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Improving Influenza Compliance Using a Reminder System

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Abstract

Objective: The clinical nurse leader project was to incorporate a reminder system to improve influenza compliance as the large metropolitan hospital is undergoing a decrease in the compliance of screening hospitalized at discharge. Improving the influenza compliance using a reminder system will assist healthcare professionals in implementing a structured screening process, administration of the vaccine, reminders of the importance of vaccination, and provide a standard for the healthcare team to follow. **Methods:** Create a reminder poster for medical-surgical units to remind nursing staff about influenza season and to vaccinate patients. Nursing rounds were incorporated to remind and educate nurses that a screening tool and vaccinations were available. Lastly, literature and evidence based practice analyses was collected for recommendations to improve processes. **Expected Outcomes:** To increase the screening and administration compliance; improve reminders in the electronic medical record for screening; maintain ongoing performance review to assess compliance; continuous education during the influenza season using the screening tool; and implement literature review recommendations. **Conclusion:** The reminder system will serve as start to incorporate new measures or improvements for the hospital in an effort to improve the compliance of remembering to vaccinate patients at discharged; and to improve outcomes in the hospital, but also to the public, so patients are less likely to get readmitted.

Introduction

The purpose of the Clinical Nurse Leader (CNL) project is to identify problems and create solutions in the influenza compliance rate at a large metropolitan hospital. The Clinical Nurse Leader's role in this project analyzes various processes related to the documentation of the influenza screening; analyzes the microsystem of one of the medical-surgical floors; interviews registered nurses who perform the influenza screening; interviews patients; reviews the current policy; process mapping of the current workflows; and reviews and analyzes pertinent evidenced based literature relating to the influenza screening process and reminder systems. In addition, the Clinical Nurse Leader contributes to the collaboration of the interdisciplinary meetings with the performance improvement team and other entities in the production of the influenza screening process.

One of the solutions to aid in the influenza compliance rate is the use of a visual and communication reminder system in the influenza screening process. A reminder system in the influenza screening brings attention or awareness to healthcare providers and staff about the importance of the influenza screening and changes made to the influenza season. According to Jones Cooper and Walton-Moss (2013), the definition of a reminder is for healthcare personnel to exercise the process of informing or delivering information of the importance of the flu vaccine regardless if the efforts are direct or indirect (Jones Cooper & Walton-Moss, 2013). The Centers for Disease Control and Prevention (2015), also emphasizes how a reminder system provides strategies to reduce missed opportunities of promoting and providing the influenza when the patient is eligible or the vaccines are available. In addition, the opportunities that the Centers for Disease Control and Prevention highlights on in reference to a reminder system are ongoing communication efforts between provider and patient if the patient is past due, a stamped

note or clip on the medical chart, a reminder in the electronic medical record, and a printed list of patients who are past due and need the influenza vaccine, so that the healthcare providers can follow-up on (Centers for Disease Control and Prevention, 2015). Improving the influenza compliance using a reminder system will assist healthcare professionals in implementing a structured screening process, administration of the vaccine, reminders of the importance of vaccination, and provide a standard for the healthcare team to follow.

Statement of the Problem

The large metropolitan hospital is undergoing a 94% of failed case compliance in the influenza vaccination screening at the time a patient is discharge. Only 6% of the screening is conducted, and the vaccine is not given. Currently, the metropolitan hospital is at 65% compliant for the influenza vaccine and administration, compared to the University Healthsystem Consortium (UHC) median of 93%. The process of giving and educating patients on the influenza vaccine is only at discharge per hospital policy. One of the obstacles to being compliant is the discharge process for the registered nurses. During the discharge process many steps occur prior to discharging a patient. For example, reviewing and finalizing the discharge instructions for the patients; getting patients belongings from three possible locations; coordinating with other staff for home care or equipment; obtaining discharge medications from the pharmacy; educating on home medication compliance and follow-up care; coordinating with family, outside agencies, or taxi for transportation; and coordinating with hospital staff to help escort patients to their transportation home or destination.

Because the discharge process has many steps, the influenza screening and administration which contributes to the process is overlooked and missed. The goal for the metropolitan hospital is to be at 93% compliant as compared to the UHC, and follow The Joint Commission measure

set to the highest standards for vaccinations. The Joint Commission (2015) core measure set is to provide vaccination to the patient population who are inpatient at hospitals. The core measure also reiterates that providing the flu vaccination as soon as the healthcare system obtains it, aids in the prevention of the spread of the influenza by supporting the public and patient needs (The Joint Commission, 2015).

In addition, the metropolitan hospital is committed to reducing morbidity and mortality from the influenza in the community. As evidence from the Centers for Disease Control and Prevention (2015) morbidity and mortality weekly report advises that, vaccinations are recommended for patients over 6 months of age and have no contraindications (Centers for Disease Control and Prevention, 2015). The Centers for Disease Control and Prevention (2015) also advises healthcare providers to continuously offer the vaccination during the flu season, which occurs from October through March. Offering the vaccine as early as September or even after the flu season is over, provides a continuity of prevention as the flu can constantly spread. Lastly, the influenza is the 8th leading cause of death, which is why prevention is of significance in supporting the public (Centers for Disease Control and Prevention, 2015).

Rationale

Based on the needs assessment conducted at the metropolitan hospital, the 65% compliance rate of the influenza screening that is done is of importance in order to provide health promotion to the public and patients hospitalized. The Joint Commission (2015) and the Centers for Disease Control and Prevention (2015) advises that the screening of hospitalized patients is underutilized and that influenza screening and vaccination is a great opportunity to utilized as a source of preventing the influenza virus that can lead to a serious complications later. In addition, 1 of 5 people in the United States population contracts the flu and around 226,000

people are seriously hospitalized with complications (The Joint Commission, 2015). Because the overall compliance rate is low, the value of incorporating a reminder system will aid in reminding healthcare professionals that the vaccines are available and that an electronic medical record screening is also present for staff to use.

Root Cause Analysis

In the approach of analyzing the root cause (See Appendix A and B) of one of the medical-surgical units (Unit X), nursing staff were interviewed to assess the following: challenges in giving the vaccination at discharge, improving the vaccination process, when nurses are educating and offering the vaccine, thoughts on giving the vaccine at a different time, and how nurses are charting patient refusal. In addition, patients were also interviewed on Unit X to find out their perspective on how they prioritize getting the flu vaccine during their inpatient stay, when they prefer discussing or receiving information about the flu, and what their perspective is on the flu vaccination overall.

Other measures in the root cause that were analyzed were the current policy, environment and systems, materials and supplies, workflow and processing, and review of current literature. The results of the root cause are that the current influenza vaccination policy is outdated and needs revision, documentation is done in the electronic medical record and medication administration record, and the vaccines are given at discharge only. In analyzing the environment, the unit cares for adult patients with medical and behavioral matters and specializes in acute care for the elderly, has census of 27 -34 patients, and a 34 bed count. The ratio of patients to nurse is five to one and the unit has no support from a nursing assistant or a bridge nurse. Admissions and discharges are between one and three patients, many tasks are occurring

at the same time from multiple specialties and discharging a patient can take around six to eight hours as many processes need to occur prior to finalizing discharge.

The materials and supplies on the unit consist of a par level system for vaccinations in the Omnicel, around one to three vaccinations are given during discharge, the adequate amount of vaccinations are stocked during flu season, occasionally there is a shortage with the vaccines and wrong vaccines are stored, intramuscular needles are inconsistent with size though available, and delivery of the vaccines are dependent on the manufacture. The workflow consists of only the primary nurse administering the influenza vaccine and admitting and discharging patients. The unit is occasionally short staffed as no other support is available to the primary nurse.

During the process mapping nurses only offer the vaccine at discharge and the process for screening and charting occur in three processes. The first process is if the patient is uncertain of receiving a vaccination from a past experience, the nurse only provides the vaccination information statement and no vaccine is administered or charted. The second process is when the patient does not want the vaccine, so the vaccine is not given and often not charted. Lastly, the third process is when the patient does receive the vaccine; the nurse must provide the vaccination information statement prior to administration, and then go to the Omnicel to get the vaccine, to finally administer the vaccine.

