywords*: HPV vaccination, HPV related diseases, Cancer, Education, Knowledge, Vaccination refusal, Vaccination acceptance, Vaccination rate, Parent education, staff compliance.**

A Quality Improvement Intervention on Human Papilloma Virus Vaccination in a Pediatric Clinic

Human Papilloma Virus (HPV) is the most common Sexually Transmitted Infection (STI) in men and women worldwide (Miriam et al., 2020). Nearly all sexually active individuals will acquire at least one HPV infection in their life. Although most HPV infections are cleared spontaneously within a couple of months, they may become persistent with a subsequently increased risk of developing genital warts and certain cancer types (Miriam et al., 2020). Worldwide, several million cases of anogenital warts occur each year in both sexes, with a peak incidence between 20 and 24 years of age for women and between 25 and 29 years among men. HPV can be transmitted through vaginal, oral, or anal sex with a person who already has the virus. There are various types of HPVs (Cheung et al., 2021). Low risk types can cause genital warts, but high-risk types are associated with malignant tumors (Cheung et al., 2021). Risk factors include young age sex, risky sexual behavior, intact foreskin, and immunological status. Persistent infection with high-risk oncogenic HPV types (especially 16 and 18) is associated with anogenital diseases and cervical cancer, as well as some head and neck cancers (Kuhdari et al., 2017).

HPV is the leading cause of the fourth most common type of cancer in women, which is cervical cancer, making HPV as a public health priority (Kombe et al., 2021). As HPV related diseases continues to increase, it is essential to implement innovative public health plans to decrease the burden of disease in high-risk populations. HPV vaccination is the most effective method to prevent HPV related STIs (HPV and Anal Cancer Foundation, 2020). HPV vaccination prevents cancer and other STIs. Every year HPV is causing 36,000 cases of cancer in men and women in United States. Acknowledging that prevention is better than cure, HPV

vaccination prevents infections, thus preventing the cancer (Centers for Disease Control and Prevention [CDC], 2021). This quality improvement project focuses on educating the clinical staff to increase awareness among parents of teenagers and young adults about the importance of HPV vaccination and how effective these vaccinations are in preventing HPV related cancers and other STIs.

Background

HPV related STIs and cancers are increasing every year, and it is the most common type of STIs. Other than cervical cancer, none of the other cancers caused by HPV can be detected early with screening tests (Jenco, 2021). Best way to prevent these are the HPV vaccination (Jenco, 2021). Even though vaccination is readily available, the number of children getting vaccinated with HPV are still low. Approximately 59% of teenagers are up to date with HPV vaccination. Improving the vaccination coverage is essential in lowering the rates of HPV related cancer in Unites States (Jenco, 2021). Centers for Disease Control and Prevention (CDC) urges to recommend HPV vaccine to the adolescents the same way as other vaccines are recommended by clinicians (Centers for Disease Control and Prevention [CDC], 2018). As per a new study, multilevel interventions including training the whole medical staff and initiating HPV vaccine before the age of 11 could improve timely vaccination to save lives (Boston University School of Medicine, 2021).

The available HPV vaccines are Gardasil, Gardasil 9, and Cervarix. Out of these three vaccines, Gardasil 9 is the only one HPV vaccine used in United States since 2016, and it prevents nine types of HPVs. The other two vaccines are still used in other countries. CDC's Advisory Committee on Immunization Practices (ACIP) recommends the HPV vaccine should be given to children and adult from age 9-26 years. The HPV vaccination is recommended to be

administered at the age of 11 or 12 years but can start as early as age 9. HPV vaccination is advisable through age of 26 years for those who are not vaccinated before (National Institutes of Health [NIH], 2021). According to ACIP, the doses for this vaccine are different, depending on the vaccination starting age. If a child starts the vaccination before 15 years of age, only 2 doses are necessary for full protection, given 6-12 months apart. Those who stars the vaccination at 15 years or above, or those with weaker immune systems need 3 doses for full protection, given on a 0, 1-2, 6-month schedule. (NIH, 2021). Increasing awareness and acceptance of the vaccine among the parents are most important aspects in increasing the vaccination rate (Sitaresmi et al., 2020). Educating the clinical staff to increase awareness among parents are crucial for the uptake of HPV vaccination.

Problem Identified

HPVs are responsible for nearly 100% of cervical cancer, 90% of anal cancer, 70% of vaginal cancer, 40% of vulvar cancer, 50% of penile cancer and 13% to 72% of oropharyngeal cancers (Bonanni et al., 2015). The only way to prevent HPV is through timely and proper administration of HPV vaccines, which are readily available. Although HPV vaccination rates are increasing every year, it is not reaching the level as other vaccinations. The reason for this is considered as lack of knowledge about HPV and available vaccines (Bonanni et al., 2015). Majority of women do not know the connection between HPV, HPV vaccination and cervical cancer (Bonanni et al., 2015). Very few people are getting recommendations from their clinician for the vaccination (Bonanni et al., 2015). To increase the rate of vaccination, it is important that parents are provided more information and support from the clinical staff on the safety and effectiveness of the vaccination (Centers for Disease Control and Prevention [CDC], 2017). Clinician recommendation about the HPV vaccination is the number one motivation for the

parents to give vaccination to the children. Another method is to bundle the vaccination recommendations, making sure to recommend HPV vaccination with the same and equal importance to other recommended vaccines. Motivate the clinical team and encourage them to do the immunization conversation with patients starting from the reception (CDC, 2017). ACIP recommends HPV vaccination up to 26 years if not vaccinated adequately before. Only four states in United States mandated HPV vaccination (National Conference of State Legislatures [NCSL], 2020). It could be one of the reasons that HPV vaccinations are not meeting the standards and HPV related cancers are increasing every year. Parents are still reluctant to give HPV vaccinations to children. This pediatric clinic recommends HPV vaccination for children age of 11 years and older. They have a vaccine refusal form that should signed by the parent if they refuse the vaccine, to make sure that it was advised, and parents refused. This site tracks their vaccination rates. They do have the policy which is to follow CDC guidelines for HPV vaccination. But due to lack of awareness in parents about HPV related problems, the vaccination rate is still low (Victory et al., 2019). The percentage of HPV vaccination in the project site is 51%, national HPV vaccination rate is 75% in 2020. They are not meeting the national standard. Educating the clinical staff about the HPV related morbidity and mortality, and the role of HPV vaccination in preventing these deadly diseases are one of the key points to prevent future increase in HPV related STIs. Providing handouts to the parents regarding HPV vaccination would be another tool to educate the parents regarding HPV vaccination (Victory et al., 2019).

Project Question

In providers caring for pediatric patients in the clinic, does the implementation of an evidenced based HPV vaccination education protocol, compared to current practice, improve HPV vaccine offerings to all eligible patients, in a four-week time frame?

PICOT Format

Population: Clinical staff and providers

Intervention: HPV vaccination Education to entire clinical staff and providers

Comparison: Present vaccination compliance

Outcome: Enhancing knowledge of HPV related diseases and importance of HPV vaccination to the clinical staff increases the vaccination compliance in preteenagers and adolescents.

Time: Four weeks.

Search Methods

Literature exploration was done to further support and contribute a strong foundation for the project of educating the clinical staff in the pediatric clinic to improve HPV vaccination offering to all eligible patients. CINAHL, Pub Med (MEDLINE), Pro Quest, CONSORT, and CARE guidelines from Turo university Jay Sexter Library were used. HPV related diseases, HPV vaccine, HPV vaccination compliance, and HPV vaccine education are the terms used during the database search.

During the literature review for this DNP project, it was understood that parents are reluctant to give HPV vaccine to children because they are unaware about the advantages of this vaccination (Th University of Edinburgh, 2021). A total of 1353 articles were found using the database, and only 58 were selected pertaining to the project. Out of 58 articles, after exclusion criteria 26 articles were remained. Exclusion criteria included other languages, countries other than United States, articles published more than five years from today and only HPV related

diseases were discussed without any significance of HPV vaccination. Inclusion criteria including the key words used for search such as HPV vaccine, HPV vaccination compliance, HPV vaccination education, prevention of HPV related diseases, English language, Peer reviewed journals, and articles published within five years from today.

Review of Study Methods

The type of studies in the literature selected were three randomized controlled trials, two meta-analysis of Randomized Controlled Trials (RCTs), three retrospective and observational studies, two mixed-methods comparative studies, two multicentered cross-sectional studies, 1integrative review, five systematic review of peer-reviewed research studies, three retrospective cohort studies, two exploratory qualitative studies, and three interventional trials. These methods are appropriate for these studies and for this DNP project. The study methods discussed above are relevant and reliable for this DNP project. All these methods bring same result as of the improvement in HPV vaccination rate and reduction in HPV related diseases.

