

service to histotechnology personnel biannually were also offered during “control” phase.

**Conclusion:** We have demonstrated successful methods for improving histology slide quality utilizing DMAIC principle of quality improvement by six sigma methodology DMAIC principle can be creatively adapted in laboratory practice management to enhance quality.

### A Retrospective Review of the Effect of COVID-19 Pandemic on Laboratory Utilization

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**Introduction/Objective:** We performed a retrospective analysis of test volumes in clinical pathology prior to and during the COVID-19 pandemic to better understand the impact of the pandemic on our laboratory utilization.

**Methods/Case Report:** The laboratory information system was queried for test order volume in 2019 and 2020 using Discern Analytics 2.0. Representative tests including C-reactive protein (CRP), D-dimer, fibrinogen, ferritin, lactate dehydrogenase (LDH), procalcitonin, prothrombin time (PT), point of care iSTAT blood gas analysis, ABO and Rhesus typing (ABORh), antibody screening, flow cytometry, and serum protein electrophoresis (SPEP). Data was analyzed using Microsoft Excel 2013.

**Results (if a Case Study enter NA):** The data showed an increase in the number of tests ordered and verified in the in-patient setting. The increase was most substantial for D-dimer, CRP and LDH with a percentage increase of approximately 200% on each test from year 2019 to 2020. An increase of 73% and 57% was noted for ferritin and fibrinogen respectively. A slight decrease in volume was noted for tests ordered in the out-patient setting including SPEPs during the pandemic. There was no significant change in the number of orders verified for point of care iSTAT blood gas testing between 2019 and 2020. Procalcitonin test volume increased steadily from its implementation in May 2020 with a steep rise in test volume in November and December. A total of 75,295 SARS-CoV-2 molecular tests were ordered between March and December 2020 with approximately 80% of the orders being performed as a send-out test.

**Conclusion:** The COVID-19 pandemic has had a substantial impact on laboratory utilization with significant volume increases in tests that guide the management of hospitalized COVID-19 patients and slight decrease in tests ordered mostly in the outpatient setting. These results may help guide current and future decisions relating to laboratory operations during pandemics.

### Utilization of Short Tandem Repeat Analysis to Resolve Specimen Mislabeling in the Anatomic Pathology Laboratory

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**Introduction/Objective:** A mislabeled specimen is an example of preanalytical error that can have significant consequences on patient care. These errors can be difficult to detect and resolve. One method to confirm genetic identity is short tandem repeat (STR) analysis, which is utilized in forensic investigations, paternity studies, and post-hematopoietic stem cell transplantation monitoring. Herein we present application of STR analysis to resolve a suspected specimen mislabeling prior to receipt in our anatomic pathology laboratory.

**Methods/Case Report:** DNA was extracted from paraffin embedded tissues. Chimerism testing was performed by STR analysis using the Globalfiler (ThermoFisher Scientific) and analyzed by Chimermarker (Softgenetics) automated chimerism software.

**Results (if a Case Study enter NA):** Colon biopsies were received for a single patient (#1) with two requisition forms. Each specimen (A-F) was labeled with the patient's name, with specimens A-D noted on first page of requisition and specimens E-F on the second requisition page. After the case was signed out, the lab was contacted looking for biopsy results on another patient (#2) who was seen on the same day as patient #1. Review of all the patients seen in the endoscopy suite on the given date raised suspicion that specimens E-F from the second page of the requisition actually pertained to patient #2. STR analysis performed on specimens confirmed that specimens E-F were genetically distinct from those labelled A-D. Tissue from a subsequent biopsy on patient #2 was analyzed by STR testing, which was identical to STR results performed on specimens E-F.

**Conclusion:** Here we utilized STR testing to resolve a suspected mislabeled specimen, allowing the appropriate diagnosis to be attributed to the correct patient. This is a unique application of a common method, which could be implemented in anatomic pathology laboratories to resolve cases of specimen mix-ups.

### MYOD1 c.365G>T, p.L122R Variant Detection by Droplet Digital PCR (ddPCR)

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**Introduction/Objective:** Rhabdomyosarcomas (RMS) are a group of skeletal muscle tumors that include embryonal, alveolar, pleomorphic, spindle cell/sclerosing subtypes