The result from the nursing survey (See Appendix C and D) consisted of five open-ended questions that led to a series of trends in the results. The first question on the challenges in giving the vaccine were 70% of the time vaccines are not available; 10% stated that other tasks are a priority; 30% stated that the vaccine order is not available; and the other 30% had no challenges. The second question on improving the vaccine process was 50% stated having the vaccine more available; 20% stated to give the vaccine at a anytime; 20% stated that the screening is

confusing; 10 % stated having better standing orders; 10% stated to having a better documentation process of who has the vaccine; and 20% indicated that no changes need to be made. The third question was on educating and offering the vaccine: 100% indicated that the vaccine is given at discharge; 30 % stated they do minimum teaching; and 20% suggest offering the vaccine early. The fourth question was on offering the vaccine early: 70% indicated to giving it early as it will help with discharge, night staff or admissions can probably give the vaccine, and it helps with other tasks; 30% stated not to give it as some patients might have side effects or have other risks with contraindications. The last question was on how nurses chart patient refusal and 20% chart in the medication administration record; 90% in the electronic medical record; 20% in nursing shift notes; and 10% are not sure where to chart.

The patient questionnaire (See Appendix E and F) results also had a series of trends and were asked three open-ended questions. The results were as followed: in the question on when the patient preferred to discuss the vaccine, the patients stated that 90% of nurses did not discuss the vaccine with them and only 10% of the nurses did discuss the vaccine. 50% of the patients stated that they discussed the vaccine with their primary care and the other 50% stated that they did not. The second question was on the priority of receiving the vaccine, 60% received the vaccine and 40% did not. The last question was patient perspectives of the influenza vaccine overall and 60% said that the flu vaccine is not important to them, and 40% stated that it was.

Literature Review

The benefits of a reminder system as previously stated provides awareness and delivers information to healthcare providers as a way to solidify new influenza guidelines, screening, and administration of the vaccine. A reminder system can be an overwhelming tool, but it is essential to remind healthcare personnel of important updates. Wallace et al (2004) used an electronic

reminder system in influenza vaccination for spinal cord injury patients and specified that the electronic reminder system provides a preventative measure for adherence in delivering the influenza vaccination. Although, staff such as nurses run into technical issues, the electronic reminder system serves as a tool for initiating preventive care to patients. To conduct quality improvement efforts on the reminder system for influenza, staff members were surveyed by interviews, over the phone, and questionnaires. Once data was collected members of quality improvement initiated problem solving measures that included training of the electronic medical record, created a mechanism to capture the due date of the last vaccination, and provided technical support for any ongoing issues (Wallace et al, 2004).

As a way to improve effectiveness of a reminder system, steps need to occur in order for any measure to take effect as in what Wallace et al (2004) approach produced. Similar to Wallace et al (2004) approach is Sokos et al (2007) approach to improving an existing reminder system of the influenza screening. The existing reminder system had four problems where doctors were not signing orders for the vaccine as it was not a priority; the vaccine was missing from the medication administration record and not documented; administration of the vaccine was missed at discharge; and the wording of the screening was ambiguous in wording, which caused confusion. The result of the root cause included low vaccination rates, vaccination orders not signed, the vaccination order forms lacked criteria, and there was knowledge deficit among healthcare workers of the importance of the influenza vaccination (Sokos et al., 2007).

The way Sokos et al (2007) improved the process of their existing reminder system was to analyze the existing process with leadership from family medicine physicians, health service researchers, pharmacy representatives, nursing administration, and information systems support. The implementation occurred in phases, which were revision of how the vaccination is ordered;

using a trial an error method of giving the vaccine on the second day of being hospitalized, but the trial was dismissed due to patients being discharged at an earlier time; a change to the medication available; creation of a medication administration record reminder sticker to affix to the patients chart; using a process reminder tool for using vaccination kits from pharmacy with all pertinent information for the patient; an electronic medical record version of the medication administration record reminder sticker; an education reminder for nurses and other staff; and creation of a reminder program within the scope of practice of the pharmacy and physician to maintain orders (Sokos et al., 2007).

A series of phases can occur before a change is fully implemented, and the process can be long due to various scopes of practice analyzing all the methods and processes until the change works for all. In Cohen et al (2015) approach to increase the rate of influenza vaccination, an automated clinical reminder system was used to aid healthcare providers maintain patient care. The reminder system was activated during the influenza season to provide a reminder of when a patient was due for their vaccine and a screening tool was also linked to the reminder system for the healthcare provider to document. The process of the reminder system went through eight plan-do-study-act (PDSA) cycles that incorporated influenza poster campaigns; reminders at the morbidity and mortality conferences; changing misleading documentation and templates due to verbiage; creation of a reminder pop-up for the vaccine at discharge in the reminder system; educating nursing staff on documentation and using the influenza screening; including other front desk staff in the reminder system by printing out reports to remind providers of who needed the influenza vaccination; using the electronic medical record, the date of vaccination was pulled into admission notes for providers; and the influenza vaccine became a standing order for nurses. The process took around six years as it was part of the Healthy People 2020 initiative and the

vaccination increased from a baseline of 60% to 80% in that time frame. One important aspect in what was learned is that during the H1N1 outbreak, the national awareness was raised on how valuable it is to obtain an influenza vaccination because of the significance of being hospitalized to possible death (Cohen et al, 2015).

A reminder and recall system by Jones Cooper and Walton-Moss (2013) was examined to improve influenza compliance rate in an asthmatic pediatric population as the rate was less than 30%. The reminder system consisted for informing and reinforcing the importance of the influenza vaccination, whereas the recall system consisted of encouraging patients to return during the next flu season. The reminder and recall system worked simultaneous together to bring awareness to patients; and reminder methods of spoken, mailed, electronic medical record alerts, and ongoing scheduling year-round was implemented as an ongoing effort to improve the compliance rate (Jones Cooper & Walton-Moss, 2013). Another quality improvement effort by Holbrook (2002) to improve and increase influenza vaccines to patients was the use of rule-based computerized reminder system. The reminder system generated reminders for four preventive care therapies including the influenza vaccination in which orders were prewritten and a detailed explanation was included to aid in the process. As a result, using the reminder system assisted in increasing orders for the influenza vaccination to 51% and assisting in preventive care measures for hospitalized patients (Holbrook, 2002).

One other reminder system in the electronic health record by Stockwell et al (2015) was a real-time query system using the immunization information system that was turned on and off during active influenza seasons. The reminder system was a team effort of providers, focus groups, beta-testers, and the citywide immunization registry, which provided helpful input and focused patient-centered care for patients who needed the influenza immunization. The

electronic medical record was used to synchronize data from the citywide immunization registry in real-time; and the reminder system for healthcare providers would display a color-coding system pop-up on the electronic medical record to serve as a visual reminder. The orange reminder signified that the patient was not up-to-date; a more info button that provided a list of allergies and patient diagnoses; a green reminder indicated that the patient was up-to-date; a yellow reminder signified that more information was needed; and a red reminder indicated that there was an egg allergy. As a result, the reminder system was effective in the screening as having the reminder system turned on during the influenza season increased vaccination in patients; the reminder system also reminded healthcare providers to document and was improved by 27%; and a comparison from two seasons showed a significant difference in the patients being vaccinated, which jumped from 8600 visits in 2012 to 22,248 visits in 2013 (Stockwell et al, 2015).

Reminder systems can significantly impact influenza vaccination rates, but the process can be long depending on what resources that a hospital might have. One important aspect to consider is that teamwork is essential from various scopes of practice to make a difference in building a reminder system that is effective and sustainable. The process of implementing a reminder system can also go through many cycles and processes as many matters need to be ruled-out before healthcare providers can use a system that makes sense. In addition, reminder systems provide effective measures to facilitate a system of awareness and reminder of the importance of influenza vaccination. The reminder system can also cover many avenues from the electronic medical record, visual reminders, education, and training to provide ongoing efforts to improve the influenza vaccination rate.

