Removing Noise – Nursing Alert Optimization

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Introduction

Geisinger is an integrated healthcare delivery system, serving more than 1.5 million patients in Pennsylvania and New Jersey. It includes 13 hospital campuses, a health plan, two research centers and the Geisinger Commonwealth School of Medicine. Geisinger took the Epic system live beginning with Ambulatory in 1996. In 2009, the U.S. Government challenged healthcare organizations to adopt 'certified EHR technology' including the ability to provide clinical decision support [CDS].¹ Having been a very early EHR [electronic health record] adopter, CDS was already well established within the electronic clinical workflows in the form of best practice alerts [BPA]. Alerts can be designed to target the appropriate clinician to either perform a certain act, such as place an order, or document a vital sign, or not complete a certain function, such as order a medication for which the patient has an allergy. Appropriately designed CDS equip clinicians, staff, patients, and others with knowledge and person-specific information, intelligently filtered or presented at appropriate times, to enhance health and health care.² Due to our long EHR history, through alert reporting, we had found that nurses were ignoring a large percentage of the BPAs. Further analysis, pointed to limited design, inappropriate location of the alerts or changes in operational priorities and initiatives. Working with IT and nursing leadership, our organization began the journey to evaluate every nursing alert to determine appropriateness and has been able to significantly reduce the number of alert firings.

Change Process Begins

The Health Information Technology Team [HIT] at Geisinger, developed a governance structure to bridge the gap between clinical operations requests and HIT design and capacity. There are several guiding groups that review/approve operational requests. The Alerts & Reminders group, as one arm of the overall structure, evaluates CDS. One of the initial goals of this committee was to identify, quantify and evaluate the nursing alerts firing in the EHR. Using Stanson Analytics, transparency into our BPAs was provided and a dashboard was created to identify the top nursing alerts. We found that for the month of July [2018], the top 10 nursing alerts accounted for 54% of all alerts firing in the EHR. Beginning with the top ten, Geisinger's Nurse Informaticians [NI] analyzed each alert to determine appropriateness of design, placement within the nursing workflows and any documented comments placed by nursing staff. The NI team made recommendations that included updates to the alert logic, wording, placement in the nursing workflow, follow-up actions and even retirement of those alerts that no longer held any value to the patient or clinical team. Recommendations were reviewed, and final approval granted by nursing leadership groups from every campus.

Before Optimization Data

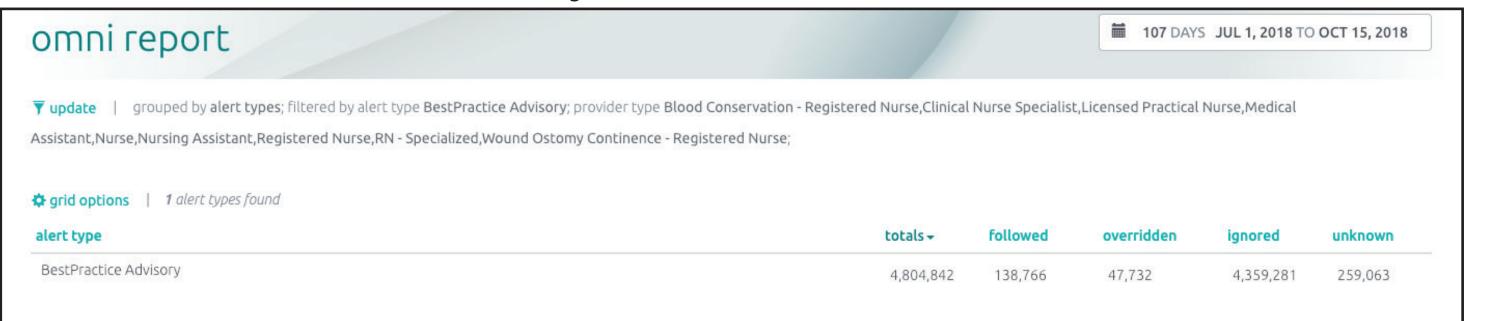
- Alert data were grouped by user type including RN, LPN, NA, MA and specialty nurses.
- Prior to alert optimization, alert volumes averaged 1.35 million triggered per month from July to October 2018.
- Alert volume per user for the same period averaged 228 alerts per month with a median count of 129 alerts.
- Alert volumes from the same time period the previous year averaged 1.6 million triggered per month from to October 2017 to January 2018.
- Alert volume per user for the same period averaged 273 alerts per month with a median count of 130 alerts.

