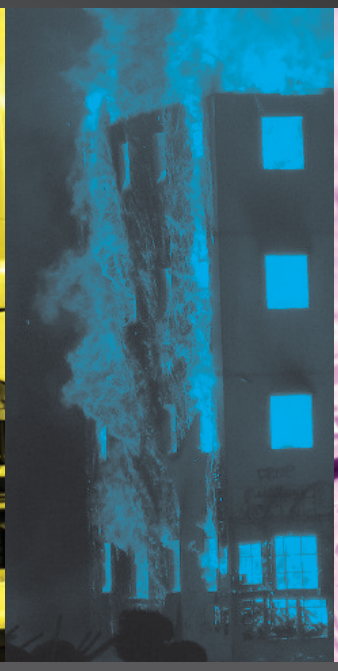
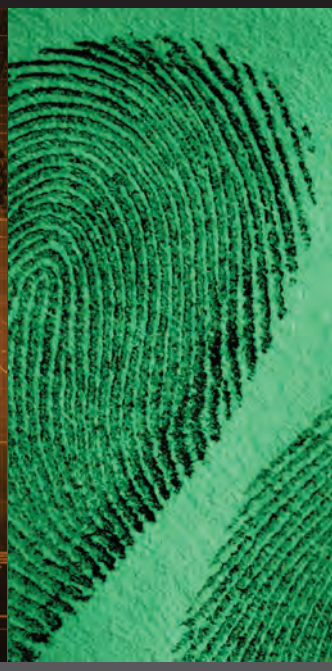
February 2015 - February 2016

# ANNUAL REPORT

Organization of OSAC Scientific Area Committees for FORENSIC SCIENCE

## Letter from the Director of the National Institute of Standards and Technology (NIST)


Dr. Willie E. May

Two years ago NIST and OSAC began an effort to develop standards that would strengthen the practice of forensic science in the United States and around the world. OSAC members represent a remarkably broad array of stakeholders from the forensic science, legal, law enforcement, and research communities. Assembling leaders from these diverse disciplines and achieving consensus toward shared goals requires great perseverance. This effort is critical to the future of the criminal justice system and of the nation. Participating in this process is an honor I am proud to share with this community of more than 500 committee members.

The first year of OSAC's existence was spent on the preliminary work of identifying members, organizing committees, and developing rules. The second year—the year covered in this report—was when the real work of improving standards began.

Given the number and diversity of people involved, and the need to achieve consensus, it is not surprising that OSAC experienced some growing pains during this year. I believe that the lessons learned and the procedural changes implemented have made OSAC a stronger organization and have paved a smoother path for the standards now moving toward approval.

I thank all of you who have volunteered your time, energy, talents, and insights to this effort. I also thank the many federal, state, and local government agencies, academic institutions, and criminal justice organizations that support the OSAC mission by authorizing their staff to participate. These contributions demonstrate that, within the forensic and criminal justice communities, science-based standards have deep and broad support.

As we continue our work, it is easy to get caught up in the day-to-day details of organizational guidelines and processes. So it's worth taking a moment, before you turn to the next page of this report, to reflect on the bigger picture.

Today OSAC's mission is more important than ever, as debates about fairness and equality in the criminal justice system reach new levels of intensity. These debates, unfortunately, are proving divisive. But science, by virtue of its objective ideals, can be a unifying force. Transparent, science-based standards can help ensure that all victims have access to justice and all accused are treated fairly. Such standards are important steps on the road to a more just society, one that is class- and color blind.

As members of OSAC, you are providing essential leadership that our citizens need. I ask you to stay the course, to continue this difficult but valuable work, and to remember how important your success is to the future of our nation.

Thank you.
Dr. Willie E. May

## Message from the Director of OSAC Affairs

Dear Colleagues,

We are living in transformative times in the world of forensic science. The Organization of Scientific Area Committees for Forensic Science (OSAC) is playing a pivotal role in that transformation by helping to create high-quality, consensus-based forensic science standards that are fit-for-purpose and scientifically sound. The potential benefits to the criminal justice system are monumental.

The 2009 National Research Council (NRC) Report, *Strengthening Forensic Science in the United States—A Path Forward*, led the current administration to form, that same year, the Subcommittee on Forensic Science (SoFS) under the White House Office of Science and Technology Policy (OSTP). This subcommittee convened nearly 200 forensic science practitioners, crime laboratory managers, researchers and attorneys from federal, state, and local agencies to address the 13 recommendations in the NRC Report. As a consequence of subcommittee deliberations, the National Institute of Standards and Technology (NIST) and the U.S. Department of Justice (DOJ) entered into a Memorandum of Understanding (MOU) in March 2013 that focused on providing national leadership to improve the quality of forensic science.

The NIST–DOJ MOU led to the establishment of the National Commission on Forensic Science (NCFS) to study forensic science policy issues and the OSAC to facilitate the creation of high-quality standards in order to strengthen the practice of forensic science.

In its first full year of operation, OSAC has succeeded in forming the first-of-its-kind professional forensic science organization dedicated to facilitating the creation or strengthening of standards and guidelines across the entire spectrum of forensic science disciplines. OSAC consists of more than 540 members and hundreds of affiliates who have volunteered tens of thousands of hours to deliberate over more than 150 current standards and guidelines. OSAC enjoys unparalleled diversity in this new endeavor, which incorporates a full universe of stakeholders, including practitioners and laboratory managers, academic researchers, metrologists, statisticians, human factors experts, accreditation and standards development experts, judges, and attorneys. By tapping into a well-balanced proportion of representatives from federal, state, and local agencies and from the academic and private sector communities, OSAC has assembled members from 49 states and guests from more than a dozen countries to bring together the thought leaders recognized nationally and internationally for their experience and expertise.

Without the actual adoption of standards into practice, there can be no measurable benefits or positive impacts on the criminal justice system. Therefore, the mission of OSAC also includes facilitating the implementation of the standards and guidelines that will be posted on the OSAC Registries. Fortunately, there are a number of actors and institutions that would encourage forensic science service providers to adopt and put into practice OSAC standards and guidelines. These include, among others:

- Crime laboratories and other forensic science service providers, which can decide on their own to incorporate OSAC standards into standard operating procedures.
- Professional associations, which can issue policy statements encouraging adoption
- The courts, where attorneys may begin demanding that forensic testing be done in accordance with standards on the OSAC Registry
- Accrediting bodies, which can issue standards such as International Organization for Standardization (ISO) 17025/20 supplemental standards or checklists
- Funding bodies, which can both offer incentives to implement standards (the carrot) and can require OSAC standards implementation to access funding (the stick).

I would like to express my gratitude to all of the OSAC members and affiliates who have contributed so much time and passion to this new undertaking. In the coming year, we hope to smooth the bumps in the road we experienced during our inaugural year of operations, to begin populating the OSAC Registries with high-quality standards, and to facilitate the implementation of those standards into the practice of forensic science.

Sincerely,

Mark D. Stolorow
Director for OSAC Affairs at NIST

## Message from the Forensic Science Standards Board

In the opinion of the Forensic Science Standards Board (FSSB), OSAC efforts to date have been a success. OSAC currently has hundreds of projects in the queue, including standards and guidelines intended for their respective registries, standards and guidelines on their way to a Standards Developing Organization (SDO), and numerous research needs that have been identified by OSAC subcommittees. In the last year, OSAC has also drawn the attention of international standards coordinating bodies, numerous U.S.-based forensic organizations, and federal grant funding agencies.

The positive progress during the first full year of OSAC was not without operational challenges. While OSAC processes were developed to be transparent and thorough, we realized over the past year that further efficiencies and improvements could be gained. Additionally, ways to better facilitate collaboration between the various OSAC committees is a critical focus moving forward.

With this focus in mind, OSAC recently held an OSAC Leadership Strategy Session on June 22, 2016. Three representatives from each OSAC committee attended, providing both written and verbal feedback on a series of strategic questions. This exercise ultimately resulted in 25 programmatic recommendations that are now under further consideration and analysis for potential implementation later this year.

**The Forensic Science Standards Board.** *FSSB Members from top left:*
Anil Jain, PhD; Austin Hicklin, MS; Mark Keisler; Gregory Davis, MD; Barry Logan, PhD; Laurel Farrell; Steven Johnson; Richard Vorder Bruegge, PhD; Scott Oulton; from bottom left: Karen Kafadar, PhD; Sarah Kerrigan, PhD; Jeremy Triplett, MS; Mark Stolorow, MS, MBA; George Herrin Jr., PhD; Douglas Ubelaker, PhD; Andrew Baker, MD; Jose Almirall, PhD.

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## 1.0 INTRODUCTION

The Organization of Scientific Area Committees for Forensic Science (OSAC) is an initiative of the National Institute of Standards and Technology (NIST) and the U.S. Department of Justice (DOJ). The purpose of OSAC is to strengthen the nation's use of forensic science by:

- Providing technical leadership that facilitates the development and promulgation of consensus-based documentary standards and guidelines for forensic science;
- Promoting standards and guidelines that are fit-for-purpose and based on sound scientific principles;
- Promoting the use of OSAC standards and guidelines by accreditation and certification bodies;
- Establishing and maintaining working relationships with similar organizations.

This annual report documents OSAC's program activities and accomplishments for the twelve-month period ending February, 2016. In this timeframe, OSAC has:

- Increased interdisciplinary forensic science discussions;
- Published Version 1 of major OSAC processes and shared process documents with the public;
- Worked on 155 different draft standards and guidelines projects related to forensic science;
- Posted one standard to the *OSAC Registry of Approved Standards.*

This report begins with messages from the Director of NIST, the Director of OSAC Affairs at NIST, and the Forensic Science Standards Board (FSSB). Sections 1 through 5 of this report describe this report's purpose, provide more information on OSAC, and describe the OSAC program's inputs and outputs. The report describes the OSAC structure and history, and provides a description of the activities undertaken to maintain OSAC operations. Section 6 highlights OSAC's efforts to engage, coordinate with, and solicit feedback from the broader forensic science community. Section 7 provides an overview of OSAC's focus in 2017, which will include addressing some challenges we encountered within the last year. The report concludes with Section 8, which provides an overview of each of the OSAC committees, and lists the names (or in some cases draft names) of the 155 separate standards and guidelines projects each committee is working on.

We hope you find this annual report useful. If you have questions about this report or about OSAC, please contact us at forensics@nist.gov.

*The OSAC Annual Report was produced by the office of OSAC Affairs at NIST, with input from the FSSB and the OSAC committee chairs. Certain commercial equipment, instruments, or materials are identified in this report to foster understanding. Such identification does not imply recommendation or endorsement by the National Institute of Standards and Technology, nor does it imply that the materials or equipment identified are necessarily the best available for the purpose. Contact forensics@nist.gov with comments or general inquiries.*

## 2.0 PURPOSE OF THIS REPORT

The OSAC program has a broad and varied list of stakeholders who have an interest in OSAC activities and outcomes. These stakeholders include:

- More than 540 OSAC members as of February 2016
- OSAC affiliates
- Forensic science service providers
- Private sector manufacturers and service vendors supplying forensic science providers
- Accrediting bodies
- Certifying bodies
- Representatives of the criminal justice system
- Representatives of the legal system (judges, prosecution, and defense)
- Professional forensic science organizations
- Other professional scientific organizations
- Existing and historical Scientific Working Groups (SWGs)
- International and national standards developing organizations
- Federal, state, and local government agencies (including thousands of state and local law enforcement agencies)
- Academia
- Non-governmental organizations (NGOs)
- NIST
- DOJ
- The public.

**Figure 1.** OSAC Meeting January 2016. Quality Infrastructure Committee (QIC) representative Barbara Andree provides training on OSAC Processes to OSAC membership in January 2016.

The primary purpose of this report is to summarize OSAC program status, metrics, activities, and accomplishments from February 2015 to February 2016, and to share this information with all OSAC stakeholders. This report also provides a snapshot of the bigger OSAC picture, including an overview of OSAC, a timeline with details on program development and early operations, and a discussion of what to expect from OSAC in the years to come.

## 3.0 ABOUT OSAC

OSAC is an initiative of NIST and DOJ to strengthen forensic science in the United States. OSAC's purpose is to strengthen the practice of forensic science by:

- Providing technical leadership that facilitates the development and promulgation of consensus-based documentary standards and guidelines for forensic science
- Promoting standards and guidelines that are fit-for-purpose and based on sound scientific principles
- Promoting the use of OSAC standards and guidelines by accreditation and certification bodies
- Establishing and maintaining working relationships with other similar organizations.

**OSAC Core Principles:**

All standards and guidelines approved for inclusion on the OSAC Registries must be developed by a process that follows these four core OSAC principles:

- Openness
- Balance
- Consensus
- Harmonization

The aims of OSAC are to:

- Populate the *OSAC Registry of Approved Standards* and the *OSAC Registry of Approved Guidelines*
- Develop and maintain the *Principles of Professional Practice* (formerly called the *Forensic Science Code of Practice*)
- Compile and update the *OSAC Catalog of External Standards and Guidelines*
- Maintain Priority Action Plan documents on OSAC strategic objectives and associated goals and intended actions
- Promote and improve the communication, dissemination, and use of forensic science standards, accreditation, and personnel competencies
- Encourage forensic science service providers in the United States to implement guidelines and standards (e.g., International Organization for Standardization [ISO]/IEC 17025, etc.) for quality and competency
- Provide insight on the research and measurement standard needs of each forensic science discipline
- Enlist stakeholder involvement from a broad community to provide public comment on OSAC outputs.

OSAC outputs, or "deliverables," include:

- Draft standards and guidelines submitted to standards developing organizations (SDOs) for consideration
- Further inputs to SDOs on further draft development
- Final standards and guidelines subsequently published by the SDOs (in part due to OSAC inputs)
- Standards and guidelines posted to the *OSAC Registry of Approved Standards* or the *OSAC Registry of Approved Guidelines*
- Published research and development needs that emerge during these standards discussions.

In adherence with the OSAC charter, OSAC efforts are reported annually, most recently at the February 22-23, 2016 American Academy of Forensic Sciences Annual Meeting. Video recordings and slide decks of Subcommittee Priority Action Reports are available online at: http://www.nist.gov/forensics/osac/nist-scientific-area-committee-meetings-february-2016.cfm.

## 3.1 OSAC Structure and Membership

OSAC is a multi-level organization consisting of five Scientific Area Committees (SACs) that report to a Forensic Science Standards Board (FSSB). Each of the five SACs oversees several discipline-specific subcommittees. Three Resource Committees provide input to OSAC. OSAC structure and membership include (as of February 2016):

- 543 members
- 243 affiliates
- 49 states represented
- 210 task groups
- 2172 applications to participate.

OSAC contains members and affiliates. Members have voting rights and affiliates can participate in task groups and provide subject matter expertise, but do not have voting rights.

