

# NIST Organization of Scientific Area Committees

April 11, 2014

## Background:

On February 4, 2014, the National Institute of Standards and Technology (NIST) announced the formation of the Organization of Scientific Area Committees (OSAC). The OSAC will be a collaborative body of more than 600 forensic science practitioners and other experts who represent all levels of the government, academia and industry.

NIST is establishing OSAC to strengthen the nation's use of forensic science by supporting the development and promulgation of forensic science consensus documentary standards and guidelines, determining each forensic discipline's research and measurement standards needs and ensuring that a sufficient scientific basis exists for each discipline.

To view the OSAC organizational chart, please visit  
[www.nist.gov/forensics/upload/orgchart3-18-14-new.pdf](http://www.nist.gov/forensics/upload/orgchart3-18-14-new.pdf)

To view a 2-page summary of the OSAC, please visit  
[www.nist.gov/forensics/upload/OSACsummary3-18-14.pdf](http://www.nist.gov/forensics/upload/OSACsummary3-18-14.pdf)

## Objective:

To create a sustainable organizational infrastructure that produces consensus documentary standards and guidelines to improve quality and consistency of work in the forensic science community.

## Overview of Structure:

### Summary

The OSAC will consist of five Scientific Area Committees (SACs) that report to a Forensic Science Standards Board (FSSB). Each of the five SACs has discipline-specific subcommittees. The five SACs are (1) Biology/DNA, (2) Chemistry/Instrumental Analysis, (3) Crime Scene/Death Investigation, (4) Information Technology/Multimedia, and (5) Physics/Pattern. A Human Factors Committee, Legal Resource Committee and Quality Infrastructure Committee will provide input to the FSSB, SACs and SAC Subcommittees on standards and guidelines being developed within the OSAC infrastructure and be responsible for specific duties in their resource committee content area.

### Forensic Science Standards Board

The Forensic Science Standards Board establishes the governance rules to ensure quality standards and guidelines are developed and to encourage their use in the provision of forensic science services, administers overall operation of the organization, approves all standards for inclusion in the OSAC Registry of Approved Standards, updates and disseminates the list of approved standards and guidelines, resolves disputes and appeals on developed standards and guidelines, and engages in international developments relevant to forensic science quality standards.

### Resource/Support Committees

The Resource/Support Committees play a critical support role for the entire OSAC by providing their expertise during reviews and development of standards within the OSAC. The Human Factors Committee will provide guidance on the influence of systems design on human performance and on ways to minimize cognitive and confirmation bias and mitigate errors in complex tasks. The Legal Resource Committee reviews and provides a legal perspective on standards within the OSAC and is responsible for adopting and updating a Professional Code of Ethics. The Quality Infrastructure Committee is responsible for assembling and updating the Forensic Science Code of Practice, which provides minimum requirements for discipline-specific needs in accreditation, competencies of practitioners, processes for validation and approving new technologies, and performance standards for tools and equipment. The Quality Infrastructure Committee also provides guidance on quality issues throughout the OSAC and will interface with standards development organizations as needed.

### Scientific Area Committees and Subcommittees

Scientific Area Committees approve standards and guidelines identified by the subcommittees and provide coordination when standards and guidelines span multiple disciplines. SACs may identify and/or develop standards and guidelines that affect the entire scientific area.

The SACs and subcommittees will identify standards, test methods and requirements for lab accreditation appropriate to the scientific area and discipline. The SACs and subcommittees can identify standards and guidelines developed by other organizations, can catalyze the development of needed standards and guidelines, or can create new standards and guidelines themselves. The SAC grants final approval of a guideline. Final approval of a standard is granted by the FSSB after approval by the SAC.

OSAC-approved standards will make up the OASC Registry of Approved Standards. OSAC-approved guidelines will make up the OSAC Registry of Approved Guidelines. The registries will be freely available.

