Customization of Order Alerts through Filters: Impact on Pharmacists' Override Rate and Perceptions of Alert Fatigue

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BACKGROUND

- Clinical decision supports (CDS) in electronic health records generate alerts for clinicians.
- Despite the usefulness of CDS, they can lead to alert fatigue, which is the tendency for clinicians to ignore prompts presented due to the excessive number and/or their perceived limited clinical significance.
- Alert fatigue may increase the risk of missing clinically relevant alerts and reduce work efficiency.

DESCRIPTION

- At North York General Hospital (NYGH), pharmacists managed over 50% of all medication CDS alerts amounting to ~60 alerts per day per pharmacist.
- Pharmacists' override rate was over 90%, which, in combination with the above alert volume, indicated a high likelihood of alert fatigue.

ACTION

- Utilizing a visual analytics dashboard, high frequency alerts were analyzed and, with pharmacists' discussion, filters were chosen and customized.
- Pharmacists' perceptions of alert fatigue and the CDS system was collected using an anonymous, online questionnaire before and after intervention.
- Medication incidents from NYGH's incident reporting tool was collected before and after implementation to assess for risk of missing important alerts.

- On February 16, 2021, three targeted interventions to reduce alert fatigue were implemented:
  1. A filter to suppress duplicate checking for specific medications ordered multiple times in one session
  2. A filter to suppress duplicate checking for specific medications commonly ordered both as scheduled and as needed
  3. Customization of how long discontinued drugs are eligible for CDS checking

EVALUATION

- Total alerts decreased by 48.4% when comparing one month before and 3 months after intervention.
- Drug-drug interaction and drug-duplicate alerts fell by 33.6% and 61.8%, respectively (Figure 1).

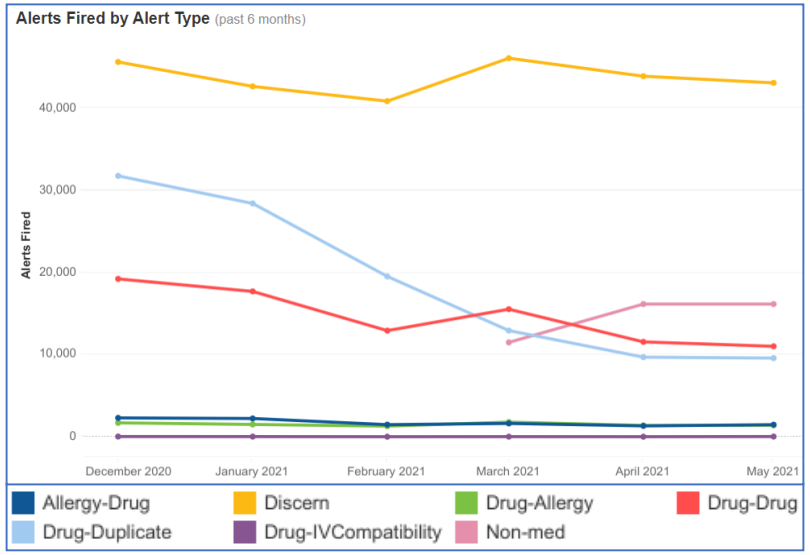

Figure 1. Monthly alert frequency by alert type pre- and post-implementation for all clinicians

- For NYGH pharmacists, this reduced alerts from 59.7 to 27.1 per day per pharmacist.
- However, pharmacists' override rate was minimally reduced from a pre-intervention rate of 98.1% to a post-intervention rate of 97.3% (Table 1)

Alert Type	Override Rate (%)	
	Before Intervention	After Intervention
Allergy-Drug	100	100
Discern (Custom)	95.4	95.4
Drug-Allergy	99.2	99.6
Drug-Drug Interaction	98	98.3
Drug Duplicate	98.5	95.9
Overall	98.1	97.3

Table 1. Pharmacists' override rates before and after intervention

- After intervention, pharmacists perceived a reduction of unnecessary CDS alerts and found they had more time to review alerts though the majority felt there was still room for improvement.
- No increase in medication errors were found after changes were made. Detailed review of selected medication incidents were determined to not be a result of the filters implemented.

IMPLICATIONS

- Customization of CDS filters can be an effective strategy to reduce non-meaningful alerts and improve pharmacists' perceptions of alert fatigue though override rates appeared minimally changed.
- It is imperative that hospital pharmacies review and re-assess alert CDS settings periodically to manage excess alerts and to decrease alert fatigue.

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