Cost Benefit Analysis

In analyzing the costs benefit analysis (See Appendix G) between unit x's hospital and another local metropolitan hospital, four services were compared to evaluate the outcome of the cost savings using the hospital chargemaster of the Office of Statewide Health Planning and Development. When analyzing the chargemaster of each hospital using the Office of Statewide Health Planning and Development (2015) each hospital had a difference in cost. For example, the average cost in services for unit x's hospital was \$20.00 for the influenza vaccine, no cost for the pharmacy or the nursing administration, and an office visit to receive the vaccination is \$119.00. The other hospital was significantly higher in price and charged a fee for each of the four services. For example, the other metropolitan hospital vaccine average cost is \$69.00, nursing administration of the vaccine is \$44.00, pharmacy cost is \$70.00, and an office visit to receive the vaccine is \$312.00. The total cost of the other metropolitan hospital is \$495.00, compared to unit x's hospital total of \$139.00. The cost savings is \$356.00 for unit x's hospital and the benefits are that nursing and pharmacy do not charge a fee for the services rendered (Office of Statewide Health Planning and Development, 2015).

Microsystem Assessment

The metropolitan hospital is located in one of the districts of an urban city. The hospital has been in the urban district since 1872 to primarily serve the residents who are in need. The mission is to deliver quality of health care services through benevolence and dignity and the vision is to lead in community wellbeing through coordination of care, higher learning, and forward thinking for future advancement. In addition, the patients who frequent the hospital consist of ethnic minorities primarily in the African American and Latino population. The other populations within the lower percentage are Asian, Pacific Islanders, and Whites. All ethnic

populations range from the age of 18 to 64 years. The fiscal year census from the 2013 to 2014 report also states that 106,065 people were treated at the hospital.

Currently one of the major goals is that the metropolitan hospital is undergoing construction to build a bigger hospital. The hospital will be nine-stories and will serve as an acute care facility. The new hospital will also be seismically safe, have the latest technology, be a green resource, have private rooms for patients, and have a rooftop garden. The opening of the new hospital is scheduled for 2016. Other goals for the hospital are to be a service excellence hospital, provide clinical and health quality, maintain safety and accountability, foster professional and academic excellence, provide an efficient management system, deliver integration and coordination across services, and develop and expand information technology. The future goal is to adopt and implement health information technology and incorporate patient-centered care by reaching out to the community through a wellness program, which supports public health.

The financial payer list consists of uninsured, city service health plan, Medicaid and Medicare, commercial, and other payers such as research, jail, workers compensation and Community Health Network (CHN) plans. The combined percentages with inpatient and outpatient are as followed: uninsured 44%, city service health plan 16%, commercial 4%, Medicaid 84%, Medicare 37%, and the other payers category is 15%. The leadership of the hospital involves many collaborators for example, leaders from the City and County Health Commission, Department of Public Health, Hospital Executive Staff, Hospital Medical Staff Leaders, and the Hospital's Foundation.

Another goal for the metropolitan hospital, within the nursing department is to attain magnet status. In the 2011 to 2012 annual report, the hospital created a five year strategic plan to

incorporate the magnet status in an effort to establish a gold standard of nursing excellence and enhance the culture of shared collaboration and responsibilities to integrate a fair and just practice of nursing care. The nursing vision is to provide exceptional quality of care through benevolence and dignity in an ambience setting of substantial growth. The goals of the nursing department is to foster an environment which promotes excellence, identify excellence in nursing, disseminate nursing best practice, and be an employer of first choice to current and future nurses.

In addition, in order to attain magnet status the criteria needed is to have transformational leadership, organizational structure, structural empowerment, exemplary professional practice, and knowledge improvement. Since 2002 to present, the nursing department at the metropolitan hospital has accomplished many key magnet status achievements. Some for example are research in action, nursing recognition, nurse practitioner led services, the Moore Foundation grant for registered nurse internships, a leadership program for staff development and collaboration, shared governance, and nursing ground rounds. Based on the future initiatives from 2011 the goal was to implement and develop nursing research, disseminate a professional practice model with staff, extend shared governance by using the nursing council model, integrate nursing peer review, and submit the application for magnet status which has gradually been implemented.

In summary, the metropolitan hospital has had a long history of working and collaborating with the community and is continuing to do so. The significance of the hospital is the foundation of serving patients who are vulnerable and in need of quality of health care. The hospital is the heart of the urban city and strives to save lives during critical care to ancillary care. Furthermore, many efforts from doctors, nurses, and other health professionals strive to make the hospital a recognizable place of excellence for patients, visitors, and staff.

Action Plan

To improve the influenza compliance rate a reminder poster was implemented and distributed on various medical-surgical units at the metropolitan hospital to remind nurses to give influenza vaccines at discharge (See Appendix H). Rounding measures were also implemented to remind and educate nurses that the influenza vaccine and new screening tool was also available. Other measures in the intervention were literature review and evidence based practice analyses to recommend for implementation. The recommendations were to create a rule-based computer reminder system to increase orders as a way to increase rates; real-time query turned on during influenza season along with the city wide immunization registry to monitor and decrease duplication; a reminder pop-up tool using the EMR and color coding system to monitor compliance; educating nursing and staff on new updates on the ordering system, documentation, year round scheduling, flu kits, and screening tool; and reminder stickers for charts, posters, multidisciplinary conference reminders, and patient recall and reminders.

The project methodology consisted of the Lean Transformation Model (See Appendix I) as it is commonly used at the metropolitan hospital. The Lean Transformation Model consists of five methods, which are the situational approach, process improvement, capability development, management system, and basic thinking, mindset, and assumptions (Lean Enterprise Institute, 2015). The Lean model is also commonly used in healthcare and according to Hakim (2014) the lean methodology is used in healthcare to change the management thinking and use the tools in the lean model to create a sustainability plan based on core values to use for continuous improvement, development, and respect for people in the workforce (Hakim, 2014). The lean model in healthcare can be a way of thinking by using less and maximizing in various avenues in healthcare. The lean methodology principle is to reduce waste that is constant by using

management strategies to improve healthcare processes and outcomes and increase patient and staff satisfaction (Going Lean in Health Care, 2005).

With the five methods used in the implementation, the first method which is the situational approach is to provide the best patient care and reduce morbidity and mortality from the influenza in the community and hospitalized patients. Using a reminder system in an inpatient setting will provide continued awareness of the importance of influenza vaccination in an effort to improve vaccination screening and administration to increase the compliance rate. The second method which is the process improvement is to improve the processes that encompass incorporating an in-service, unit binders, poster reminders, online training, updating the electronic medical record, and implementing a pop-up of the new screening tool available. The third method of capability development is to develop continuous updates in online education portal, training staff, education huddles, and one-to-one training. The fourth method is the management system and the approach for this aspect of the model is to have nursing managers on the medical-surgical units to support the change and support staff during and after in-service and training; the performance improvement team to monitor change and sustainability; and personnel from information technology, pharmacy, physicians, nursing informatics, and educators to work collaboratively to improve various avenues. The last part of the model is the basic thinking and mindset by continuously improving the influenza seasons with better approaches and better outcomes.

Expected Outcomes

The expected outcomes for this project are to increase influenza screening and administration compliance; improvement efforts in reminders in the electronic medical record; ongoing performance review quarterly and seasonally to assess compliance; continuous

education in the new influenza screening tool; and implementation of literature review recommendations. In an effort to sustain the plan an interdisciplinary team would be needed to commit, assess, implement, evaluate, and communicate for ongoing improvements. For example, the commitment of various leaders to work collaboratively together to improve processes; the assessment of measuring the strengths, weaknesses, limitations, and barriers to the change; the involvement of implementation of continuing education, reminders, and implementing literature recommendations; evaluation of the plan would be quarterly or seasonally to analyze if methods are working; and lastly is communication by presenting the results and redesigning processes to then recommit and start the process over.

The timeline for this project occurred over the span of three and a half months (See Appendix J), which incorporated the microsystem assessment; literature review and evidence based practice analyses; data collection; project presentation to leaders; nursing education meetings; reminder poster development and implementation; meeting with performance improvement; and ongoing education reminders to nursing staff. The limitations to the project were the short time frame to implement and evaluate the outcomes; Also nurses may forget the influenza process, so reminders are essential for continuity; there was limited amount of time to incorporate literature and evidence based practice analyses recommendations; and the project may have a slow process cycle to evaluate outcomes.

