

Summer 5-25-2019

Missed Shots: Increasing Flu Vaccine Documentation Utilizing a Clinical Reminder in a Student Health Clinic

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Simms, Noelle, "Missed Shots: Increasing Flu Vaccine Documentation Utilizing a Clinical Reminder in a Student Health Clinic" (2019). *Doctor of Nursing Practice Final Manuscripts*. 88.
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UNIVERSITY OF SAN DIEGO

Hahn School of Nursing and Health Science: Beyster Institute for Nursing Research

DOCTOR OF NURSING PRACTICE PORTFOLIO

By

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A portfolio presented to the

FACULTY OF THE HAHN SCHOOL OF NURSING AND HEALTH SCIENCE:

BEYSTER INSTITUTE FOR NURSING RESEARCH

UNIVERSITY OF SAN DIEGO

In partial fulfillment of the

requirements for the degree

DOCTOR OF NURSING PRACTICE

May 2019

Introduction

Influenza is a highly contagious and a potentially life threatening disease regardless of age or current health status. During the 2017-2018 flu season it was estimated that 49 million people were infected with the influenza virus, with just under a million hospitalized (CDC, 2018.) During last year's detrimental flu season there were 79,000 deaths due to the flu (CDC, 2018.) Influenza outbreaks on college campuses are common due to the population and close living quarters.

The CDC recommends everyone over the age of 6 months receive the flu vaccine every year (2018). Although those that are at highest risk for developing complications due to the flu are the very young, the elderly, and the immunocompromised, those that are considered healthy still fall ill, and may require hospitalization.

Despite the high rates of outbreaks, vaccination rates remain between 8-39% in college-age students according to the National Foundation for Infectious Diseases (2017). Although over 70% of students stated that getting the flu vaccine is important, less than half received the vaccination. The majority of students that did not receive the vaccine believed that they are too healthy for the flu vaccine (NFID, 2017). Students attributed cost and access as likely reasons for low vaccine rates, while listing healthcare professionals as one of the most influential in their decision (NFID, 2017).

The most common reason cited for refusing the flu vaccine among this population is the belief that they are "too healthy" (NFID, 2017); this is a pivotal opportunity the healthcare provider has to educate the patient. The CDC released a study in May of 2017 that showed the flu vaccine decreases severity of illness when it fails to prevent disease. The study looked at adults hospitalized for flu related illness. They found that

adults that were unvaccinated were two times more likely to die to flu related illness when compared to those that were vaccinated. They also noted decrease intensive care admission rates and a decrease in length of stay. This was the first study to show decrease severity of flu illness, when it fails to prevent disease (CDC, 2017) .

There have been numerous studies related to increasing vaccinations across various populations utilizing electronic health records. The majority of these articles have shown that implementing a clinical reminder increases rates of vaccination, as well as documentation. The study that is most similar to the project at the USD SHC was conducted at a large internal medicine group in 1999. This study concluded that a computerized flu vaccine clinical reminder, when compared to no reminder, increased compliance 78% from baseline in a large internal medicine clinic (Tang, LaRosa, Newcomb, & Gorden, 1999).

A meta-analysis that reviewed various interventions that increase the use of immunizations in adults with cancer screening services was conducted and included 108 articles. The most effective improvement was noted when there was an organizational change in clinical procedures with support from the appropriate management. This includes assigning non-providers the task of conducting components of screening for preventative reasons (Stone et al., 2002).

A retrospective study utilizing survey data from 2007-2012 looked at the association of human papilloma virus (HPV) vaccination and the use of an electronic record based clinical reminder. In this study they found that the highest association of increased vaccination rates was among the subpopulation of young males that are frequently missed with this vaccine (Bae, Ford, Wu, & Huerta, 2017). This article shows

clinical reminders increase vaccination rates particularly in populations that are at higher risk to be missed.