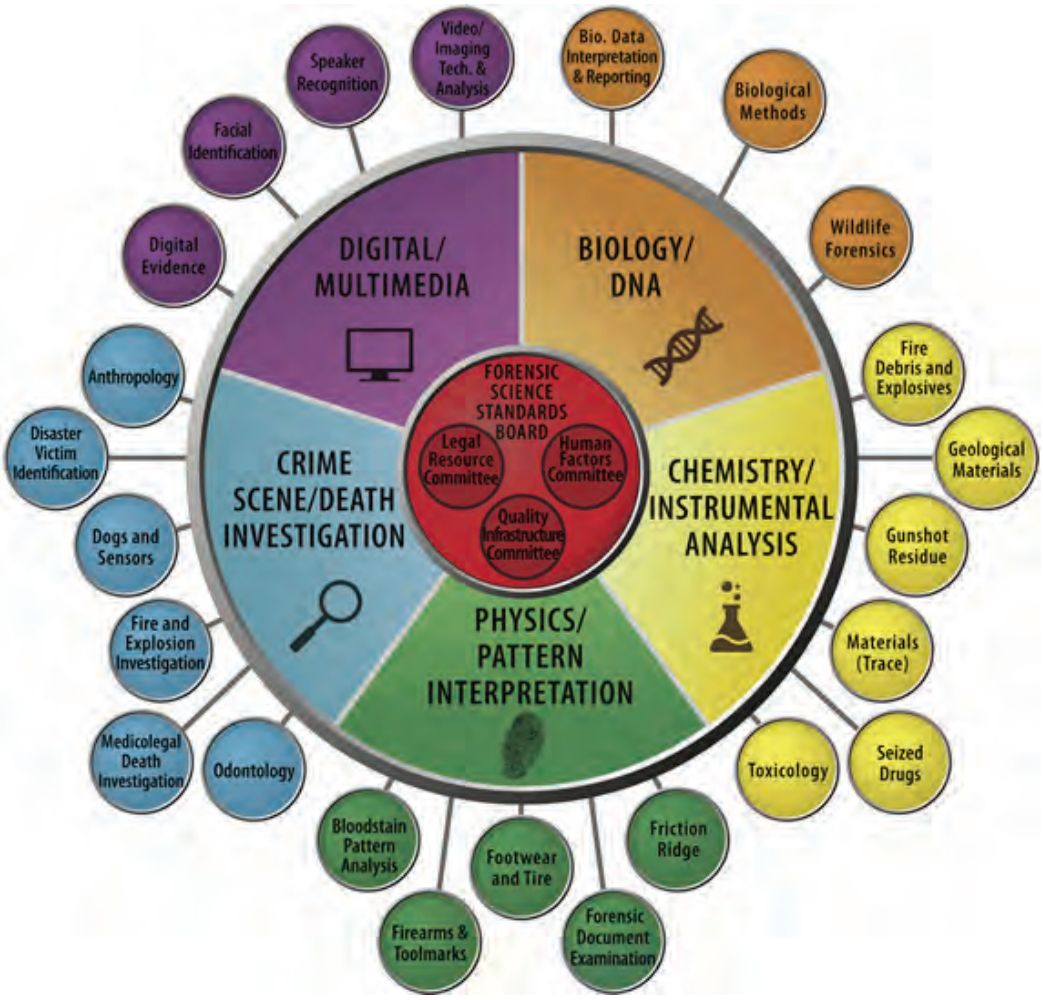



**Figure 2.** OSAC Organizational Chart. OSAC is a multi-level organization consisting of five SACs that report to the FSSB. Each of the five SACs oversees several discipline-specific subcommittees. Three Resource Committees provide input to OSAC.

### 3.1.1 Forensic Science Standards Board (FSSB)

The FSSB includes five members who represent the research community, five members who chair the SACs, six members who represent national professional forensic science organizations, and one ex officio member. The FSSB oversees OSAC's 3 resource committees, 5 SACs and 25 subcommittees.

### 3.1.2 Scientific Area Committees (SACs)

The OSAC SACs direct and coordinate the work performed by the OSAC discipline-specific subcommittees. They channel the work and activities of the subcommittees to the FSSB, and interface with resource committees on human factors, and legal and quality issues.

### 3.1.3 Subcommittees

The subcommittees perform much of the technical work, focusing on specific forensic science disciplines. These subcommittees propose consensus documentary standards for adoption by the SACs and ultimately the FSSB.

### 3.1.4 Resource Committees

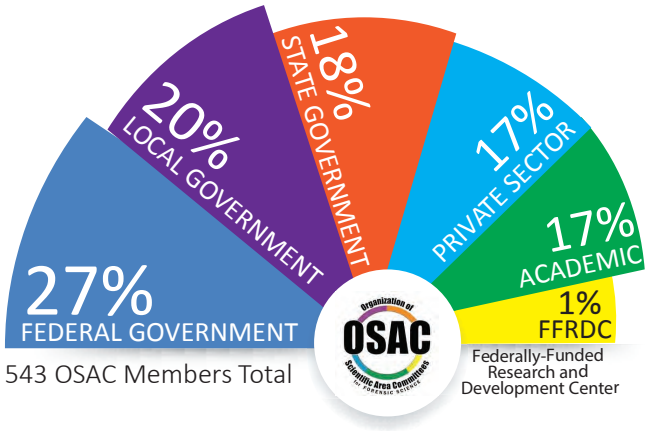
The OSAC includes three resource committees. The Human Factors Committee (HFC) is composed of nine psychology and usability experts who provide guidance throughout OSAC on the influence of systems design on human performance and ways to mitigate errors in complex tasks. The Legal Resource Committee (LRC) is composed of 11 judges, lawyers, and legal experts who provide guidance throughout OSAC about the legal ramifications of forensic standards under development and input on presentation of forensic science results to the legal system. The Quality Infrastructure Committee (QIC) is composed of 15 standards experts, quality systems managers, laboratory managers, and accreditation and certification specialists who are responsible for providing input throughout OSAC on quality issues related to standards and information on how specific standards will impact laboratory operations.


**Figure 3.** OSAC Responsibilities. The OSAC units (depicted in Figure 2) have varying responsibilities.

The OSAC infrastructure was created to have balance and input from various perspectives. Figure 4 describes the OSAC membership in terms of employer classification and job classification.

## OSAC Members, Employer Classifications

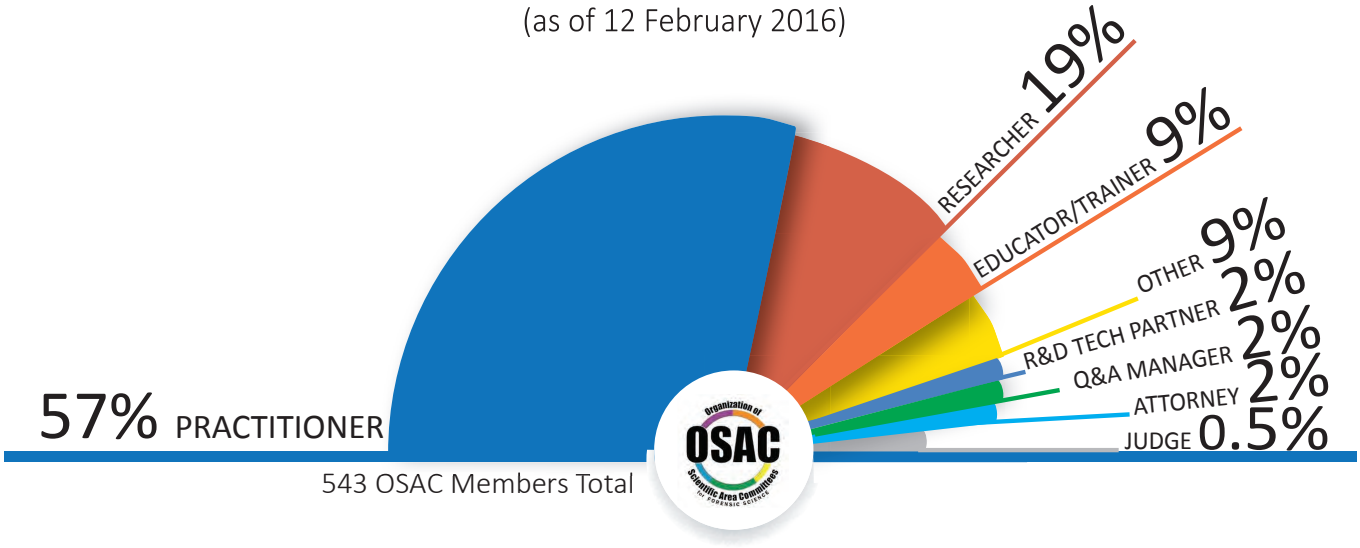
(as of 12 February 2016)




**2015 to 2016 Change:** Locals up 1%; FFRDC down 1%

## OSAC Members, Job Classifications

(as of 12 February 2016)




**2015 to 2016 Change:** Judge down 0.5%; QA Manager up 1%

**Figure 4.** OSAC Members, Employer and Job Classification. The OSAC infrastructure was created to have balance and input from various perspectives.

OSAC membership primarily is held by individuals, not the organizations with which they are associated. However, OSAC members do reflect a diversity of perspectives as reflected in the approximately 330 organizations with which they are affiliated. These organizations, current as of February 2016, are listed in Table 1.

OSAC also strategically recruits members from associations such as the American Society of Crime Laboratory Directors (ASCLD), the American Academy of Forensic Sciences (AAFS), Society of Forensic Toxicologists, Inc. (SOFT), the Association of Firearm and Tool Mark Examiners (AFTE), the National Association of Medical Examiners (NAME), and the International Association for Identification (IAI). Information related to these external relations can be found in Section 6.4.

**Table 1. OSAC Member Organizations**

| OSAC Member Organizations | |
|---|---|
| 2visualize, Inc. | Aware Inc. |
| Agilent Technologies | Baltimore County Police Department Forensic Services Section |
| Alabama Department of Forensic Sciences | BEK TEK LLC |
| Alaska Scientific Crime Detection Laboratory | Benjamin N. Cardozo School of Law |
| Albuquerque Police Department Crime Laboratory | Bentley University |
| American Association for Laboratory Accreditation (A2LA) | Bevel, Gardner & Associates (BGA) |
| American Dental Association (ADA) | Bexar County Texas Criminal Investigation Laboratory |
| American National Standards Institute (ANSI) | Bioaeronautical Research Laboratory, Federal Aviation Administration |
| American Society of Crime Lab Directors (ASCLD)/LAB | Black & White Forensics, LLC |
| AMK9 Academy | Bode Technology |
| ANSI-ASQ National Accreditation Board | Boston University |
| Arapahoe County Coroner's Office | Brody School of Medicine at East Carolina University |
| Arcadia University | Broward Sheriff's Office Crime Laboratory |
| Arizona Department of Public Safety | Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) |
| Arizona State University | Bureau of Criminal Apprehension FS Laboratory |
| Arizona Supreme Court | Cadre Research Labs |
| Arkansas Children's Hospital | California Department of Justice |
| Arkansas State Crime Laboratory | California State University |
| Armed Forces DNA Identification Laboratory (AFDIL) | Carman & Associates Fire Investigation, Inc. |
| Armstrong Forensic Laboratory, Inc. | Carnegie Mellon University |
| Auburn University | Cedar Crest College |

| OSAC Member Organizations | |
|---|---|
| Centers for Disease Control and Prevention (CDC), National Center for Health Statistics | Glendale Police Department |
| Central Intelligence Agency (CIA) | Goodson Engineering |
| Chaminade University of Honolulu | Grayson Singley Associates, LLC |
| D.C. Department of Forensic Sciences | Green Forensics Inc. |
| Dallas County Southwestern Institute of Forensic Sciences | Hamilton County Coroner's Office |
| Defense Cyber Crime Center, Air Force Office of Special Investigations | Harris County Institute of Forensic Sciences |
| Denver Colorado District Attorney's Office | Hawaii K-9 Koncepts |
| Department of Forensic Sciences, District of Columbia | Hennepin County |
| Department of Health and Human Services - National Disaster Medical System | Hennepin County Medical Examiner's Office |
| District 12 Medical Examiner Office | Higgins & Associates, International |
| DNA Solutions | Hinman Consulting Engineers |
| DuPage County Sheriff's Office | Honolulu Police Department |
| East Tennessee State University | Houston Forensic Science Center, Inc. |
| Eastern Kentucky University | Hughes Associates Fire Science and Engineering |
| Embry-Riddle Aeronautical University | Human Identification Laboratory of Colorado |
| Federal Bureau of Investigation (FBI) | Idaho State Police Forensic Services |
| Florida Department of Law Enforcement | Ideal Innovations Inc. |
| Florida International University | Illinois State Police |
| Foray Technologies | Immunalysis Corporation |
| Forensic Document Examination Services, LLC | Independent Consultant |
| Forensic Research, LLC | Independent Forensic Pathologist for Illinois Coroners and Consultant |
| Forensic Science Consultants Inc. | Indiana State Police Laboratory |
| Franklin, Jefferson and Saint Charles Counties Medical Examiner Offices | Indiana University, Bloomington |
| GE Healthcare | Intel Corporation |
| George Mason University | International Commission on Missing Persons |
| George Washington University | International Forensic Experts LLC |
| George Washington University | Iowa Division of Criminal Investigation Criminalistics Laboratory |
| Georgia Bureau of Investigation | Iowa State University |
| Gerry I. Loewe, DDS & Franklin D. Wright, DMD, Inc. | Iron Mountain |
| GexCon US | ITC Services |

| OSAC Member Organizations | |
|---|---|
| Jackson County Kansas City Medical Examiner's Office | McCrone Associates, Inc. |
| Jackson County Kansas City Missouri Prosecutor's Office | Mercyhurst University |
| Jefferson County Alabama Coroner | Methodist University |
| JEOL USA, Inc. | Miami Valley Regional Crime Laboratory |
| John Jay College of Criminal Justice | Miami-Dade Police Department |
| Johns Hopkins University | Michigan State Police |
| Johnson County Sheriff's Office Criminalistics Laboratory | Michigan State Police Forensic Science Division |
| Kansas Bureau of Investigation | Michigan State University |
| Kansas City Missouri Police Department | Microtrace LLC |
| Kentucky State Police | Middle Tennessee State University |
| Kentucky State Police Forensic Laboratory | Minnesota Bureau of Criminal Apprehension |
| Kentucky State University | Mississippi Crime Laboratory |
| Lake County Crime Laboratory | Missouri State Highway Patrol Crime Laboratory |
| Las Vegas Nevada Metropolitan Police Department | MIT Lincoln Laboratory |
| Leviton Mfg. Co. Inc. | MITRE |
| Los Angeles County California Department of Medical Examiner-Coroner | Montana Forensic Science Division |
| Los Angeles County California Public Defender | Montgomery County Maryland Police Department |
| Los Angeles County California Sheriff Department | MorphoTrak, LLC |
| Los Angeles California Police Department | Nassau County office of the Chief Medical Examiner, Latent Print Section |
| Louisiana State Police | Nassau County Office of the Medical Examiner |
| Louisiana State University – LSUHSC – School of Dentistry | National Aeronautics and Space Administration (NASA) Office of Inspector General Computer Crimes Division |
| Maine State Police Crime Laboratory | National Counterterrorism Center (NCTC) |
| Mandiant | National Forensic Support Laboratory |
| Marquette University School of Dentistry | National Institute of Health (NIH) National Institute on Drug Abuse (NIDA) |
| Marshall University | National Institute of Standards and Technology (NIST) |
| Martin Forensics, LLC | National Oceanic and Atmospheric Administration (NOAA)/ National Marine Fisheries Service/Northwest Fisheries Science Center Forensics Laboratory |
| Maryland State Police-Forensic Sciences Division, Biology Section | National Transportation Safety Board (NTSB) |
| Massachusetts State Police Forensic Services Group | Naval Criminal Investigative Service (NCIS) |

