Clinical pathology selected abstracts

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Cost of unnecessary amylase and lipase testing at multiple academic health systems

January 2021—Annual expenditures for clinical laboratory testing account for approximately $71.6 billion of health care costs and represent about 2.4 percent of all health care spending. While laboratory testing is critical, recommendations of the Choosing Wisely initiative focus on reducing laboratory costs and unnecessary testing, in part through dialogue between physicians and patients. Specialty societies widely accept and participate in Choosing Wisely recommendations, but outcomes of the initiative are largely unknown. The American Society for Clinical Pathology put forth 25 recommendations for Choosing Wisely, of which the 13th recommendation stated that serum lipase is the preferred test for diagnosing acute pancreatitis because lipase peaks by 24 hours and remains elevated for eight to 14 days. It was also recommended that serum amylase tests not be ordered with serum lipase tests because one or the other is sufficient for the diagnosis. Lastly, repeat serum lipase testing should only be performed in defined situations, such as when there are persistent signs and symptoms of pancreatic or peripancreatic inflammation, obstruction of the pancreatic duct, or development of a pancreatic pseudocyst. The authors conducted a study to quantify serum amylase tests and serum lipase tests and adherence to the Choosing Wisely recommendations. They used deidentified laboratory data from four large academic health systems participating in the Greater Plains Collaborative and analyzed the testing data to determine concurrent amylase and lipase testing rates, serial testing rates, and clinical service ordering patterns. The results showed that lipase represented the majority of tests obtained, with 58,693 lipase-only tests. Amylase accounted for 23 percent of the tests performed. However, the majority of the amylase tests were not needed because 86 percent of all amylase tests were performed in conjunction with lipase. Of interest, the majority of the ordering providers were adhering to the Choosing Wisely recommendations by ordering lipase alone. Clinical services with order sets containing both amylase and lipase were associated with higher rates of concurrent testing. The highest rate of lipase-only testing occurred in the emergency department, with much lower rates in ambulatory and inpatient settings. The mean number of unnecessary additional serial tests performed in a single hospitalization was 2.8 and 2.4 for amylase and lipase, respectively. The authors concluded that while most providers adhered to the guidelines, unnecessary testing occurred at all four institutions. The emergency department may have had the lowest amount of unnecessary lipase testing because clinical guidelines and evidence-based decision support algorithms may be more prevalent in this setting. Solutions to reduce the unnecessary ordering of concurrent amylase and lipase tests may include removing amylase from the order set and deploying electronic health record order alerts and targeted educational interventions to the providers or clinical services that order the highest numbers of unnecessary tests.

Ritter JP, Ghirimoldi FM, Manuel LSM, et al. Cost of unnecessary amylase and lipase testing at multiple academic health systems. *Am J Clin Pathol*. 2020;153:346–352.

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Laboratory blood-based testing for non-Lyme disease tick-borne infections

The most common tick-borne illness in the United States is Lyme disease, but tick-borne infections include a variety of bacterial, viral, and parasitic pathogens. Among the non-Lyme tick-borne illnesses (NLTBIs) are babesiosis, anaplasmosis, ehrlichiosis, Rocky Mountain spotted fever, tularemia, tick-borne relapsing fever, and Colorado tick fever. The CDC reported that cases of many NLTBIs increased significantly from 2004 to 2016. The increase may be due to more widely available and improved testing, better reporting, or a greater awareness of NLTBIs. The authors conducted a study in which they evaluated trends in NLTBI testing at a national reference

laboratory over a seven-year period. They analyzed at the state and national levels NLTBI disease testing data from Quest Diagnostics generated through polymerase chain reaction (PCR) and serological tests between 2010 and 2016. The authors found that testing and positivity for NLTBIs increased dramatically during this timespan. Even though testing for NLTBIs is largely seasonal, testing activity and positivity were observed throughout the year. However, a greater number of positive serological tests occurred in summer than winter. The authors observed a surge in testing volume among most NLTBIs, with an increase of at least twofold over the seven-year period. This trend was observed in positive cases of babesiosis (PCR only), anaplasmosis (PCR only), and tularemia (serology). However, the positivity rate over time was variable across all NLTBIs. Of importance, the numbers of positive results for NLTBIs observed in this study were higher than those reported to the CDC. This suggests that NLTBIs are underreported. The study also showed that positive results for NLTBI serological testing primarily came from specific states, which would suggest that the illnesses vary in geographical distribution. For example, babesiosis and anaplasmosis were found primarily in the populous Northeastern states of New York, Connecticut, Massachusetts, New Jersey, and Rhode Island and the upper Midwestern states of Minnesota and Wisconsin. The authors concluded that testing and positivity for NLTBI have increased significantly over a seven-year period. This report provides a complementary source of data for identifying trends in the spread of NLTBI and regions of concern. It may also heighten clinicians' index of suspicion for NLTBI, especially in states identified as having a high risk for spread.

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