## **Organizational Authorities & Duties**

### Overview

The material below provides additional details describing the anticipated authority and duties of each board, committee and subcommittee listed on the OSAC organizational chart. The authority and duties of each component will be reviewed and approved/amended by the FSSB to produce the final responsibilities of each board, committee and subcommittee. Please note that for brevity, the term “standard” is used to describe both “standards and guidelines” in the materials below, except when specifically noted.

### **Forensic Science Standards Board**

#### **Authority:**

1. Provides oversight for all SAC and subcommittee operations
2. Provides oversight for all resource committees (human factors, legal resource and quality infrastructure committees)

#### **Duties:**

1. Reviews the processes employed by the SACs to develop and implement quality standards
2. Supports the work of SACs and subcommittees by providing advice and assistance with the production of standards
3. Reviews standards submitted by the SACs
  - a. Ensures appropriate processes have been followed and that the standards are consistent in format and approach
  - b. Examines documentation provided by SACs about the technical merit and process used to identify or develop standards
  - c. Ensures legal issues, quality infrastructure and human factors are considered
4. Provides final approval of standards for inclusion in the OSAC Registry of Approved Standards
5. Ensures that standards identified by a SAC that may affect another SAC or subcommittee are vetted by that component and are not conflicting
6. Publishes approved standards in the OSAC Registry of Approved Standards and approved guidelines in the OSAC Registry of Approved Guidelines
7. Manages the appeals process for unresolved comment adjudication and membership matters
8. Manages SACs and subcommittees
  - a. Ensures communication flow among SACs, the Forensic Science Standards Board and the forensic science community
  - b. Provides oversight for overall SAC and subcommittee operations
  - c. Establishes criteria and processes to create, merge or abolish SACs and subcommittees, as needed
  - d. Establishes a process for nomination and selection of members for the FSSB (including the chairperson), legal resource, quality infrastructure

- and human factors committees, SACs and subcommittees after initial launch
- e. Develops and updates balance requirements and other membership rules and processes, including the length of membership terms and possible creation of term limits
- f. Develops rules for committee and subcommittee participation, including responsibilities of participants, chairs, etc.
- g. Reads and accepts SAC meeting reports
- 9. Ensures timely public posting of all SAC and FSSB meeting agendas and proposed standards and guidelines under consideration by the SACs

#### Membership and Leadership:

The FSSB membership shall represent a balance of interests where no single interest dominates. The FSSB includes 17 voting members:

1. Five SAC chairs
2. Six representatives of professional forensic science associations including the American Academy of Forensic Sciences, the Association of Firearm and Tool Mark Examiners, American Society of Crime Laboratory Directors, International Association for Identification, the National Association of Medical Examiners and the Society of Forensic Toxicologists
3. Five members-at-large from the research and measurement science communities
4. One NIST ex-officio member who votes only if there is a tie vote

The FSSB Chair shall perform the following duties:

1. Provides leadership to the FSSB and presides over meetings
2. Appoints FSSB task group chairs and task group members
3. Communicates to the resource committees and SACs regularly about FSSB decisions and actions
4. Serves as a liaison to NIST regarding OSAC operations

A NIST-DOJ membership committee will select the initial FSSB members and chair.

#### **Human Factors Committee**

##### Authority:

Provides input throughout the OSAC on issues related to human factors

##### Duties:

1. Provides guidance on the influence of systems design on human performance and ways to minimize cognitive and confirmation bias and mitigate errors in complex tasks
  - a. Verification procedures (administrative, technical review)

- b. Blinding processes
  - c. Root cause analysis strategies
- 2. Develops case notes templates
- 3. Develops report templates
- 4. Prepares human impact statements for draft standards submitted for review, if appropriate
  - a. Level of subjectivity in the decision making
  - b. Identify tasks that are error magnets
  - c. Cognitive load
  - d. Error identification/mitigation
- 5. Closely reviews standards related to expert testimony
- 6. Works with relevant SACs and subcommittees on discipline specific human factors issues (e.g. determining domain irrelevant information)

#### Membership and Leadership:

The Human Factors Committee will consist of up to ten members possessing expertise in psychology, quality systems management and usability.