| OSAC Member Organizations | |
|---|---|
| NetBio, Inc. | Oklahoma State Bureau of Investigation |
| Neufeld, Scheck, & Brustin, LLC | Onondaga County Center for Forensic Sciences |
| New Mexico Office of the Medical Investigator | Orange County California Crime Laboratory/Orange County Sheriff |
| New York City (NYC) Office of Chief Medical Examiner, Department of Forensic Biology | Oregon State Police |
| New York State Police | Osborn & Son |
| New York University (NYU) Langone Medical Center | Palm Beach County Florida Sheriff's Office |
| NMS Labs | Palm Beach County Florida Sheriff's Office Crime Laboratory |
| NMS Labs/Fredric Reiders Family Renaissance Foundation | Paul Erwin Kish Forensic Consultant & Associates |
| Noblis | Pennsylvania State Police |
| North Carolina Office of the Chief Medical Examiner (NC-OCME) | Pennsylvania State University |
| North Carolina State Crime Laboratory | Pennsylvania State University |
| North Carolina State University | Pierce County Sheriff's Department |
| North East Forensics, LLC | Pinellas County Forensic Laboratory |
| Northcentral University | Purdue University |
| Northeastern Illinois Regional Crime Laboratory | Raytheon BBN Technologies |
| Northeastern University – Barnett Institute of Chemical and Biological Analysis, Dept. of Chemistry and Chemical Biology | Redwood Toxicology Laboratory |
| Northern Colorado Regional Forensic Laboratory | Resolution Video Inc. |
| Northern Kentucky University | Richland County |
| Northwestern University | Riley Welch LaPorte & Associates Forensic Laboratories |
| Nuance Communications | RSI |
| NYC Office of Chief Medical Examiner | RTI International |
| NYC Police Department – Police Laboratory | Sacramento County California District Attorney's Office – Laboratory of Forensic Services |
| Oak Ridge Institute for Science and Education through Federal Bureau of Investigation | Sam Houston State University |
| Oakland Police Department Criminalistics Laboratory | San Bernardino County California Sheriff's Department – Scientific Investigations Division |
| Office of the Chief Medical Examiner in Norfolk, Virginia | San Diego California Police Department |
| Office of the Chief Medical Examiner Maryland | San Diego California Police Department – Crime Laboratory |
| Ohio Bureau of Criminal Investigation | San Francisco California Police Department Crime Lab |
| Ohio Division of State Fire Marshal Forensic Lab | San Jose State University |

| OSAC Member Organizations | |
|---|---|
| Sandia National Laboratories | SUNY at Buffalo |
| Santa Clara University | Target Corporation |
| Sarasota County Florida Sheriff's Office | Tarrant County Texas Medical Examiner's Office |
| Schwarz Forensic Enterprises, Inc., | Tennessee Task Force One – FEMA |
| Scientific Fire Analysis, LLC | Texas Department of Public Safety |
| Scottsdale Arizona Police Department Crime Laboratory | Texas Department of Public Safety Crime Laboratory |
| S-E-A, Ltd. | Texas Forensic Science Commission |
| Seattle Washington Police Department | Texas State Fire Marshal's Office |
| Sedgwick County Regional Forensic Science Center | TransPerfect Legal Solutions |
| Seminole County Sheriff's Office | Travelers |
| Smithsonian Institution | Travis County Medical Examiner's Office |
| South Carolina Law Enforcement Division | Tucson Police Department Crime Laboratory |
| South Dakota State University | U.S. Air Force Office of Special Investigations (AFOSI) |
| Southern Illinois University | U.S. Air Force Research Laboratory |
| Southwestern Institute of Forensic Sciences at Dallas | U.S. Army Corps of Engineers Headquarters |
| Spokane County, Washington | U.S. Army Criminal Investigation Laboratory (USACIL), Defense Forensic Science Center |
| SRI International | U.S. Customs & Border Protection (CBP) |
| St. Joseph County Sheriff's Department | U.S. Customs and Border Protection, Laboratories and Scientific Services Directorate |
| State of California | U.S. Department of Defense (DoD) Joint POW/MIA Accounting Command, Central Identification Laboratory |
| State of Connecticut | U.S. Department of Energy (DOE) Ames Laboratory |
| State of Florida/Dept. of Financial Services/Division of State Fire Marshal | U.S. Department of Health and Human Services Office of Research Integrity; Division of Investigative Oversight |
| State of Michigan Department of State Police Forensic Science Division | U.S. Department of Homeland Security (DHS) |
| State of Minnesota, Bureau of Criminal Apprehension, Forensic Science Laboratory | U.S. Department of Justice (DOJ) |
| State University of New York at Buffalo, School of Dental Medicine | U.S. DHS – Immigration and Customs Enforcement (ICE)/ Homeland Security Investigations Forensic Lab |
| State's Attorney for Harford County Maryland | U.S. DHS Science & Technology (S&T) |
| Stevenson University | U.S. DOJ, US Attorney's Office District of Connecticut |
| Stoney Forensic, Inc. | U.S. DOJ, US Attorney's Office for the Southern District of California |

| OSAC Member Organizations | |
|---|---|
| U.S. Drug Enforcement Administration (DEA) | University of Southern California: Gould School of Law, and Department of Psychology |
| U.S. Fish and Wildlife Service / National Fish and Wildlife Forensics Laboratory | University of Texas at Dallas |
| U.S. Food and Drug Administration (FDA) – Forensic Chemistry Center | University of Texas Health Science Center at San Antonio and Bexar County Medical Examiner's Office |
| U.S. Navy | University of Virginia |
| U.S. Postal Inspection Service | University of Washington |
| U.S. Secret Service | US. Dept. of Interior, U.S. Fish and Wildlife Service Office of Law Enforcement |
| University of Alabama at Birmingham | Utah Bureau of Forensic Services |
| University of California Davis Veterinary Genetics Laboratory Forensic Unit | Vermont Forensic Laboratory |
| University of California, Irvine | Virginia Commonwealth University |
| University of Central Florida | Virginia Department of Forensic Science |
| University of Denver | Wal-Mart Stores, Inc. |
| University of Florida | Washington State Patrol |
| University of Georgia | Washington State Patrol Crime Lab |
| University of Illinois at Chicago | Wayne County Medical Examiner |
| University of Iowa Carver College of Medicine, Department of Pathology | Weld County Sheriff's Office |
| University of Kentucky | West Virginia State Police Forensic Laboratory |
| University of Maine | West Virginia University |
| University of Massachusetts Medical School, Drugs of Abuse Laboratory | Western Michigan University School of Medicine |
| University of Michigan Law School | Westport Dental Associates/Columbia University |
| University of New Haven | Wisconsin State Crime Laboratory – Wausau |
| University of North Texas (UNT) Health Science Center, UNT Center for Human Identification | Wyoming Game and Fish Department |
| University of Notre Dame | Wyoming State Crime Laboratory |
| University of Pennsylvania | Wisconsin State Crime Laboratory - Wausau |
| University of Rhode Island | Wyoming Game and Fish Department |
| University of South Carolina, Department of Chemistry and Biochemistry | Wyoming State Crime Laboratory |

## 3.2 About the OSAC Registries

The *OSAC Registry of Approved Standards* and the *OSAC Registry of Approved Guidelines* were developed to support OSAC's primary goal: to identify and promote technically sound, consensus-based, fit-for-purpose documentary standards that are based on rigorous scientific principles. A standard or guideline may be posted to these OSAC Registries after an assessment by forensic practitioners, academic researchers, measurement scientists, and statisticians finds that the methods contained in the standard are valid. These standards and guidelines are developed through a consensus development process that allows participation and comment from a cross-section of stakeholders.

Before being approved for posting on the OSAC Registries, standards and guidelines are analyzed using the criteria specified in a formal process called *The OSAC Registry Approval Process of Published Standards and Guidelines*. This process includes an analysis of technical merit and the potential impact on the forensic science community, and also ensures the openness of the development process, a balance of interest/representation, consensus, and harmonization. Multiple levels of OSAC evaluate recommended standards and guidelines against these criteria. If the criteria are met, OSAC proceeds with an open comment period to solicit feedback from all stakeholders in the public. OSAC reviews and adjudicates all public comments received and then considers the feedback when voting whether or not to approve the standard or guideline for inclusion on OSAC Registries. For more information, visit: https://www.nist.gov/topics/forensic-science/registry-approval-process-templates.

Many standards and guidelines exist that are not recommended and/or approved for the OSAC Registries. This does not necessarily mean that OSAC is invalidating their use. The absence of a standard or guideline on the OSAC Registries simply means that it either has not yet been recommended or it meets only some of the OSAC criteria.

### 3.2.1 OSAC Standards vs. OSAC Guidelines

As generally defined by OSAC, a standard "specifies uniform methods, actions, practices, processes, or protocols. Compliance [is] mandatory and modified only under unusual circumstances," and a guideline "strongly recommend[s]... methods, actions, practices, or processes to consider in absence of applicable standards [or] best practices that [are] not required."[1] One distinction between an "OSAC Standard" vs. an "OSAC Guideline" is that approved OSAC standards contain mandatory actions, whereas approved OSAC guidelines contain recommended actions. OSAC itself does not have the authority to require or enforce compliance with OSAC documents on the OSAC Registries. Any enforcement will come in the future when OSAC Registry documents are incorporated into a laboratory or forensic science provider's quality manuals and/or procedures, or when laboratories specifically ask to be accredited to relevant OSAC Registry documents in their scope of accreditation.

## 3.3 OSAC: The Big Picture[2]

From a big picture view, there are five steps in preparing, producing, and using information on the *OSAC Registry of Approved Standards* and/or the *OSAC Registry of Approved Guidelines*. Figure 5 and the accompanying description provide a big-picture view of OSAC efforts.

[1] For the most recent standards/guidelines definitions, visit http://www.nist.gov/forensics/osac/osac-registries.cfm.

[2] A variation of this section, written by John M. Butler, Ph.D. (NIST Fellow & Special Assistant to the Director for Forensic Science), was originally published in the February 2016 OSAC newsletter.

### 3.3.1 OSAC Leverages Existing Content When Possible

OSAC leverages existing content for the foundation of most OSAC projects, if such content exists. The *OSAC Catalog of External Standards and Guidelines* (located at this site: http://www.nist.gov/forensics/osac/standards-guidelines-catalog.cfm) was compiled by NIST staff in 2015 in an effort to bring together existing standards, guidelines, and best practices. The catalog includes the numerous documents produced over the years by Scientific Working Groups (SWGs). Of the 719 documents listed in the initial 2015 OSAC catalog, 344 are from 20 different SWGs. In addition, there are over 300 documents from SDOs, of which there are approximately 140 ASTM International documents. OSAC reviewed this existing content in January 2015 to select items as the starting point for OSAC standards and worked with the original authors of the documents on copyright/permissions. These SDO documents have been through a reasonable standards developing process, but may not have been previously vetted to the quality level desired for being included on the OSAC Registry. For example, the SWG documents may have been technically competent but not vetted to the widest audience possible to ensure balance.

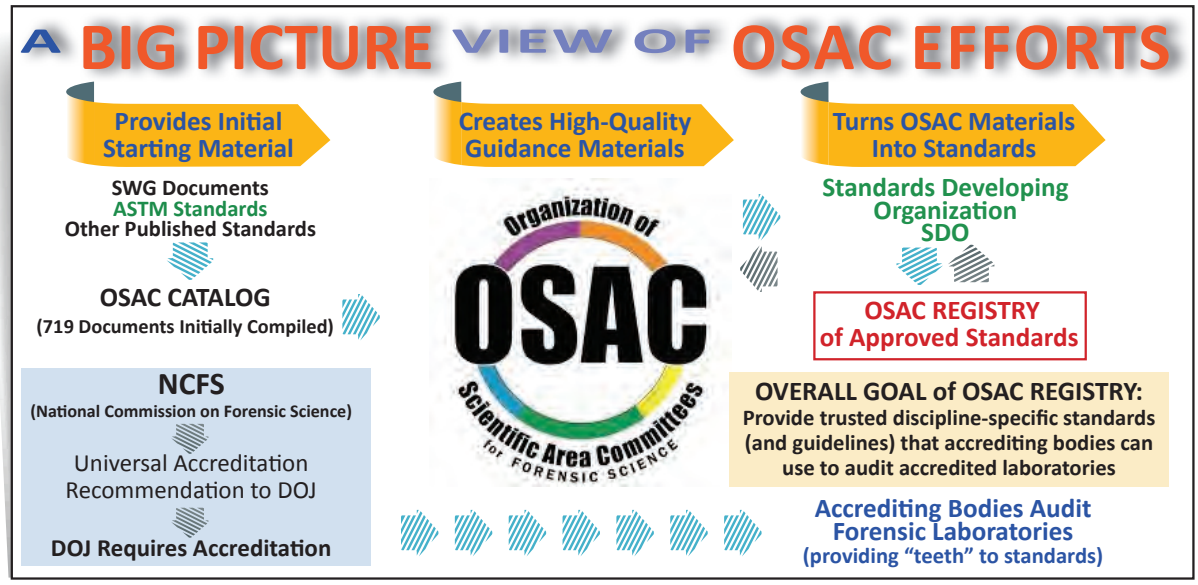



**Figure 5.** A Big Picture View of OSAC Efforts. The OSAC is one entity within a community working towards improved forensic science standards and guidelines.

### 3.3.2 OSAC Members Enhance Content

The OSAC subcommittee membership includes academic researchers, statisticians, and measurement scientists to help infuse a deeper scientific viewpoint on discussions and documents. Feedback from three resource committees within OSAC provides further input to strengthen documents in areas involving quality, laboratory impact, legal ramifications, and human factor aspects of guidance materials being developed. Some OSAC Subcommittees elect to submit content that is still in the idea phase to the SDO technical working group and allow the SDO to build the document. Others elect to submit more mature drafts to the SDOs. These variations are due to the availability of existing content, as well as the availability of the SDO's resources.

### 3.3.3 First Goal: OSAC Partners with an SDO for Further Development

OSAC is not a legal entity and does not have the authority to create voluntary consensus standards by itself, nor is OSAC an SDO in the true sense of the term. NIST, which currently administers OSAC, follows the federal government standards policy known as the National Technology Transfer and Advancement Act of 1995 (NTTAA) and the Office of Management and Budget's (OMB) Circular A-119, last updated in 1998. Therefore, in order to turn OSAC documents into formal, recognized standards, OSAC needs to partner with SDOs. SDOs use consensus bodies of interested stakeholders to evaluate or create standards. It is important to point out that OSAC members may (and should) be part of an SDO's consensus body to help shepherd a document through the process.

The SDO's processes should be characterized by openness, a lack of dominance, and a balance of interests. Furthermore, these processes should coordinate and harmonize existing documentary standards; should require notification of standards development (i.e., a public comment period) to enable participation by anyone who may be affected by the standard; and should include careful consideration of views and objections raised by all participants, a consensus vote, and an appeals process.

### 3.3.4 Next Goal: OSAC Registry

The *OSAC Registry of Approved Standards* and *OSAC Registry of Approved Guidelines* are intended to serve as a trusted repository of high-quality standards to address discipline-specific requirements. Standards under consideration for inclusion on the Registries must meet the requirements for both process and technical merit.

