

## BACKGROUND

- A Clinical decision-making system facilitates medical decisions by generating clinical alerts.
- However, frequent alerts are a nuisance and can lead to provider alert fatigue and burnout.
- Alert fatigue cause users to ignore relevant and irrelevant alerts posing a threat to patient safety.
- Clinical decision-making system requires modification to optimize medication alert.

## OBJECTIVES

- The aim is to develop a process that optimizes medication alerts and evaluate alerts' effect to minimize fatigue and increase patients' safety.

## METHODS

- Retrospective study conducted at HSHS St. Elizabeth's Hospital to compare two months pre-data versus two months post-implementation of a medication alert optimization.
- The primary outcome is a percentage reduction in alerts.
- Secondary outcomes represent the number of interventions and dismissal rate of pharmacists.
- A systematic review was done on PubMed literature.
- "Drugs that cause hyponatremia was used as a keyword in literature evaluation.
- Other filters like clinical trial and full text were used to reduce search results to 98 publications and later screened for relevancy.
- Pharmacists in the hospital were interviewed on their practice and when they would act on the alerts.

## METHODS

- The system was modified to optimize alerts to ensure medication alerts fire properly.
- The reports were generated from Epic Ivents and Theradoc alert systems.
- Theradoc reports were utilized to analyze the number of alerts fired and the number of pharmacist dismissals.
- A vlookup was done for reports generated by Theradoc and Epic Ivent to assess pharmacists' interventions.

## RESULTS

| Hyponatremia and Hypomagnesemia Alerts | Old Alerts (Sep-Oct) | New Alerts (Nov-Dec) | Difference |
|--|----------------------|----------------------|------------|
| Total volume of alerts fired           | 289                  | 93                   | ↓ 68%      |
| Dismissed Alerts                       | 276                  | 86                   | ↓ 69%      |
| Cancelled Alerts                       | 13                   | 7                    | ↓ 46%      |

- Volume of alerts fired by hyponatremia and hypomagnesemia was decreased by 68%.
- Total number of dismissal alerts decreased by 69%.
- Canceled alerts were reduced by 46%.
- Most alerts fired were unnecessary and irrelevant hence increasing alert fatigue on pharmacists.
- Pharmacist intervention rate for the hyponatremia alerts increased from 1% to 7% after system modification
- Intervention rate increased for hypomagnesemia alerts from 7% to 42%.

## DISCUSSION

- Reducing the number of alerts minimized alert fatigue.
- System modification optimized alerts and reduced the total volume of alerts by 68 percent.
- Therefore, systems should be optimized to increase patient safety and decrease fatigue among medical workers.
- Limitations:
  - Pharmacist's failure to record all interventions made on Epic Ivent
  - The number of patients differs each month hence affecting the number of alerts fired when comparing pre and post-alerts.
- Hospital management should ensure alerts fire appropriately according to the five clinical decision support rights: right person, right time, right format, right information and through the proper channels.

## CONCLUSION

- Medication alert systems should ensure crucial alerts are fired to reduce the adverse outcome of the patient and medical providers.
- System optimization ensures the system only fires patients' relevant alerts.
- For a successful optimization, responsible personnel should strike a balance between patient safety and user convenience.

## REFERENCES

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