Materials and methods

In 2018 the American College Health Association (ACHA) compiled data from various universities and compared them to clinical benchmarks for screening and prevention. One of the benchmark data points analyzed was documentation of influenza vaccination, including documented reason for refusal. The University of San Diego (USD) student health center (SHC) had a mean compliance rate of 36%, while the national average was 40%. This drove the desire to change the flu vaccination documentation process at the SHC.

During the previous flu season at the SHC the only students that were standardly being offered the flu vaccine were those with respiratory concerns. A clinical reminder in the form of a reminder statement was embedded into the template that was utilized for these complaints. There was no template to document that the flu vaccine was offered during the visit. Providers may have documented refusal in their plan, but it was not standardized and there was no documentation of refusal reason.

The primary reason patients were not routinely being offered the flu vaccine was simply because the providers forgot. The vaccine may have been offered but not always documented, unless the flu vaccine was ordered. There was previously no standardization to flu vaccine documentation for patients at the student health clinic.

After meeting with the supervising physician and the other providers it was determined that adding the flu screening question to the vital signs portion of the medical record would be the most efficient way to capture all students that visit the clinic.

This is because every patient that is seen in the clinic for a visit, no matter the reason, has their vital signs taken once they are roomed. The provider reviews the vital signs at the beginning of every visit and with this the flu screening questions. The provider can then order the flu vaccine, if appropriate, or provide brief education based on the refusal answer.

The format for the flu screening was based on the ACHA benchmarking points. The following questions were added to the EMR; “Do you want a flu vaccine today?” If “Yes” is selected, it is expected that the provider would order the flu vaccine to be given at the end of the visit. If “No” is selected, a drop down of refusal reasons appear; “I already received vaccine”, “I’m healthy, I do not need it”, “I don’t like needles”, “I do not think it works”, “I worry about the risks”, and “other”. If other is selected there is an opportunity to free text the reason. These potential reasons for refusal come from the National Foundations for Infectious Disease 2017 report as the most common refusal reasons in the college population.

This screening template was implemented on October 11, 2018. All of the staff was educated on the new screening at the staff meeting October 3, 2018. The goal set by the clinic was to increase flu vaccination documentation by 20% from the previous clinical benchmark. The goal of 60% documentation was deemed a realistic, yet challenging goal. The primary purpose of the clinical reminder is to increase documentation of flu vaccine, while the secondary purpose is to increase flu vaccine rates among students that visit the health center.

Results

During the 10-week implementation period there was an increase from 36% to 82%, a 46% increase in flu vaccine documentation. Overall vaccine rates at the student health center increased by 18% alone from the fall of 2017 to the fall of 2018. This already exceeds the goal set by Healthy Campus 2020 to increase flu vaccine rates by 10%.

The percent of flu vaccine documentation in the SHC comparing fall semester 2017 to fall 2018 is demonstrated in **figure 1**. The bars demonstrate the percent of flu vaccination documentation during the corresponding flu seasons. The orange line indicates the benchmark; the 40% benchmark set was by the national average from the ACHA, while the 60% benchmark was set by the staff at the USD SHC as a goal for this project.

The number of students vaccinated at the SHC during the flu season 2015-2018 is shown in **figure 2**. This graph does not reflect the final number for the 2018-2019 flu season, as this data was pulled at the end of the fall semester 2018. There is an overall upward trend over the years. The initial increase in vaccination from 2016 to 2017 may have been due to the negative effects of 2016 flu season. Over the past year there was an 18% increase in flu vaccine rates on campus, and it is likely that this line will continue to project upward as the vaccine continues to be routinely offered.

The breakdown of documented refusal reasons demonstrated in a pareto chart (**figure 3**). The number one cited reason, “too healthy”, coincides with the NFID (2017) survey. The second most common reason falls into the category of “other”, which is broken down in **table 1**. Most of those that fell into the category of “other” stated that

they would “get it later”, thus this was another category added to the graph. Another frequently stated reason for not wanting the vaccine during the visit was that they “feel sick today”. These students may or may not plan to get the vaccine at another point in time.

