

## 2016 HQI VANGUARD AWARD APPLICATION

### 1. COVER PAGE

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Title: **CONTINUOUS PROCESS IMPROVEMENT AND THE SUCCESS OF  
PROVIDENCE HOLY CROSS' INPATIENT IMMUNIZATION PROGRAM**

Topic of Focus: Quality Improvement

Statement of Support:

*I represent the entire Leadership of Providence Holy Cross Medical Center in promoting our hospital's commitment to patient safety, quality care, and satisfactory experience. To achieve positive outcomes, we recognize the need for multifaceted approaches to patient care grounded in a strong information infrastructure. Our efforts to assure that all patients are screened and those that are not vaccinated receive the influenza immunization if qualified are exemplary in this regard. We wholeheartedly support this application for the 2016 Vanguard Award from the Hospital Quality Institute as an exceptional way to – as one of our Nurse Managers put it – “showcase the great work at Holy Cross.” - Robert P. Raggi, MD, JD, Chief Medical Officer*

## **2. EXECUTIVE SUMMARY**

Each year between 3-20% of the population becomes ill with influenza, resulting in thousands of deaths. A hospital-based influenza vaccination program can make a significant contribution to decreasing cases of influenza in the community. To this end, in 2013 Providence Holy Cross Medical Center began a comprehensive effort to assure that 100% of their patients were screened and administered the influenza vaccination if qualified. During the 2015-2016 flu season, we achieved this goal.

Our efforts can be illustrated using the Deming Cycle. During the initial iteration of the Cycle we identified lack of education and that nurses were not being held accountable as the gap that prevented us from achieving our goal. As such, we focused on staff education. During the second phase, we garnered institutional support and direction by the Director of Acute Care Services, and implemented "Immunization Clinics". We still fell short of achieving our goal because nurses continued to find the screening process cumbersome. Serendipitously, during our final iteration, the new version of our EHR software simplified screening. Clinical education and accountability, institutional support, and improved information systems were all instrumental in overcoming our challenges and offer a lesson of the importance of a multi-faceted effort.

## **3. BACKGROUND AND RELEVANCE OF THE PROBLEM BEING ADDRESSED AND EFFORT UNDERTAKEN**

Influenza is an infectious disease caused by the influenza virus and affects the lungs, nose and throat. Outbreaks are seasonal and typically occur annually during late fall and winter, usually peaking in February. Each year between 3-20% of the population becomes ill with influenza, resulting in thousands of deaths. Individuals with the highest risk of complications from influenza also tend to have the lowest rates of vaccination. In fact, one study found that roughly half of patients hospitalized with an influenza-related diagnosis had been hospitalized the prior year but were not vaccinated at that time.

A hospital-based influenza vaccination program captures some of this high-risk population at an opportune time, and can make a significant contribution to decreasing cases of influenza in the community. To this end, in 2013 Providence Holy Cross Medical Center (PHCMC) began a comprehensive effort to assure that 100% of their patients were appropriately screened and administered the influenza vaccine if qualified. The heart of this effort has been – and continues to be – education and data sharing across all levels, in a context of support from leadership and facilitated by the evolution of our information systems.

## **4. DESCRIBE THE EFFORT, INCLUDING THE SCOPE, PROCESS, STRATEGIES AND TACTICS UTILIZED, CHALLENGES ENCOUNTERED AND HOW THEY WERE ADDRESSED.**

The efforts we undertook in order to assure that 100% of our patients were screened and administered the influenza vaccine if qualified can best be described using the Deming Cycle, a tool commonly used in order to achieve continuous improvement in a process. The Deming Cycle is comprised of four steps: Plan, Do, Check, and Act. During the *Plan* phase, the goal is specified and what is preventing the achievement of this goal is investigated. The *Do* stage is comprised of the activities undertaken to move incrementally toward the goal. At the *Check* point it is the time to assess whether your efforts worked

or not. If the goal was met, then the *Act* phase will consist of standardizing and institutionalizing your efforts; if the goal was not met, you go through the Cycle again.

