NATIONAL COMMISSION ON FORENSIC SCIENCE

National Institute of Standards and Technology
U.S. Department of Commerce

Views of the Commission
Critical Steps to Accreditation

Subcommittee
Accreditation and Proficiency Testing

Date of Current Version	03/22/2016
Approved by Subcommittee	02/29/2016
Approved by Commission	03/22/2016

Commission Action

The Commission voted to adopt this Views Document on March 22, 2016, by a more than two-thirds majority vote (96% yes, 0% no, 4% abstain).

Note: This document reflects the views of the National Commission on Forensic Science, and does not necessarily represent the views of the Department of Justice or the National Institute of Standards and Technology. The portion of the document directly labeled "Views of The Commission" represents the formal Views of the Commission. Information beyond that section is provided for context. Views documents do not request specific action by the Attorney General, and thus do not require further action by the Department of Justice upon their approval by the Commission. The National Commission on Forensic Science is a Federal Advisory Committee established by the Department of Justice. For more information, please visit: https://www.justice.gov/ncfs.

Overview

A critical outcome of preparing for accreditation is the creation of a quality management system that is aligned with recognized technical and administrative requirements. To improve the quality and reliability of forensic work, a quality management system can be created as a whole or by using an incremental process. A significant challenge; however, is to engage FSSPs in embracing a culture of quality; not because it is required; but because it is best practice. Failure to recognize these challenges could negatively impact successful accreditation.

Views of the Commission

The National Commission on Forensic Science (NCFS) has previously adopted the policy recommendation on the Universal Accreditation of all Forensic Science Service Providers (FSSP)[1]. It is the view of the Commission that significant progress toward accreditation can be achieved by implementing the nine critical steps identified in this document and formalizing these steps with written policies and procedures.

[1] See Appendix A

Background Information

To improve the overall quality of forensic science, all FSSPs should be accredited. While significant progress has been made in the accreditation of public and private FSSPs; universal accreditation has not been realized.

Accreditation helps to ensure both ongoing compliance to industry standards and continual improvement of a FSSP's operations. Accreditation assesses a FSSP's capacity to generate and interpret results. Accreditation criteria are based on accepted industry standards and applicable international standards. Accreditation uses these criteria to assess the quality of the FSSP's management system by examining, among other things, staff competence, training and continuing education; method validation; appropriateness of test methods; traceability of measurements and calibrations to national standards; suitability, calibration and maintenance of test equipment; testing environment; documentation, sampling and handling of test items; and quality assurance of data including reporting results and proficiency tests.

The accreditation process can be daunting when looked at as a whole, but incremental steps towards changes or improvements can be implemented on the pathway to accreditation. Due to the amount of planning, training and implementation effort involved in establishing a quality system, it may be necessary to identify an individual responsible for quality assurance activities in order to make significant progress. There are several resources available to FSSPs that may be valuable tools during the process of preparing for accreditation. Training is offered by private companies and accreditation bodies on Quality Management activities and applicable international standards. Assistance may be available from other FSSPs, such as shared quality system documents, policies, and procedures. Several laboratory systems provide their quality system documents online or will share them upon request[2].

Critical Steps to Accreditation

As FSSPs prepare for accreditation; implementation of the following elements will improve the quality and reliability of forensic work. These elements do not have to be adopted in order, but are the first steps to improve quality. Although each element is a part of all forensic science accreditation programs in the United States, FSSPs should research accreditation programs as these programs vary.

1. Written procedures for evidence (security/control/handling)
    - Procedures should be required defining how evidence is identified, collected, preserved, stored, sealed, secured, labeled and maintained and how it is documented
    - Procedures should include how the evidence is transferred from person to person or acquired from storage area by a person and how transfers are documented to ensure accurate chain of custody records

2. Written reports
    - Written reports should be required for the results of all examinations performed
    - Reporting procedures should specify the required elements of a report that may

[2] See Appendix B

include but are not limited to report format, signature authority, and content

3. Technical and Administrative Review of reports and supporting records
    - Written procedures should include the scope of what is reviewed, the frequency of reviews, the qualifications of the reviewer and how reviews are documented
    - Written procedures should include case record security and retention

4. Testimony monitoring
    - Written procedures should include a process to assess testimony given in support of examinations and how that assessment is documented

5. Note-Taking
    - Written procedures should require contemporaneous notes that provide sufficient information to demonstrate what was done, when and by whom, test results and what conclusions were drawn, so that a competent analyst reviewing these notes should be able to reconstruct the entire testing process