Nursing Relevance

The nursing relevance is that nurses are invaluable to the delivery of the influenza screening and administration and identify objective feedback on new processes. The performance and quality improvement provides an opportunity for interdisciplinary staff and nurses to identify weaknesses and strengths on the medical-surgical units. In addition, nursing informatics provides

key methods on relevance in organization and documentation in the electronic medical record. Receiving input from the nurses during data collection was also invaluable because of their efforts in working with a system that needs improvement. Feedback from nurses also provided various trends to provide a better outlook on realistic expectations.

Conclusion

The purpose of this project was to identify problems in the influenza compliance at a large metropolitan hospital and implement a reminder system to help nurses remember to immunize hospitalized patients while they are discharge. In an effort to improve the compliance rate it was imperative to create a reminder system poster to let nurses know that it was flu season. In addition, educating and reminding nurses on the importance of immunization was also implemented to let them know that compliance is of importance following the Joint Commission goal measure. Continuous efforts to improve compliance for this project will continue until flu season. Using a sustainability plan as mentioned previously will allow for growth and improve processes for ongoing efforts and outcomes. The reminder implemented will serve as start to incorporate new measures or improvements for the hospital in an effort to improve the compliance of remembering to vaccinate patients at discharged; and to improve outcomes in the hospital, but also to the public, so patients are less likely to get readmitted (See Appendix K for the project's poster).

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Appendix A

UNIT X – ROOT CAUSE ANALYSIS WORKSHEET

Goal:

To reduce morbidity and mortality from influenza in the community, and be compliant in the administration of the vaccine and screening.

Root Cause Analysis – Table of Contents:

- Reviewing of the Policy
- Analyzing the Environment & Systems
- Materials &Supplies Analysis
- Workflow Considerations
- Process Mapping
- Interviews with the Nurses
- Interviews with Patients
- Review of the Literature

Influenza Policy:

1. Is it evidenced-based?
2. Is it followed?
3. Does it need revision?

- The policy is evidenced based, but it is outdated and needs revision
- Policy is followed most of the time when charting in the EMR and MAR
- PRN Standing Orders not accurate
- Vaccines to be given at discharge with the vaccine information statement

Analyzing the Environment & Systems:

1. Under what conditions do the vaccines occur?
2. How many patients on average per nurse/per unit?
3. How often is the floor understaffed?
4. How often RNs and CNAs report sick calls or out sick calls?
5. Number of CNAs on the floor and their role as a functioning CNA or sitter?
6. How many admissions/discharge on an average?
7. What other situations are occurring during the admissions/discharge process? (e.g.... coding, rapid response events, condition and circumstances)
8. The time of discharge and does it affect whether vaccinations are given?
9. Count the documentation and the processes of the discharge.
10. Census of the patients of the unit?

- Dedicated to the care of adults with medical-behavioral considerations and specializes in acute care for the elderly
- Vaccines are given at discharge only
- There are 5 patients to 1 nurse
- Understaffed once or twice a week
- RN report sick once a week
- No CNA or bridge nurse for support
- Admission 1 – 3 patients and discharge 1 – 3 patients
- Many tasks are occurring during admission or discharge: routine patient care, medications, labs, education, PT/OT, rounds, etc....
- The discharge process can take 6 – 8 hours and many steps occur prior that need more attention and the vaccination can be missed in the process
- Around 8 or 9 processes are occurring in the discharge
- Beds on the floor 34, patients 27 - 34

Materials & Supplies Analysis:

1. What is the set number of vaccines in Omni Cells?
2. How many immunizations are given?
3. Is the supply number adequate for the unit?
4. Any other problems with the supplies?

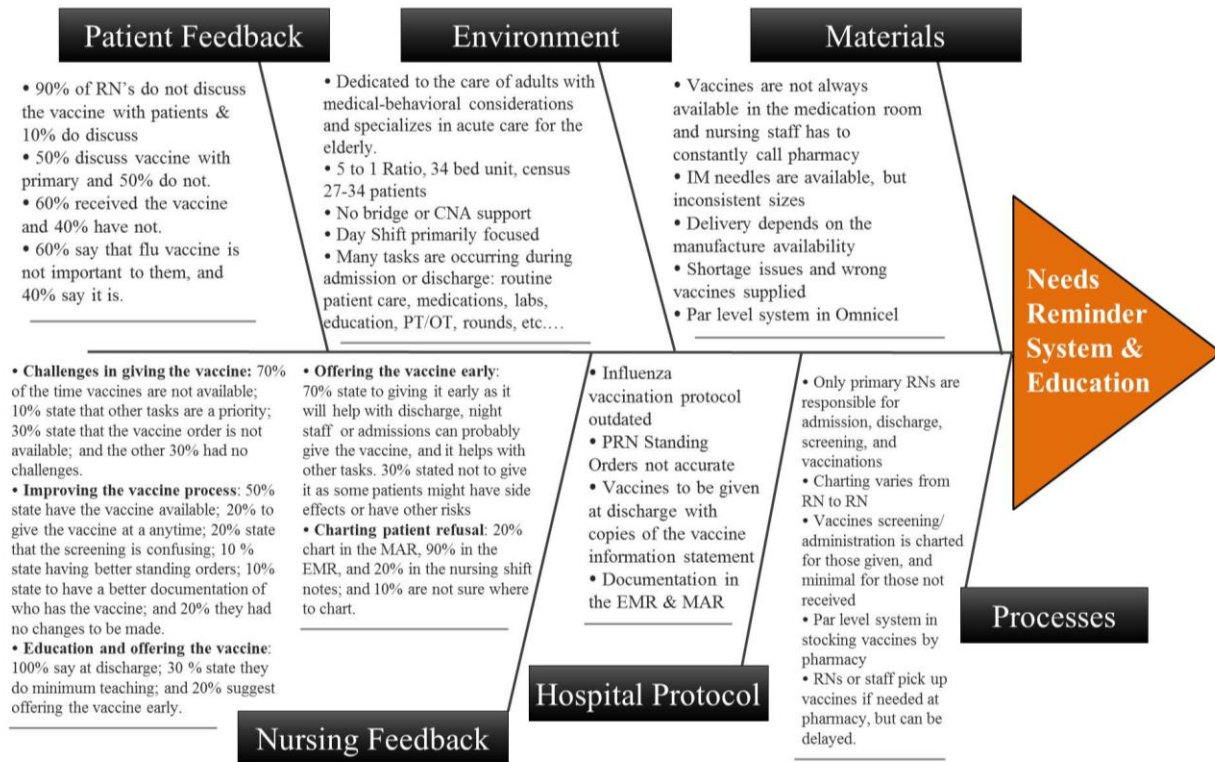
- Par level system, so a few vaccines (around 5) are available in the Omnicel
- Depending on the discharge 1 to 3 vaccines can be given
- The adequate number during flu season is