Literature review aided to understand the knowledge gap in improving the HPV vaccination rate. Parent's unawareness is the main reason noticed for hesitancy in giving HPV vaccination as per literature. Parents education on HPV vaccination improved the HPV vaccination rates. According to CDC, providing information and strong high-quality recommendations about HPV vaccination to parents are valuable tools to improve HPV vaccination and prevent HPV infection and diseases caused by HPV, including cancers (Centers for Disease Control and Prevention [CDC], 2019). A systemic review of 38 peer reviewed article found that, except for reminder-based approaches for adolescents and/or their parents, single approaches are often adequate to increase vaccination coverage, being multicomponent interventions the best ones (CDC, 2019). Public health systems must work on the combination of

various methods including comprising personalized reminders, information and education events pointed at rising adolescents', parents', and Health Care Provider's (HCP) understanding and awareness about HPV infection and vaccine (Acampora et al., 2020). In addition, HCPs education on how to communicate with parents and adolescents, and facilitation of the access to vaccination also can be done through school-based vaccination programs (Acampora et al., 2020).

Another study of RCT used three patient counselling strategies, an eight-minute video on HPV vaccination, a handout with information on HPV vaccination and regular communication with patients (Batur, 2020). More patients (51.7%) in the educational video agreed to have the HPV vaccine than in the handout or control 33.3% and 28.2%, respectively. The video and hand out helped more than the regular communication (Batur, 2020). Increase in uptake of HPV Vaccination is evident when appropriate awareness programs are implemented (Batur, 2020).

Review Synthesis

The literature review fills the gaps between the evidence and current practice. As it is evident from the literature that HPV vaccination awareness among parents and adolescents should be increased to keep the vaccination rate as expected in the standard level (Chido-Amajuoyi et al., 2021). The Health Information National Trends Survey (HINTS), a nationally administered survey by National Cancer Institute, using this survey, the data was analyzed to see the awareness of HPV and HPV vaccine in the US, between 2008 and 2018 (Chido-Amajuoyi et al., 2021). HPV vaccine awareness declined in the period between 2013 and 2018 by 10% among males with a high school education or even lower and those who with low socio-economic status (Chido-Amajuoyi et al., 2021). This data calls for strict enforcement from legislation to boost

HPV awareness and frequent evaluation of government funded awareness programs for HPV vaccination (Chido-Amajuoyi et al., 2021).

A Systematic review and meta-analysis study was done to assess aspects related with parents' acceptance of HPV vaccines for their children. Findings reveal that suboptimal levels of HPV vaccine agreement, twofold lower with boys, which may be enhanced by increasing physician counsels, focusing parental safety worries, and encouraging parents' positive viewpoints about vaccines, and expanding insurance coverage for HPV vaccine and decreasing out-of-pocket expenses (Newman et al., 2018). A meta-analysis review of parental HPV vaccine knowledge and adolescent HPV vaccine uptake was done in New Jersey, findings disclose that HPV vaccine awareness among parents are low with suburban residence, immigrant parents, although they are highly educated, and they have access to health care (Anuforo et al., 2022). Multilevel HPV vaccination awareness is needed among parents and adolescents, including suburban, and immigrant communities (Anuforo et al., 2022).

A Qualitative Systematic Review study was conducted to evaluate the knowledge, attitudes, and thoughts of HCPs regarding HPV vaccination, to summarize provider-specific educational interventions and to review the educational resources currently from national organizations and which is in alignment with the gaps recognized (Leung et al., 2019). The conclusion was HPV awareness among providers remains low. Educational interventions to advance awareness and communication seems to be efficient. The resources from government organizations are existing but their effectiveness and usage is indefinite (Leung et al., 2019). A pilot program study was done in five different pediatric clinics after a quality improvement education initiative to the clinical staff. The result of the study was the clinical staff verbalized feeling more comfortable to educate parents and adolescents about HPV vaccination (Bonville et

al., 2019). Data analysis done by reviewing the charts. The combination with QI education and workflow strategies was linked with reduction in missed opportunities and increase in number HPV vaccinations (Bonville et al., 2019).

Impact of the Problem

Development of cervical precancer and cancers causally linked with persistent high risk HPV infections. Approximately 70% of cervical cancers are caused by HPV types 16 and 18 worldwide (Arbyn et al., 2018). According to a RCT to compare the efficacy and safety in females offered HPV vaccines with placebo, showed high-certainty evidence that vaccines lower Cervical Intraepithelial Neoplasia grade 2 and above (CIN2+) from 164 to 2/10,000 (RR 0.01 (0 to 0.05)) and (CIN3+) from 70 to 0/10,000 (RR 0.01 (0.00 to 0.10) (Arbyn et al., 2018). Even though the bivalent and quadrivalent HPV vaccines given as a three-dose schedule are effective in the prevention of precancerous lesions of the cervix in women, acceptance of (HPV) vaccine remains low in many countries (Bergman et al., 2019). This study shows that in males, the quadrivalent HPV vaccine appears to be effective in the prevention of external genital lesions and genital warts. Quadrivalent and nonvalent HPV vaccines in young women result in similar levels of protection against cervical, vaginal, and vulval precancer lesions and cancer (Bergman et al., 2019).

The literature reviewed strongly found evidence that HPV vaccination rates are not reaching the national standard level. Parents are hesitant to administer HPV vaccine for their children because they are unaware about the benefits of HPV vaccine (Shay et al., 2018). Increasing awareness among parents and adolescents can improve the uptake of HPV vaccination. Evidence from the literature review suggest that educating the pediatric providers,

how HPV vaccine prevents HPV related disease including different types of cancers is critical to improve the HPV vaccination rates among teenagers and adolescents (Beavis & Levinson, 2016).

Barriers to Vaccination

Barriers for PCPs

Health care providers' ignorance and misconception eventually end up with low vaccination initiation rates. On the other hand, a significant increase intent to vaccination seen with a positive physician recommendation to HPV vaccination (Beavis & Levinson, 2016). It was shown in a survey that 17,000 parents of girls aged 12-17, who had been recommended by PCPs, initiated vaccination 23 times more, and 14 times more to complete the series of HPV vaccination (Beavis & Levinson, 2016). It is evident that dissimilarity in that physician counselling practices greatly influence the difference in vaccination rates (Beavis & Levinson, 2016). Parents hesitancy to HPV vaccination is increasing in United States. An exploratory qualitative study reveals that providers introduction and recommendations to HPV vaccination changes parents' decision directly affect the uptake of vaccination (Shay et al., 2018). According to this study, providers basically persisted and continued the immunization discussion in response to parents' hesitancy. They found positive inspiration of provider persistence even including parents who used an assertive style when voicing hesitation (7 out of 7 adolescents were vaccinated) (Shay et al., 2018). The aimed project site needs to reinforce parents' education on HPV vaccination to meet the national standard of 75% for HPV vaccination (Shay et al., 2018).

A Consolidated Framework for Implementation Research (CFIR) to systematically investigate and characterize factors that influence HPV vaccine use in ten primary care practices (sixteen providers) using a concurrent mixed methods design. The result was most of the PCPs

face challenges in recommending and administering HPV vaccines (Garbutt et al., 2018). They verbalized number one challenge as parents' resistance and hesitance in giving HPV vaccine. Time consumption is another problem, PCPs mentioned that it takes longer time to discuss about HPV vaccination compared to other vaccinations, and less frequent visit of adolescents to PCP increased the difficulty to complete the series of the vaccine (Garbutt et al., 2018). Another challenge is the cost effectiveness of the vaccine, specifically for the third dose. Peer pressure is another issue faced by the PCPs. They experience pressure from the partners in practice to change the approach in HPV vaccination implementation (Garbutt et al., 2018). PCPs need to take multilevel approach to improve the vaccination uptake in adolescents.

Barriers for Parents

A survey study about the parents' hesitancy for HPV vaccination found that parents who received HPV vaccination counselling from their HCPs were fewer hesitant than parents who did not receive a recommendation (Nguyen et al., 2021). An Integrated systemic review concluded with the importance of HCPs recommendation to the parents of teenagers and adolescents for the uptake of HPV vaccination. It should be the priority for all HCPs who work with adolescents (Leung et al., 2019). HCPs can play an important role in the uptake of HPV vaccination. It is vital to train providers to make efficient counselling, making culturally appropriate materials available, in local languages; and centralizing and coordinating education, for both HCPs and the public to the best information material available (Vorsters et al., 2019). Parents often verbalize that lack of physician recommendation as a reason for not vaccinating the children. Most of the parents are aware of the HPV vaccine, but they lack knowledge about the vaccine and act as a barrier to vaccinate the children (Attia et al., 2017). Another barrier is low socio-economic status, minority status, and lack of health insurance. Sexual disinhibition is another concern the

parents have and leads to low HPV vaccination acceptability. Parents awareness and understanding about HPV vaccination is crucial in increasing the HPV vaccination uptake (Attia et al., 2017).