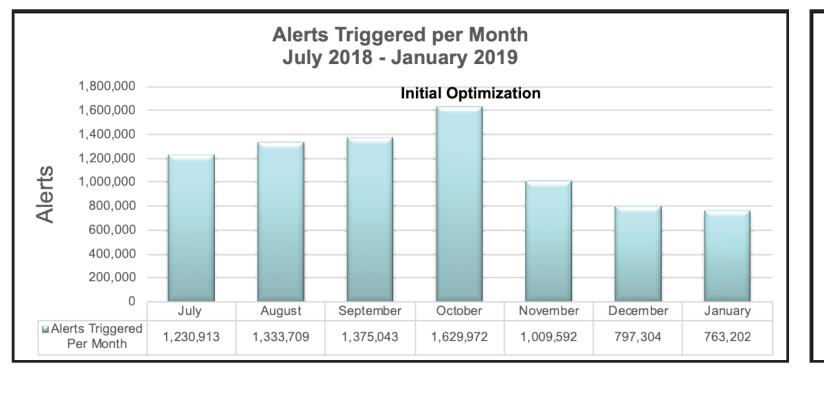
After Optimization Data

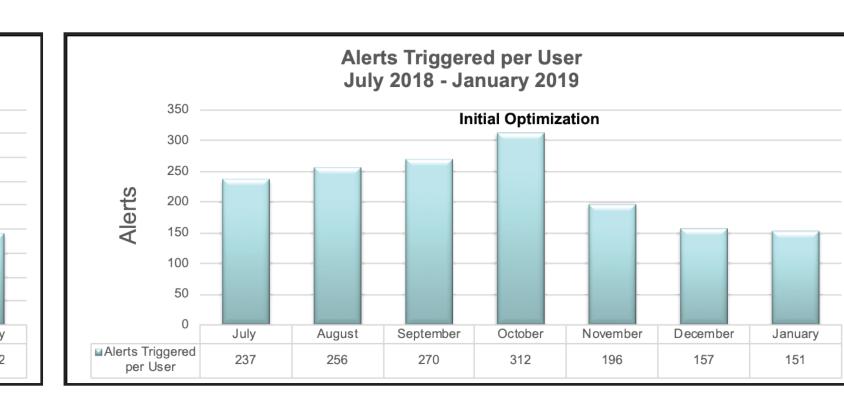
- Post alert optimization, alert volumes averaged 1 million triggered per month from October 2018 to January 2019
- Decrease of 600 thousand alerts per month
- Users saw 2.5 million less alerts than the previous year during the same time period
- Alert volume per user for the same period averaged 157 alerts per month with a median count of 88 alerts
- 116 less alerts being seen by nursing users compared to the same time period the year before
- Percent of change has increased every month since
 October when comparing it to the previous year











Oct. 2018 to Jan. 2019 omnireport □ update | grouped by alert types; filtered by alert type BestPractice Advisory; provider type Blood Conservation - Registered Nurse, Clinical Nurse Specialist, Licensed Practical Nurse, Medical Assistant, Nurse, Nursing Assistant, Registered Nurse, RN - Specialized, Wound Ostomy Continence - Registered Nurse; □ grid options | 1 alert types found alert type | totals → followed | overridden | ignored | unknown | BestPractice Advisory | 3,323,138 | 59,268 | 51,868 | 3,000,863 | 211,139

Alert Optimization Examples



Outcomes

- 34 out of 221 alerts that triggered for nursing staff have been optimized to date
- Based upon alerting volumes, focus for optimization was on the inpatient nursing triggers
- Changes made to alerts included:
- Increasing lock out times until next firing
- Retired 1 BPA due to policy change; 16 others were unreleased
- Added criteria to delay an alert from firing until a specified time after admission or at a certain time of day
- Added criteria to restrict to the appropriate clinician
- Removed triggers for alerts that were firing for filing of flowsheet data
- Added triggers for alerts to fire at Opening Chart
- Added additional acknowledgement reasons and adjusted the re-fire rate on reasons
- Care Plan generating alerts were put on stealth and made no longer visible
- Rewording of the BPA language to more accurately reflect the desired outcome
- Excluded specific departments and encounter types that should not have seen an alert

Discussion

- BPAs are a necessary tool to help drive clinician behavior and improve patient outcomes
- Organizations who have had an EHR for a long time may have old alerts, and old logic/technology that just has not been updated and need to be optimized
- Team based approach between Informatics and Operations is vital to ensure that unintended consequences are avoided
- Buy-in and approval from Nursing leadership will help drive the change
- A Governance structure is important to discuss new nursing BPAs and a methodology developed to determine how new alerts are introduced into the nursing workflow
- Due to the optimization efforts, it is projected that nursing will see approximately 5 million less alerts in the 12 months following the first round of alert updates

Next Steps

- Continue to monitor firing rates and additional BPAs that could be updated
- Monitor quality initiatives that may have been affected by decreasing BPA rates
- Determine the methodology to truly measure nurse follow rates
- Monitor nursing update/following rates to determine if changes lead to increased use of BPA
- Query nursing staff to understand if the user experience in the EHR has improved due to alert optimization

Refernces

- 1. HealthIT.gov Health IT Legislation: portions of the HITECH Act. https://www.healthit.gov/sites/default/files/hitech_act_excerpt_from_arra_with_index.pdf Accessed February 2, 2019.
- 2. Osheroff JA, Teich JM, Middleton, B, et al. A Roadmap for National Action on Clinical Decision Support. JAMA. 2007; 2007 Mar-Apr, 14(2). 141-145.