### 3.3.5 Final Goal: Implementation

Holding forensic laboratories and other forensic service providers to the details present in documentary standards is the final step in our OSAC big picture view. This is the step in which accrediting bodies assess the capabilities of forensic science laboratories and, if accredited, audit them. This step gives "teeth" to the standards. Current accrediting bodies in the forensic science world include the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB), the ANSI-ASQ National Accreditation Board (ANAB), and the American Association for Laboratory Accreditation (A2LA). A representative from each of these organizations sits on the Quality Infrastructure Resource Committee of OSAC.

When OSAC was being designed, the NIST team met with representatives of these accrediting bodies and several others interested in forensic accreditation. The attending representatives agreed that if OSAC were to build a system to create and promote quality standards, then they (the accrediting bodies) would identify how to best incorporate these standards in their future conformity assessment of forensic science laboratories. While accredited laboratories and providers are audited today to ISO/IEC 17025 and other standards, there are very few discipline-specific documentary standards against which the laboratories can be audited. Currently, the use of forensic science standards is not required by law. The only exception are forensic DNA laboratories that are held to the FBI Quality Assurance Standards due to the Congressional mandate of the DNA Identification Act of 1994.

The OSAC implementation plan identifies other approaches to encourage the adoption of the standards/guidelines placed on OSAC Registries by the forensic science industry. OSAC is also working directly with federal stakeholders to influence the adoption of OSAC standards in federal laboratories. Furthermore, OSAC encourages individual laboratories to consider self-adoption of standards and guidelines found on the OSAC Registries into their laboratory operations.

**Figure 6.** The Forensic Science Standards Board (FSSB) deliberates on OSAC business at a meeting held at the Kentucky State Police Central Forensic Laboratory in Frankfort in April 2016.

## 3.4 OSAC History

OSAC organizers spent most of 2014 developing the OSAC infrastructure—defining roles and responsibilities, collecting and vetting applicants, appointing members, and planning meetings. OSAC then shifted into operating mode in 2015. The timeline of OSAC invention, development, and early operations is described in Table 2.

**Table 2. OSAC Timeline of Events Prior to February 2015**

| | |
|---|---|
| Aug 2010 | White House National Science and Technology Council Subcommittee on Forensic Science (SoFS) proposes that a Scientific Working Group (SWG) Program Management Office be established and run by NIST in order to coordinate the activities of individual SWGs. |
| Feb 2013 | DOJ and NIST announce plans to form the National Commission on Forensic Science (NCFS) as a federal advisory group to DOJ, and to establish scientific guidance groups that will be administered by NIST. |
| June 2013 | NIST meets with the chairs of current SWGs to discuss potential structures for an organization to house the guidance groups. |
| Sept to Nov 2013 | NIST gathers information from a public Notice of Inquiry posted in the Federal Register regarding guidance groups; receives 82 responses. |

| | |
|---|---|
| Feb 2014 | At the first NCFS meeting, NIST announces a proposed structure for the scientific guidance groups called the Organization of Scientific Area Committees for Forensic Science (OSAC). |
| Feb 2014 | NIST provides a detailed description of the planned OSAC infrastructure at the American Academy of Forensic Sciences (AAFS) meeting in Seattle (and via webcast). |
| Mar 2014 to Nov 2014 | Outreach presentations sharing planned OSAC structure are given at numerous scientific & professional meetings. |
| April & May 2014 | Initial 30-day application period results in over 1300 applicants to positions within OSAC. |
| June 2014 | Members of the Forensic Science Standards Board (FSSB) are appointed. |
| July 2014 | Members of the Legal Resource Committee (LRC), Quality Infrastructure Committee (QIC), and Human Factors Committee (HFC) are appointed. |
| Aug 2014 | FSSB holds first in-person meeting. |
| Sept 2014 | Members of the five Scientific Area Committees (SACs) are appointed. |
| Oct 2014 | Members of the 23 OSAC subcommittees are appointed. |
| Dec 2014 | Members of the digital evidence subcommittee are appointed. |
| Jan 2015 | Subcommittees hold first in-person meetings and first review of existing forensic science standards and guidelines. |
| Feb 2015 | OSAC meets with accrediting bodies and major forensic science organizations. |

## 4.0 OSAC OUTPUTS: FEBRUARY 2015-FEBRUARY 2016

OSAC's primary role is to promote and coordinate consensus standards and guidelines within the forensic science community that have a technically valid and reliable basis. OSAC has been engaging in overarching and strategic activities related to this role, as well as focusing on 155 separate standards and guidelines projects for potential publishing through an SDO and/or eventual inclusion on an OSAC Registry. This section describes the discussions and efforts from February 2015-February 2016 that the OSAC has helped to facilitate. See Section 8 for the details and names of the specific 155 standards/guidelines under development and/or consideration.

### 4.1: Overarching OSAC Activities

#### 4.1.1 Increasing Interdisciplinary Forensic Science Discussions and Projects

One benefit of OSAC has been the interdisciplinary interaction offered through the OSAC infrastructure, which includes a broad spectrum of forensic science disciplines. OSAC meetings offer a forum for forensic practitioners, the legal community, government agencies, statisticians, metrologists, academicians, and standards organizations to work together. Chairs and practitioners have reported that collaboration, both within and between the various committees, offers benefits, insights, and new perspectives.

Additionally, the OSAC infrastructure has provided members and affiliates with a greater understanding of how practices vary across disciplines, and members have already identified opportunities where disciplines can leverage each other's scientific successes. For example, the Physics/Pattern SAC is working on a standard

framework for expressing source conclusions for potential use by multiple disciplines. The goal is to develop and refine a working draft document into a standard framework that can achieve consensus and be implemented in the field.

*The Physics/Pattern SAC is working on a standard framework for expressing source conclusions for potential use by multiple disciplines. The goal is to develop and refine a working draft document into a standard framework that can achieve consensus and be implemented in the field.*

Lastly, the OSAC implementation plan identifies multiple approaches to encourage the adoption of the standards/guidelines placed on OSAC registries by the forensic science industry. The strength of OSAC is that, as a single organization encompassing multiple forensic science disciplines, it can lead a unified effort to develop and promote enforceable standards and can broaden the impact these standards have in the practice of forensic science.

### 4.1.2 Clarifying Forensic Science Terminology

OSAC is compiling for internal use a document of all terminology identified by SACs, resource committees, and relevant task groups that will clarify the meaning of various terms and achieve uniformity where possible. This initial effort will help to identify discrepancies or dual meanings for particular terms that could use clarification both within and between disciplines.

### 4.1.3 Identifying Research and Development Needs

OSAC also recognizes that due to its unique makeup of academic scholars, legal professionals, laboratory managers, and forensic science practitioners, it is well-positioned to inform the community of research and development needs that are identified during the course of standards and guidelines development and promotion. In order to share these identified research needs with the public, OSAC regularly publishes a list of recommended research and development needs that include inputs from the all of the 25 subcommittees and 5 SACs.

**Figure 8.** Facial Recognition Subcommittee Chair Lora Sims and Digital/Multimedia SAC Chair Richard Vorder Bruegge field questions on research and development needs at the OSAC public meetings.

These recommendations may be considered by other agencies and organizations as they develop their own priorities and solicit funding for forensic science research. In addition, funding agencies may find these recommendations useful as they develop new solicitations.
The process to coordinate these identified research needs was implemented in October, 2015. The current list of research needs is located on the OSAC website here: http://www.nist.gov/forensics/osac/osac-research-development-needs.cfm.

### 4.1.4 The Forensic Science Community Further Embraces Standards Development

Since OSAC was launched, the forensic science community has further embraced the need for a more formal standards development process that facilitates sustained improvements in the field. For example, OSAC subcommittees met with representatives of various SDOs in January, 2016 to learn about the SDOs' processes and coordinate potential future action on OSAC outputs. The SDOs described their technical experience, structure, membership, standards development process and procedures, opportunities for OSAC to engage, and methods of distribution of completed standards and guidelines. For a list of SDOs that participated in these meetings, see Figure 23.

**Figure 9.** The Physics/Pattern SAC collaborative plenary session was attended by the Bloodstain Pattern Interpretation Analysis, Firearms and Toolmarks, Footwear and Tire, Forensic Document Examination, and Friction Ridge subcommittees in January 2016.

OSAC subcommittee representatives are also working on various SDO committees such as ASTM International and the National Fire Protection Agency (NFPA) to introduce new topics and to revise existing topics. One of the newer ANSI-accredited SDOs working with OSAC is the American Standards Board (ASB) within the AAFS. For more information on SDOs that the OSAC has coordinated with, see Figure 23.

Facilitating the movement of these standards within SDOs helps the forensic science community because it offers broad participation in the development of standards and guidelines and helps ensure their continuity. The OSAC and the broader forensic science community may elect to provide updates to later versions of standards that are facilitated and published through the SDO.

### 4.1.5 OSAC Launches a Monthly Newsletter

In August 2015, OSAC launched a monthly newsletter to share program activities and accomplishments with internal and external stakeholders and contributors. Each month OSAC publishes a feature article, announcements on vacancies, upcoming public comment periods for standards/guidelines under consideration for the OSAC registries, articles about implementation, and highlights of particular committees and subcommittees. Figure 10 shows a sampling of recently published OSAC newsletters. Approximately 10,000 unique stakeholders receive the newsletter each month. The OSAC newsletters are located here: http://www.nist.gov/forensics/osac/osac-newsletter.cfm.


**Figure 10.** The OSAC launched a monthly newsletter to share program activities and accomplishments with internal and external stakeholders and contributors.

### 4.1.6 OSAC Publishes Program Processes to Include Technical Merit Form

In November 2015, OSAC made the *OSAC Registry Approval Process of Published Standards and Guidelines* available to the public. The process maps and forms are available here: http://www.nist.gov/forensics/osac/registry-approval-process-templates.cfm.

Of particular note is the Technical Merit Form, which OSAC uses as a tool to assess such items as a standard or guideline's use of bibliographic references, terminology, and limitations; its fitness-for-purpose; and other qualities. This form is also used to analyze whether the standard/guideline is appropriate for inclusion on the OSAC registries.

OSAC also published other major program processes, including the *OSAC Working with an SDO Process*. More description on other program "inputs" are described in section 5.

## 4.2 OSAC Overall "By the Numbers"

OSAC members spent considerable time within the last year prioritizing activities and narrowing their focus to identify specific, high-priority projects from the original 360-plus projects identified in February 2015. OSAC is now focusing on 155 standards and guidelines projects. These are currently moving through the two OSAC processes: the *OSAC Working with an SDO Process* and the *OSAC Registry Approval Process of Published Standards and Guidelines*. The first of these two processes entails OSAC committees or task groups submitting an idea, a partially drafted document, or a fully drafted document to an SDO for further routing, modifications, and publishing. The second process focuses on elevating selected standards or guidelines to the OSAC Registries.

Now that OSAC has narrowed its focus, committees are poised to be more strategic with their time.

**Figure 11.** OSAC originally identified 360-plus potential forensic science standards or guidelines for consideration at the January 2015 meetings in Norman, Oklahoma (top). At the January 2016 meeting, the OSAC narrowed the potential topics to a more strategic list of 155 projects (bottom).

The figures in this section depict where OSAC projects are in the OSAC processes. Figure 12 depicts OSAC's recent efforts from the "big picture" vantage point, and highlights OSAC's overall metrics between February 2015 and February 2016. Note that the OSAC subcommittees have been working to bring 141 draft standards or guidelines to a level of maturity suitable for submission to an SDO. By February 2016, OSAC officially submitted seven of these draft standards directly to SDOs for further development.

OSAC subcommittees also formally analyzed the technical merit of 28 existing standards and guidelines and began routing them through the OSAC and public review stages that assess their suitability for OSAC Registries. Of the 23 standards or guidelines that were approved and subsequently reviewed by SACs, 8 moved to the public review and comment phase. One

standard progressed through the process, was reviewed by all relevant units including the FSSB, and was posted on the *OSAC Registry of Approved Standards*—ASTM: E2329-14 Standard Practice for Identification of Seized Drugs. The other standards or guidelines were sent back to the SDOs for additional revisions before potential posting.

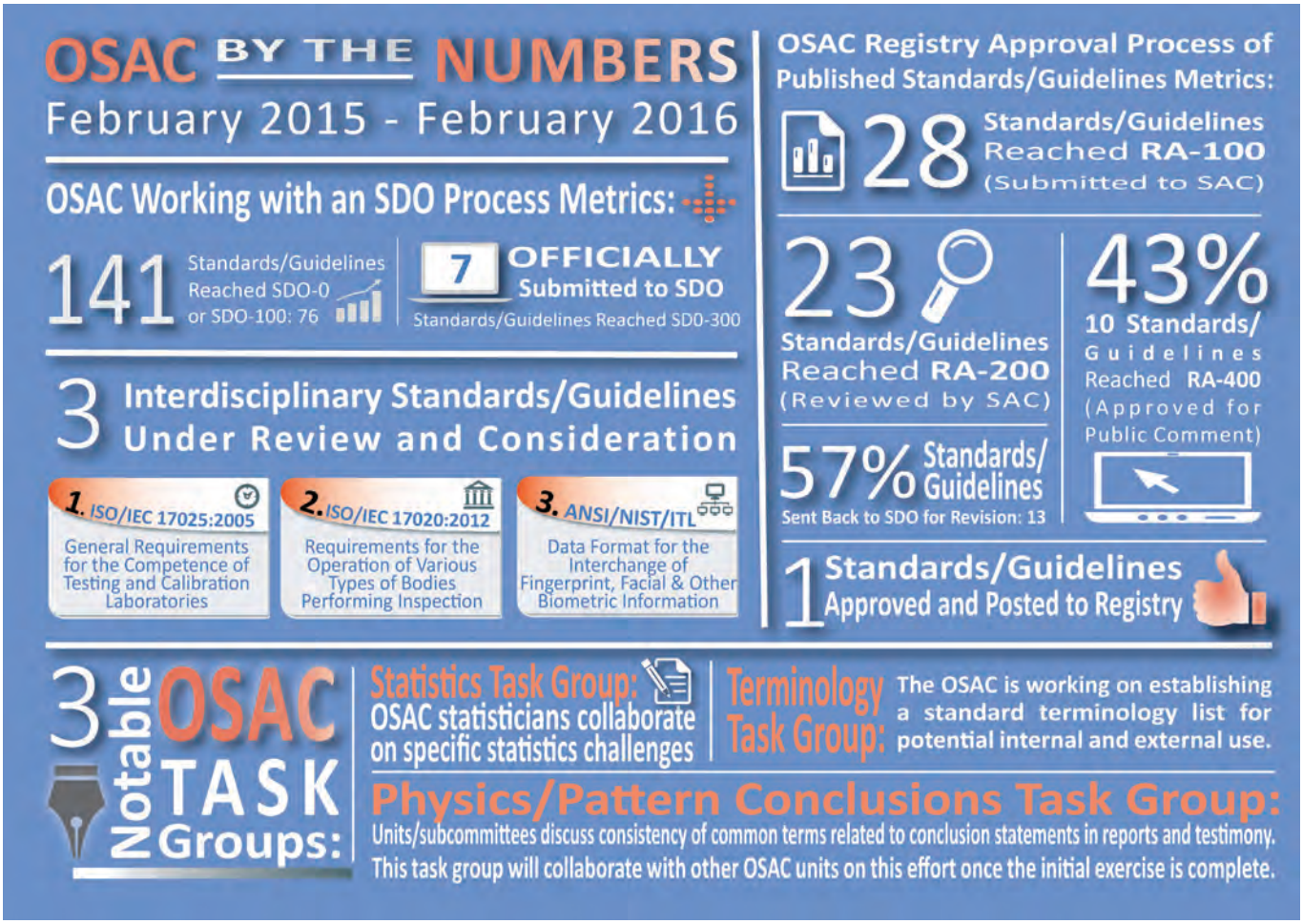



**Figure 12.** OSAC Overall "By the Numbers". This figure includes metrics on items that have reached certain phases on OSAC processes (indicated by "SDO" or "RA").