Misconception for Vaccination

Parents and health care providers strongly believes that HPV vaccination prioritize female vaccination than male vaccination. Many parents are willing to accept vaccination for male adolescents, but there are no strong recommendations from PCPs (Attia et al., 2017). ACIP recommends vaccination for male and females at the same age. Another misconception is that adolescents would consider HPV vaccination as sexual risk compensation, they might initiate sexual activity at early age, and reduce self-protective sexual acts (Attia et al., 2017). Studies strongly suggest that risk compensation is not a post vaccine problem Vaccine safety and anti-vaccine movement, and religion are other barriers in HPV vaccination uptake. Proper dissemination of evidence-based knowledge on vaccine safety is critical for attaining patient autonomy and consequently in informed decision-making (Attia et al., 2017). Anti-vaccination movement negatively impacted the uptake of HPV vaccination. It is providers responsibility to promote vaccine uptake and dispel misinformation through proper evidence-based materials (Attia et al., 2017). Research shows that religious teachings and beliefs might impact the decision making in vaccinations. This should be considered as a sensitive issue when it comes to religion. HCP should take an approach that is understanding rather than dismissive (Attia et al., 2017).

Ways to Increase Vaccination Rates

Improve Primary Care Awareness

The American Cancer Society's HPV Vaccinate Adolescents against Cancers (VACs) Program is the leading and growing HPV vaccination efforts to improve the vaccination rates in adolescents across the nation (American Cancer Society, 2021). VAC program recommends initiating multiple efforts to improve HPV vaccination rates by provider education, quality improvement projects, and clinic level interventions (American Cancer Society, 2021). Primary care should communicate with the parents with each clinic visit about HPV vaccinations and if not, the consequences could occur (Potts & Southard, 2019). PCPs must look for advanced methods to teach parents about HPV, assisting parents to make decisions about the HPV vaccine, and look forward for a common target of inhibiting HPV-related cancers (Potts & Southard, 2019). According to an article in American Academy of Pediatrics, a survey conducted to study the HPV vaccination delivery practice by PCPs. The result was even though most of the physicians recommend HPV vaccination at the age of 11–12-year-old, still need improvement in recommendation and delivery method (Kempe et al., 2019).

A systematic search study reveals that provider-specific educational interventions to advance provider awareness and quality recommendations are a potent measure in rising vaccine uptake (Leung et al., 2019). Providers need to recognize their role in uptake of HPV vaccinations. HCPs can use multimethod approach applying technology to implement reminder systems and practicing announcement technique for high quality recommendations for each visit (Leung et al., 2019).

Improve Parents' awareness

Parenteral consent for HPV vaccination is significantly at a lower rate compared to other routinely recommended vaccinations such as diphtheria, tetanus, pertussis, and meningococcal vaccinations (Cipriano et al., 2018). Lack of parents' education focusing on HPV vaccination is

the issue with low HPV vaccination rates. According to the literature reviews, parents' lack of knowledge about HPV vaccination, misconception about vaccination and sexuality, adverse effect of vaccination and cost are the main reasons for low vaccination compliance (Cipriano et al., 2018). Parents or guardians need to be educated about the efficacy, purpose, and safety of HPV vaccine. An effective tool for this is a self-directed, computer-based tablet (Cipriano et al., 2018). Another study concluded that a structured educational intervention improves the knowledge, perception, and awareness about HPV, and acceptance of HPV vaccination (Sitaresmi et al., 2020). Results from an online survey suggest that a high-quality recommendation from provider and follow up counselling are promising strategies to improve vaccination acceptance from parents (Kornides et al., 2018).

National Guidelines

National guideline for the HPV vaccination is to recommend HPV vaccination at the age 11 or 12 years but can be started at age 9 (CDC, 2021). ACIP advises vaccination up to age 26 years if not effectively vaccinated before. HPV vaccination is normally administered as a sequence of either two or three doses, depending on age at the first vaccination (CDC, 2021). Two doses of HPV vaccine are recommended for those who started the vaccination series before the age of 15. The second dose of HPV vaccine should be given 6 to 12 months after the first dose. A third dose is recommended if both doses are taken five months apart (CDC, 2021). HPV related diseases including cancers such as cervical, vulvar, vaginal, anal, oropharyngeal, and other head and neck cancers should be prevented using these national guidelines for HPV vaccination (CDC, 2021). PCP awareness is the topmost priority in boosting the HPV vaccination rates. Thus, educating the clinical staff including the PCPs should be taken priority to increase the HPV vaccination rates (CDC, 2021). According to American Cancer Society, the

vaccination goal is to reach an annual vaccination rate of 80% of 13-year-olds in the United States by 2026 (American Cancer Society, 2021). Closing the gap between the national goal and current vaccine use requires improved uptake in primary care settings where most children are vaccinated (Garbutt et al., 2018).

The Healthy People 2020 goal of vaccinating 80% of adolescents could be in jeopardy of not being accomplished without innovative practices in place at primary care offices for HPV vaccine education (Cipriano et al., 2018). The issue with the project site is lack of strong recommendation of HPV vaccine to parents by HCPs. To narrow the knowledge gap among HCPs, thorough education to all employees about HPV and HPV vaccination is the essential step to increase the vaccination rate at the project site.

Project Aims

HPV vaccination rate certainly not reached the national goal of vaccinating teenagers and adolescents. Multiple factors are responsible for low HPV vaccination rates as mentioned above. This Quality Improvement Project aims to educate the significance of HPV vaccination to the HCPs and clinical staff on the project site with an outcome goal of increasing the HPV vaccination rate. This project is to fill the knowledge gap among parents and HCPs on the HPV vaccination. The knowledge will then transfer to the parents and young adults to overcome the barriers in HPV vaccination uptake.

Project Objectives

In the timeframe of this DNP Project, the host site will:

1. Administer an education seminar for the multi-disciplinary team to improve HPV vaccination awareness.

2. Demonstrate advance knowledge regarding significance of HPV vaccination and will reinforce HPV vaccination as important as other vaccinations.
3. Improve provider compliance with national standards for care pertaining to HPV vaccination
4. Improve rates of HPV vaccination rate by 80% within a four-week implementation frame.

Theoretical Framework

Kurt Lewin's Change Management Theory (Appendix A) is applied to formulate and consolidate this quality improvement project. This theory is a common change theory mostly utilized by nurses for various quality improvement projects (Wojciechowski et al., 2016). This project makes changes after prior learning among the health care providers and parents of young adults and teenagers in the uptake of HPV vaccination. Three main concepts of Lewin's Change Theory are: driving forces, restraining forces, and equilibrium (Petiprin, 2020). Lewin's theory proposes that individuals and groups of individuals are influenced by restraining forces, or obstacles that counter driving forces aimed at keeping the current situation, and driving forces, or positive forces for change that push in the direction that causes change to happen (Petiprin, 2020). The pressure between the driving and restraining upholds equilibrium. Changing the existing state needs administrations to apply organized change activities using his three stages of Change Theory, they are *unfreezing*, moving to a new level, or *changing* (or movement), and *refreezing* (Petiprin, 2020). The Kurt Lewin's Change Theory is extensively recognized in psychology for applying change. The application of change comprises the present state of organization to be transformed into a chosen state, this may take time (Hussain et al., 2018).

Historical Development of the Theory

The Change Theory was established by Kurt Lewin, who is the father of social psychology. This theory is his most influential theory. Kurt Lewin was born in Germany on September 9, 1890, to a Jewish family (Petiprin, 2020). He theorized a three-stage model of change that is known as the *unfreezing-change-refreeze* model that requires prior learning to be rejected and replaced. It states behavior as "a dynamic balance of forces working in opposing directions" (Petiprin, 2020). *Unfreezing* is the method which comprises to find a way of making it achievable for people to give away of an old pattern that was, in some way, counterproductive (Petiprin, 2020). The next phase involves a practice of *change* in feeling, behavior, thought, or all three of them, that is farther creative in some manner. The final stage, *refreezing* encompasses instituting the change as a standard practice. The old ways can easily return, if there is no refreezing (Petiprin, 2020).