Discussion

The SHC staff was hoping for 100% compliance with the new template, but this was not achieved during the 10-week pilot. There are multiple reasons that this clinical reminder did not achieve 100% compliance. First, the template was not initially available in the RN visits, and when a provider would take over these visits it was missed. This was changed halfway through the project. Another reason it may have not been completed is that when the same patient would be seen frequently for follow up or allergy injections, the medical assistants may have found it redundant. Additionally, when students presented to the clinic symptomatic and needing immediate medical attention, this template would have likely been missed.

The most significant limitation of this project stems from the EHR. Ideally, when the MA selects “yes” for the flu vaccine, the order for the flu vaccine would be automatic. Then the provider would just sign this off the order at the end of the visit. Unfortunately, the EHR is unable to do this. Providers failed to order the vaccine for patients that wanted the flu shot 16% of the time. This pilot placed the provider responsible for ordering the flu vaccine during clinic visits, although medical assistants and nurses are able to order them. It was discovered after the pilot, that one of the providers was unaware that they were responsible for ordering the vaccine. The provider felt that the MA should order it since they are completing the template. This is a change

that will take time, and the responsibility for ordering the vaccine may shift to the MA/RN.

The high number of students citing “other” as their reason for refusal is likely capturing those that are refusing the vaccine today and not necessarily refusing the vaccine all together. Students typically schedule visits at the SHC when they are not feeling well, and are less likely to want to vaccinate when sick. Providers felt that students were surprisingly open to information regarding the vaccine, and several felt that more students changed their mind than they would have anticipated. Additionally, the refusal reasons offer data that can be used for future flu campaigning and continue to increase flu vaccine rates on campus.

This project demonstrates that the implementation of a clinical reminder within an electronic health record increases documentation compliance and is associated with an increase in flu vaccine rates. The documentation of refusal reasons provides an opportunity for focused education during the clinic visit, and ultimately increases flu vaccination rates.

Acknowledgements

Thank you to the entire staff at the University of San Diego Student Health Center. Specifically, Dr. Woodruff and Pamela Sikes for providing the project and support needed to implement this project. Thank you Emily Dally for your patience and time sending data in various formats. Finally, thank you Dr. Burkard for keeping the project on track from behind the scenes.

Declaration of interest statement

This project did not receive any financial support or funding.

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Tables

Table 1.
Documented refusal reasons free-text "Other".

"Other" Refusal Reasons	
Documented Reason	# of Students
Allergic	21
Feels sick today	77
Getting allergy injections	20
Febrile	15
Vegan	1
Planning to get later	140
"I get the flu every year"	2
"I get sick from the flu shot"	9
Family doesn't get it	5
Just don't want it	12
Will think about it	14
Provider deferred today	5
I don't get flu shots	9

Figures

Figure 1.

The percentage of flu vaccine documented during clinic visits comparing Fall 2017 to Fall 2018 in relation to benchmark goals.

