

Clinical pathology selected abstracts

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Pathology residents as testing personnel in the hematology lab: developing entrustable professional activities

September 2022—Clinical laboratory workforce shortages are an issue, in large part because it is difficult to find qualified testing personnel. Pathology residents present a solution to this problem because MD and DO residents who have current training certificates or medical licenses and who are trainees in pathology or other specialties can qualify to perform high-complexity testing. The College of American Pathologists does not have special provisions regarding the postgraduate level required for physician trainees to conduct such testing, and there are no clear guidelines about which tests or activities those trainees can perform. The CAP's graduate medical education committee recently recognized entrustable professional activities (EPAs) of trainees as an important milestone in the education of future pathologists. EPAs are defined as tasks or responsibilities that unsupervised trainees can perform after demonstrating sufficient competence in that area. EPAs have the potential to not only improve resident education and training but to align the education accreditation requirements of residency programs with those of clinical laboratory regulatory agencies. The authors examined how implementing EPAs impacted the workflow of a busy hematology laboratory. They described the development of EPAs for peripheral blood and body fluid review that complied with Clinical Laboratory Improvement Amendments and CAP personnel and testing requirements. The training program incorporated education to allow residents to function as independent testing personnel. Residents participated in lectures and firsthand microscopy sessions and took quizzes and training assessment exams. They were then considered competent to issue results independently of a supervisor. The authors compared the volume and turnaround time of hematology tests before and after the residents were integrated into the workflow. Faculty and residents were surveyed to assess their satisfaction with the training and EPAs. The results of the authors' study showed that the residents were able to independently release noncritical results from peripheral blood and body fluid reviews with no adverse impact on turnaround time. Allowing residents to modify and release results significantly decreased the number of cases submitted for "Add Staff (Pathologist) Review." Furthermore, all residents passed the competency assessments at six and 12 months and at subsequent annual intervals. Faculty and staff considered the EPAs to be beneficial to the clinical service and further education of the resident. The authors concluded that implementing EPAs benefitted the laboratory workflow and the education of pathology trainees. Of note, the faculty played a critical role by developing the training materials and self-assessments and performing competency assessments after training. The attending pathologists indicated that the outcome was worth the additional time invested. This program may serve as a template for other residency programs interested in developing EPAs.

Cotta CV, Ondrejka SL, Nakashima MO, et al. Pathology residents as testing personnel in the hematology laboratory: developing entrustable professional activities. *Arch Pathol Lab Med*. 2022;146:894-992.

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Use of a troponin-enabled algorithm to manage chest pain in the emergency room

Early diagnosis of acute myocardial infarction involves assessing cardiac troponin I and T concentrations and clinical and electrocardiogram findings. High-sensitivity troponin T (hsTnT) assays can detect troponin concentrations at more than a 10-fold lower concentration than older assays. The sensitivity of hsTnT assays raises concern that the tests could increase the diagnosis of myocardial infarction among patients with falsely elevated troponin but without acute cardiac ischemia. This may lead to inappropriate treatment and additional potentially harmful procedures for low- to moderate-risk patients. The hsTnT assay is the most contemporary assay for

measuring TnT and allows the clinician to adopt a more accelerated diagnostic protocol to diagnose a suspected AMI. Very few studies have analyzed the impact of hsTnT protocols on outcomes and operations. The authors conducted a study to assess the use and performance of an hsTnT assay at a tertiary urban academic medical center with a diverse patient population. The study also described the operational impact of a phased transition to use of a fifth-generation hsTnT assay with a zero to one-hour (0/1h) AMI rule-out protocol. The authors compared the emergency department (ED) length of stay and 30-day outcomes (return to ED, inpatient admission, and mortality) for patients who presented with chest pain during two 208-day periods (study phases one and two) using a 0/1h hsTnT-enabled algorithm and a less sensitive fourth-generation cardiac TnT assay. The results showed that discharge, 30-day readmission, and 30-day mortality rates were not significantly different when comparing the fourth-generation TnT phase of the study to the hsTnT phase. However, 30-day return rates were significantly less in the hsTnT phase than in the fourth-generation TnT phase (17.4 versus 14.9 percent; $P < 0.01$, respectively). When TnT was measured at least twice prior to discharge, patients were released 61 minutes faster during the hsTnT phase than during the fourth-generation TnT phase. The median time between the first and second TnT results in the ED decreased by 82 minutes in the hsTnT phase, which suggested that the 0/1h protocol was not completely adopted. The authors concluded that the overall benefit of the hsTnT protocol is that it decreased 30-day return rates and decreased ED length of stay for a subset of patients. The data also suggest that there is further opportunity to reduce ED length of stay by adhering more strictly to the 0/1h rule-out protocol. This study demonstrates the potential patient care and cost-savings benefits of studying novel diagnostics in real-world settings.

Bevins NJ, Chae H, Hubbard JA, et al. Emergency department management of chest pain with a high-sensitivity troponin-enabled 0/1-hour rule-out algorithm. *Am J Clin Pathol*. 2022;157:774-780.

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