Application to DNP Project

This project is formulated with Kurt Lewin's Change Management Theory. *Unfreezing stage* transforms the unawareness into awareness of the HPV vaccination significance among the HCPs and clinical staff (Petiprin, 2020). *Changing* by educating and reinforcing the HPV vaccination to the parents of teenagers and young adults to improve the vaccination rate (Petiprin, 2020). The final stage of *Refreezing* is establishing this education as an ongoing process in this project site, so that it can be the 'standard operating procedure'. If this is not established as a standard procedure, it is easy to go back to the previous practice (Petiprin, 2020).

Unfreezing stage of Kurt Lewin's Theory

Unfreezing is the first phase molded with the theory of human behavior and corporate behavior, which is divided into three subcategories that have significance to the willingness of change, the requirement of changing circumstances due to the large gap between purpose and

reality (Bhayangkara et al., 2020). Lewin claims that prior learning of new things is essential to unlearn and abandon old behavior (Bakaria et al., 2017). In this stage the project site will be assessed for the knowledge gap among the HCPs and other clinical staff regarding HPV vaccination and HPV related diseases and cancers. The initial step is to understand the knowledge level of the clinical staff, willingness to learn new approach, and measures of improvements (Bakaria et al., 2017). '*Unfreezing*' is required for group behavior to transform. The forces which restrict to change such as personal defense or group norms are to be unfreeze. The term '*Change*' is considered as a fundamental enhancement. It is a deviation from current state of being to a novel state which may have some diverse features (Bakaria et al., 2017).

Educating the staff including the PCPs and NPs are initial step in the *unfreezing* stage. Transforming the unawareness to awareness of the HPV vaccination significance with proof of evidence-based practice from the literature is the effective method in educating the HCPs and other clinical staff (Bhayangkara et al., 2020). The team leader should understand and learn the importance of the new strategies and then educate the other team members about the importance (Bhayangkara et al., 2020). The education process requires inspiration and motivation that the changes made are positive, and beneficial to the teenagers and young adults (Bhayangkara et al., 2020).

Changing stage of Kurt Lewin's Theory

Lewin explores, there are compound forces responsible for the practice of *change,* consequently it is hard to understand actual outcome of scheduled change process. For the change to be a long-term behavior, reinforcement tends to be mandatory (Bakaria et al., 2017). Without this any *change* initiative will fail immediately due to immersion of compound opponent forces and emotional processes (Bakaria et al., 2017). This stage is also called "moving

to a new level" or "movement", which includes a method of change in thoughts, feeling, behavior, or all three of them, that is in some way farther liberating or more beneficial (Petiprin, 2020). According to Lewin, *changes* left without reinforcement are likely to be short-term and, consequently, will fail to meet the objectives (Samuel, 2022). In this stage the up-to-date information to support the new approach is mandatory and need to prove evidence from the literature is accurate. During the *changing* stage the reinforcement is needed, and ongoing support should be provided and make sure they are confident in educating and reinforcing parents regarding HPV vaccination (Samuel, 2022).

Refreezing stage of Kurt Lewin's Theory

Refreezing itself can be interpreted as an activity in which there is a process of stabilization of all existing behavior (Bhayangkara et al., 2020). It is a practice by which new change behaviors gained through destabilizing current situation, and reinforcement pushes to acquire a new comparatively permanent variation in behaviors. In this conclusive phase change moves from an individual phenomenon to a group matter (Bakaria et al., 2017). Lewin recommends that routines and standards regarded by group are supposed to be changed at this phase. Such behaviors are to be programmed in a way that these become as a part and set of new routines and stabilized free from fear of return (Bakaria et al., 2017). The outcome of the new practice should be evaluated before the change become as a permanent practice.

Refreezing stage is integrating and stabilizing a new equilibrium into the structure, so it eventually becomes practice and resists further change (Wojciechowski et al., 2016). Ongoing support from the team members is mandatory for the success of the long-term goal of educating the parents about HPV vaccination (Petiprin, 2020). The evidence given through the education for the clinical staff during the *refreezing* and *change* phase is going to be a permanent practice.

The main goal of this project is to keep this *refreezing* phase to improve the HPV vaccination rate at the project site by 80% during the time frame of four weeks.

Setting

The project setting is a private owned pediatric clinic located in a low socio-economic area in the Southern Texas. The working hours are from 08:00 - 19:00. This clinic is open Monday through Saturday. The pediatrician owns this clinic and has other clinics at different locations. He is specialized in Pediatrics. He strongly believes that accessibility, understanding, and comfort are the cornerstone for an exceptional pediatric practice. Revenue for this clinic is mostly from Medicaid and the Children's Health Insurance Program (CHIP) provide health coverage for low-income children, families, seniors, and people with disabilities. This clinic accepts private pay patients and other insurances.

The clinical staff in this project site consists of four Medical Office Assistants (MOA), eight Medical Assistants (MA), two Physician Assistants (PA), and one Pediatrician. The years of experience for them are varied from one year to 25 years. Quite often this clinic has PA students and NP students for practice. There are approximately 60 patients on an average seek medical care at this clinic daily. Patients are divided to all three providers equally as they arrive. Each providers take care of around 20 children daily. Maximum age of the patient in this clinic is eighteen years of old. On an average, 26 of the 60 children that are seen daily, are above the age of nine and are eligible for HPV vaccination. The clinic takes care of 676 teenagers and adolescents monthly and 8112 on yearly basis. This practice site is using Electronic Health Record (EHR) for documentation purposes. The software used at this site is eMDs.

Population of Interest

Direct population of interest for this project consists of medical staff and providers who are currently working at the project site. The total number of staff educated will include the Pediatrician, two PAs, eight MAs, and four MOAs including the receptionist. The inclusion criteria consist of all staff who are employed in this project site and involved in direct patient care such as Pediatrician, PAs, MAs, and MOAs. PA students and Nurse Practitioner (NP) students are also in inclusion criteria. The exclusion criteria consist of the receptionist. Office receptionist is not involved in direct patient care, and that is the reason this person is excluded. Indirect people of interest are the pediatric patients, parents, and adolescents who will be benefitting from this project.

Stakeholders

The key stakeholders for this project are the pediatrician who own the clinic, clinic administrator, and the clinic manager. The stakeholders realized the importance of HPV vaccination in preventing HPV related cancers and diseases. Stakeholders eagerly agreed to implement this project and promised to follow the protocol as discussed with them. Providers such as the pediatrician, and PA assured to work on the parent education regarding HPV vaccination and passing handouts to the parents to improve the HPV vaccination to improve the vaccination rate. The permission letter from the key stakeholder was obtained and is attached in Appendix B. There is no agreement needed between Touro University and the project site.

Interventions

The purpose of this quality improvement project is to increase HPV vaccination rate in this project site. During the pre-implementation stage, an email will be sent to all participants regarding the location, date, and time for the education. Confirmation on the number of participants for the education session will be obtained from the administrative manager.

Education session will be done at the lounge during lunch time. Step-by-step information will be given to the providers, and clinical staff on how to proceed with the implementation of this project. Education session will be done by using a Power point, and a printed copy will be given to all participants. The multidisciplinary project team includes the pediatrician, two PAs, two MAs, and one IT professional. The providers including the pediatrician and two PAs will be educating the parents and young adults about HPV vaccination. The MAs will be handing over the flyers to the parents during their first encounter with them. The pediatrician is the main stake holder and promised to make sure all staff are actively participating in the project. The project lead will monitor the office staff, and providers that they deliver education to the parents of teenagers, and adolescents regarding HPV vaccination, while giving continued support and guidance.

The educational session will take place during the first week of implementation. Additional support will be given to the office staff to better assist with parents, and adolescent education to improve the vaccination rate. Flyers are kept at the treatment room, lounge and emailed to all staff. The project will be implemented on the second week. During third, and fourth week the support from the project lead will be continued. The flyers will be kept in the treatment room, and staff lounge. Encouraging parent education on HPV vaccination to prevention of HPV related diseases. The post intervention plan is to audit all the charts for data collection to see how many patients were educated about HPV vaccination and how many received the vaccination. Chart audit will be done based on the age, and it will be on the patients who are age 9 and above. A weekly implementation timeline (Appendix C) is made for an easy implementation process. The final data will determine further education is needed to keep this

process as an ongoing practice. To assess the staff knowledge, paired *t* test will be used, and chi squire will be used for the chart audit analysis.

Tools

Assessment tools include the item that assists student to organize thoughts and work through conceptual ideas, as well as in the decision-making process (Moran et al., 2017). Another use for the tools is to present data, including assessment or evaluation data, in a powerful and efficient manner (Moran et al., 2017). The tools used for this project were created by the students and are follows.

Flyer

A flyer was created by the DNP student about HPV related diseases and was approved by the project team (Appendix D). The flyer will be handed to the patient by MAs with their first encounter. The goal is to provide information on HPV vaccination significance on HPV related diseases and cancers. Also, it will remind parents and adolescents to ask to the provider about HPV vaccination.