6. Technical Procedures
    - Written technical procedures should specify the required elements of a procedure that may include but are not limited to case approach, sampling, sample preparation, methodology, quality control, instrument parameters and data interpretation
    - Written technical procedures should also include information regarding instrument and equipment maintenance and quality control of reagents
    - Written technical procedures should be based on method validation

7. Training program
    - A written training manual should include the goals and objectives, material covered, mechanism(s) for assessment, and how the training is documented
    - Prior to working independently in a discipline or category of testing, a competency test should be used as a mechanism of assessment of qualification
    - Prior to offering testimony, legal/courtroom training and/or a moot court exercise should be completed and documented
    - Training topics should include professional responsibility

8. Proficiency testing
    - Written procedures that require proficiency testing for all forensic science practitioners and sets the frequency of testing

9. Corrective and Preventive Action Process
    - Written procedures should be in place to address non-conforming work
    - Written procedures should designate appropriate authorities to investigate non-conforming work and explain how the root cause(s) of the problem(s) will be determined
    - Written procedures should describe how the corrective action process will address non-conforming work, prevent its recurrence, establish notification requirements, and how the investigation will be documented

[3] The written procedures developed for the elements above, when taken together, can form the foundation for a FSSP's "Quality Manual." A Quality Manual, however named, governs the policies and procedures of the FSSP.

These nine essential elements represent a critical path leading toward accreditation, which improves compliance with industry best practices, promotes standardization and improves the quality of services provided. Also, a stepwise approach will assist in engaging forensic science service practitioners in a culture of continuous quality improvement. Other important accreditation elements, such as internal audits and document control, can be found in international standards and accreditation materials and can be undertaken over time, building on the steps above.

[3] See National Commission on *Forensic Science Directive Recommendation: Root Cause Analysis (RCA) in Forensic Science*

Appendix A: Examples of Forensic Science Service Providers

The Commission has previously defined the following terms[4]:

> **FORENSIC SCIENCE SERVICE PROVIDER** – A forensic science agency or forensic science practitioner providing forensic science services.
>
> **FORENSIC SCIENCE AGENCY** – An organization in the public or private sector that employs forensic science practitioners and issues reports prepared by forensic science practitioners.
>
> **FORENSIC SCIENCE PRACTITIONER** – An individual who (1) applies scientific or technical practices to the recognition, collection, analysis, or interpretation of evidence for criminal and civil law or regulatory issues AND (2) issues test results, provides reports, or provides interpretations, conclusions, or opinions through testimony with respect to such evidence.

Providers who render opinions based only on the review of data from examinations conducted by other entities or on the review of procedures, tests or methods used by other entities would not be included. This document does not address Forensic Medicine Service Providers.

Examples of functions that would be included are below, whether in public or private practice. The list is not inclusive of all FSSPs.

1. Crime scene (e.g., Blood pattern analysis, Fire investigation, Crime scene reconstruction)
2. Identification examinations (e.g., Latent Prints, Ten Prints, Tire impressions)
3. Document examinations
4. Firearms/Ballistics examinations
5. Toolmark examinations
6. Digital and Multimedia examinations
7. Drug or chemical identifications
8. Biological examinations
9. Trace Evidence examinations

Examples of functions that would be excluded are below, whether in public or private practice. The list is not inclusive of all functions that would be excluded.

1. Opinions/evaluations of the appropriateness or use of a particular statistical, probabilistic or mathematical statement or error rate calculations
2. Opinions/evaluations of the validity or reliability of a forensic science discipline, method or technique
3. Opinions/evaluations of the validity or reliability of research supporting a forensic science discipline, method or technique
4. Opinions/evaluations of results, methods, or techniques used in a forensic examination
5. Examinations for which there is no forensic science accreditation program

[4] National Commission on Forensic Science *Views Document on Definitions*

Appendix B: Additional Resources

B.1 International Standards (Standards are available for purchase from various sources online):

ISO/IEC 17020:2012 - *Conformity assessment -- Requirements for the operation of various types of bodies performing inspection*

ISO/IEC 17025:2005 - *General requirements for the competence of testing and calibration laboratories*

ISO 15189:2012 - *Medical laboratories -- Requirements for quality and competence*

B.2 Examples of Forensic Science Service Provider Online Quality Manuals (not all inclusive):

Arkansas State Crime Laboratory
www.crimelab.arkansas.gov/resources/pages/qualityManuals.aspx

District of Columbia Department of Forensic Science
http://dfs.dc.gov/page/open-government-and-foia-dfs

Idaho State Police Forensic Services
http://www.isp.idaho.gov/forensics/

Virginia Department of Forensic Science
http://www.dfs.virginia.gov/documentation- publications/manuals/