### 4.3 OSAC By the Numbers—By Scientific Area Committees (SACs)

Figure 13 depicts the number of standards and guidelines projects that reached particular stages in OSAC processes. See Section 8 for a more specific list of list of draft documents that will be submitted to SDOs as work items or documents being considered by each committee, organized by discipline or under consideration by each committee, organized by discipline.

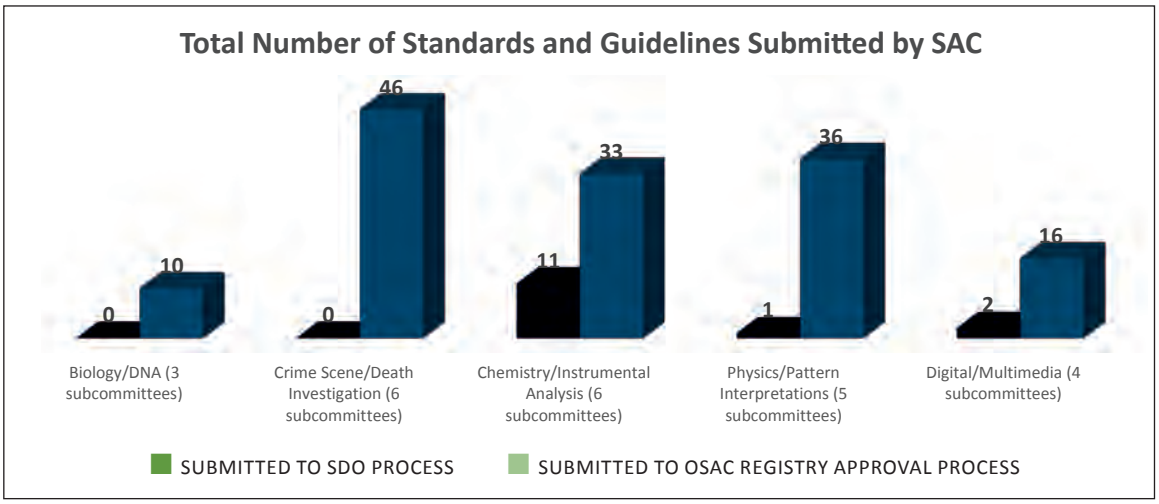



**Figure 13.** OSAC "By the Numbers" by SAC. The OSAC is working on 155 different standards/guidelines projects.

### 4.3.1 By the Numbers—Biology/DNA SAC

The Biology/DNA SAC manages the activities of three subcommittees which include Biological Data Interpretation and Reporting, Biological Methods, and Wildlife Forensics. (This SAC and its subcommittees are primarily focusing on submitting new content to SDOs for potential publishing.)

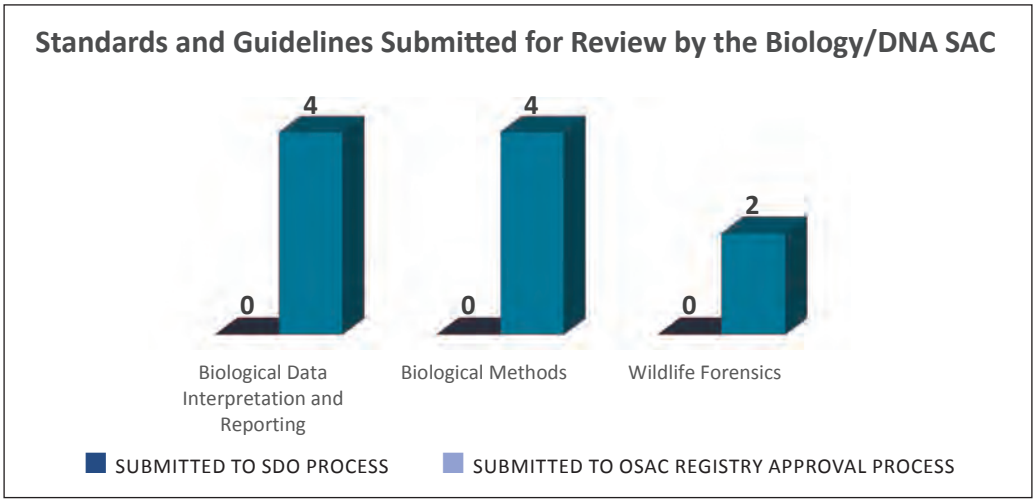



**Figure 14.** Biology/DNA SAC "By the Numbers"

### 4.3.2 By the Numbers—Crime Scene/Death Investigation SAC

The Crime Scene/Death Investigation SAC manages the activities of six subcommittees which include Anthropology, Disaster Victim Identification, Dogs and Sensors, Fire and Explosion Investigation, Medicolegal Death Investigation, and Odontology. The Crime Scene subcommittee was not appointed until March 2016; therefore they are not represented in this section but will be included in next year's annual report. (This SAC and its subcommittees are primarily focusing on submitting new content to SDOs for potential publishing.)

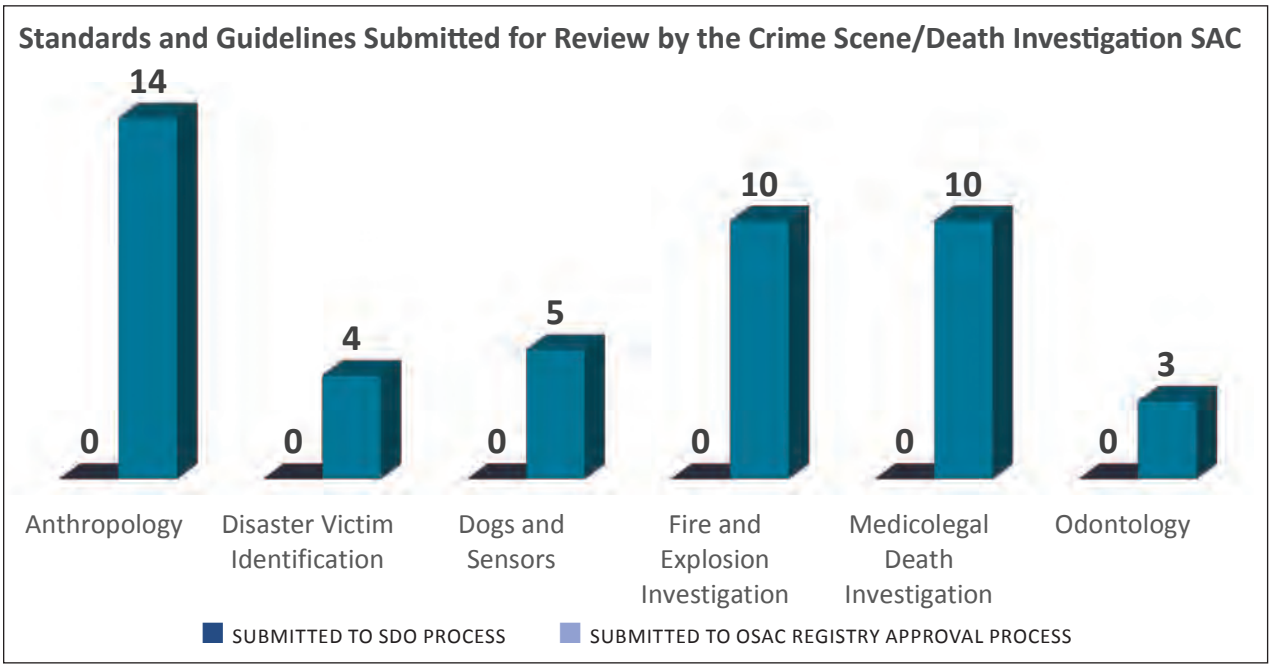



**Figure 15.** Crime Scene/Death Investigation SAC "By the Numbers"

### 4.3.3 By the Numbers—Chemistry/Instrumental Analysis SAC

The Chemistry/Instrumental Analysis SAC manages the activities of six subcommittees which include Fire Debris and Explosives, Geological Materials, Gunshot Residue, Materials (Trace), Seized Drugs, and Toxicology. Not captured in the metrics depicted in Figure 16 is the fact that the Chemistry/Instrumental SAC forwarded several items to the Registry Approval Process very soon after that process was released. Many lessons were learned about the process during these early efforts, and the process was improved based on that experience. The Seized Drugs Subcommittee achieved the first standard to be posted to the OSAC Registries. ASTM: E2329-14 Standard Practice for Identification of Seized Drugs was posted to the OSAC Registry of Approved Standards in January, 2016.

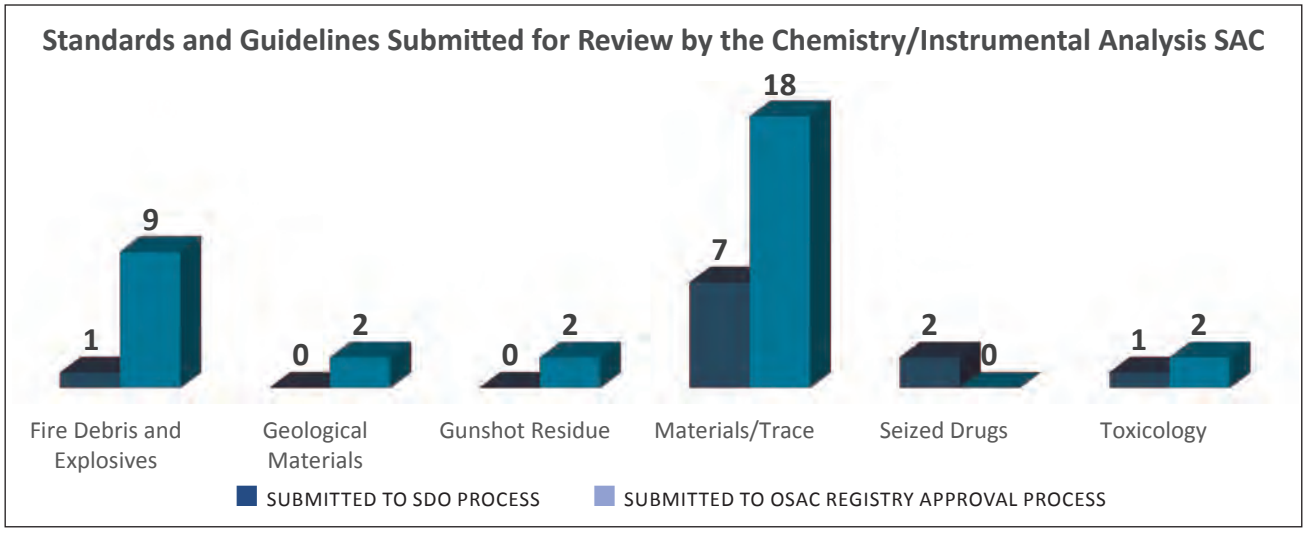



**Figure 16.** Chemistry/Instrumental Analysis SAC "By the Numbers"

### 4.3.4 By the Numbers—Physics/Pattern Interpretation SAC

The Physics/Pattern Interpretation SAC manages the activities of five subcommittees which include Bloodstain Pattern Analysis, Firearms and Toolmarks, Footwear and Tire, Forensic Document Examination, and Friction Ridge. (This SAC and its subcommittees are primarily focusing on submitting new content to SDOs for potential publishing.)

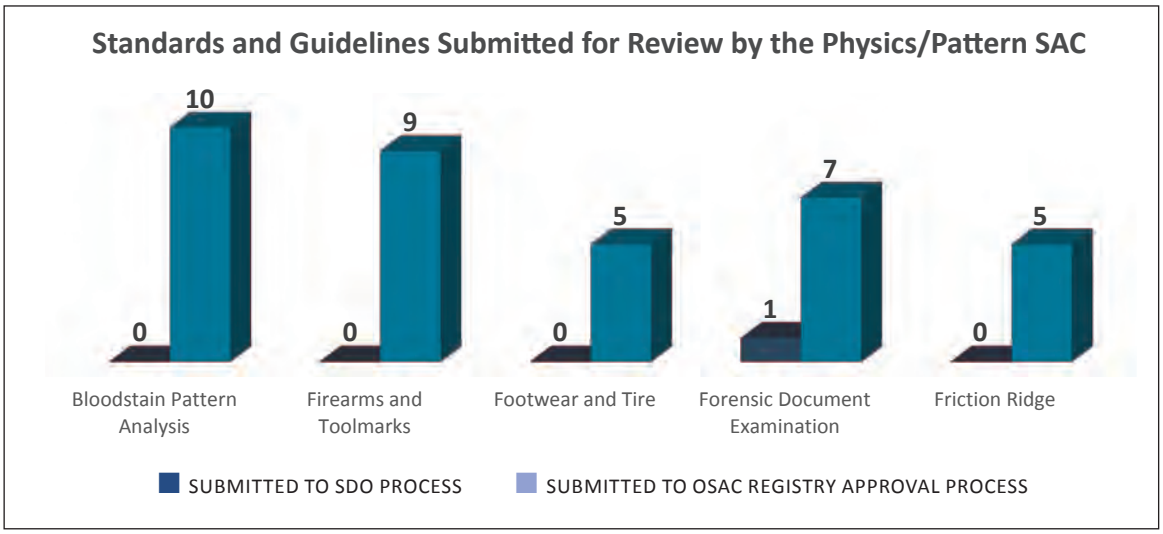



**Figure 17.** Physics/Pattern SAC "By the Numbers"

### 4.3.5 By the Numbers—Digital/Multimedia SAC

The Digital/Multimedia SAC manages the activities of four subcommittees which include Digital Evidence, Facial Identification, Speaker Recognition, and Video/Imaging Technology and Analysis. (This SAC and its subcommittees are primarily focusing on submitting new content to SDOs for potential publishing.)

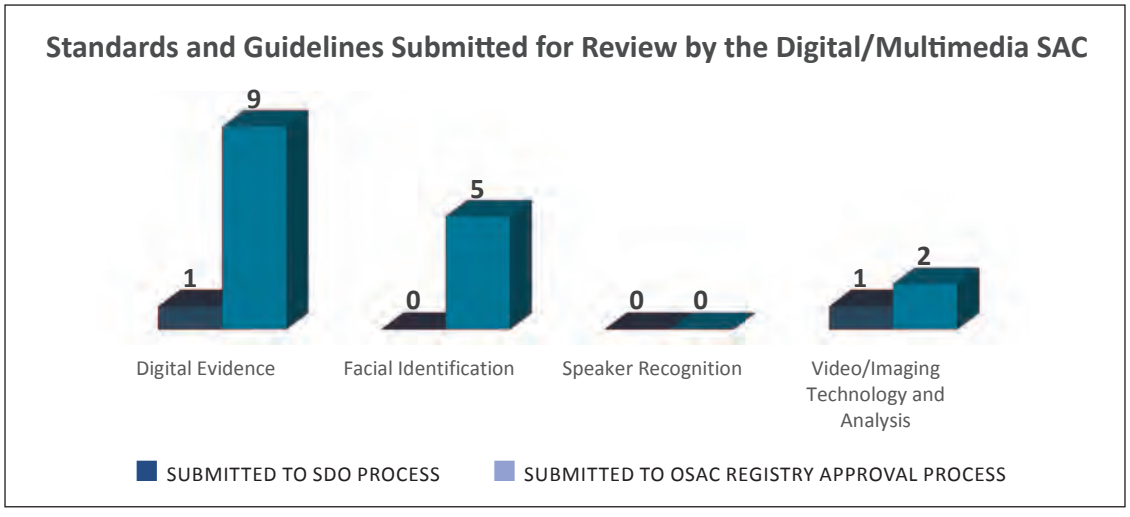



**Figure 18.** Digital/Multimedia SAC "By the Numbers"

## 5.0 OSAC INPUTS: INFRASTRUCTURE, PUBLISHED OR REVISED PROCESSES, TRAINING, AND MEETINGS FEBRUARY 2015-FEBRUARY 2016

While OSAC was in full operation during the period of February 2015-February 2016, throughout this time the FSSB, the Resource Committees, OSAC Affairs at NIST, and other committees continued to refine the OSAC infrastructure, publish or revise existing OSAC processes, train OSAC members, conduct OSAC internal business, and report OSAC activities to the public. Figure 19 shows a timeline of some of these activities.

