Noninterruptive Drug-Lab Alerts in Ambulatory Care

Helen G. Lo, MD1, Michael E. Matheny, MD, MS, MPH2,3, Diane L. Seger, RPh1,2, David W. Bates, MD, MSc1,2, Tejal K. Gandhi, MD, MPH2

1 Information Systems, Partners HealthCare System, Wellesley, MA; 2Division of General Medicine, Department of Medicine, Brigham and Women’s Hospital; 3Decision Systems Group, Department of Radiology, Brigham & Women’s Hospital

Abstract
To monitor potential adverse drug events, we devised a non-interruptive alert within our electronic medical record that prompted outpatient providers to order labs along with new prescriptions. When comparing control to intervention occurrences, we found the intervention had a non-significant impact on lab prescribing. The results of our prospective, randomized, controlled trial suggest that non-interruptive alerts are ineffective.

Background
Numerous medication alerts within electronic prescribing applications have been developed to reduce adverse drug events and medication errors. Many of these alerts are interruptive and frequently overridden by clinicians. In an effort to decrease alert fatigue, we implemented non-interruptive medication alerts for low severity clinical recommendations for lab ordering into our outpatient physician workflow.

Methods
In this prospective, randomized, controlled trial providers were classified as control or intervention group based on their participating outpatient practice. 197 providers in the control group had access to the basic CPOE. 182 providers in the intervention group had access to the basic CPOE and were passively shown a drug-lab alert on the screen when a new medication should have baseline labs (the alert appeared as a non-interruptive message at the top of the screen). Between 7/21/2003 and 1/20/2004, both control and intervention providers were monitored for every event where a drug-lab condition was met, including 1520 patients in the control group and 1245 patients in the intervention group. Of the 3673 events monitored, labs were requested in 1988 monitored events and laboratory values were ordered by clinicians in 689 (41%) of the cases, which was a non-significant difference (p<0.8).

Conclusion
Non-interruptive, drug-lab alerts were not effective in the outpatient setting. At baseline, physicians did not order the recommend labs the majority of the time, and those habits did not significantly change or exhibit any consistent trend with the introduction of the alert. This suggests that altering physician behavior may require at least a minimal degree of interruption. Possible reasons for the ineffectiveness of the alerts include not capturing the attention of users and failing to link recommended tests directly to ordering.

References