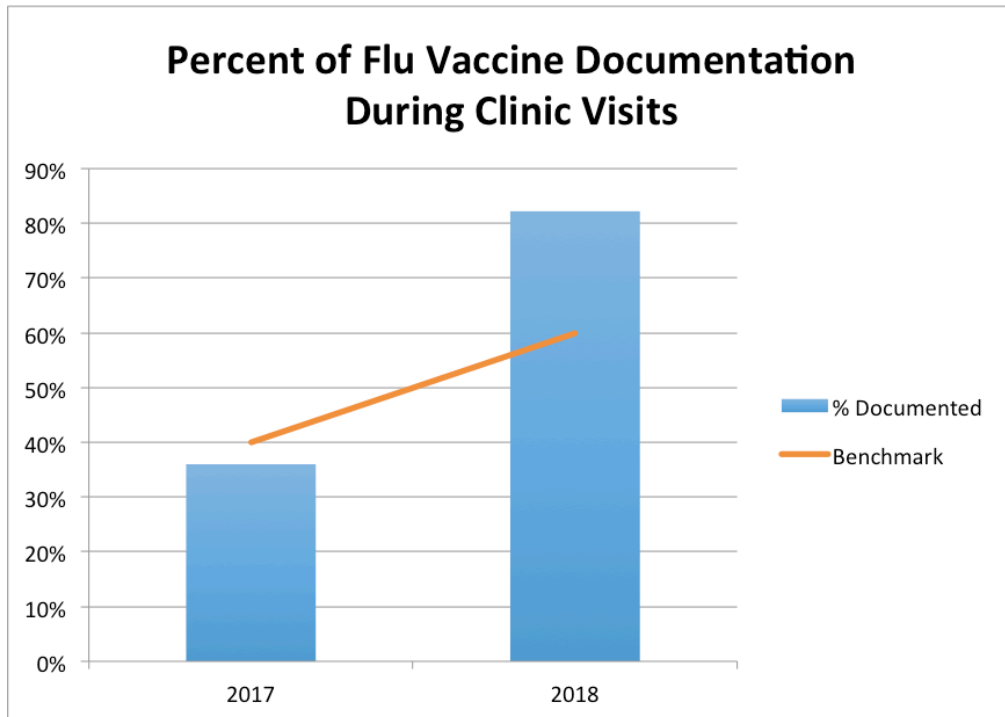


Figure 2.

Total number of flu vaccines given by the USD SHC during the years 2015-2019.

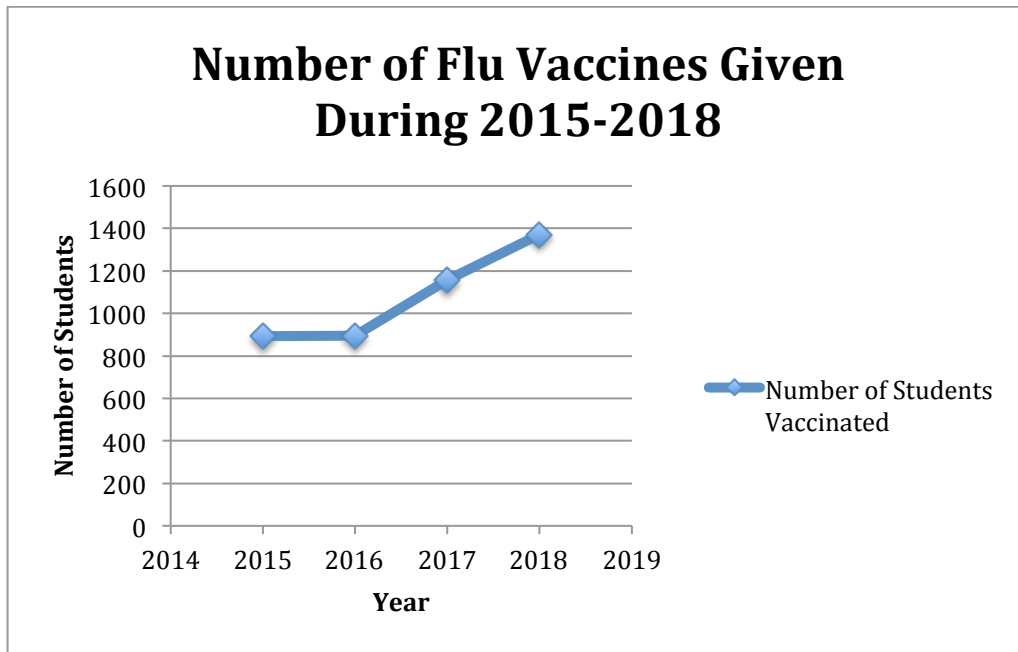


Figure 3.

The documented refusal reasons during the implementation period.