	<p>appropriate</p> <ul style="list-style-type: none"> ▪ There are vaccination shortages and wrong vaccines are stored; The vaccine delivery is dependent on the manufacturer; and IM needles are inconsistency in size, but are available
<p>Workflow Considerations:</p> <ol style="list-style-type: none"> 1. Who is the ideal person to administer the vaccinations: primary RN, triage nurse, flex RN, bridge? Is one available on each shift? 2. Who is the person who screens/administer vaccine at discharge? 3. Is there assistance with admits and discharges? 4. Which shift would ideally offer immunizations? 	<ul style="list-style-type: none"> ▪ Only the primary RN is available to administer the flu vaccine and screen. No bridge, flex, or triage on the unit ▪ Primary RN admits and discharges patients, no other support ▪ The day shift RN is primarily discharging patients and offering and administering the flu vaccination
<p>Process Mapping:</p> <ol style="list-style-type: none"> 1. Follow the process to see if it's consistent between RN to RN 2. Shadow some of the nurses to observe how the influenza vaccine is offered. 3. Follow the process of the vaccines from the pharmacy to the unit. 4. If at the time of discharge the vaccine is not available, how does the nurse obtain the medication and how long will it take? 	<ul style="list-style-type: none"> ▪ The process from RN to RN has some variations in charting (EMR, MAR, Shift Notes), and competency is not monitored ▪ Influenza vaccines are only offered during discharge and there are three options to choose from based on the screening. If the patient is uncertain if he/she received the flu vaccination, the RN only provides the vaccine information statement (VIS) and no vaccine is given, charting is not standard. If the patient does not want the flu vaccine, the patient does not receive it and no documentation is required in the EMR. Lastly, if the patient wants the flu vaccine, the RN prints the VIS, and gives it to the patient prior to the vaccine. The RN then gets the flu vaccine from the Omnicel, administers the vaccine, and documents in the MAR. ▪ Vaccines from the pharmacy are supplied once a day from pharmacy and dependent on the Par level system ▪ Obtaining the vaccine from the pharmacy can be from 30 min to 3 hours depending who picks up the vaccine or getting it delivered. If the RN needs the vaccine sooner, the RN must go to the pharmacy to pick it up or send someone to obtain it (student, CNA, or clerk). Obtaining the vaccine from pharmacy can take longer as there are other priorities that pharmacy is working on.
<p>Interviews with the Nurses:</p>	<p>Trends from the interviews of nurses:</p>

<ol style="list-style-type: none"> 1. What are the challenges in giving the vaccination at discharge? 2. How would you improve the vaccination process? And what would make it easier? 3. How and when are you educating and offering the vaccine other than at discharge? 4. What are your thoughts on giving the vaccination at a different time than at discharge? 5. How are you charting on patient refusal? 	<ul style="list-style-type: none"> ▪ Vaccine not available from pharmacy ▪ Had no challenges ▪ Other tasks were more important ▪ Orders were not available ▪ Having the vaccine more available ▪ Giving the vaccine at anytime ▪ Changing the confusing screening form ▪ Had nothing to improve or change ▪ Better documentation of who has the vaccine ▪ Having standing orders ▪ Only at discharge ▪ Minimum teaching ▪ If offered earlier it is better ▪ Pro for giving the vaccine early ▪ Con for giving the vaccine early ▪ Medication Administration Record ▪ Electronic Medical Record Screening ▪ Nursing Notes ▪ Unsure of where to chart
<p>Interviews with Patients:</p> <ol style="list-style-type: none"> 1. How do you prioritize vaccinations while you are inpatient or hospitalized? 2. When do you prefer to talk about immunizations, and has your nurse discussed the flu vaccination with you? 3. What do you think about flu immunizations overall? 	<p>Trends from the interviews of patients:</p> <ul style="list-style-type: none"> ▪ Has received vaccination ▪ Has not received vaccination ▪ RN discussed vaccination ▪ RN has not discussed vaccination ▪ PCP discussed vaccination ▪ PCP has not discussed vaccination ▪ Pro for the vaccination ▪ Con for the vaccination
<p>Review of the Literature:</p> <ol style="list-style-type: none"> 1. Why is the influence of the vaccine important to give? 2. What is the incidence rate in US? 3. What is the prevalence of influenza in the US? 4. How is it administered across the country? 5. What are the successful practices and what has made it work? 	<ul style="list-style-type: none"> ▪ The importance is that the influenza is a respiratory infection that affects the public ▪ Incidence: approximately 1 in 3 or 36.00% or 97.9 million people in USA; Hospitalization - overall 65.5/100,000 population ▪ Prevalence: around 10 to 20% gets sick with influenza ▪ Administration is by IM injection ▪ Standing orders and reminder systems help to remind healthcare professionals of the importance of screening and administration of the influenza vaccine.

Appendix B

Root Cause Analysis



Appendix C**Unit X Flu Immunization Compliance
RN Questionnaire****Nursing Shift****Day:** _____**Night:** _____**Unit:** _____

Thank you for spending a few minutes filling or answering this questionnaire. The purpose of this questionnaire is to assess perceptions of the influenza screening process. I am a Clinical Nurse Leader student who is working with the Medical-Surgical Performance Improvement Coordinator on the administration and compliance of the influenza screening process.

Your responses on this survey are entirely confidential and anonymous.

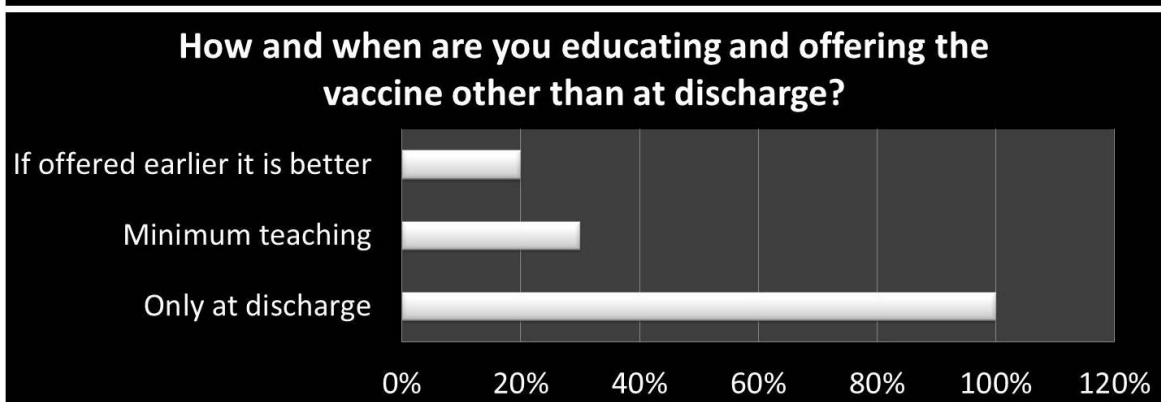
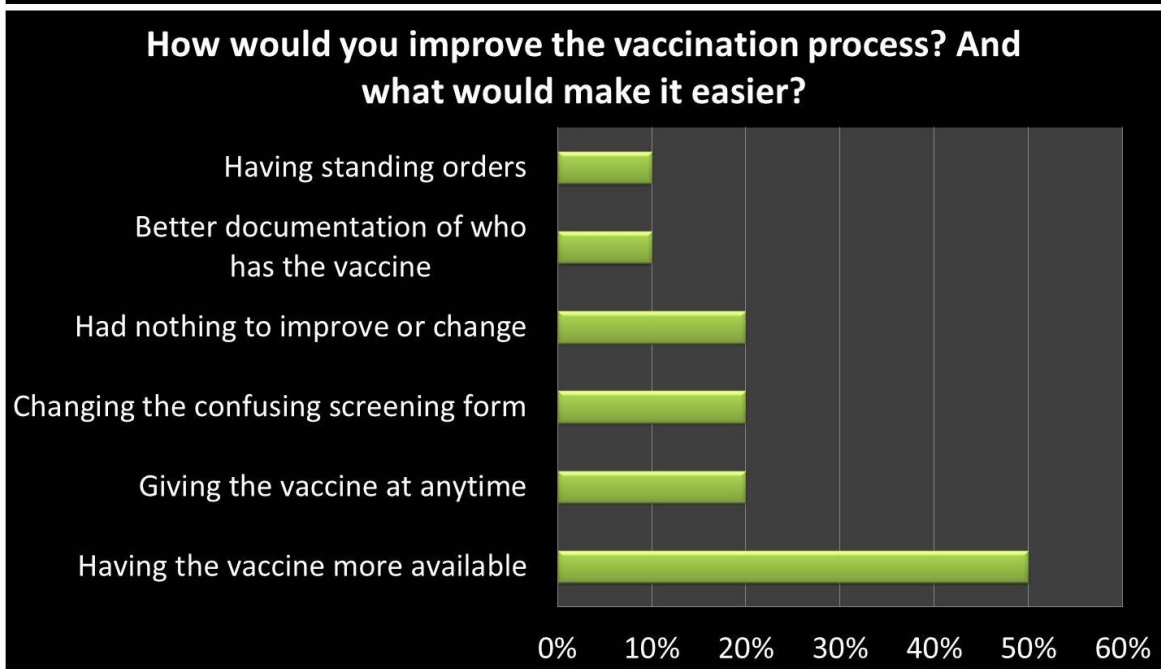
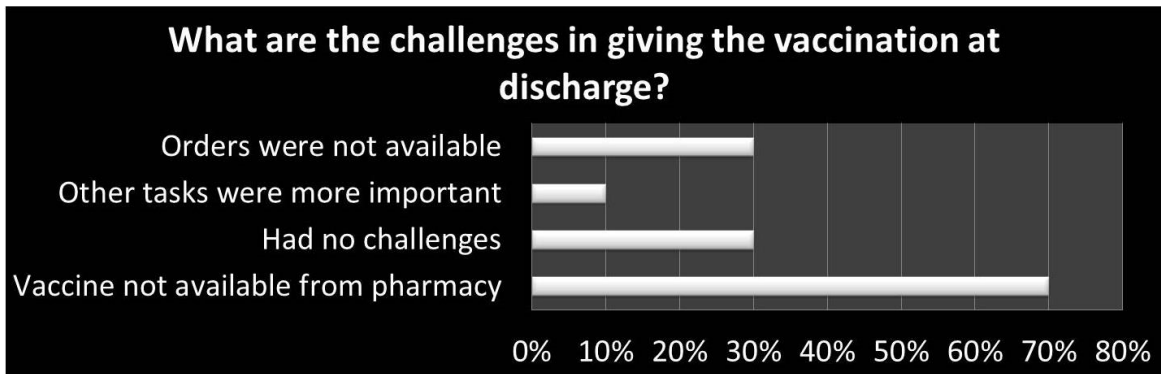
RN Questionnaire:

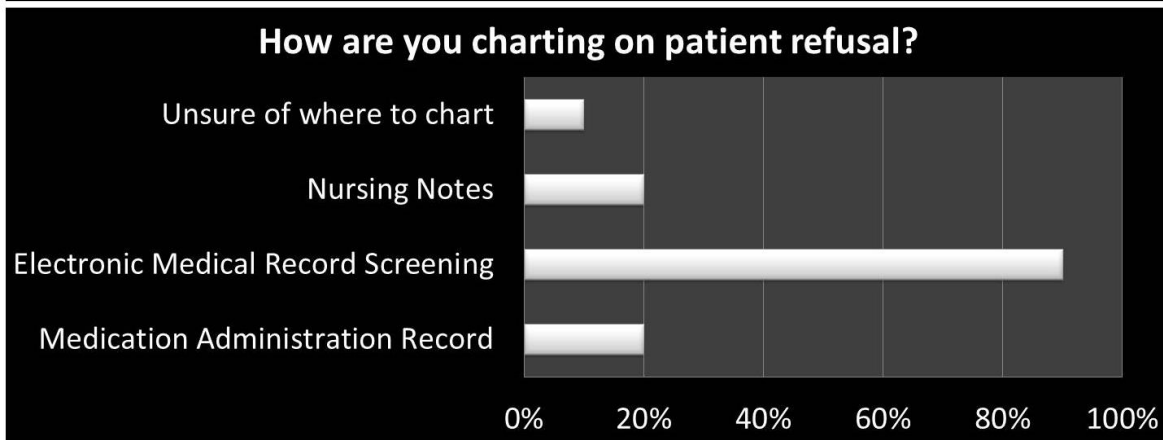
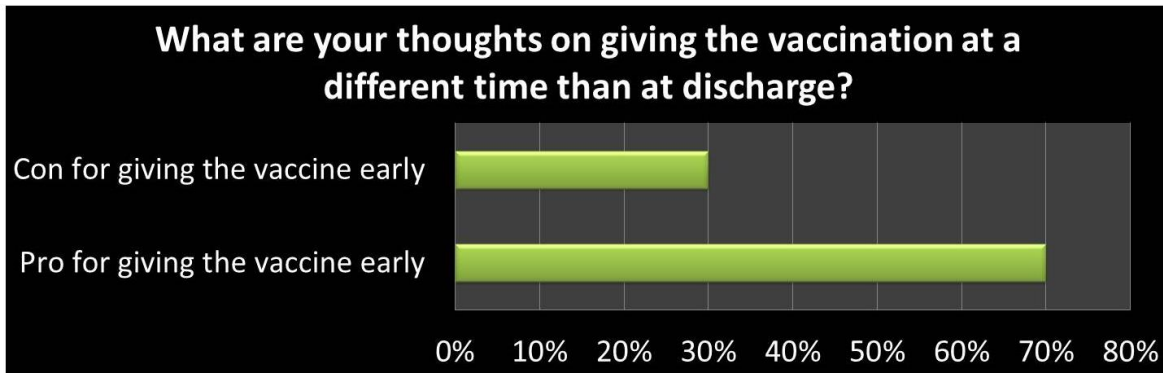
1. What are the challenges in giving the vaccination at discharge?
2. How would you improve the vaccination process? And what would make it easier?
3. How and when are you educating and offering the vaccine other than at discharge?
4. What are your thoughts on giving the vaccination at a different time than at discharge?
5. How are you charting on patient refusal?

Extra Notes:

Appendix D

Nursing Questionnaire Trends & Results





Appendix E

**Unit X Flu Immunization Compliance
Patient Questionnaire**

Shift
Day: _____
Night: _____
Unit: _____

Thank you for spending a few minutes filling or answering this questionnaire. The purpose of this questionnaire is to assess perceptions of the influenza screening process. I am a Clinical Nurse Leader student who is working with the Medical-Surgical Performance Improvement Coordinator on the administration and compliance of the influenza screening process.

Your responses on this survey are entirely confidential and anonymous.