Education Power Point

A power point presentation will be used to educate the staff members in the project site (Appendix E). This will be done during the first week of the project implementation. Print out for the power point was made and handed to all the participant for more clarification. The power point was approved by the main stakeholders before the education. This power point was developed by the student.

Sign in Sheet

Attendance will be recorded by placing a sign in sheet prior to education presentation. This sign in sheet was developed by the student and approved by project team (Appendix F). All

staff attending the education session must sign in to record the attendance. Expected attendance is around 100%.

Chart Audit Tool

A chart audit tool was created by the student and approved by the project team. Final data are collected during the fourth week of implementation (Appendix G). The goal is to audit at least fifty charts of the patients who are age nine and above. Children are qualified for HPV vaccination at the age of nine. This tool has three components. (a) serial number of charts, (b) HPV education given, (c) vaccination acceptance. Report will be collected using a data file (.sav). Analyzing this data will reflect the areas of improvement, areas need to be corrected or reinforced.

Study of Interventions, Data Collection

This pediatric clinic uses eMDs platform for electronic documentation. All patient interactions including vaccination assessments and education will be documented through this system. Each section is separate and easy to browse. A chart audit tool (Appendix G) will be used to evaluate the outcome of the project, i.e., the vaccination education and vaccination acceptance. Data collection starts one week after the implementation of the project. Children aged 9 and above will be given a code number for easy identification for the chart audit. This will be confidential and protected in a password protected computer. No patient identity will be used to do the chart audit, instead, the code number will be used.

The project leader will visit the site four to five times in a week to observe and to provide continued guidance. This clinic has two shifts, morning, and afternoon. The project leader will make sure to go to the site at different times of the day to meet and observe all the staff and to guide them. Contact number of the project lead will be provided to all the team members to

contact at any time if they have questions or concerns. The charts will be reviewed end of third and fourth week and will cover all the charts which comes under the qualified criteria. The total number of charts audited will be no less than 50 charts. Data will be documented in spread sheet and stored in a password protected computer. The password will not be shared to anyone. The data will be preserved until the QI project is done.

Ethics/Human Subjects Protection

The project leader will maintain confidentiality throughout this project implementation, data collection and data analysis. This DNP project is a Quality Improvement study, not research. Project leader will take the responsibility of keeping the confidentiality. Throughout the process, no patient identifications were used for any data collection, instead the code numbers were assigned for each data. The data will be entered in a spread sheet, and the computer will be locked with a secured password.

The participants for this project are the stakeholders and staff from the project site. The participation was voluntary training for the employees, not mandatory. There is no direct benefit for the employees from this project, but it will benefit the patients in future by educating the patients on HPV vaccination for vaccination acceptance. The vaccination will prevent HPV related diseases and cancers. There is no risk anticipated or identified, and there will be no compensation for the employees for participation in the project. Lunch will be provided during the educational session.

Touro University of Nevada (TUN) doesn't require Institutional Board Review (IRB) approval for QI study. This project on HPV vaccination is considered as QI project and doesn't require IRB approval. The project site doesn't require IRB approval for this project. A signed letter from the clinic manager was obtained at the beginning of the course (Appendix B).

Measures/Plan for Analysis

Data analysis will be done by utilizing the chart audit. Pre intervention data will be collected for six weeks prior to implementation and results will be entered on a spread sheet. Post intervention data collection will start a week after the implementation of the project. The project lead will evaluate the qualified charts, and a spread sheet will be used to record the result. A Chi-Squire test will be performed to compare the two independent variables (i.e., the education, and vaccination acceptance) (Pallant, 2020). This will evaluate how the increased knowledge among the office staff improve the education on HPV vaccination and thus increased the vaccination rates. A code book will be created to support the data and the same will be used to feed into Statistical Package for the Social Science (SPSS) for detailed analysis (Pallant, 2020). The assumption will be improved staff knowledge will improve the HPV vaccination offering to the eligible patients by 80%. This will estimate whether the education was effective in improving HPV vaccination rates or further education is needed.

Analysis of Results

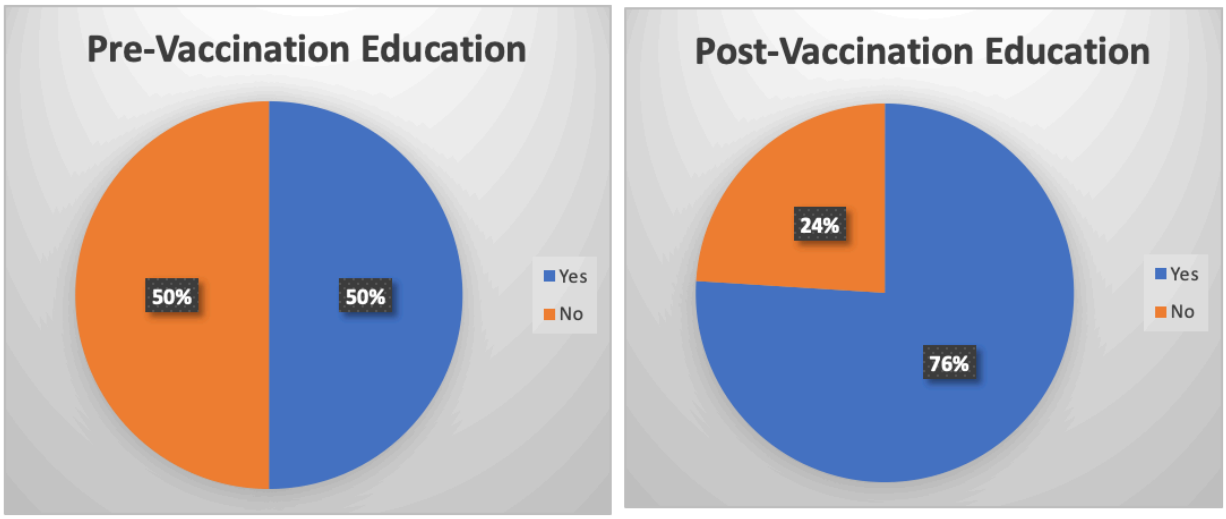
The staff attendance was 100% for the education presentation on HPV vaccination. The main stakeholder was absent, but the entire procedure was explained to her, and she offered full support. All medical staff, including MAs, PAs, and NPs, attended the presentation. Data collection started from the third week of implementation. All the charts for patients aged 9, and older were given a code number and started auditing those charts for HPV vaccination education and HPV vaccination acceptance. The chart audit continued until the end of fourth week. A total of 50 charts were audited. On the fifth week data analysis was done using the pre intervention data and post intervention data to see the effectiveness of project implementation. A code book was created for data analysis. ‘Pre’ and ‘post’ interventions were numbered as 1 & 2

respectively. HPV vaccination education ‘given’ and ‘not given’, and Vaccination ‘agreement’, and ‘non agreement’ also was numbered as 1&2 respectively. Then the pre and post data are updated using the excel spreadsheet. This data was uploaded into SPSS tool for detailed analysis by using Chi-Square test. This project was completed within the 4-week timeline.

Statistical Assumptions for HPV Vaccination Education

According to the Chi-Square test the table note is 0 cells (0.0%) have expected count less than 5. This means the assumptions are not violated as all the expected cells are greater than 5. In this case it was greater than 18.50 (Pallant, 2020). The percentage of HPV vaccination education given before project implementation was 50%, and not given was also 50%. After implementation, the education given was 76%, and not given was 24%. (Pallant, 2020).

The corrected value in the Chi-Square test is 6.178 with associated significance level of 0.013. This means that the result is significant, with the value of smaller than 0.05. This shows the proportion of people educated about HPV vaccination pre and post intervention is significant. HPV vaccination education to the medical staff improved the knowledge among the staff and improved the number of people educated (Pallant, 2020).



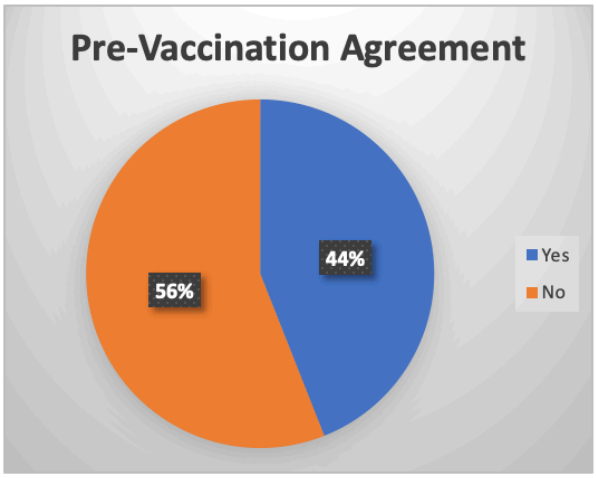
Yes – Vaccination Education – Given.