The Human Factors Committee Chair shall perform the following duties:

- 1. Provides leadership and presides over meetings.
- 2. Appoints task group chairs and task group members as needed

A NIST-DOJ membership committee will select the initial Human Factors Committee members and chair.

#### **Legal Resource Committee**

##### Authority:

Provide input throughout the OSAC on legal issues related to standards

##### Duties:

- 1. Provides guidance about the legal ramifications of forensic science standards; specific items will include the meaningful presentation of forensic science results to the legal system
- 2. Participates and consults with SACs or subcommittees as needed to address legal issues
- 3. Observes work in progress to identify areas with legal ramifications
- 4. Reviews and provides legal perspective relative to standards and guidelines submitted to SACs and/or FSSB for approval including impact of expert testimony and admissibility issues
- 5. Provides guidance to subcommittees on the development of standards (e.g. admissibility review, potential Brady issues)
- 6. Adopts a Professional Code of Ethical Conduct for the presentation of scientific evidence

7. Evaluates conflict of interest of FSSB, SAC and subcommittee members and makes recommendations to the FSSB
8. Communicates and liaises with the legal community and related professional organizations

**Membership and Leadership:**

The Legal Resource Committee will consist of up to ten members representing the legal community, i.e. judges, lawyers (prosecution and defense) and other experts.

The Legal Resource Committee Chair shall perform the following duties:

1. Provide leadership and preside over meetings
2. Appoint task group chairs and task group members as needed.

A NIST-DOJ membership committee will select the initial Legal Resource Committee members and chair.

**Quality Infrastructure Committee**

**Authority:**

1. Provides input throughout the OSAC on quality issues related to standards
2. Provides impact statements for forensic science laboratory management consideration
3. Interacts with standards developing organizations

**Duties:**

1. Assembles and updates the Forensic Science Code of Practice. This document defines minimum requirements with due regard for discipline-specific needs, for
  - a. standards used in providing forensic science services
  - b. accreditation of those supplying forensic science services
  - c. competencies of forensic science practitioners
  - d. processes and procedures for validating and approving new technologies and applications in the field of forensic science
  - e. performance standards for tools and instruments
  - f. reporting and expert testimony requirements
2. Liaises with relevant accrediting bodies
3. Develops terminology standard(s) for terms that apply across forensic sciences
4. Reviews standards and guidelines to ensure that the guidance in the Forensic Science Code of Practice is followed
5. Maintains the Forensic Science Code of Practice, OSAC Registry of Approved Standards and OSAC Registry of Approved Guidelines
6. Creates and validates the template for all new OSAC standards
7. Works with SAC subcommittees to complete the discipline-specific competency guidelines outlined in the Forensic Science Code of Practice

8. Liaises with certification bodies to incorporate discipline-specific competency standards into certification programs
9. Generates impact statements and mitigation strategies for forensic science laboratory management to consider when implementing standards
10. Maintains a catalog of proficiency tests and liaises with proficiency test providers
11. Generates a list of proficiency testing needs by performing a gap analysis
12. Maintains the glossary of standard forensic science terms

**Membership and Leadership:**

The Quality Infrastructure Committee will consist of up to fifteen members including accreditation and certification specialists, quality system managers, forensic science practitioners, forensic science laboratory directors and NIST standards experts.

The Quality Infrastructure Committee Chair shall perform the following duties:

1. Provides leadership and presides over meetings
2. Appoints task group chairs and task group members as needed

A NIST-DOJ membership committee will select the initial Quality Infrastructure Committee members and chair.

