

An International Evaluation of User Perceptions of Drug-Drug and Drug-Allergy Interaction Alerts

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Background

Clinical Decision Support (CDS) has the potential to improve medication safety. Increasing adoption of integrated systems, refining the delivery and content of existing CDS, and improving user-centered design are key to meeting core measures for Meaningful Use.

Poor user acceptance of alerts, poor alert design, and lack of contextual specificity are cited as causes for negative perceptions about the utility of CDS, alert fatigue, and override rates estimated to be as high as 49-96%.

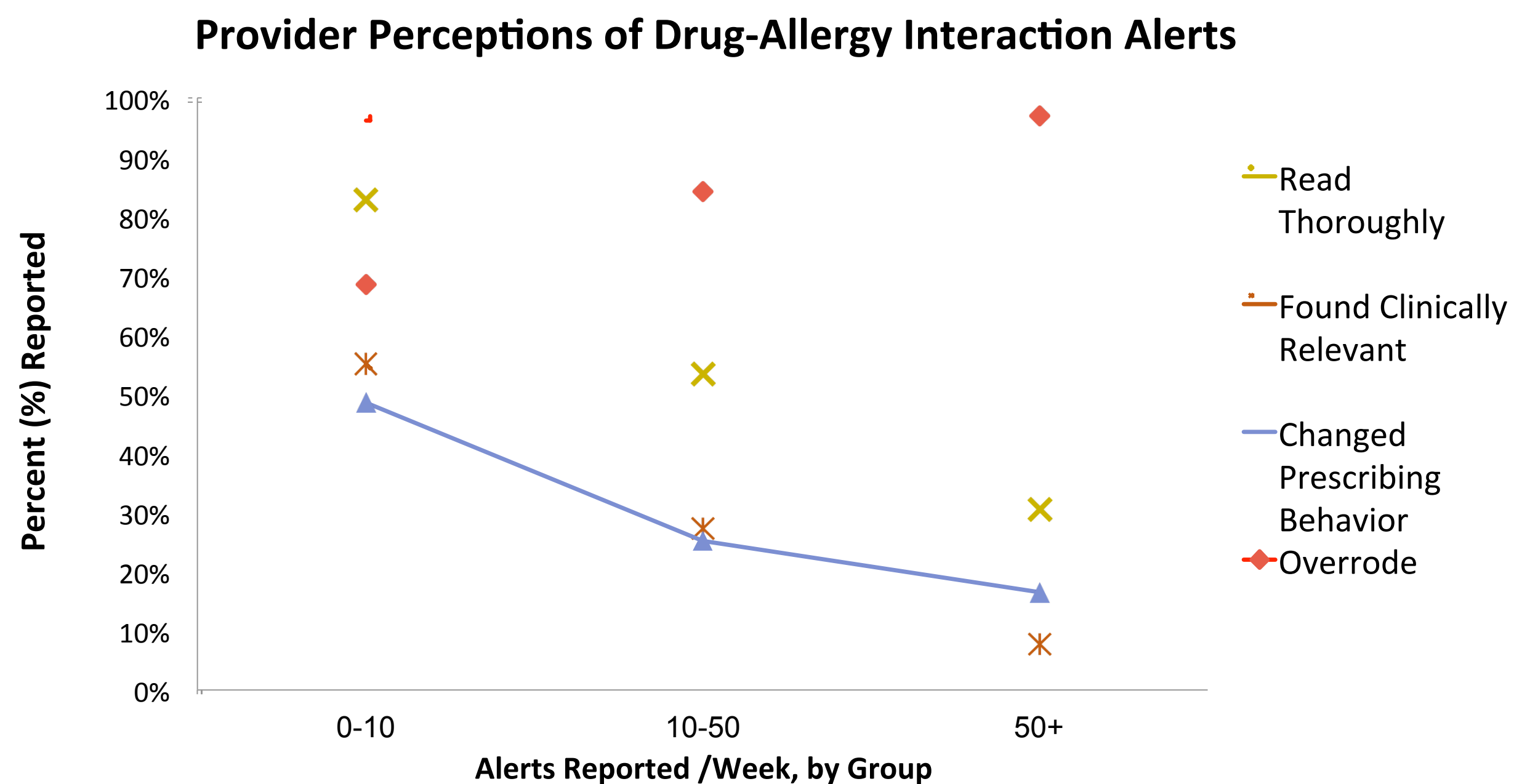
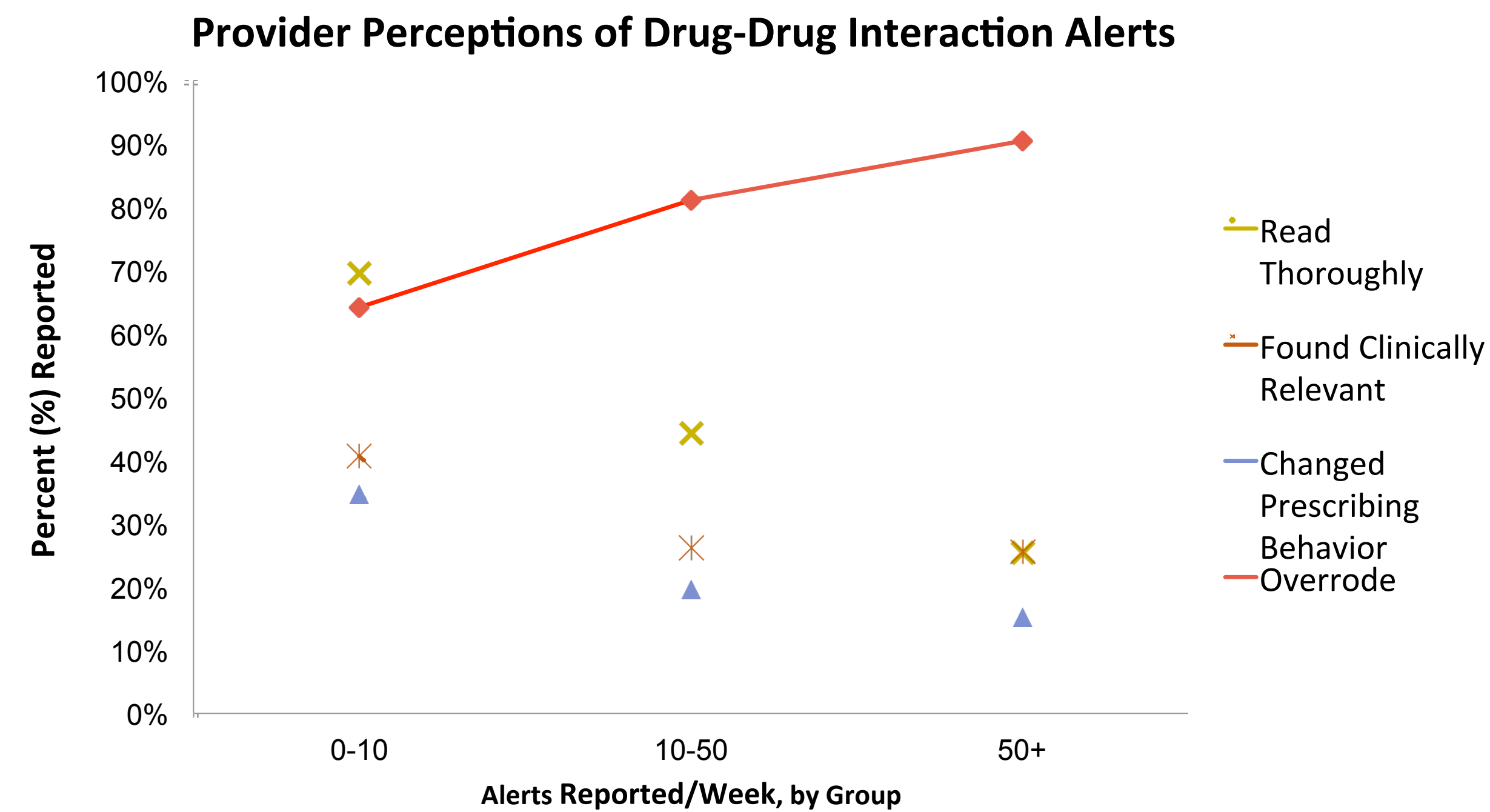
Our objective was to evaluate the relationships between user perceptions of Drug-Drug Interaction (DDI) and Drug-Allergy Interaction (DAI) alert volume, content, and user acceptance to determine whether or not perception of alert volume could be linked to perceptions of the utility of CDS.

