

Utilizing Proficiency Testing Survey Results in Forensic DNA Laboratories.

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External proficiency testing was clearly and forcefully chosen as one of the most important methods for QA/QC monitoring for DNA testing laboratories: the expanding use of external proficiency testing for the forensic and identity testing community and the greatly increased use of DNA analysis has created new issues not addressed in the original DAB standards. Proficiency Testing Survey Results (PTSR) have become a tool for measuring standard practice in Forensic DNA laboratories, a target for legal defense teams in trials that involve DNA evidence, a criteria for selecting and negotiating contracts for outsourcing DNA analysis and as a crude and incomplete monitor of the error rate in DNA testing laboratories. PTSR were originally conceived to capture the competency of the individual technologist who performed any analysis or laboratory test, particularly in clinical laboratories. Prior to the adoption of CLIA 88, clinical laboratories performing external proficiency tests (EPT) were not strictly monitored by an accreditation agency, and often EPT were used as a tool for training employees, rather than for testing competency and maintaining QA/QC standards.

Today, the perspective of EPT has changed, not only in clinical laboratories but also in forensic and identity testing laboratories. Accreditation agencies now strictly enforce the use of EPT: in order to remain accredited by agencies such as the American Society of Crime Laboratory Directors (ASCLD/LAB), the National Forensic Science Technology Center (NFSTC), the American Association of Blood Banks (AABB) and the New York State Dept. of Health (NYDOH), laboratories must submit regular internal audit and proficiency testing reports to the agencies themselves.

Monitoring of the external PTSR is dependent upon the rules, regulations and enforcement defined and set forth by individual accreditation agencies. Presently, clinical laboratory enforcement is much more strict than for forensic DNA laboratories. There are numerous examples of clinical laboratories that have lost accreditation, received reimbursement suspensions or had their license revoked, due to findings of non-conformance to PTSR standards. An analysis of the PTSR for forensic DNA laboratories reveals that the error rate from forensic DNA laboratories is much higher than for clinical laboratories. We are aware of no concomitant repercussions to DNA laboratories due to this fact.

Here we summarize the results of EPT from the College of American Pathologists (CAP) for Forensic DNA and Identity Testing from 1997-2003 and Collaborative Testing Service (CTS) from 2001-2003. The average percentage discrepancy reported among participant laboratories was 2.71% and 3.01%, respectively. This crude measure of the DNA analysis error rate clearly under-reports the true error rate for these laboratories. By theory, the error rate should be zero. Suggestions for better and more accurate quality monitoring are discussed. All participants in DNA analysis, including testing laboratories, lawyers, defendants and the public, can only benefit from improvements in DNA laboratory proficiency testing.