**Scientific Area Committees**

**Authority:**

1. Provide direction and oversight for the work performed by subcommittees
2. Interface with resource committees on human factors, legal and quality issues
3. Communicate activities and progress of SACs and subcommittees to the FSSB
4. Communicate activities and recommendations of FSSB to subcommittees
5. Coordinate posting of documents and communications from SACs on the OSAC website

**Duties:**

1. Approve standards:
  - a. Receive draft standards identified or developed by subcommittees and ensure appropriate processes have been followed and that standards are consistent in format and approach
    - i. Examine evidence provided by subcommittees of the technical merit of the standards
    - ii. Review the processes employed by the subcommittee to develop standards
    - iii. Review standards prepared by the subcommittees for proper formatting
  - b. Post draft standards externally for open public comment for the appropriate period
  - c. Forward public comments to subcommittees for adjudication

- d. Approve and forward standards (not guidelines) to the FSSB to consider for approval and listing in the OSAC Registry of Approved Standards
- e. Approve guidelines (not standards) for listing in the OSAC Registry of Approved Guidelines
- f. Support the work of other SACs and subcommittees by providing advice and assistance with regard to the production of standards
- g. Ensure that standards identified by a subcommittee that may affect another area are vetted by the other subcommittees and are not conflicting
2. Coordinate the development of research priorities with subcommittees
3. Recommend the creation, merger or abolishment of subcommittees
4. Train individuals on the standards development process, OSAC procedures, etc.
5. Ensure SAC meeting minutes are recorded and distributed
6. Provide a quarterly report to the FSSB on activities and accomplishments

#### Membership and Leadership:

The membership for each SAC shall represent a balance of interests where no single interest dominates. Each SAC will have a maximum of fifteen members.

1. Subcommittee chairs
2. Representatives of professional forensic science organizations appropriate to the scientific area, e.g., National Association of Medical Examiners, International Association for Identification, the Association of Firearm and Tool Mark Examiners, and the American Academy of Forensic Sciences and/or other organizations (Note: Members in this category will be selected based on merit and then designated to serve as liaisons to specific professional forensic science organizations to which they are affiliated.)
3. Researchers and measurement scientists

SAC Chairs shall perform the following duties:

1. Provide leadership and preside over meetings
2. Serve as a member of the FSSB and attend all FSSB meetings
3. Appoint task group chairs and task group members as needed
4. Communicate to subcommittee membership and to FSSB regularly about recommendations and issues
5. Ensure that all SAC meeting agendas, meeting minutes and proposed standards and guidelines are publicly posted in a timely fashion in compliance with OSAC operating procedures

A NIST-DOJ membership committee will select the initial SAC members and chairs.

Note: Due to anticipated workload requirements, a SAC chair cannot be a subcommittee chair.



Meetings will be open to the public.

### **Subcommittees**

#### **Authority:**

1. Develop and vet formal documents to be submitted for approval through SAC and FSSB
2. Interface with resources committees on human factors, legal and quality issues
3. Communicate activities, progress and issues to SAC
4. Manage subcommittee task groups to accomplish objectives of subcommittee

#### **Duties:**

1. Develop and vet standards for
  - a. Techniques and protocols for performing forensic science services
  - b. Processes and procedures for validation and approving new technologies and applications
  - c. Test methods and test materials
  - d. Terminology
  - e. Training, curriculum and continuing education
  - f. Report formats including interpretation and wording of conclusionsNote: Standards will be included in the OSAC Registry of Approved Standards, and guidelines will be included in the OSAC Registry of Approved Guidelines.
2. Work with Quality Infrastructure Committee to define Forensic Science Code of Practice
  - a. Requirements for lab accreditation for each scientific area or discipline based on approved OSAC standards
  - b. Requirements for inspection of crime scene processing
  - c. Requirements for personnel competencies and certification
3. Develop research priorities for the subcommittee
4. Coordinate the transition of existing SWG documents into approved standards or guidelines
5. Ensure meeting minutes are recorded and distributed among subcommittee members
6. Provide a semiannual report to SAC and FSSB on activities and accomplishments

#### **Membership and Leadership:**

A critical factor in identifying or developing quality standards is to have members with technical expertise and a balance of interests. Each subcommittee shall represent a balance of interests where no single interest dominates. Each subcommittee shall consist of a maximum of twenty members. The target distribution of membership is as follows:

1. 70 percent practitioners

- a. 20 percent federal practitioners
  - b. 30 percent state and local practitioners
  - c. 20 percent civil and other practitioners
2. 20 percent researchers and scientists which may include statisticians, measurement scientists, and accreditation and certification specialists
3. 10 percent research and development technology partners and providers

Subcommittees may also invite up to five guests as needed upon approval by the SAC Chair. During the initial formation of each subcommittee, the SAC will provide input to determine the proper balance of types of members to address the unique nature of each forensic science discipline represented by a subcommittee.