Methods

- Used validated survey developed by Zheng, et al,¹ to evaluate the impacts of physician perceptions of DDI and DAI alerts on user behavior.
- Assessed a multi-national sample of EMRs, with users of both home-grown (4) and commercially available (2) products across 7 healthcare institutions.
- Performed descriptive statistics on survey responses to establish correlations between perception of alert frequency, alert relevancy, and alert override.
- Ran means in three groups based on the number of alerts reported per week; 1-10 alerts per week (group 1), 11-50 (group 2), and greater than 50 (group 3).

- Please estimate, during an average week of your practice, how many of the following types of alerts (DDI/DAI) you receive?
- What percent do you read thoroughly?
- Of these, what percent do you find clinically relevant?
- Of these, what percent change your prescribing decision?
- Please estimate the percentage of alerts that you override.

Results



Discussion

Of 1,423 physicians invited, 342 consented to participate for an overall response rate of 24%.

For both DAI and DDI alerts across all 3 groups, we found that as the number of perceived alerts increases, the percentage of providers who report reading, finding these alerts relevant, or changing prescribing behaviors based on the information provided decreases, while the number of alerts overridden increases.

Overall, participants estimated receiving a greater number of DDI than DAI alerts per week, but were more likely to override DAI than DDI alerts, with reported override rates of 83.22% and 78.5%, respectively.

Conclusions

This is the first study to establish an empirical correlation between physicians' perceptions of alerts to alert acceptance. Physicians who believe they receive a high number of alerts are less likely to read them, find them clinically relevant, allow them to affect their prescribing behavior, and more likely to override them.

Future research should focus on how providers' perceptions of alert volume can be improved. Decreasing the volume of interruptive alerts may foster a more positive attitude towards CDS alerting in EMRs amongst physicians.

References

Zheng K, Fear K, Chaffee BW, Zimmerman CR, et. al. Development and validation of a survey instrument for assessing prescribers' perception of computerized drug-drug interaction alerts. *J Am Med Inform Assoc* 2011; 18:i51-i61.

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