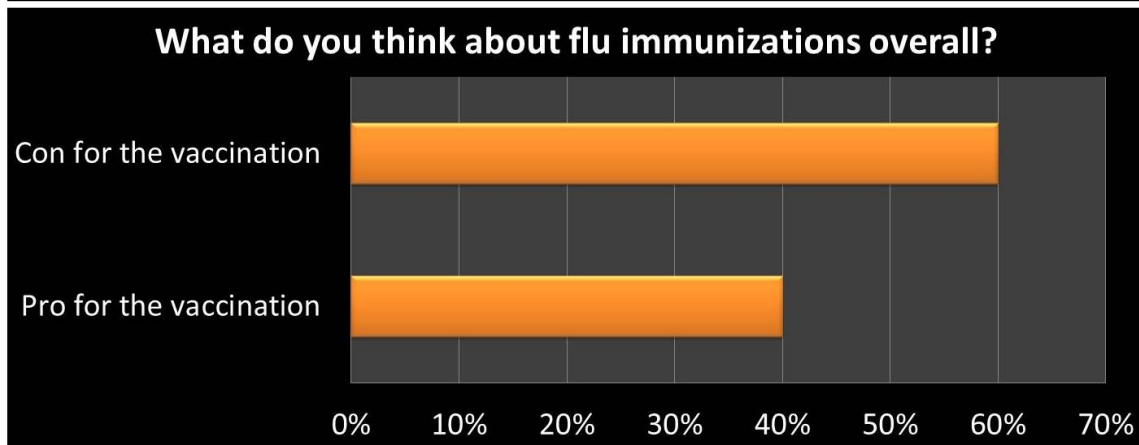
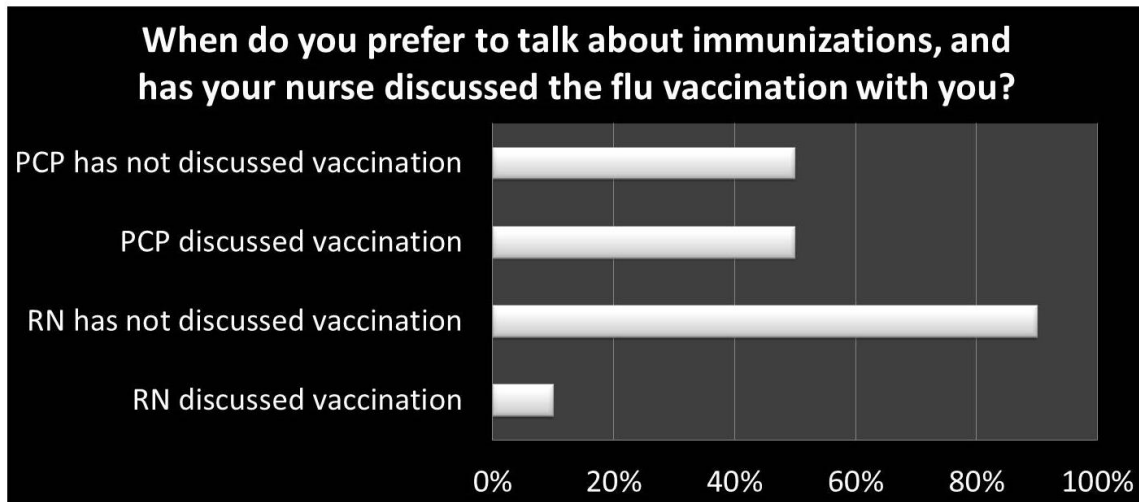
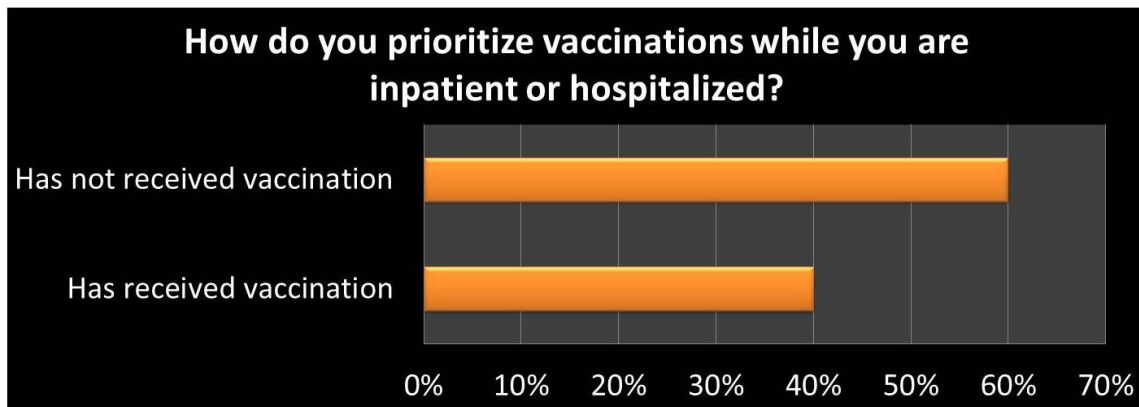
Patient Questionnaire:

1. How do you prioritize vaccinations while you are inpatient or hospitalized?
2. When do you prefer to talk about immunizations, and has your nurse discussed the flu vaccination with you?
3. What do you think about flu immunizations overall?

Extra Notes:

Appendix F

Patient Questionnaire Trends and Results

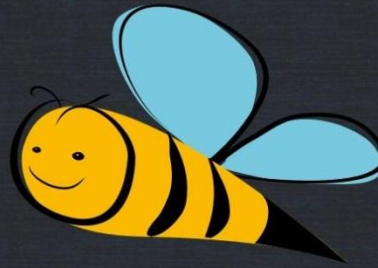


Appendix G
Cost Benefit Analysis

Unit X's Hospital		Other Hospital	
Service Description	Average Cost	Service Description	Average Cost
Influenza Vaccine	\$20.00	Influenza Vaccine	\$69.00
Nursing	\$0.00	Nursing	\$44.00
Administration Of The Influenza Vaccine		Administration Of The Influenza Vaccine	
Pharmacy	\$0.00	Pharmacy	\$70.00
Office Visit	\$119.00	Office Visit	\$312.00
Total	\$139.00	Total	\$495.00
Cost Saving for Unit X's Hospital		\$356.00	

Appendix H

Bee Wise Immunize!



The flu is an illness caused by flu viruses. The flu may make people cough and have a sore throat and fever. They may also have a runny or stuffy nose, feel tired, have body aches, or show other signs they are not well. The flu happens every year and is more common in the fall and winter in the U.S. People of all ages can get the flu, from babies and young adults, to the elderly.

Facts & Tips

Use medication the way your doctor recommends!

Get Early Vaccination

Signs of the flu

- Fever
- Cough
- Sore throat
- Runny or stuffy nose
- Headache
- Chills
- Body aches
- Feeling weak or more tired than usual

Consult with your healthcare provider first!!

Good Hand Hygiene



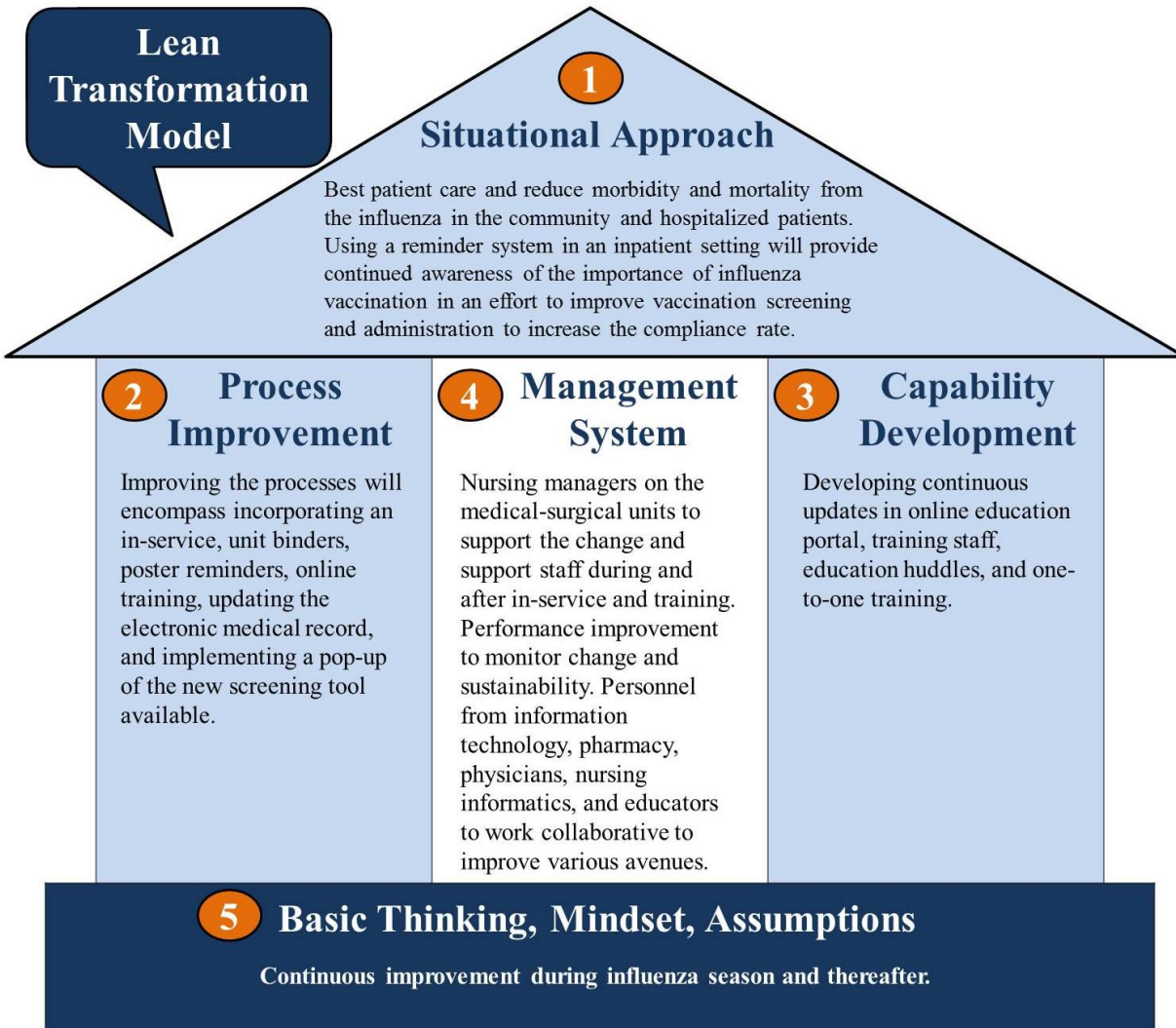
Bee Wise, Immunize!