In the OSAC, a forensic practitioner is defined as an individual actively doing or managing casework.

Subcommittee Chairs shall perform the following duties:

1. Provide leadership and preside over meetings
2. Serve as members of and attend all meetings of the SAC to which they report
3. Appoint task group chairs and task group members as needed
4. Communicate to subcommittee membership and to SAC regularly about activities, progress, recommendations and issues

Note: Due to anticipated workload requirements, a subcommittee chair cannot also be a SAC chair.

Subcommittee selection process:

1. Applicant will identify a desired subcommittee in the application form on the NIST forensic science website
2. SACs will review and select rosters for each of their subcommittees that best meet the individual subcommittee's requirements
3. SACs will present rosters for their subcommittees as a package to the FSSB for approval
4. FSSB-approved inaugural roster will be submitted to the NIST/DOJ selection committee for review/concurrence

Meetings will not be open to the public.

### **Scientific Area Committee Subcommittee Discipline Definitions:**

#### SAC Biology/DNA

**DNA Analysis 1:** forensic DNA laboratory methodology

**DNA Analysis 2:** forensic DNA laboratory interpretation

**Wildlife Forensics:** application of a range of scientific disciplines to legal cases involving non-human biological evidence. These disciplines include genetics, morphology, chemistry, pathology, anthropology, and veterinary sciences.

#### SAC Chemistry/Instrumental Analysis

**Controlled Substances:** examination of evidence to identify drugs, either prescription drugs such as Valium or illegal drugs such as cocaine. Evidence examples include those substances prior to ingestion and might include plant material, powder, drug paraphernalia, tablets and pills or evidence items suspected of bearing traces of drugs.

**Fire Debris and Explosives:** examination and testing of items and debris collected from a fire or bombing scene. Testing of materials to determine if an accelerant or explosive substance is or was present, which can help investigators determine whether a fire was deliberately set or the type of explosives used.

**Geological Materials:** examination of trace evidence found in soil or with botanical origins.

**Gun Shot Residue:** analyses of evidence that results from the deposition of or physical transfer of small or minute quantities of gunshot residue.

**Materials (Trace):** examination of physical evidence that results from the physical transfer of small or minute quantities of materials (e.g., hair, textile fibers, paint chips, tape, glass fragments). This category of evidence encompasses many diverse types of microscopic materials as well as some examples that are easily visible to the naked eye.

**Toxicology:** examination of body fluids or tissues for the presence and quantity of substances such as drugs or poisons in ante- or postmortem casework. Evidence examples include those substances and metabolites following ingestion and might include physiological specimens such as blood, urine, hair, teeth, bone, spinal fluid, and organ and muscle tissue.

#### SAC Crime Scene/Death Investigation

**Anthropology:** application of anthropological methods and theory – particularly those relating to the recovery and analysis of human remains – to resolve legal matters.

**Disaster Victim Identification:** fatality management of a mass fatality incident that involves the scientific identification of human remains.

**Dogs and Sensors:** improvement of the consistency and performance of deployed dog/handler teams and optimization of their combination with electronic detection devices designed to improve interdiction efforts as well as courtroom acceptance.

**Fire Scene and Explosives:** investigation, analysis and interpretation of crime scenes where arson or use of explosives is suspected.

**Medical/Legal Death Investigation:** investigation of sudden, unnatural, unexplained or suspicious deaths, including homicides, suicides, unintentional fatal injuries, drug-related deaths and other deaths that are sudden or unexpected; determination of the cause and manner of death. In many jurisdictions, responsibility for conducting death investigations may rest with pathologists, medical examiners or coroners.