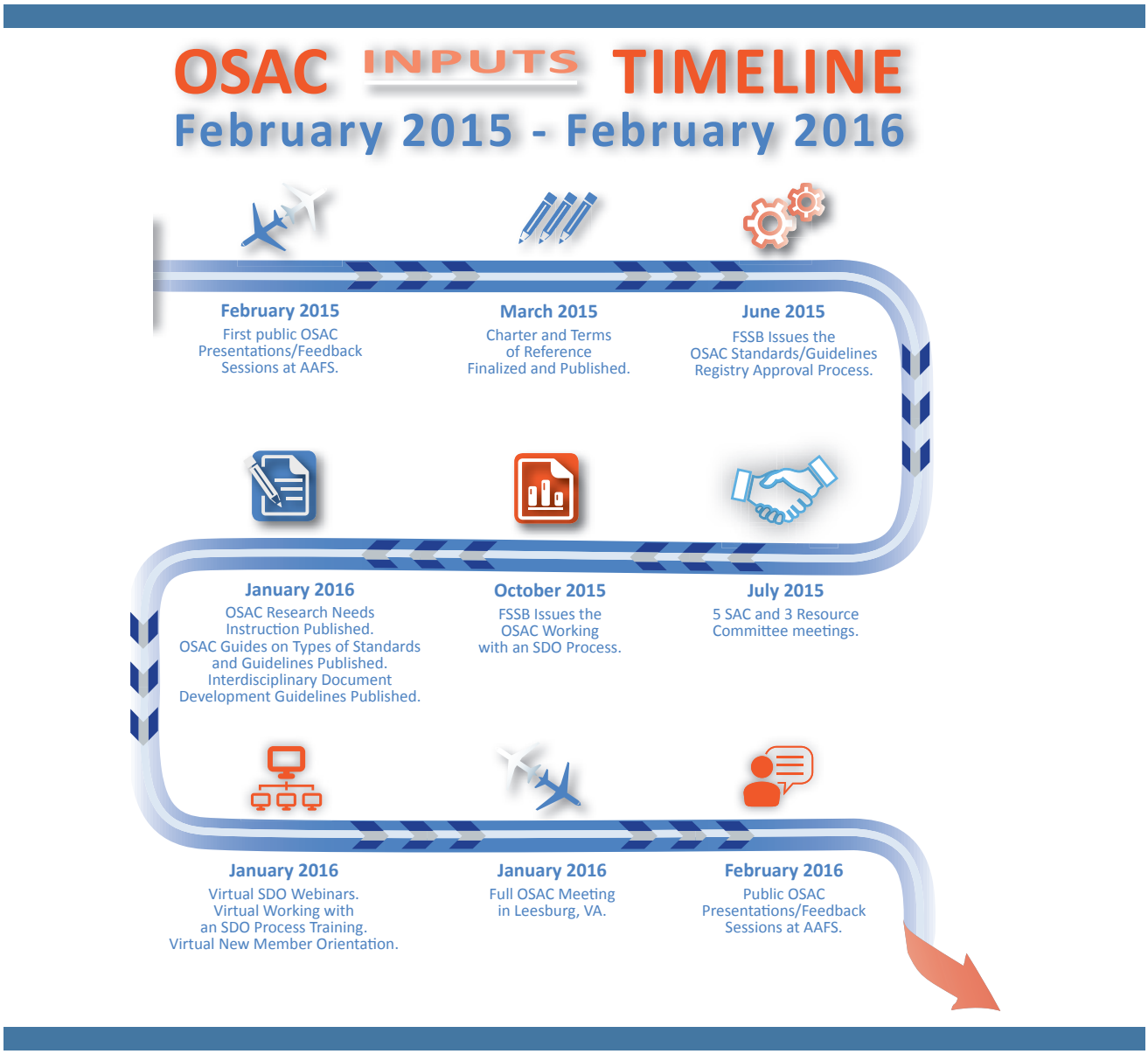



**Figure 19.** Timeline of OSAC "Inputs" February 2015 – February 2016.

## 5.1 OSAC Infrastructure Updates

In addition to the infrastructure updates detailed in the timeline, NIST also established online portals where the public could access and review any SDO standards moving through the Registry Approval Process. Within these 12 months, eight ASTM standards were made available through this portal.

## 5.2 OSAC Published or Revised Processes

Figure 19 describes some of the OSAC processes that were published. These include the *OSAC Standards/Guidelines Registry Approval Process Versions 1 and 2*, the *OSAC Working with an SDO Process*, the *OSAC Member Comments Guide*, the *Interdisciplinary Document Development Guidelines*, and the *OSAC Research Needs Instruction*.

## 5.3 OSAC Meetings

The bulk of the OSAC's work occurs at the hundreds of virtual and in-person meetings held each year. The primary purpose of the large "All Hands" OSAC meetings that occur every 9 months is for subcommittees, SACs, and RCs to coordinate and produce program deliverables. Additionally, interdisciplinary and other focused meetings are held in the evenings in order to maximize the opportunity for face-to-face conversation. These meetings include topics such as getting to know SDOs, working on specific SDO products, interdisciplinary standards meetings, other inter-unit collaboration meetings, and OSAC trainings. Figure 20 depicts snapshots from a series of OSAC meetings held between February 2015 and February 2016.


**Figure 20.** OSAC Holds Hundreds of Virtual and In-Person Meetings Annually. From top left: January 2015 meeting in Norman, Oklahoma; Marc Lebeau and Scott Oulton provide public status briefings at AAFS; Joint Resource Committee meeting at NIST in July 2015, FSSB Meeting in April 2016, Physics/Pattern SAC meeting in August 2016; Hal Stern and David Stoney at the Digital/Multimedia SAC meeting in August 2016; Digital/Multimedia SAC meeting in August 2016; Kris Cano and Linton Mohammed provide briefings at the Physics/Pattern SAC meeting in August 2016.

In addition to internal meetings, OSAC reports its activities publicly at various conferences. OSAC has twice reported at the AAFS annual meeting. At this forum, subcommittee chairs explain the units' priorities along with the rationale behind them. Each chair then takes questions and comments from audience members. More information on public meetings/reporting is provided in Section 6.1.

**Figure 21.** OSAC Meetings. The Quality Infrastructure Committee, Legal Resource Committee, and Human Factors Committee collaborate at the January 2016 OSAC Meeting.


**Figure 22.** OSAC Training. QIC representative Barbara Andree and Chemistry SAC representatives Scott Oulton and Will Guthrie provide plenary briefings to the OSAC in January 2016.

## 5.4 OSAC Training

In addition to the training depicted in Figure 19, OSAC performed the following training sessions for members and other relevant audiences:

- February 2015 training on use of Kavi Workspace, the internal document management tool used by OSAC. Subsequent webinar video on how to comment on OSAC documents using Kavi Workspace was provided
- May 2015 Kavi Workspace training
- January 2016 SDO Informational webinars provided an overview of interested SDO's technical experience, structure, membership, standards development process and procedures, opportunities for OSAC to engage, and methods of distribution of completed standards and guidelines. Figure 23 depicts logos of the SDOs that attended these Webinars
- January 27, 2016
    - OSAC Working with an SDO Process Training
    - Working with an SDO: Benefits and Challenges Presentation
    - Technical Merit Form Training.


**Figure 23.** NIST OSAC SDO Informational Webinars. Multiple SDOs attended Webinars to meet with OSAC members.

# 6.0 EXTERNAL RELATIONS

## 6.1 Public Meetings

OSAC reports its activities to the public annually. The primary reporting session occurs at AAFS meetings. The OSAC Public Status Reports & Open Discussions were held at AAFS in Las Vegas, Nevada on February 22-23, 2016. At the public meeting, five SAC chairs and 24 Subcommittee chairs presented their committee's progress to the public and solicited open discussion on the topics they presented. More information is available here: http://www.nist.gov/forensics/osac/nist-scientific-area-committee-meetings-february-2016.cfm.

*Common themes expressed by OSAC chairs at the 2016 public meetings include the need to consider the influence of bias on stated opinions and conclusions, the consideration of the emotional toll that examiners face across disciplines, as well as the importance of standardized reporting processes.*

Speakers presented on their committee's progress on reviewing specific standards and guidance for inclusion on the OSAC Registries and on the identification of research and development needs, and also offered insight to their OSAC unit's experiences and discussions. Among other things, many participants discussed the initial frustration that subcommittees experienced when the majority of the documents they submitted for consideration to the OSAC Registry were rejected by a higher OSAC unit (the SAC). These documents were rejected due to insufficient technical merit, lack of balance in the standards development process, or other issues. These committees are now recalibrating to focus on adding technical merit and making other needed adjustments. Other common themes expressed by speakers include the need to consider the influence of bias on stated opinions and conclusions, the emotional toll that examiners face across disciplines, and the importance of standardized reporting processes.


**Figure 24.** OSAC Public Meeting at 2016 AAFS. Fire Debris and Explosives Subcommittee Chair Vincent Desiderio and Crime Scene Investigation Subcommittee Chair Marilyn Miller provide updates at the AAFS Meeting.

In addition to annual public reporting sessions at the AAFS, the SACs provide public updates at other conferences relevant to their discipline. For example, OSAC also held public meetings at the International Symposium on Human Identification (ISHI) and IAI conferences.

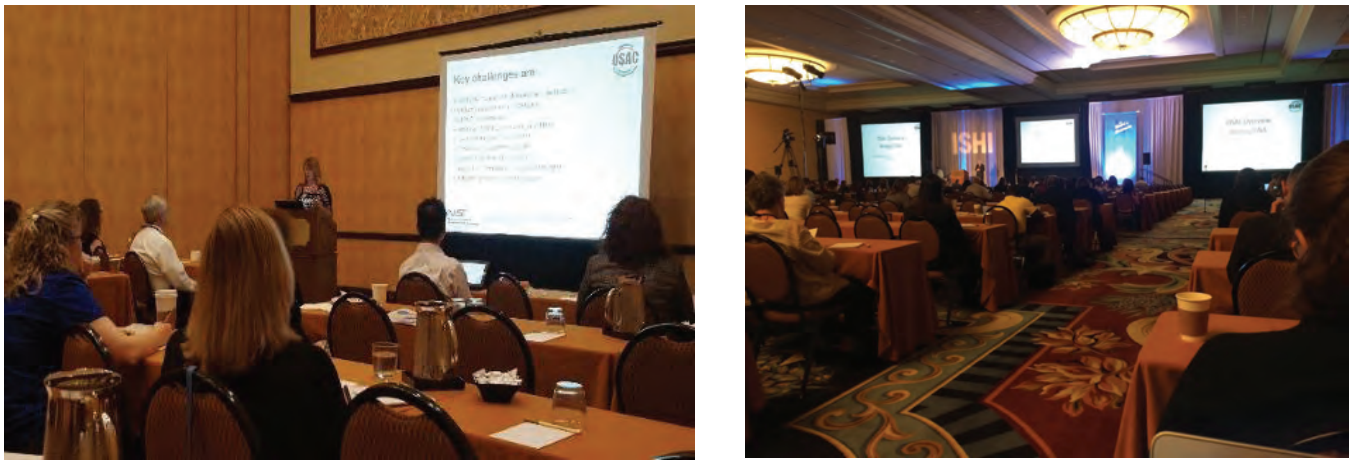



**Figure 25.** OSAC Public Meeting at ISHI. Biological Data Interpretation and Reporting Subcommittee Chair Robyn Ragsdale and Biology/DNA SAC Chair George Herrin provide briefings at ISHI.

## 6.2 Public Outreach

In addition to public reporting, OSAC representatives have spoken or presented at many forensic science or other relevant conferences, including (but not limited to):

- International Forensic Strategic Alliance, April 2015
- Forensic Expert Witness Association, April 2015
- National Academy of Sciences Committee on Strengthening Forensic Science at the National Institute of Justice, April 2015
- California Association of Criminalists, May 2015
- California Association of Crime Laboratory Directors Conference, May 2015
- Forensic Science Research Evaluation Workshop, May 2015
- American Bar Association Prescriptions for Criminal Justice Forensics Program at Fordham University School of Law, June 2015
- International Symposium on Forensic Science Error Management, July 2015
- The IAI's 100th International Education Conference, August 2015, including a Q&A session
- National Institute of Justice's (NIJ's) Impression Pattern and Trace Evidence Symposium, August 2015
- Global Identity Summit, September 2015
- Midwestern Association of Forensic Scientists Annual Meeting, September 2015
- 7th European Academy of Forensic Sciences Conference, September 2015
- The International Association of Chiefs of Police Forensic Science Committee meeting, October 2015
- ISHI, October 2015
- The ASCLD Meeting, April 2016
- Multiple meetings of the NCFS.

*"The OSAC provides forensic scientists the means to validate their own scientific practices. Moreover, we forensic scientists have been given access to statisticians and other experts essential to the practice of sound science, a luxury that we could not have afforded on our own. We forensic scientists must seize this spectacular opportunity with extreme care and create a valid Registry of Approved Standards through deliberation at once cautious and bold." - Gregory G. Davis MD MSPH, Andrew M. Baker MD, originally published in AFP Journal Volume 4, Issue 4, reprinted with permission.*

OSAC members and stakeholders have also published web and journal articles related to the program in order to create awareness and share progress. Articles were published in journals such as *Forensic Science International* and the *Academic Forensic Pathology (AFP) Journal*.

## 6.3 Collaborations with External Organizations

OSAC coordinates with other external organizations to inform, engage, coordinate with, and solicit feedback from the broader forensic science community.

NIST and the DOJ entered into a Memorandum of Understanding (MOU) in March 2013 that focused on providing national leadership to improve the quality of forensic science. The NIST–DOJ MOU led to the establishment of the NCFS to study forensic science policy issues and of OSAC to facilitate the creation of high-quality standards in order to strengthen the practice of forensic science. This unique partnership draws upon each agency's core strengths to promote scientific validity, reduce fragmentation, and improve federal coordination of forensic science. While NCFS focuses on policy, OSAC focuses on standards and guidelines in practice. NCFS and OSAC share data routinely through liaisons, and OSAC reports progress to the Commission regularly.


**Figure 26.** OSAC Collaborations with External Organizations. Top, Amy Hess, Executive Assistant Director of the FBI, addresses OSAC Members in January 2016. Bottom, OSAC staff members meet with NIFS, Australia.