The matrix below casts the improvements in the PHCMC Inpatient Immunization Program into the Deming Cycle.

<b>Providence Holy Cross Medical Center Inpatient Vaccination Program Process Improvement Using the Deming Cycle</b>			
<b>Step</b>	<b>Iteration</b>		
	<b>1</b>	<b>2</b>	<b>3</b>
<b>Plan</b>			
What is preventing us from reaching our goal of screening 100% of inpatients and, administering the influenza vaccine to all that qualify?	Lack of education as to why and how to properly screen; nurses not accountable	Need for additional institutional support to minimize fallouts	Despite software support, nurses still find the screening process difficult
<b>Do</b>			
Steps taken toward our goal	Staff education and re-education; rosters of patients needing re-screening provided to Unit Managers and Charge Nurses	Director of Acute Care Services on board; vaccination clinics held daily	New version of EHR software implemented; re-education of nurses on how to use EHR system to screen successfully
<b>Check</b>			
Is there a gap between current status and our goal?	Yes, although closing	Yes, although closing	No
<b>Act</b>			
Success?	No; start iteration 2	No; start iteration 3	Process Improvement Complete

During the first iteration, the *Plan* phase was initiated with institutional support for the allocation of personnel and other resources to perform a review of the existing state of the PHCMC Inpatient Immunization Program and formulate strategies on how to improve the process with the goal of achieving 100% compliance. Also, to this end, immunization review became concurrent rather than retrospective. The key role of our information systems was in the reporting capability of our electronic health record (EHR) system. This reporting ability allowed us to go through admitted and recently discharged patients and efficiently identify which patients needed to be re-screened. Armed with this report, the *Do* tasks during the first iteration included the Quality Management Specialist designated for patient immunization alerting the Charge Nurses each day at their 9AM huddle to which patients needed to be screened; and periodically meeting with Unit Managers – individually and as a group – to provide them detailed information about their fallouts. Concurrently, staff education was conducted on

why and how to properly screen patients for vaccination. The *Check* stage revealed that inpatient vaccination rates had improved but a gap remained to be filled to meet our goal. Moreover, it was not clear that this improvement was not merely an artifact of the change in our EHR software vendor as opposed to that it had become a goal of the nurses themselves; in other words, our immunization goals appeared to still only be a priority for the Quality Team and Leadership, which is not a recipe for sustainability. The *Act* we undertook during this iteration was to begin the Cycle again.

During the second iteration, the *Plan* focused on greater involvement by Leadership to help close the gap. To this end, the Director of Acute Care Services became intimately involved with the process. Serendipitously, the person in this capacity at the time brought to the table a concept from her former workplace – to hold a vaccination “clinic” in each unit. This clinic, coupled with this Director now holding Unit Managers accountable for immunization fallouts in their departments, was the basis of the *Do* phase in this iteration. The goal of this flu clinic was to give patient immunization screening and vaccination a high profile by prompting nurses – through the use of posters and other visual reminders – to go into the immunization screen and check if their patient was screened and vaccinated is qualified. The goal was to not leave this as one more task for the discharging nurse. Although the clinics were first held only 4 days per week, the Charge Nurses ultimately held the clinics each day. *Check* revealed that compliance rates were on the rise, however short of our goal once more. Yet again, we re-embarked on the Cycle again during the *Act* phase.

The *Plan* phase during our third iteration uncovered that the nurses still struggled to check all discharging patients for correct documentation; they viewed the immunization screening process as “one more chore” and sought an easier method because it was cumbersome to click through each patient’s electronic chart to retrieve their immunization status. The *Do* stage of this iteration was an improvement in process brought about by the rollout of a new version of our EHR software. With the upgrade, nurses were able to “wrench in” their patient’s immunization status and see the status of all their patients together at one time. At a glance, the color of the indicator associated with each patient would alert the nurse as to their immunization status and what needed to be done. To assure this new tool was effectively utilized, our Nurse Educators, Assistant Nurse Managers, and PHCMC informatics team held group meetings and went one-on-one with every nurse to educate them as to how to change their profiles so to “wrench in” the status, and re-educate them as to how to conduct the immunization screenings. The informatics team also created a “Tips and Tricks” sheet for this purpose. Data collected during the *Check* stage indicated that we had now reached our goal of assuring that 100% of patients were screened for the influenza vaccine and were vaccinated if they qualified. The final *Act* was documenting the refinements that had been made and the process that resulted.

