A Novel Approach to Reduction in Duplicate Lab Ordering

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Introduction

With the rising costs of healthcare, it is important for physicians to be thoughtful about overall healthcare expenditures. Duplicate lab ordering leads to waste of financial resources and unnecessary phlebotomy. To investigate how to reduce duplicate lab testing for inpatients across our system, our team created an EPIC alert tool that notified providers of the last value of six common labs. It was hypothesized that this tool would reduce the number of duplicate tests and decrease the cost of care and unnecessary phlebotomy.

Methods

Deidentified inpatient data was analyzed from March 3, 2018 - October 31, 2021 using EPIC SlicerDicer. Six labs were analyzed: TSH, hemoglobin A1c, ammonia, lipase, lipid panel (LDL- calculated), and BNP.

Our clinical informaticists developed an alert tool that notified providers if the lab was already drawn within a specific time-period, with the result and date of the draw. Alerts also showed when specimens were collected or were in process. The time frame of the prior labs included TSH within 6 weeks, hemoglobin A1c and lipid panel within 12 weeks, and ammonia, lipase, and BNP within 5 days. This tool was activated June 24, 2020.

Using Epic SlicerDicer, the average number of patients per month that underwent duplicate lab testing within a 7-day period before and after intervention were calculated. Using the costs of the lab tests, the average cost per month before and after intervention and the average cost reduction per month were calculated for each lab test.

Figures

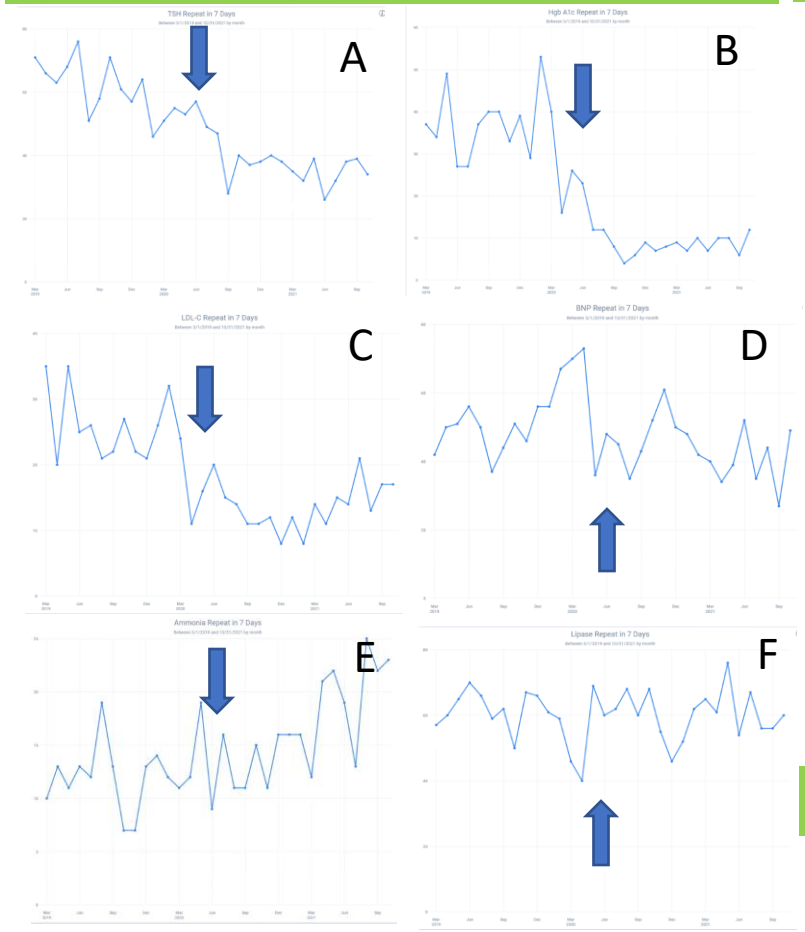

Figure 1. Graphs showing the number of duplicate lab tests within a 7-day period for each studied lab before and after intervention. Arrow indicates date the tool became active. A. TSH. B. HgbA1c C. Lipid Panel. D. BNP. E. Ammonia. F. Lipase.

Results

For TSH, the average number of inpatients undergoing duplicate testing per month within 7 days was 66 patients/month ($1,366.9/month) prior and 37 patients/month ($765.90/month) after for an average cost reduction of $601/month.

For hemoglobin A1c, totals before were 37 patients/month ($502.46/month) and after 8.56 patients/month ($116.81/month), for average cost reduction of $386.2/month.

For lipid panel, 23.7 patients/month underwent testing before ($966.12/month) and after 13.3 patients/month ($542.35/month) for an average cost reduction of $423.8/month.

For BNP, an average of 46.3 patients/month ($762.5/month) underwent testing before and 43.5 patients/month after ($716/month) for an average cost reduction of $46.4/month.

For ammonia, an average of 13.7 patients/month underwent testing prior and 16.8 patients/month after.

For lipase, an average of 60.2 patients/month were tested prior and 60.5 patients/month after intervention.

Conclusion

Our novel alert tool not only reduced the number of duplicate lab tests across inpatients in our system, but also significantly reduced costs associated with duplicate and unnecessary testing. We plan to expand this intervention to include outpatient/ED labs and suggest that other institutions utilizing the EPIC EMR duplicate this technique to reduce duplicate labs and associated costs.