OSAC staff also liaise regularly with the NIJ, which is a potential consumer of OSAC-identified research needs (described more thoroughly in section 4). OSAC is working directly with NIJ to share the OSAC-identified research needs in order to maximize their impact.

OSAC staff have also met with several international organizations to discuss potential for future collaborations. For example, in 2015, OSAC met with the European Network of Forensic Science Institutes (ENFSI), and the National Institute of Forensic Science – Australia New Zealand Policing Advisory Agency (NIFS-ANZPAA).

OSAC has also had a series of meetings with accrediting bodies. When OSAC was being designed, the NIST team met with representatives of accrediting bodies and several others interested in forensic accreditation. The attending representatives agreed that if OSAC were to build a system to create and promote quality standards, then the accrediting bodies would identify how to best incorporate these standards in their future conformity assessments of forensic laboratories.

In February 2016, NIST held a second meeting with accrediting bodies that provide services related to forensic science. This meeting included the American Association of Laboratory Accreditation (A2LA), the ANSI-ASQ National Accreditation Board (ANAB), the American Society of Crime Laboratory Directors / Laboratory Accreditation Board (ASCLD/LAB)[3], the American Board of Forensic Toxicologists (ABFT), the College of American Pathologists (CAP), the International Association of Coroners and Medical Examiners (IACME), and the National Association of Medical Examiners (NAME). The meeting topics included an update on OSAC progress, discussion

[3] In April 2016, ANAB and ASCLD/LAB announced that they were merging ASCLD/LAB into ANAB.

of new accreditation activities in the forensic science disciplines, and a discussion on how the *OSAC Registry of Approved Standards* might be used during the accreditation process. In follow-up discussions, several of the accrediting bodies expressed interest in participating in an SDO committee/group to develop a standard that addresses the specific application of accreditation for forensic science service providers including approaches to leveraging the use of standards on the OSAC Registry.

### 6.4 Strategic OSAC Member Positions

In order to facilitate strategic coordination, six representatives from major professional forensic science organizations sit on the FSSB. These organizations include the AAFS, ASCLD, Association of Firearm and Toolmark Examiners (AFTE), IAI, National Association of Medical Examiners (NAME), and Society of Forensic Toxicologists, Inc. (SOFT).

## 7.0 OSAC Focus in 2017

OSAC will continue to work on the 155 standards and guidelines projects already underway, and continue to consider whether an even more sharply defined focus is needed. In addition, OSAC recently held a leadership strategy session on June 22, 2016. Three representatives from each OSAC committee attended, providing both written and verbal feedback on a series of strategic questions. This exercise will help OSAC to focus on additional efforts in 2017, such as:

- Refining OSAC infrastructure and processes to be more efficient without sacrificing quality. This will help ensure that OSAC members' time is used wisely and will maximize their strategic input to scientifically sound standards and guidelines.
- Potentially refining the infrastructure to foster additional inter-committee efforts, so that collaboration between human factors, quality, legal, and statistician stakeholders can occur with forensic science practitioners as early and as often as practical.
- Developing a strategy to best achieve timeliness, relevance, consensus, and quality in OSAC standards.

**Figure 27.** OSAC Leadership Strategy Session. John Paul Jones, Associate Director of OSAC Affairs at NIST, facilitated the OSAC Leadership Strategy Session. Attendees discussed a path forward for OSAC that will maximize collaboration between the various stakeholders.

## 8.0 OSAC Committee Highlights

Section 8 provides an overview of each of the OSAC committees, and, where relevant, lists the specific standards and guidelines projects being addressed. These standards/guidelines projects are still in the draft phase. This sections also describes the various task groups that exist within each committee.

## Forensic Science Standards Board

### SCOPE

The Forensic Science Standards Board (FSSB) serves as the OSAC governing board and supports the organization by overseeing operations of all committees; approving standards for listing on the *OSAC Registry of Approved Standards*; and facilitating communication within OSAC and between OSAC and the forensic science community. FSSB members include research representatives, professional association representatives, SAC chairs and one Ex Officio member.

### CHAIR

**Jeremy Triplett,** chair, is the drug chemistry supervisor at the Kentucky State Police Central Forensic Laboratory in Frankfort, Kentucky, where he is also the technical leader for all six of the Kentucky State Police laboratory branches. He has more than eleven years of experience in forensic drug chemistry analysis and has testified in local, state and federal courts.

### BY THE NUMBERS

Members: 17

Task Groups:

- Code of Practice
- Bylaws and Operations
- Ethics
- Executive
- Finance
- In Brief
- Long Range Planning
- Membership and Awards
- Nominating
- OSAC Internal Communications
- Outreach and Communication
- Statisticians

### Activities

The FSSB:

- Determined a path forward and developed a set of instructions for the identification and posting of research and development needs
- Facilitated uniform updates of subcommittee descriptions on Web pages and approved updated subcommittee names
- Continued to work on the *Principles of Professional Practice* (formerly called the *Code of Practice*)
- Developed and published the *OSAC Process for Adding New Disciplines*
- Approved the membership of all new OSAC members

## Human Factors Committee

### SCOPE

The Human Factors Committee (HFC) was established as part of the OSAC infrastructure to provide advice and guidance on human factors issues. It consists of nine cognitive scientists and psychologists with expertise in factors affecting human performance and expert human judgment. Members' expertise spans such areas as medical decision making, airline safety, military performance, technology interface, personnel selections, readiness for duty, morale and motivation, and reduction of bias and error.

### CHAIR

**William Thompson,** chair, is a professor at the University of California, Irvine. His primary appointment is in the Department of Criminology, Law & Society. He also holds joint appointments in the Department of Psychology and in the School of Law.

### BY THE NUMBERS

| Applicants: 107 | Members: 9 |
|---|---|

Task Groups:

- Affiliate Management - The HFC has 9 active affiliates that contribute to a variety of HFC activities

### Activities

The HFC has:

- Reviewed and provided comments on eight documents from the various OSAC units
- Initiated review of 13 additional documents
- Developed five draft documents for OSAC internal use (and potentially ultimately for external use):
  - *-The Role of the Forensic Examiner*
  - *-Draft Primer on Cognitive Bias*
  - *-Forensic Science Culture Task Force Document*
  - *-Draft of Internal Guidance Document on Task Relevance*
  - *-Ways to Minimize Contextual Bias*
- Contributed articles to the OSAC Newsletter
- Reviewed documents from the National Commission on Forensic Science

## Legal Resource Committee

### SCOPE

The Legal Resource Committee (LRC) was established to provide guidance throughout OSAC about the legal ramifications of forensic standards under development and provides input on the presentation of forensic science results to the legal system.

### CHAIR

**The Honorable Christopher Plourd,** chair, is a Superior Court Judge, State of California. He has over 30 years of experience specializing in cases with forensic science evidence as a certified criminal law specialist.

### BY THE NUMBERS

| Applicants: 110 | Members: 11 |
|---|---|

Task Groups:

- Effective Use of Forensic Science in the Courtroom
- Model Code of Professional Responsibility for Forensic Science Practitioners
- Science and the Law Practice

### Activities

The LRC provides legal advice and commentary to the OSAC subcommittees regarding the usability and legal ramifications of forensic standards and guidelines under development including issues surrounding admissibility and the impact of the standard on the presentation of the evidence in court. The LRC consults with SACs and has reviewed standards and guidelines submitted for consideration to the OSAC Registry. The LRC may also provide input to the FSSB when the board is considering whether a standard should be approved for the Registry.

The LRC has:

- Provided input to multiple standards and guidelines routing through the *OSAC Registry Approval Process of Published Standards and Guidelines*
- Contributed articles to the OSAC Newsletter
- Developed draft articles for potential submission to journals

## Quality Infrastructure Committee

### SCOPE

The Quality Infrastructure Committee (QIC) provides guidance on quality issues and provides impact statements that inform agency management about how specific standards may affect laboratory operations. It also works with outside standards developing organizations and accrediting bodies as needed.

### CHAIR

**Karen Reczek,** chair, works for NIST and has 17 years of experience working in standards and conformity assessment.

### BY THE NUMBERS

| Applicants: 163 | Members: 15 |
|---|---|

Task Groups :

- Impact Assessment for Registry Items
- Catalog Maintenance
- Standard Processes and Procedures
- Internal QIC Procedures
- Comment Adjudication Process
- Quality Terminology
- Registry Approval Comment Adjudication QIC Check
- Registry Management
- Appeal Process
- Standard Development Process Review

### Activities

The QIC has:

- Developed, organized, and posted V1 of the *OSAC Catalog of External Standards and Guidelines*
- Is developing a quality-related terminology document in order to establish consistency within the resource committees where possible. Terminology will point to a recognized source
- With support from OSAC Affairs and the FSSB, developed, routed for review, and published the two major OSAC processes, including over 11 different supplemental forms, tools, and templates
- Performed a series of virtual and in-person training sessions to introduce the processes, answer questions, and assist subcommittees to begin to route projects through the processes
- Held a series of consecutive webinars to introduce the OSAC to various SDOs that are interested in accepting new work products from the OSAC
- Performed a comment adjudication process check for eight standards packets that have routed through the *OSAC Registry Approval Process of Published Standards and Guidelines*
- Performed standards development process review for six standards packets being considered for Registry approval
- Developed and issued an appeals procedure
- Completed Registry approval packet submissions on two standards, and forwarded to subcommittee for routing for Registry approval
- Began development of an *Impact Assessment Survey*
- Appointed QIC liaisons to each SAC. Attended SAC and Subcommittee meetings as appropriate
- Organized and held two Joint Resource Committee meetings

## Biology/DNA SAC

### SCOPE

The Biology/DNA SAC manages the activities of three subcommittees. Within the SAC and 3 subcommittees which include Biological Methods, Biological Data and Reporting, and Wildlife. There are 15 affiliates supporting member work. The SAC also works collaboratively with Scientific Working Group on DNA Analysis Methods (SWGDAM) on efforts.

### CHAIR

**George Herrin Jr.,** is a Deputy Director for the Georgia Bureau of Investigation over the Division of Forensic Sciences. He has been actively involved in forensics for more than 28 years.

### BY THE NUMBERS

| | |
|---|---|
| Applicants: 150 | Members: 12 |

Task Groups:

- Terminology

### Activities

The Biology/DNA SAC has performed initial reviews of four to six subcommittee documents (of approximately 13 documents overall), in each case requesting additional work from the subcommittee to subdivide large/long documents into smaller, more specific and specialized standards.

The SAC is working on developing a SAC-wide terminology document in order to establish consistency within the SAC where possible. This SAC terminology task group is working with a document that contains over 1200 terms that are relevant to forensic biology and DNA. This first-draft glossary contains many important and frequently used terms in the area of biology and human DNA testing for forensic applications, with many definitions credited to pre-existing documents. The list is intended not only for forensic biologists, but also others who may not have specialized knowledge of forensic biology (e.g., law enforcement, attorneys, public). A second list of terms will be integrated with this list in the future, as many relevant terms have yet to be included. Many wildlife biology/DNA terms, which may not be in common usage in the human DNA community, will be included in this second list of terms.

The Biology/DNA SAC is also interested in gaining the broadest input possible in the early stages of standards/guidelines development. In order to do that they plan to establish a larger "affiliate pool" of technical leaders from a number of laboratories for support with document reviews.

Other activities include presentation of OSAC updates by SAC or subcommittee members at several regional or national forensic science meetings, especially those focused on the field of forensic biology.

## Biological Methods Subcommittee

### SCOPE

The Biological Methods Subcommittee, one of the subcommittees within the Biology/DNA SAC, focuses on standards and guidelines that support molecular and biochemical methods used to analyze evidence and reference items.

This encompasses everything from serology through loading samples on a Genetic Analyzer. This subcommittee does not cover anything related to interpretation (serology interpretation or DNA interpretation).

### CHAIR

**Kim Murga**, the chair, works for the Las Vegas Metropolitan Police Department as the Director of Laboratory Services.

### BY THE NUMBERS

| Applicants: 202 | Members: 19 |
|---|---|

Task Groups:

- Terminology
- Validation and Method Development
- Education/Training/Competency/Certification
- Serological Examination of Biological Evidence

# Items reached RA-100: 0
# Items reached SDO-0 or SDO-100: 4

### Standards/Guidelines Projects

With input from members as well as affiliates representing national and international agencies, the subcommittee is working on the following projects:

- *Standards for the Validation of Serological Methods*
- *Best Practices for Assessing Education Requirements*
- *Standards for Serological Analytical Procedures*
- *Standards for Training in Serological Methods*

The subcommittee is also working on terminology and incorporating the extensive feedback received on the draft documents defined above.

## Biological Data and Reporting Subcommittee

### SCOPE

The Biology Data Interpretation and Reporting Subcommittee, one of the subcommittees within the Biology/DNA SAC, focuses on standards and guidelines related to scientifically valid methods of interpretation, statistical analysis, and reporting of biological results.

### CHAIR

**Robyn Ragsdale** works for the Florida Department of Law Enforcement as a technical leader and senior crime laboratory analyst.

### BY THE NUMBERS

| Applicants: 198 | Members: 19 |
|---|---|

Task Groups:

- Probabilistic Genotyping
- Mixture Interpretation Verification
- Biology/DNA Software Validation
- Statistical Interpretation
- Terminology

# Items reached RA-100: 0

# Items reached SDO-0 or SDO-100: 4

### Standards/Guidelines Projects

With input from members as well as affiliates representing national and international agencies, the subcommittee is working on the following projects:

- *Validation Standards for Probabilistic Genotyping:* These standards are to be used by laboratories for the validation of probabilistic genotyping systems related to interpreting autosomal STR results.
- *Standards for Validation Studies of DNA Mixtures and the Development and Verification of a Laboratory's Mixture Interpretation Protocol:* These standards are for the design and evaluation of validation studies for mixed DNA samples and the development of appropriate interpretation protocols for mixtures based on the validation studies performed.
- *Biology/DNA Software Validation:* This document includes guidelines for the validation of software used in a forensic DNA laboratory that impacts the integrity of the evidence, the analytical process, interpretations and/or statistical conclusions. Additional guidelines and standards may be applicable to specialized software packages.
- *Statistical Interpretation:* Description of existing methods and delineating appropriate areas of application

## Wildlife Subcommittee

### SCOPE

The Wildlife Subcommittee, one of the subcommittees within the Biology/DNA SAC, focuses on standards and guidelines related to taxonomic identification, individualization, and geographic origin of non-human biological evidence based on morphological and genetic analyses.

### CHAIR

**Kathy Moore, M.S.,** works for NOAA Northwest Fisheries Science Center Forensic Laboratory, and has worked doing wildlife forensic methods development and/or casework for more than 20 years.

### BY THE NUMBERS

Applicants: 41 | Members: 13

Task Groups:

- Education and Training
- Report Writing
- Standards and Guidelines
- DNA Standards
- Terminology

# Items reached RA-100: 0

# Items reached SDO-0 or SDO-100: 2

### Standards/Guidelines Projects

With input from members as well as affiliates representing state, national, and international agencies, the subcommittee is working on the following projects:

- *General Standards for Wildlife Forensic Practice.* This document provides minimum standards and recommendations for practicing wildlife forensic analysts. This document covers good laboratory practices, evidence handling, and training as well as considerations of phylogeny, taxonomy, and reference collections that are specific to wildlife forensic science.

