



Overutilization of Amylase and Lipase in Acute Pancreatitis

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INTRODUCTION

Acute pancreatitis (AP) is a common cause of hospitalization and is a substantial financial burden to the healthcare system. The American College of Gastroenterology (ACG) guidelines recommend using serum lipase over amylase to diagnose AP, as it has superior specificity and sensitivity.

However, based on our institution’s observation, patients diagnosed with AP had both amylase and lipase ordered and had follow-up measurements after diagnosis.

AIM : We aim to decrease co-testing of amylase and lipase during Acute Pancreatitis workup by 40 % in 6 months at our community hospital.

METHOD

The Institute of Healthcare Improvement model was used for this quality improvement project. A multidisciplinary team approach was utilized. The Plan, Do, Study, Act (PDSA) cycle was used to format this project and test change. Root cause analysis was done using the fishbone diagram.

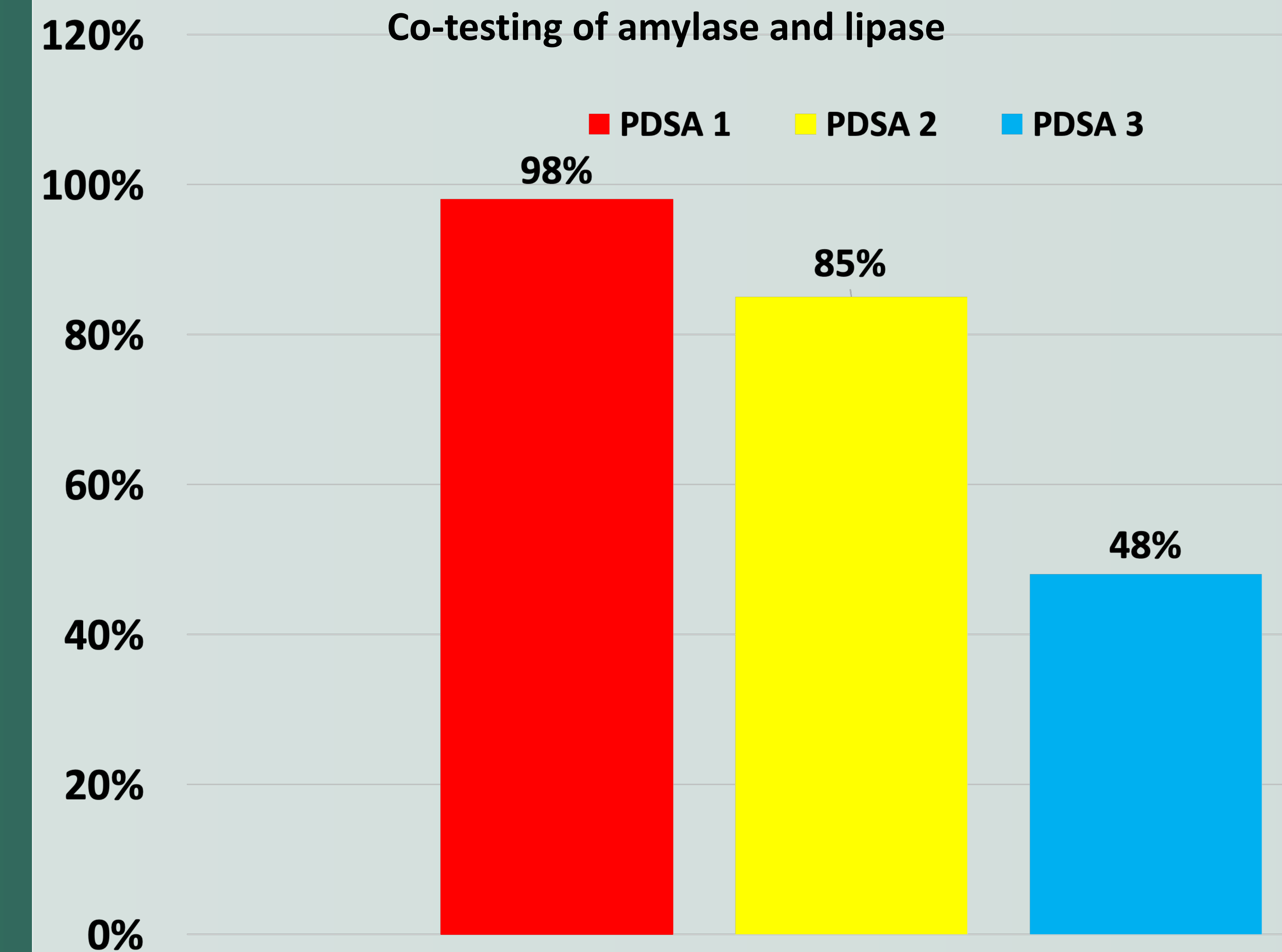
- In the first PDSA cycle, education was provided to the medical staff about the ACG guidelines regarding amylase and lipase orders.
- The second PDSA cycle included educating residents, staff and ED department about guidelines. Following targeted education, the team reviewed 80 patients who were admitted to the hospital with acute pancreatitis.

In PDSA 3, we used a multidisciplinary approach and worked to remove the pre-selected amylase from the order set. Post EMR change, we reviewed 98 patients over a six- month period who had abdominal pain and acute pancreatitis workup.

RESULTS

- Pre-intervention, 98% of admissions for AP had serum amylase and lipase ordered at the time of diagnosis, and 82% of patients had repeat testing. **In PDSA cycle 1**, there was no significant decrease in ordering both amylase and lipase during initial diagnosis, but the intervention decreased repeat testing to 73%.
- **PDSA 2** involved educating residents and the emergency department (ED) about the guidelines. After two cycles failed to result in change, a root cause analysis was done and showed an EMR system order set for abdominal pain with pre-selected amylase and lipase. All patients with abdominal pain had both the tests ordered unless the ordering provider de-selects.
- In **PDSA 3**, we used a multidisciplinary approach and worked to remove the pre-selected amylase from the order set. Post EMR change, we reviewed 98 patients over a six- month period who had abdominal pain and acute pancreatitis workup. **Results showed a 48% reduction in amylase orders.**

FIGURES



DISCUSSION

- PDSA 3 cycle involved removing the pre-selected amylase from the ED order set. The average cost of amylase testing is \$35. Post-intervention, six-month data revealed a 48% reduction in amylase co-ordering. This result showed a \$1645 direct cost saving. At this pace, yearly cost savings of \$3290 would be observed.
- Performing a root cause analysis allows discovering key stakeholder and system components contributing to outcomes. We used a process flow map to identify a system problem, including pre-selecting unnecessary labs during patient admission. Targeting a system change and de-selecting amylase from the order set allowed us to reduce unnecessary testing and hospital costs.