The illustrated process improvement was not without challenges. Although our EHR system certainly makes it easier to screen patients for immunization status, there are no hard stops in the software, and you can move forward without concluding the screening process. Similarly, if you are prompted that a patient qualifies, if you select “cancel” rather than “accept” you will simply move forward in the admit processing. These shortcomings continue to be a focus of our re-education efforts.

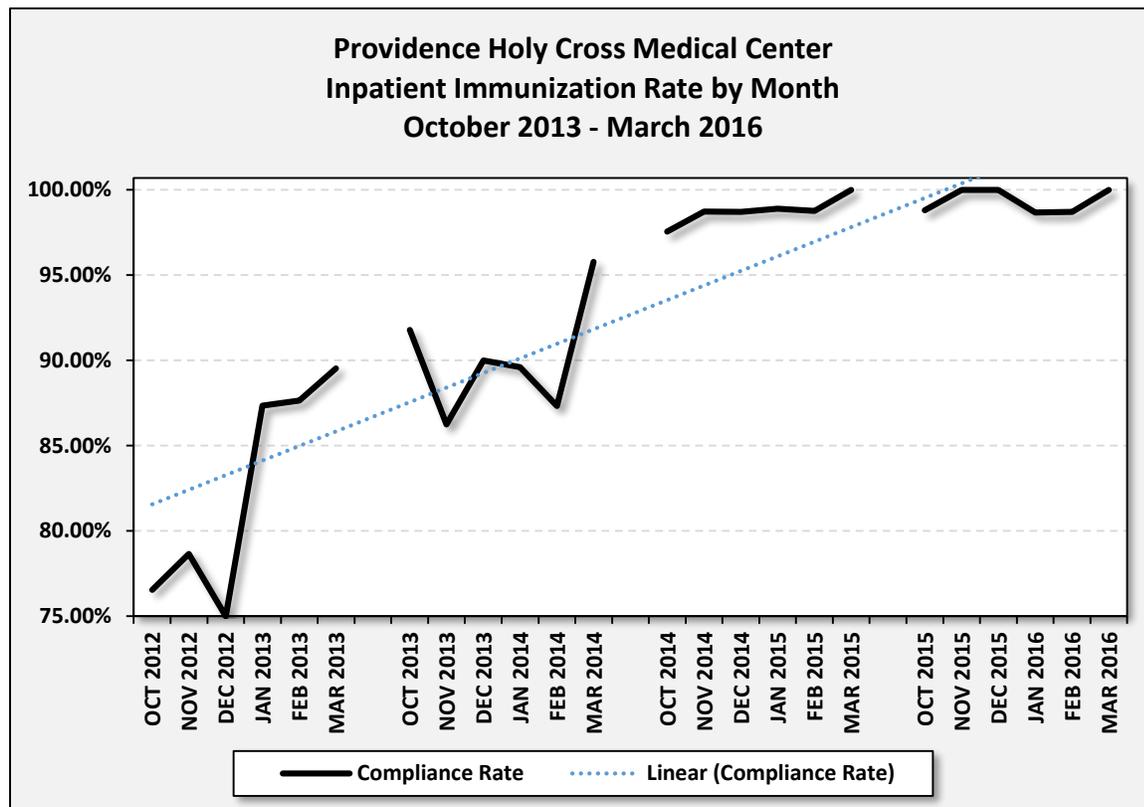
Also challenging early on was assuring that documentation was completed no later than discharge (one of our other goals), despite the available 30-day window after discharge. Essentially there was no real incentive for immediate documentation given this 30-day window. To this end, the burden of assuring screening and documentation was complete was put on the discharge nurse who, if the documentation

was not completed 4 days after discharge, was required to physically report to the medical records department to update the chart as necessary. This protocol incentivized the prospective discharge nurses to assure that their co-workers more effectively screened their patients so that later documentation – and a walk to medical records – was avoided.