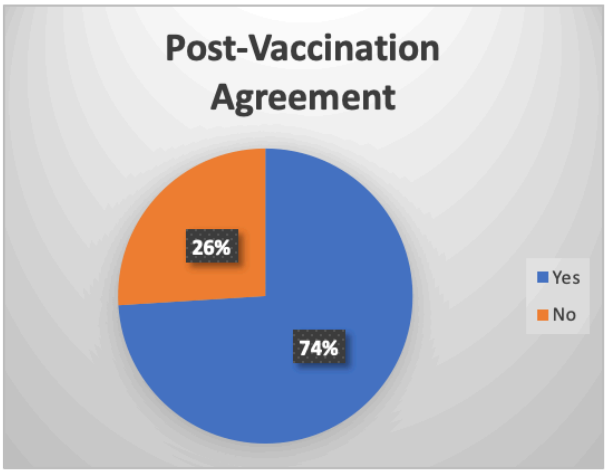
No – Vaccination Education – Not given.

Statistical Assumptions for HPV Vaccination Agreement

According to this Chi-Square test the table note is 0 cells (0.0%) have expected count less than 5. This means the assumptions are not violated as all the expected cells are greater than 5. In this case it was greater than 20.50 (Pallant, 2020).The percentage of HPV vaccination agreement before project implementation was 44%, and not given was also 56%. After implementation, the vaccination given was 74%, and not given was 26%. (Pallant, 2020).

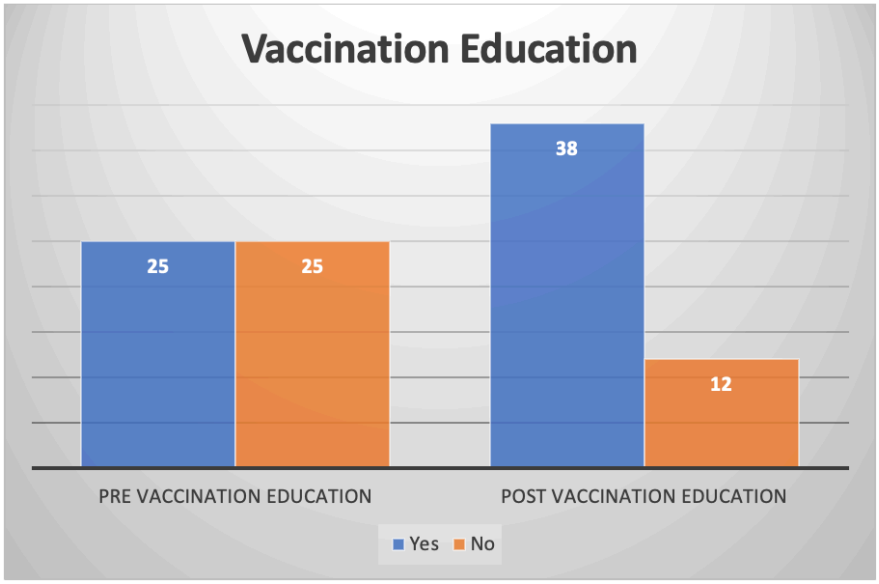
The corrected value here is 8.103 with associated significance level of 0.004. This means that the result is significant, with the value of smaller than 0.05. This means the proportion of people received HPV vaccination pre and post intervention is significant. HPV vaccination education to the medical staff improved the knowledge among the staff and improved the number of people vaccinated (Pallant, 2020).

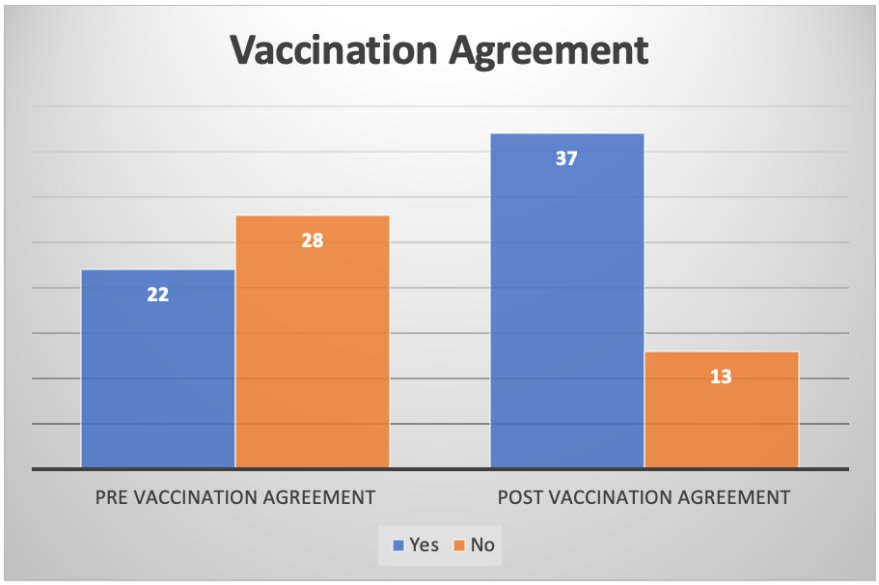




Yes – Vaccination Agreement – Given.

No – Vaccination Agreement – Not given.





Discussion of Findings

The aim of this QI project was to educate the significance of HPV vaccination to the HCPs and clinical staff on the project site with an outcome goal of increasing the HPV vaccination rate. The objectives were administered education seminar for the HCPs to improve the vaccination awareness, demonstrate advance knowledge regarding significance of HPV vaccination, and to reinforce HPV vaccination as important as other vaccinations. The other objective was improving provider compliance with HPV vaccination education. All these

objectives were met after the project implementation. The last objective was the vaccination rate which was assumed to improve by 80% but observed was 74% as per the data analysis. The pre project site vaccination rate was 44%. The overall objectives were met after the project implementation. This project filled the knowledge gap about the HPV vaccination among the HCPs and the knowledge transferred to the parents and improved the vaccination rate.

The strength of this project was most of the medical staff were very compliant in educating the parents and teenagers regarding the importance of HPV vaccination. This project was very cost effective. The main stakeholders were very supportive and was observing the staff on the compliance.

Even though all staff attended the education presentation, very few of them were non-compliant with vaccination education. This was one of the weaknesses observed for this project. Furthermore, with the education, some parents were reluctant to give vaccination for their children. This project site needs further follow-up in educating the parents and to reinforce the staff to continue giving education to the parents.

A previously published literature also supports the concept that educating the medical staff regarding the HPV vaccination increases their knowledge. The knowledge of the staff then transferred to the patients through their education to the patients, and thus increased the vaccination rates in adolescents (Hogue, 2022).

Significance/Implications for Nursing

This project is very significant for nursing practice. It is evident from this project that educating the parents of teenagers, and young adults have great impact on improving the HPV vaccination rate. Advanced practice nurses can implement this practice in their clinical settings. Advanced practitioners are prepared to implement evidence-based practices at their area of

practice. HPV vaccination is a public health priority since HPV related diseases are very common and have serious complications. Cancer rates in men and women are increasing every year (U.S. Department of Health & Human Services [HHS], 2021). Nurses have very significant role in the prevention of HPV related diseases by providing education to the qualified parents and young adults. This project is a great source for the nurses to improve their knowledge. The evidence from this project will motivate Advanced Practice Nurses to implement another protocols or projects to increase the HPV vaccination rate.

Limitations

There were few limitations during this project from implementation to data analysis. One of the limitations was the time limit for the complete process of the project from staff education to data analysis. The time limit was 5 weeks for the entire project. If there was extended time, the sample size would have been significantly higher than the obtained one. One week after the education to the staff, the project was implemented. The response from the staff would have been much better if there was more time for them to prepare to give education for the parents of the teenagers and young adults. Changes in health care delivery can be challenging because of the human's nature to be in a stable environment (Nilsen et al., 2020). Emphasizing education on HPV vaccination to the parents and young adults were adding more workload for the staff.

Another limitation was the limited sample size. The samples selected was from age 9 and above. HPV vaccination starts at the age of 9. The age group below 9 were consciously avoided due this restriction. This bias occurred during the selection of the sample size. Other limitation was COVID -19. Due to COVID 19 the routine office visits were fewer. Doctors' office visits are done only when the children are sick. The annual checkups are not being done regularly after COVID -19.

Finally, the data collection didn't include the health care providers column (name) to find out how many staff didn't give the education during their encounter with patients. The project lead could focus more on them for further follow ups. The project lead made efforts to observe the staff on their compliance with patient education on HPV vaccinations.