REMEMBER !!

Fight the Flu	 Cover your cough!	 Wash your hands.	 Stay home when sick.	 Get vaccinated.
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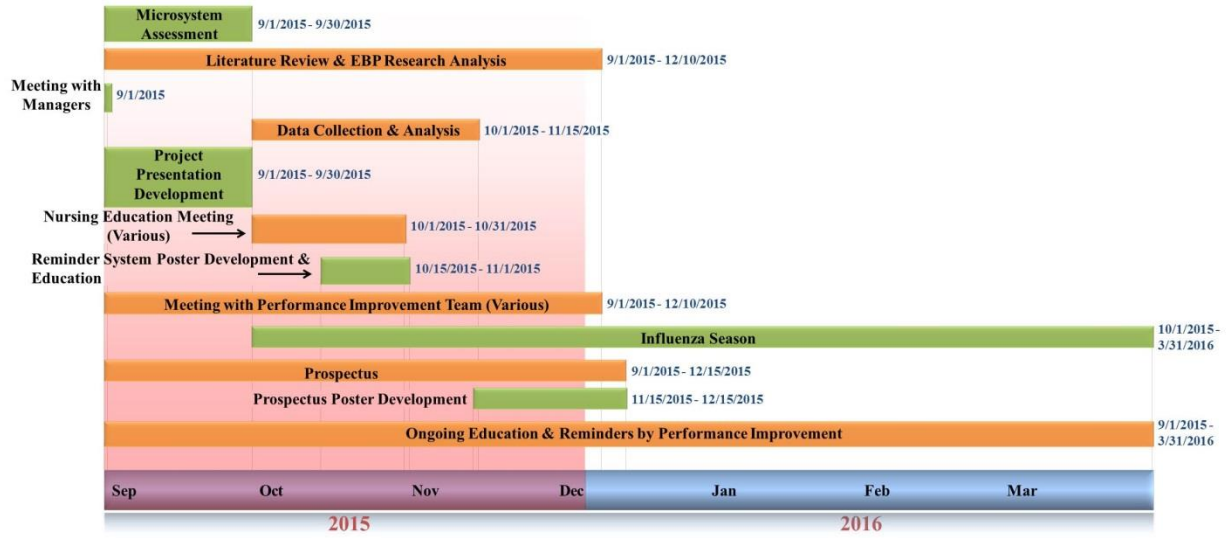
Source: <http://www.cdc.gov/flu/>

Appendix I




Appendix J

Timeline




Appendix K



UNIVERSITY OF SAN FRANCISCO
CHANGE THE WORLD FROM HERE

Improving Influenza Compliance Using a Reminder System

Beverly N. Motta, MSN, MHA
University of San Francisco, School of Nursing and Health Professions



Statement of the Problem

The large metropolitan hospital is undergoing a 94% of failed case compliance in the influenza vaccination screening at the time a patient is discharged. Only 4% of the screening is conducted, and the vaccine is not given. Currently, the metropolitan hospital is at 6% compliance for the influenza vaccine and administration, compared to the University HealthSystem Consortium (UHC) median of 93%. The process of giving and educating patients on the influenza vaccine is only at discharge per hospital policy. One of the obstacles to being compliant is the discharge process for the registered nurses. During the discharge process many steps occur prior to discharging a patient. For example, re-visiting and finalizing the discharge instructions for the patients; getting patients belongings from three possible locations; coordinating with other staff for home care or equipment; obtaining discharge medications from the pharmacy; educating on home medication compliance and follow-up care; coordinating with family, outside agencies, or taxi for transportation; and coordinating with hospital staff to help escort patients to their transportation home or destination.

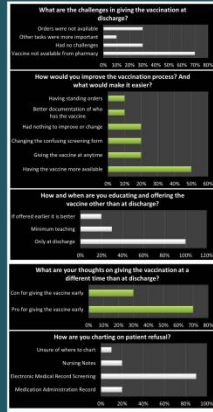
Because the discharge process has many steps, the influenza screening and administration which contributes to the process is overlooked and missed. The goal for the metropolitan hospital is to be at 93% compliant as compared to the UHC, and follow The Joint Commission measure set to the highest standards for vaccinations. The Joint Commission (2015) core measure set is to provide vaccination to the patient population who are inpatient at hospitals. The core measure also reiterates that providing the flu vaccination as soon as the healthcare system obtains it, aids in the prevention of the spread of the influenza by supporting the public and patient needs (The Joint Commission, 2015).

In addition, the metropolitan hospital is committed to reducing morbidity and mortality from the influenza in the community. As evidence from the Centers for Disease Control and Prevention (2015) morbidity and mortality weekly report advises that, vaccinations are recommended for patients over 6 months of age and have no contraindications (Centers for Disease Control and Prevention, 2015). The Centers for Disease Control and Prevention (2015) also advises healthcare providers to continuously offer the vaccination during the flu season, which occurs from October through March. Offering the vaccine as early as September or even after the flu season is over, provides a continuity of prevention as the flu can constantly spread. Lastly, the influenza is the 8th leading cause of death, which is why prevention is of significance in supporting the public (Centers for Disease Control and Prevention, 2015).

Nursing Relevance

- Nurses are invaluable to the delivery of the influenza screening and administration and identify objective feedback on new processes
- Performance and quality improvement provides an opportunity for interdisciplinary staff and nurses to identify weaknesses and strengths on the medical-surgical units
- Nursing informatics provides key methods on relevance in organization and documentation in the electronic medical record.


Nursing Questionnaire Trends & Results



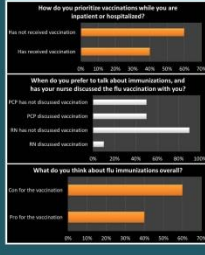
Intervention

- Medical-Surgical Floors & Education
 - Reminder poster development and distributed on various units to remind nursing staff to give influenza vaccines at discharge.
 - Rounding on the units to remind and educate nurses that the influenza vaccine and a new screening tool is available
- Literature Review & Evidence Based Practice Analysis Recommendations
 - Rule-based computer reminder system to increase orders, as a way to increase rates
 - Real-time query turned on during influenza season along with the city wide immunization registry to monitor and decrease duplication
 - Reminder pop-up tool using the EMR and color coding system to monitor compliance
 - Educating nursing and staff on new updates on the ordering system, documentation, year round scheduling, flu kits, and screening tool
 - Reminder stickers for charts, posters, conference reminders, and patient reminder & recall


Root Cause Analysis



Patient Questionnaire Trends & Results



Methodology



Rationale

Based on the needs assessment conducted at the metropolitan hospital, the 6% compliance rate of the influenza screening that is done is of importance in order to provide health promotion to the public and patients hospitalized. The Joint Commission (2015) and the Centers for Disease Control and Prevention (2015) advises that the screening of hospitalized patients is underutilized and that influenza screening and vaccination is a great opportunity to utilize as a source of preventing the influenza virus that can lead to a serious complications later. In addition, 1 of 5 people in the United States population contracts the flu and around 226,000 people are seriously hospitalized with complications (The Joint Commission, 2015). Because the overall compliance rate is low, the value of incorporating a reminder system will aid in reminding healthcare professionals that the vaccines are available and that an electronic medical record screening is also present for staff to use.

Expected Outcomes

- Increase influenza screening and administration compliance
- Improve client efforts in compliance in the electronic medical record
- Ongoing performance review quarterly and seasonally to assess compliance
- Continuous education in the new influenza screening tool
- Implementation of literature review recommendations

Limitations

- Short time frame to implement and evaluate the outcomes
- Nurses may forget the influenza screening process, so reminders are essential for continuity
- Implement more literature analysis recommendations from EBP
- The project may have a slow process cycle

Contact Information

For any questions on logistics and project information please email:
Beverly Motta at bmotta@dom.usfca.edu