**Odontology:** application of dental science to the identification of unknown human remains and bite marks, using both physical and biological dental evidence.

#### SAC Information Technology/Multimedia

**Facial Identification:** image-based comparisons of human facial features.

**Imaging Technologies:** application of technologies and systems to capture, store, process, analyze, transmit, produce and archive images.

**Speaker Recognition:** application of methods and technologies to determine whether a vocal recording discovered as evidence matches the voice of a suspect. Encompasses voice data collection, measurement, transmission and retrieval.

#### SAC Physics/Pattern

**Bloodstain Pattern Analysis:** examination and analysis of the trajectory, shape and size of stains left by bloodshed or transferred at a crime scene. Bloodstain patterns can yield valuable information for reconstruction of the incident.

**Friction Ridge:** forensic examination of fingerprints, palm prints and footprints made through impressions.

**Firearms and Tool marks:** determination of whether an evidence bullet was fired from a suspect weapon. It may also include comparison of fired cartridge cases, firearm function tests, serial number restorations and distance determinations. Tool marks left at a crime scene or on a victim by various types of implements (e.g., knives, screwdrivers, pliers) can be microscopically compared to test marks made in the laboratory by suspect tools.

**Footwear and Tire Tread:** forensic examination of footwear and tire impression evidence.

**Questioned Documents:** examination, comparison and analyses of documents to establish genuineness, expose forgery, or reveal alterations. A questioned document contains a signature, handwriting, typewriting, mechanical printing or other mark whose source or authenticity is in dispute or doubtful. Letters, checks, driver licenses, contracts, wills, voter registrations, passports, petitions, threatening letters, suicide notes, historical documents and lottery tickets are common types of questioned documents.

## **How to Apply for Membership**

Applicants must complete and submit an online application form on the NIST forensic science website. The form allows applicants to select a first- and second-choice committee or subcommittee of interest. The application form is available at [www.nist.gov/forensics/osac-application.cfm](http://www.nist.gov/forensics/osac-application.cfm).

NIST will accept applications for committees and subcommittees until 11:59 PM EDT, Sunday, May 11, 2014.

NIST anticipates needing nearly 600 people in the OSAC organization:

- Forensic Science Standards Board members (17, including the 5 SAC chairs)
- 3 resource committees (about 35 people)
- 5 scientific area committees (about 75 people)
- 23 subcommittees (about 460 people)

### **Membership Roles**

- SAC Chairs will sit on the Forensic Science Standards Board
- Subcommittee chairs sit on their relevant SACs
- SAC chairs cannot be subcommittee chairs

## **Membership Commitment Requirements**

All positions on the OSAC will be staggered 3-year terms with the initial members serving 2-, 3- and 4-year terms. It is anticipated that the FSSB, resource committees, SACs and subcommittees will conduct business using both in-person and virtual meetings. The FSSB, SACs and subcommittees will conduct at least one in-person meeting per year. NIST will pay travel, lodging and per diem expenses for members.

Virtual meetings will occur periodically to accomplish the objectives of all committees and subcommittees and are expected to require a total of 5 days or less throughout the

year. Other time commitments include reviewing and editing documents on a periodic basis.

### **Planned Selection and Implementation Timeline**

NIST will open the initial online applications process on April 11, 2014. The online membership application will be open for 30 days. The application process will close at 11:59 PM EDT, Sunday, May 11, 2014. Applicants will be notified about the outcome of the selection process. The target notification timeline is:

- Scientific Area Committee applicants – June 2014
- Resource committee applicants – June 2014
- Subcommittee applicants – September 2014

Tentative in-person meeting schedule for selected members is as follows:

- First in-person FSSB Meeting – June 2014
- First in-person SAC meetings – Late August or September 2014
- First in-person meeting of entire OSAC – mid-November 2014

Virtual meetings and virtual training will be held prior to in-person meetings to ensure members are knowledgeable of their duties and OSAC processes.

Please visit the OSAC website at <http://www.nist.gov/forensics/osac.cfm> for the latest updates.