Dissemination

The dissemination of this project will be done initially with Touro University faculty, and available students via zoom presentation. A presentation will be done at South Texas College nursing school during the monthly meeting with faculty, and students. This project will be submitted to DNP repository for reference to other practitioners. This project can be disseminated to other branches of the host site to improve HPV vaccination rate. A poster presentation will be done at the 2023 Organization for Associate Degree Nursing (OADN) conference in San Diego California during the period November 15-18th. This project will be presented to the Hidalgo County community education center to educate the community regarding the significance of HPV vaccination.

Project Sustainability

Sustainability of this project will be done by continued support to the project site by the project leader and implement a plan to achieve 100% compliance on patient education on HPV vaccination, and to identify the staff with noncompliance. Motivation is another step in sustaining the project. Offer rewards to whom who is fully compliant with patient education on vaccination program. This project can be implemented to other branches of this project site after discussing with main stake holder to improve the vaccination rate and protect more people from HPV related diseases.

Conclusion

HPV vaccination is the best method to prevent HPV related cancers and sexually transmitted diseases. Sexually active people affect with HPV infections at least one time in their lifetime (CDC, 2021). Even then the vaccination rates are lower compared to other vaccinations. People are not aware of the importance of HPV vaccination, and how it prevents HPV related diseases, and cancers. Literature reviews suggest that increasing awareness regarding the importance of HPV vaccination improves vaccination rates. Many HCPs are also not aware of the significance of HPV vaccination. Evidence shows that HCP recommendation on HPV vaccination improved vaccination rate (Beavis & Levinson, 2016). As evident from this project, the education on clinical staff improved the knowledge level, and this knowledge is transferred to the parents of teenagers, and young adults by educating them. The vaccination rate was improved at this project site by educating the parents and young adults. It is imperative that further quality improvement projects should be implemented to promote HPV vaccination acceptance among teenagers, and adolescents.

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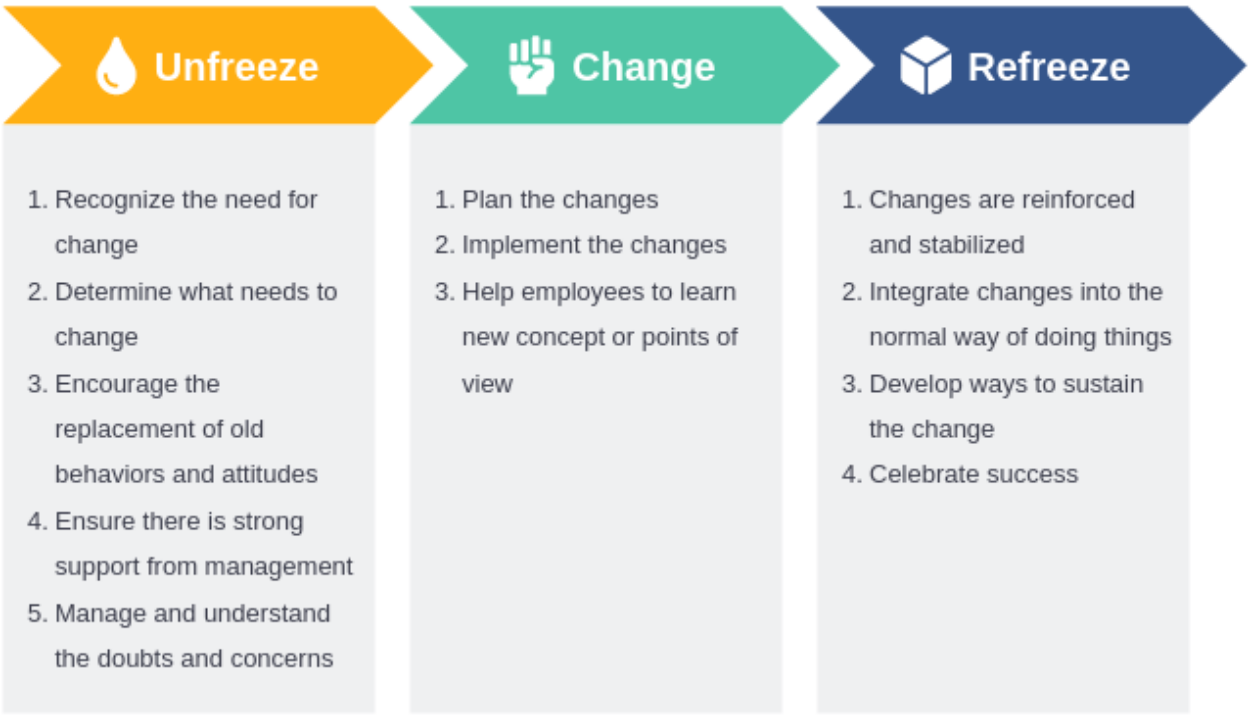
Appendix A

Kurt Lewin's Change Management Theory



Appendix B

Letter from DNP Project Site

4709 S. Jackson Rd.
Edinburg, Tx 78539

March 24, 2022

Dear Mrs. Sherly Romy (Touro University),

I would like to reach out to you about Sherly Romy, MSN, RN. She is working on a quality improvement project, "HPV Vaccinations." There is no clinical agreement needed for her to do this project while working in our clinic. If you have any questions, please feel free to contact me at 956-682-4500.

Sincerely,

Claudia Garcia
Office Manager

Appendix C

Implementation Timeline

Appendix D

Flyer

What you know about HPV vaccination and related disease conditions?

Human Papilloma Virus (HPV) can cause many diseases and cancers. HPV vaccination protects against HPV, and the diseases and cancers this virus cause.

HPV vaccinations can prevent 90% of the cancers, when given at recommended age.

When to Give HPV vaccination

(BBC News [BBC], 2019)

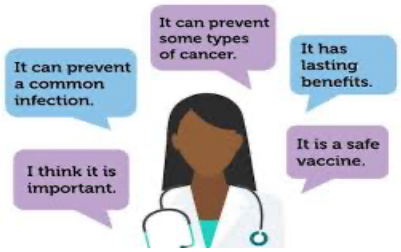
(Sales, 2021)

HPV vaccination best beneficial at the age tween 9-12. Children and young adults from age 13-26, and not fully vaccinated should be vaccinated as soon possible.

HPV vaccinations are two doses, six to twelve months between shots.

Most health insurances cover HPV vaccination.

HPV is very common! Has no treatment! But can prevent it!



(National Cancer Institute [NIH], 2018)

Hurry Up!

Talk to your doctor!

Appendix E

Education Power Point

What is Human Papilloma Virus(HPV)

Human Papilloma Virus (HPV) is the most common Sexually Transmitted Infection (STI) in men and women worldwide (Miriam et al., 2020).

HPV is the leading cause of the fourth most common type of cancer in women, which is cervical cancer (Kombe et al., 2021).

1

Who is affected?

- Nearly all sexually active individuals will acquire at least one time in the lifetime
- Peak incidence for women between 20 and 24 years of age
- Men between 25 and 29 years (Miriam et al., 2020).

2

Risk factors

- **Number of sexual partners:**
  - The more sexual partners you have, the more likely you are to contract a genital HPV infection.
  - Having sex with a partner who has had multiple sex partners also increases your risk.
- **Age:**
  - Common warts occur mostly in children.
  - Genital warts occur most often in adolescents and young adults.

3

Risk factors (Cont...)

- **Weakened immune systems-** HIV/AIDS or by immune system-suppressing drugs used after organ transplants.
- **Personal contact-** Touching someone's warts or not wearing protection before contacting surfaces that have been exposed to HPV eg: Swimming pool, public shower (Mayo Clinic, 2022).

4

Symptoms

- **Genital warts-** appear as flat lesions, small cauliflower-like bumps or tiny stemlike protrusions.

-In women, mostly on the vulva, near the anus, on the cervix or in the vagina.

-In men, genital warts appear on the penis and scrotum or around the anus

5

Symptoms (Cont...)

- **Common warts-** rough raised bumps and usually occur on the hands and fingers (Mayo Clinic, 2022)

6

Symptoms (Cont...)

- **Plantar warts-** hard, grainy growths usually appear on the heels or balls of the feet (Mayo Clinic, 2022)

7

Symptoms (Cont...)

