Forensic Science Proficiency Testing

Dean M. Gialamas

Director, Scientific Services Bureau

In the Beginning…

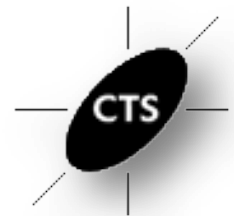- 1974 - The "birth" of forensic science proficiency testing
  - Law Enforcement Assistance Administration (LEAA) initiated a voluntary proficiency testing program
  - LEAA reported the results of the voluntary proficiency testing program and national headlines arose regarding serious concerns about quality work in the nation's crime labs

Community Response

- American Society of Crime Laboratory Directors (ASCLD)
  - 1974 - formed Committee on Laboratory Evaluation and Standards in response to the LEAA report
  - 1980 morphed into the Committee on Laboratory Accreditation
  - 1982 - formed the Laboratory Accreditation Board (ASCLD/LAB)
  - 1988 - ASCLD/LAB was incorporated as a separate non-profit accreditation organization

- Collaborative Testing Services (CTS)
  - 1974 - retained by the LEAA to assist in creating formalized forensic science proficiency tests
  - 1978 - CTS Forensics Program initiated in the consumer market

What is a Proficiency Test?

A proficiency test is an analytical test used to evaluate the technical competence of examiners, technical support personnel and the overall quality performance of a forensic science service provider.

Objectives of Proficiency Testing

- Proficiency testing helps forensic science service providers ensure that quality work is being delivered:
  - Demonstrates the on-going technical competence of (*i*) the laboratory and of (*ii*) individual analytical staff members;
  - Verifies and provides confidence that technical procedures are valid and applied appropriately;
  - Establishes the effectiveness and comparability of test or measurement methods;
  - Identifies inter-laboratory differences; and
  - Isolates areas where additional training or new methods may be beneficial.

What Proficiency Testing is NOT

- ## NOT a competency test
  - *A Competency Test is the final step in training and is an evaluation of an examiner's ability to perform work <u>prior</u> to independent casework*
- Results are NOT necessarily an approval or condemnation of a forensic science service providers ability to provide an overall quality work product

Methods of Proficiency Testing

- **Open** – A test in which the examiner is aware that the sample is a proficiency test.

- **Blind** - A test in which the examiner is unaware that the sample is a proficiency test.

- **Re-Examination** – A form of testing in which previously examined material is re-examined by a different examiner.

- **External** – A test created by, administered, and reported to an independent provider.

- **Internal** – A test administered and reported within the forensic science service provider; the test may be created internally or obtained from an external source.

Proficiency Testing Requirements

- No existing national standard or requirement for forensic science service providers to participate in proficiency testing
  - No authoritative bodies exist for approval of proficiency test providers
- Accredited laboratories MUST participate in proficiency testing:
  - External – each accredited discipline must participate in one external proficiency test annually
  - Internal – each examiner in an accredited laboratory must participate in one proficiency test annually for each discipline in which work is performed

Challenges for Proficiency Test Requirements

- What proficiency test programs exist?
- Are they suitable for all forensic science service providers?
- What proficiency test disciplines are currently offered? What needs to be added?
- Are proficiency tests standardized?
- Are proficiency test providers accredited (ISO 17043)?
- Are there standards for proficiency testing?
- What does a realistic cross-section of proficiency testing look like?
- Are blind proficiency tests necessary?

Consensus Among Community

Based on significant input from 33 individual and professional organization presentations along with the collective knowledge, experience, and discussion among 30 members of the forensic science stakeholder community over three years:

1. Implementation of robust and standardized proficiency testing programs using accredited test providers are needed.

2. Implementation is a first step that can be accomplished independent of accreditation or any other requirements.

Consensus – Forensic Science Service Providers

- Implement annual proficiency testing in each category of testing

- Ensure that each forensic science practitioner participates annually in a proficiency testing program

- Establish documented proficiency testing programs in policies and procedures

  - Address specialty or infrequent exams

  - Internal tests should be used when external are not available or feasible

Consensus – Accrediting Bodies

- Standardize proficiency test requirements
- Conduct an independent review and assessment of proficiency test results using subject matter experts
- Ensure that internal proficiency testing plans are developed and reviewed as part of the accreditation assessment
- Require forensic science service providers to include infrequent or specialty exams in proficiency testing programs
- Provide on-site evaluation of proficiency test providers which are seeking to be recognized as approved providers

Consensus – Proficiency Test Providers

- Seek phased-in compliance with ISO 17043 with three phases over seven years

  - Phase 1 – Conformance, years one to three
  - Phase 2 – Recognition, years three to five
  - Phase 3– Accreditation, years five to seven

- Develop a mechanism to capture and transmit test results in electronic formats to reduce transcription errors and increase capability for data collection and analysis

Existing and Future Issues to Consider

- If there is an increased proficiency test (PT) demand, it is unknown if current PT providers can meet it

- Costs associated with accreditation of PT providers may either (*i*) increase PT costs and cause a provider to discontinue services or (*ii*) decrease costs due to increased competitive demands

- If a forensic science service provider determines that PT testing is too expensive or time consuming, it may choose to discontinue examination services

- If no external PT is offered for a category of testing, forensic science service providers will bear added costs and time burdens in creating internal tests

Existing and Future Issues to Consider

- There may be additional burdens on forensic science service providers to authorize personnel to participate as subject matter experts in independent test reviews by accrediting bodies

- Knowledge of demographic information is beneficial; however, data can be misrepresented or misinterpreted and result in confusion for stakeholders or general public

- Investigation to determine whether PT's are sufficiently rigorous and representative of the challenges of actual forensic casework and their intended purpose may be difficult

- Standardization of how PT programs are implemented by forensic science service providers is needed

My Job ... Convert Science into English

Thank You!