Challenges were also posed when we had a change in EHR vendor and the new software did not provide a native report to review immunizations. Ultimately our regional informatics team did build such a report but there was an interval of time when our EHR software provided no support for our screening efforts. Concurrent review by evaluating individual charts proved time intensive but we did not let that challenge stop our progress and we eventually overcame that hurdle.

**5. DESCRIBE THE RESULTS OF THE EFFORT**

As depicted in the graph below, in the 4th quarter of 2012, the inpatient immunization rate at PHCMC was roughly 75%. Before we embarked on the concerted effort detailed above, rates had improved in the first quarter of 2013 but stagnated shy of 90% by the end of 2013. Since the inception of our program, rates have reached 99-100% during most every month of the 2014-2015 flu season, and every month during the 2015-2016 flu season.



## **6. DISCUSS THE SIGNIFICANCE OF THE RESULTS. HOW DO THE RESULTS DEMONSTRATE OUTSTANDING ACHIEVEMENT?**

The significance of our results with respect to inpatient immunization rates and how they exhibit outstanding achievement is captured by the fact that our rate is now 99-100%. This result is particularly notable given our rates were substantially lower two seasons prior. Also, achieving 100% in any metric is significant in and of itself as it indicates there were no missed opportunities; it is not an easy task to assure there are no fallouts.

## **7. DESCRIBE THE SUSTAINABILITY AND SCALING OF THE ACHIEVEMENTS**

The final *Act* was formally recognizing that our process had improved sufficiently to meet our goal; but we cannot lose sight that in all forthcoming flu seasons we will still need to invest in this process to assure we sustain this achievement. If resources continue to be allocated and our established protocols remain in place, our achievements with respect to inpatient immunization rates are clearly sustainable.

PHCMC is a high volume hospital. As such, the question of scalability lies in questioning whether these efforts can be scaled downward and whether there are any notable losses in economies of scale when scaling down. Also, the key role played by our EHR system may limit the scalability of some of our efforts to facilities using paper charting.

On balance, our efforts are scalable and we are not realizing any large economies of scale. These efforts can also be implemented without the help of an EHR system. As our EHR system has evolved, screening was more efficiently done but that is not to say that we could not return to a paper based system with a few modifications to our protocols and recognizing that some things would take longer.

## **8. DESCRIBE KEY LESSONS LEARNED AND ANY ADVICE TO COLLEAGUES WHO MIGHT TRY TO UNDERTAKE A SIMILAR EFFORT**

In retrospect, most important to our success during the first iteration was education; during our second iteration, institutional support drove our compliance rates; and our final iteration was fueled by enhancements in our information systems. The lesson to be learned from this is that you should not assume that the key element in a given iteration or phase will necessarily be key in another.

Moreover, although you may not achieve your goal at the end of a given iteration of the Cycle, you should not simply retain the key element and discard the others. In the example of PHCMC inpatient immunization rates, we can designate one element as most important, but every component of the trio of education, institutional support, and information systems was integral to improve our rates in each iteration.

Another lesson that can be garnered from our experience is that the current status of your information systems is not always congruent with the needs of your processes; and, sometimes, you are propelled toward success by unexpected changes in your supporting software. At the start of this process, our EHR system provided us a report to efficiently check inpatients' immunization status. When a new EHR software was brought on board, it did not offer such a report and we resorted to reviewing individual

patient charts until a new report was created for us. During our third iteration, the introduction of a software upgrade was unexpected yet proved to be monumental in achieving our 100% goal for patient immunization screening and vaccination if qualified as it provided the nurses the ability to screen at a glance.