- **Flat warts –** flat-topped, slightly raised lesions. Appear anywhere, mainly on the face (Mayo Clinic, 2022)

8

Prevention

- HPV vaccination- available HPV vaccines are Gardasil, Gardasil 9, and Cervarix
- Mutually monogamous sexual relationship
- Reducing your number of sex partners
- Using a latex condom, which can reduce your risk of HPV transmission (Mayo Clinic, 2022)

9

HPV vaccination

- Available HPV vaccines are Gardasil, Gardasil 9, and Cervarix.
- Gardasil 9 is the only one HPV vaccine used in United States since 2016, and it prevents nine types of HPVs
- Advisory Committee on Immunization Practices (ACIP) recommends the HPV vaccine should be given to children and adult from age 9-26 years
- Recommended to be administered at the age of 11 or 12 years but can start as early as age 9.
- advisable through age of 26 years for those who are not vaccinated before (National Institutes of Health [NIH], 2021).

10

Problems Identified

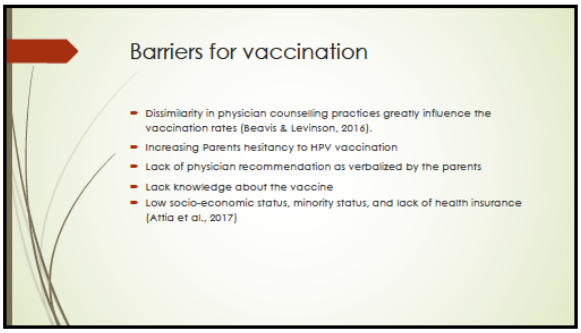
- HPV vaccination rate is not increasing even though it is readily available
- Not reaching the level as other vaccinations
- Reason is considered as lack of knowledge about HPV and available vaccines (Bonanni et al., 2015).
- Very few people are getting recommendations from their clinician for the vaccination (Bonanni et al., 2015).
- To increase the rate of vaccination, it is important that parents are provided more information and support from the clinical staff on the safety and effectiveness of the vaccination (Centers for Disease Control and Prevention [CDC], 2017).
- Only four states in United States mandated HPV vaccination (National Conference of State Legislatures [NCSL], 2020).

11

Interventions

- Clinician recommendation about the HPV vaccination is the number one motivation for the parents to give vaccination to the children.
- bundle the vaccination recommendations
- recommend HPV vaccination with the same and equal importance to other recommended vaccines.
- Motivate the clinical team and encourage them to do the immunization conversation with patients starting from the reception (CDC, 2017).
- Educate the clinical staff about the HPV related morbidity and mortality.

12



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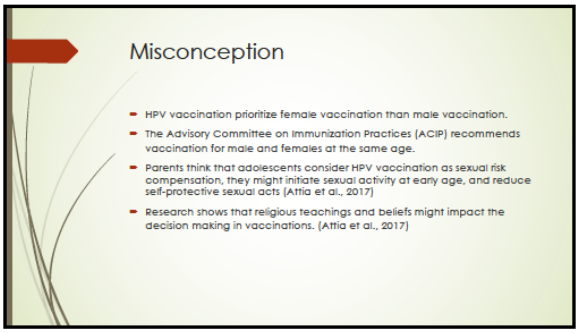

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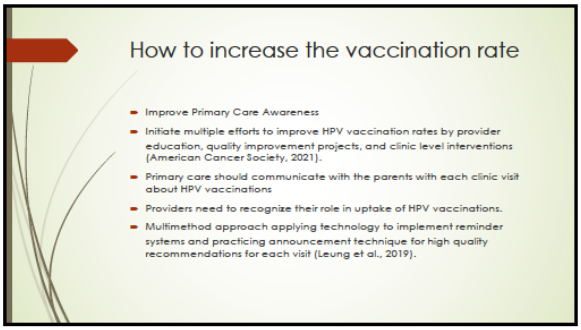

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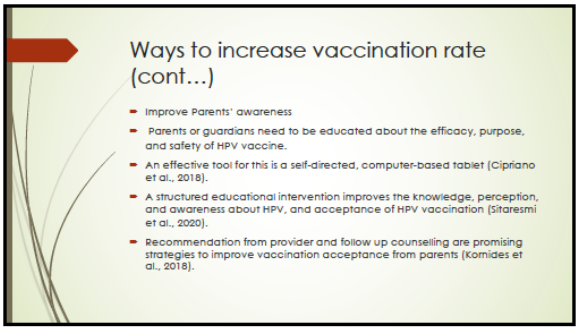

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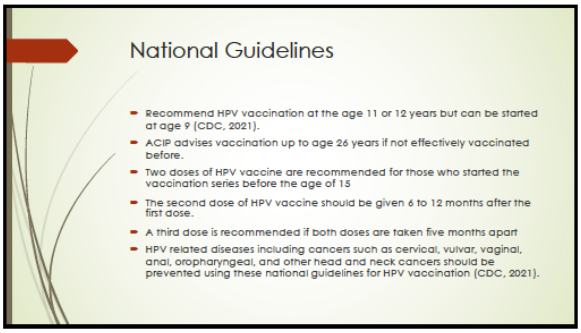

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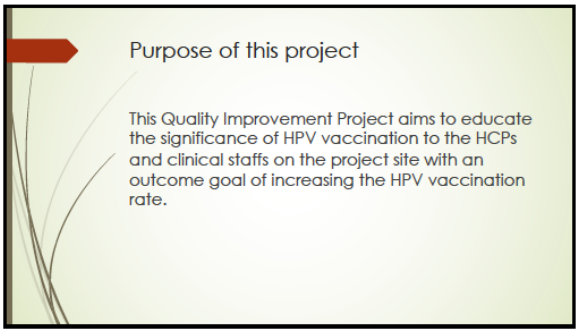

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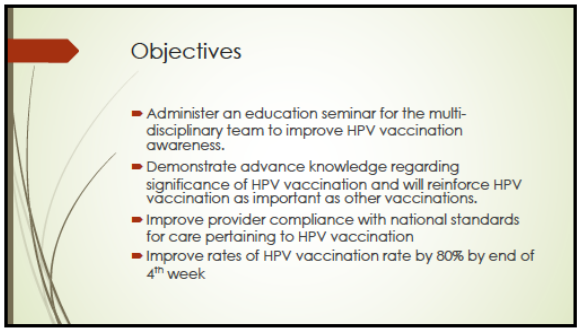
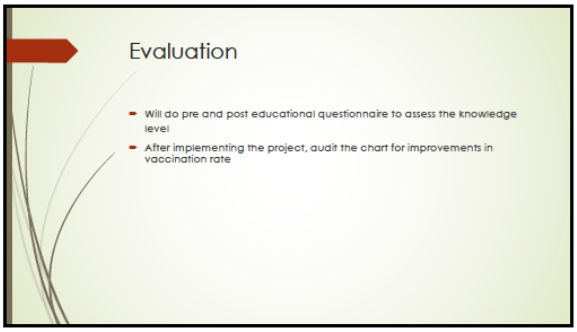
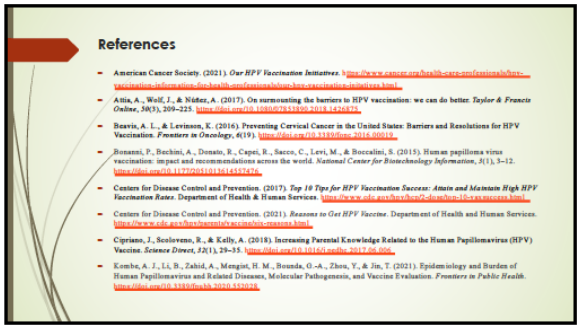

Objectives
Administer an education seminar for the multi-disciplinary team to improve HPV vaccination awareness.
Demonstrate advance knowledge regarding significance of HPV vaccination and will reinforce HPV vaccination as important as other vaccinations.
Improve provider compliance with national standards for care pertaining to HPV vaccination
Improve rates of HPV vaccination rate by 80% by end of 4th week

19


Evaluation
Will do pre and post educational questionnaire to assess the knowledge level
After implementing the project, audit the chart for improvements in vaccination rate

20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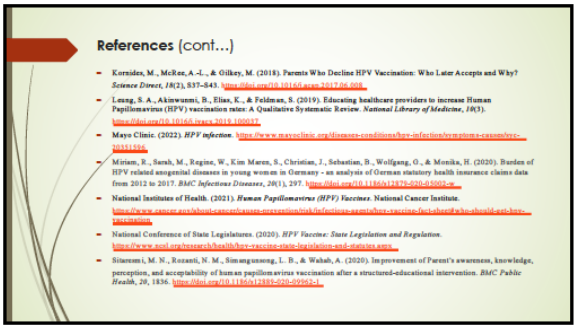
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Appendix F

Sign in Sheet

Sl.No	Name	Title	Signature

Appendix G

Chart Audit Table – Pre and Post Intervention

Chart	Vaccination Education (Yes – 1 / No – 2)	Vaccination Agreement (Yes -1 / No – 2)