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How Allina Leveraged Analytics and Education to Improve Influenza Vaccination Rate

Allina Health™

EXECUTIVE SUMMARY

Influenza, a contagious respiratory illness spread by droplets, can lead to hospitalization and even death. Millions of people get influenza each year, hundreds of thousands are hospitalized, and thousands to tens of thousands die from influenza related causes each year.[1] The key to preventing a devastating outbreak is vaccinating enough people that an outbreak is unlikely.

When Allina Health identified that its own rates for influenza vaccination were lower than desired, the health system studied data gleaned from its EHR and an Analytics Platform from Health Catalyst®, which includes a Late-Binding™ Enterprise Data Warehouse and broad suite of analytics applications, to understand its true current vaccination performance. The data revealed that changes were in order, which Allina put in place through clinician feedback, engagement, and education.

Results:

- 4.8 percentage point improvement in influenza vaccination rate, exceeding the Healthy People 2020 goals for vaccination.

POPULATION HEALTH DEPENDS ON HIGH INFLUENZA VACCINATION RATES

Influenza is a very contagious and frequently deadly respiratory illness spread by droplets. According to the Centers for Disease Control (CDC), influenza-related hospitalizations since 2010 ranged from 140,000 to 710,000, with fatalities ranging from 12,000 to 56,000.[1] Given these sobering numbers, influenza vaccination among the public at large is an essential intervention to head off unnecessary hospitalizations and premature deaths, particularly among the elderly.[2]

To assure "herd immunity"—that is, to inoculate enough people that there is little chance of an outbreak—the recommended rates for immunization are 80 percent for healthy people and 90 percent for high-risk populations.[3] As such, The Advisory Committee on Immunization Practices recommends annual influenza vaccination

HEALTHCARE ORGANIZATION

Integrated Delivery System

PRODUCTS

- Health Catalyst® Analytics Platform, including the Late-Binding™ Data Warehouse and broad suite of analytics applications

SERVICES

- Professional Services

for all people six months of age and older.[4] The federal government also actively monitors the hospital's role in preventing influenza outbreaks, with influenza vaccination rates included as one of the Centers for Medicare & Medicaid Services (CMS) inpatient hospital performance measures.[5]

One hospital that is succeeding at reducing the risk of influenza in its communities is Allina Health, an integrated delivery system throughout Minnesota and western Wisconsin with more than 109,000 inpatient admissions annually.

THE SURPRISING COMPLEXITY BEHIND INFLUENZA VACCINATION

When Allina identified that its performance for influenza vaccination was lower than desired, the health system acted swiftly to make improvements. Allina's chief concern was the potential contribution to an increased number and severity of influenza cases each year—although the issue also negatively impacted publicly reported performance numbers for the CMS measure.

Allina did meet an initial internal goal of successfully administering influenza vaccinations to 93 percent of eligible patients. Still, this was slightly below the national average of 95 percent and fell below Allina's targeted rate of 100 percent—which the top 10 percent of healthcare organizations achieve. To bridge this gap, Allina needed a strategy to ensure that every patient was screened for eligibility, and that those who met the criteria for vaccination received the influenza vaccine.

On the surface, screening patients for influenza vaccination is simple. Few patients are excluded from the CMS inpatient performance measure and there are few contraindications to influenza vaccination. The only excluded populations are those patients who are less than six months old; decease prior to discharge; receive an organ transplant during the current hospitalization; have a LOS greater than 120 days; leave against medical advice; or, are transferred or discharged to another acute care hospital.

Despite this broad inclusion, patients still must be screened for eligibility and safety. Influenza vaccine is contraindicated for patients who have an allergy or sensitivity to the influenza vaccine, anaphylactic latex allergy, or anaphylactic allergy to eggs. Additionally, it is not recommended for patients who have had a bone marrow transplant within the past six months, or for those who have a history of Guillain-Barre Syndrome within six weeks of a previous influenza vaccination.

The workflow for administration of the influenza vaccine is surprisingly complex. Changes in patient status, a multi-step processes for screening and ordering, the need to stock and obtain several different types of vaccinations, and challenges related to how and when the medication appears on the medication administration record all increase the potential for errors and the potential that the patient will not receive the vaccine prior to discharge.

Taking these challenges into consideration, Allina recognized that it needed a two-pronged strategy to screen each patient for eligibility and vaccinate all patients deemed eligible.

ALLINA TURNS TO DATA ANALYTICS TO STREAMLINE WORKFLOW AND IMPROVE DECISION SUPPORT

Allina sought a deeper understanding of its current performance and the barriers to achieving a 100 percent vaccination rate. Allina used data from two primary sources—the EHR, and the Health Catalyst® Analytics Platform.

An investigation of the performance data revealed that of the identified failures (the 6.5 percent of patients who should have been vaccinated and were not), 53 percent of the patients were screened as eligible, but did not did not receive the vaccination. Two percent of the identified failures patients were inadvertently excluded based on EHR "pick list" responses that did not align with the CMS exclusion criteria. This latter issue was fixed by revising the EHR pick list responses to align with the CMS performance measure inclusion and exclusion criteria. The remaining patients were not screened for eligibility. More comprehensive changes were then put in place to improve screening and administration.

Tweaks in decision support improves RNs workflow. Allina's influenza vaccination workflow required that the registered nurse (RN) screen the patient during the admission process, using the admission navigator. Should the patient be deemed eligible, the RN must remember to place the order per the approved protocol and then administer the vaccine. An alert was sent if patients weren't screened, but not until 20 hours after admission.

Feedback from the RNs indicated this was too long of a wait to assure patients received the vaccination prior to discharge. The alert was subsequently redesigned to fire eight hours into the admission, with medication to be administered at 10:00 a.m. the next day instead of just prior to discharge from the hospital. Alerts are also now displayed on various screens used to complete the vaccination administration workflow. Once the patient has been screened, the

> "Our influenza vaccination rates started out incredibly low, and now we are at nearly 100%. I am proud that our teams have achieved this improvement. We are improving health and wellness."
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> Jessica Swearingen
> Clinical Pharmacy Manager
> Allina Health

alert is automatically resolved. Additionally, during the screening process the RN can access state level immunization information to check if the patient has already been vaccinated—if "yes," this information is added to the patient's medical record.

Ordering made easier—and more likely. During the admission process, RNs have a variety of required documentation that must be completed. Outside of the influenza season, ordering medications using a standardized protocol during the admission process is not something the RN routinely performs. It is easy for them to forget the additional step of ordering the influenza vaccine after the admission screening is complete, or even order the wrong vaccine as there are several different options in the EHR, based on patient age and the location of care. To circumvent these risks, after a patient is deemed eligible for vaccination, an alert is now generated that includes a link to the correct order specific to the Allina location where the patient is receiving care, screening documentation results, and the patient's age. The RN must either open the alert to complete the workflow, or select the "reminder" option to complete the ordering process later.

Once the influenza vaccination is ordered, an alert to administer it appears when the medical record is opened, on the medication administration record, as well as the nursing overview report. If the patient is leaving earlier than 10:00 am the following day, the medication can be rescheduled to administer before discharge. All important information is documented in the medical record, such as the individual who administered the vaccine, the vaccine lot number, and manufacturer. This information is also included on the patient's discharge instructions and in the outpatient record, assuring safe handoff and continuity to the outpatient care setting.

Systemwide education boosts compliance. Each influenza season, Allina provides ongoing education and communication to its clinicians, sharing the importance of high influenza vaccination rates for population health, and updates clinicians on the process for screening, administration, and documentation of the vaccine. Reminders are regularly provided at staff meetings and via email.

Designated staffers review influenza screening and vaccination rates daily, following up with the RN providing care to the patient when necessary. Should clinicians or departments have questions, support is readily available to explain the processes and assist with workflow needs.

Additionally, in many patient care units the influenza vaccination status is reviewed during interdisciplinary rounds. This provides another opportunity for the entire care team to develop further understanding of the importance of influenza vaccination, herd immunity, and the benefit to the patient.

RESULTS

Allina's improvement efforts are paying off. For the most recent flu season, Allina achieved a:

- 4.8 percentage point improvement in influenza vaccination rate, exceeding the Healthy People 2020 goals for vaccination.

Allina has also dramatically improved the workflow for influenza vaccination, eliminating sources of confusion, and improving the decision support and guidance provided to clinicians.

WHAT'S NEXT

Allina continues to evaluate their processes for influenza vaccination, incorporating lessons learned from each influenza season into the ongoing performance improvement plan. ◊

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