  These minimum standards and recommendations are not intended to replace standards in ISO 17025 or other forensic laboratory standards, but are designed to provide guidance for small laboratories and part-time practitioners who are outside of traditional forensic laboratories.
- *Wildlife Forensic Report Writing Standard.* This document describes the information to be provided in reports of wildlife forensic examinations. Requirements for both genetic and morphological examination reports are covered. Forensic reports serve a variety of audiences, and must provide a clear and concise summary of methods, results, and conclusions for the use of the investigator, the court, and the litigants.
- *DNA Standards*
- *Education and Training Standards.* Wildlife task group members are working with Biological Methods Education task group members to determine if a training standard can be produced that will serve as the basis for all DNA analysts, whether they work on wildlife or humans.

The subcommittee is also working on the terminology document, as well as incorporating the extensive feedback received to the draft documents to date.

## Chemistry/Instrumental Analysis SAC

### SCOPE

The Chemistry/Instrumental Analysis SAC, manages the activities of the six subcommittees which include Fire Debris and Explosives, Geological Materials, Gunshot Residue, Materials (Trace), Seized Drugs, and Toxicology.

### CHAIR

**Scott Oulton,** Associate Deputy Assistant Administrator at the DEA, is the chair.

### BY THE NUMBERS

Applicants: 226

Members: 15

Task Groups:

- Terminology
- Education/Training
- Proficiency
- Quality Assurance

Standards/Guidelines Metrics:

- Standards Reviewed as part of Registry Approval Process: 8
- Standards Returned to Subcommittee for Additional Work: 3
- Standards on Registry: 1
- Standards Still in Registry Process: 4
- Standards Reviewed as part of SDO Process: 2

### Activities

Between February 2015 and February 2016, the Chemistry SAC submitted the first eight standards or guidelines to the *OSAC Registry Approval Process of Published Standards and Guidelines* for consideration. Three standards were sent back to the subcommittee for further analysis, and four are still under review at various stages of the process. As of February 2016, one standard has been placed on the registry (ASTM E-2329), initiated by the Seized Drugs Subcommittee.

These early submissions helped to shed light on where the OSAC processes could be fine-tuned to produce a better overall product.

SAC representatives also developed a "Statistics Primer." The purpose of the primer is to promote a shared understanding of the statistical needs and requirements related to OSAC Standards and Guidelines. The primer was shared with the SAC in January 2016, and may be shared with the wider OSAC audience next year.

Other activities include working on developing a SAC-wide terminology document in order to establish consistency within the SAC where possible.

## Fire Debris and Explosives Subcommittee

### SCOPE

The Fire Debris and Explosives Subcommittee focuses on standards, guidelines, and resources related to the scientific examination and analysis of materials associated with fire and explosion investigations.

### CHAIR

**Vincent Desiderio,** a Forensic Scientist Supervisor, in the Materials Analysis Unit, U.S. Postal Inspection Service, is the chair.

### BY THE NUMBERS

Applicants: 87 | Members: 19

Task Groups:

- Ad Hoc E-1618 Evaluation
- Document Development and Evaluation
- Reports, Terminology, and Testimony
- Interpretation and Classification of Ignitable Liquids
- QA/QC
- Research and Training

# Items reached RA-100: 1

# Items reached SDO-0 or SDO-100: 9

### Standards/Guidelines Projects

- *ASTM E1618-14 Standard Test Method for Ignitable Liquid Residues in Extracts from Fire Debris Samples by Gas Chromatography-Mass Spectrometry*
- *ASTM E2881-13e-Standard Test Method for Extraction and Derivatization of Vegetable Oils and Fats from Fire Debris and Liquid Samples with Analysis by Gas Chromatography-Mass Spectrometry*
- *ASTM E2451-13 Standard Practice for Preserving Ignitable Liquids and Ignitable Liquid Residue Extracts from Fire Debris Samples*
- *ASTM E1386-15 Standard Practice for Separation of Ignitable Liquid Residues from Fire Debris Samples by Solvent Extraction*
- *ASTM E1388-12 Standard Practice for Sampling of Headspace Vapors from Fire Debris Samples*
- *ASTM E1412-12 Standard Practice for Separation of Ignitable Liquid Residues from Fire Debris Samples by Passive Headspace Concentration with Activated Charcoal*
- *ASTM E1413-13 Standard Practice for Separation of Ignitable Liquid Residues from Fire Debris Samples by Dynamic Headspace Concentration*
- *General Fire Debris Analysis Guide (new document)*
- *General Intact Explosives Analysis Guide (new document)*
- *Fire Debris Terminology (new document)*
- *Explosives Terminology (new document)*
- *Fire Debris QA/QC (new document)*
- *Semi-Dynamic Headspace Sampling for Fire Debris (new document)*
- *Fire Debris Report Writing Guide (new document)*
- *Explosives Report Writing Guide (new document)*
- *Case File Review (new document)*

Other activities of the subcommittee include the development of Daubert resources for Fire Debris and Explosives analysis and developing other training resources.

## Geological Materials Subcommittee

### SCOPE

The Geological Materials Subcommittee focuses on standards and guidelines for the collection and analysis of soils and other geological materials; creates a framework for the interpretation and reporting of analytical results; establishes educational and training requirements for forensic practitioners; and fosters the publication and presentation of research within the forensic geosciences community.

### CHAIR

**Andrew Bowen,** the chair, is currently a senior forensic chemist for the U.S. Postal Inspection Service, where he examines trace evidence and unknown chemical substances.

### BY THE NUMBERS

Applicants: 22 | Members: 11

Task Groups:

- Terminology
- Education Outreach
- Field Collection Document Validation
- Glossary of Terms
- Research Initiatives
- Resources and References
- Sample Requirements
- User Manual for Soil Collection

# Items reached RA-100: 0

# Items reached SDO-0 or SDO-100: 2

### Standards/Guidelines Projects

- *Standard Guide for the Collection of Soils and Other Geological Evidence for Forensic Applications.* This guide is designed as a resource for forensic scientists, law enforcement personnel, and other professionals whose job responsibilities include the collection and preservation of soil evidence at crime scenes.
- *Standard Terminology for Forensic Analysis of Soils and Other Geological Materials.* This guide is intended to standardize the terminology used by the forensic science community.
- *Standard Guide for Forensic Analysis of Soil.* This guide is designed as a resource for forensic scientists, researchers, and other professionals whose job responsibilities include the analysis of soil evidence in laboratories.

In addition to these standards/guidelines projects, this subcommittee is working on a bibliography, education and outreach, expanding the areas of interest (to include palynology), and participating in the various relevant SAC task groups.

## Gunshot Residue Subcommittee

### SCOPE

The Gunshot Residue (GSR) Subcommittee focuses on standards and guidelines related to analyses of evidence that results from the deposition of or physical transfer of small or minute quantities of gunshot residue.

### CHAIR

**Michael Martinez**, a Forensic Scientist Supervisor at the Bexar Co. Criminal Investigation Laboratory, is the chair.

### BY THE NUMBERS

Applicants: 52 | Members: 19

Task Groups:

- Proficiency
- Competency and Training
- Reporting, Qualifiers, Disclaimers and Interpretation
- Validation and Instrument
- ASTM E620 Requirements
- Methodology, Research and Literature
- Testimony and Ethics
- ASTM E1588

# Items reached RA-100: 0

# Items reached SDO-0 or SDO-100: 2

### Standards/Guidelines Projects

- *ASTM E1588-10 Standard Guide for Gunshot Residue Analysis by Scanning Electron Microscopy/Energy Dispersive X-Ray Spectrometry*. Covers the analysis of gunshot residue by scanning electron microscopy/energy-dispersive X-ray spectrometry.
- *GSR Training Guide (new document)*. This standard provides a summary of the knowledge and skills that should be demonstrated in order to establish competency as an independent GSR analyst.
- *GSR Testimony (new document)*. This document will attempt to address commonly encountered questions presented in testimony, appropriate answers, and examples of testimony limitations pertaining to GSR.
- *Report Writing, Qualifying Statements and Interpretation (new document)*. The goal of this standard/guide will be to compile, evaluate and suggest a unified reporting method when issuing GSR reports to our customers.
- *Methodology, Research, and Literature Review (new document)*. To discuss and collate a list of GSR research projects, database bibliographic reference material and draft ideas for additional methodology. Standards will be developed for new methodologies.
- *Validation and Instrument Requirements (new document)*. There is a need in the GSR community for guidance to create standards dealing with specific criteria for instruments used for the detection of GSR by SEM/EDS.
- *ASTM E620-11 Standard Practice for Reporting Opinions of Scientific or Technical Experts*. This practice covers the scope of information to be contained in formal written technical reports which express the opinions of the scientific or technical expert with respect to the study of items that are or may reasonably be expected to be the subject of criminal or civil litigation.
- *Task Irrelevant Information When Considering Cognitive and Contextual Bias in GSR Analysis (new document).*

Other activities of the GSR subcommittee include recruiting affiliates to assist with project work, and liaising with the ENFSI.

## Materials (Trace) Subcommittee

### SCOPE

The Materials (Trace) Subcommittee is actively working on standards and guidelines related to the examination and interpretation of physical evidence that may result from the transfer of small or minute quantities of materials (e.g., hairs, fibers, paint, tape, glass).

### CHAIR

**Susan Gross**, Forensic Science Supervisor at the Minnesota Bureau of Criminal Apprehension, is the chair.

### BY THE NUMBERS

| Applicants: 107 | Members: 19 |
|---|---|

Task Groups:

- Fibers
- Glass
- Hair
- Interpretation
- Outreach
- Paint
- Research
- Tape

# Items reached RA-100: 7

# Items reached SDO-0 or SDO-100: 18

### Activities

- *ASTM E2926 Standard Test Method for Forensic Comparison of Glass Using Micro X-ray Fluorescence Spectrometry*
- *ASTM E2927 Standard Test Method for Determination of Trace Elements in Soda-Lime Glass Samples Using Laser Ablation Inductively Coupled Plasma Mass Spectrometry for Forensic Comparisons*
- *ASTM E2330 Standard Test Method for Determination of Concentrations of Elements in Glass Samples Using Inductively Coupled Plasma Mass Spectrometry (ICP-MS) for Forensic Comparisons*
- *ASTM E1967 Standard Test Method for the Automated Determination of Refractive Index of Glass Samples Using the Oil Immersion Method and a Phase Contrast Microscope*
- *ASTM E1610 Standard Guide for Forensic Paint Analysis and Comparison*
- *ASTM E2937 Standard Guide for Using Infrared Spectroscopy in Forensic Paint Examinations*
- *ASTM E2809 Standard Guide for Using Scanning Electron Microscopy/X-ray Spectrometry in Forensic Paint Examinations*
- *ASTM E2808 Standard Guide for Microspectrophotometry and Color Measurement in Forensic Paint Analysis*
- *Standard Practice for Interpretation and Report Writing in Forensic Comparisons of Trace Materials*
- *ASTM E2224 Standard Guide for Forensic Analysis of Fibers by IR*
- *Standard Guide for Analysis of Fabrics/Cordage*
- *Standard Guide for Microscopical Exam of Textile Fibers Fiber*
- *Standard Practice for Training in the Forensic Examination of Human Hair*
- *Standard Guide for Human Hair Examination*
- *Standard Guide for using Infrared Spectroscopy for Forensic Tape Analysis*
- *Standard Guide for using PGC for Forensic Polymer Analysis*
- *Standard Practice for Tape Training*
- *Standard Practice for Paint Training*

## Seized Drugs Subcommittee

### SCOPE

The Seized Drugs Subcommittee focuses on standards and guidelines related to the examination of evidence to identify drugs and related substances.

### CHAIR

**Sandra E. Rodriguez-Cruz, Ph.D.,** Senior Forensic Chemist at the DEA, is the chair.

### BY THE NUMBERS

| Applicants: 138 | Members: 19 |
|---|---|

Task Groups:

- Analog
- Catalog Review
- Method Development
- Spectral Library
- Terminology
- Training/Competency

# Items reached RA-100: 2
# Items reached SDO-0 or SDO-100: 0

### Standards/Guidelines Projects

- *E2548-11 Standard Guide for Sampling Seized Drugs for Qualitative and Quantitative Analysis.*
- *E2327-15 Standard Practice for Quality Assurance of Laboratories Performing Seized-Drug Analysis. Covers quality assurance issues in forensic laboratories performing drug analysis.*
- *E2882-12 Standard Guide for Analysis of Clandestine Drug Laboratory Evidence. Provides guidance on the chemical analysis of items and samples related to suspected clandestine laboratories.*
- *E2764-11 Standard Practice for Uncertainty Assessment in the Context of Seized-Drug Analysis*
- *E1968-11 Standard Guide for Microcrystal Testing in Forensic Analysis of Cocaine*

### Standards/Guidelines on OSAC Registry:

In addition to the above projects, this subcommittee also submitted and routed the first standard to be placed on the OSAC Registry:

*ASTM: E2329-14 Standard Practice for Identification of Seized Drugs [Under Revision]*

## Toxicology Subcommittee

### SCOPE

The Toxicology Subcommittee will focus on standards and guidelines related to the analysis of biological samples for alcohol, drugs, or poisons, and the interpretation of these results.

### CHAIR

**Marc A. LeBeau, Ph.D.,** from the FBI, is the chair. He is an active member of numerous professional societies and a commissioner on the National Commission on Forensic Sciences.

### BY THE NUMBERS

Applicants: 130 | Members: 19

Task Groups:

- Breath Alcohol
- Document Control
- Kavi Workspace
- Method Validation
- Quality Control
- Reporting/Testimony
- Research
- Terminology
- Traceability

# Items reached RA-100: 1

# Items reached SDO-0 or SDO-100: 2

### Standards/Guidelines Projects

- *Standard Practices for Method Validation in Forensic Toxicology.* Minimum standards of practice for validating analytical methods in forensic toxicology.
- *Standard Practices for Measurement Traceability in Forensic Toxicology.* Minimum standards of practice for establishing measurement traceability in forensic toxicology testing and calibration methods.
- *Standard Practices for Method Validation in Forensic Toxicology – Breath Alcohol Measuring Instrument Calibration.* Minimum standards for validating calibration methods in forensic toxicology laboratories performing evidentiary Breath Alcohol Measuring Instrument calibration.
- *Standard Practices for Quality Control in Forensic Toxicology.* Minimum standards of practice for quality control in forensic toxicology laboratories
- *Guidelines for Opinions and Testimony in Forensic Toxicology.* Delineates guidelines for practices in forensic toxicology opinion reports and testimony.

The subcommittee also is establishing a glossary of terms.

## Crime Scene/Death Investigation SAC

### SCOPE

The Crime Scene/Death Investigation SAC manages the activities of seven subcommittees which include Anthropology, Disaster Victim Identification, Dogs and Sensors, Fire and Explosion Investigation, Medicolegal Death Investigation, Crime Scene Investigation, and Odontology.

### CHAIR

**Gregory George Davis**, M.D., is the chair. He also serves as the chief coroner/Medical Examiner for Jefferson County Alabama, as well as Professor and Director of the Division of Forensic Pathology in the Department of Pathology at the University of Alabama at Birmingham Medical Center.

### BY THE NUMBERS

| | |
|---|---|
| Applicants: 191 | Members: 17 |

### Activities

The Crime Scene/Death Investigation SAC has:

- Worked on developing a SAC-wide terminology document in order to establish consistency within the SAC where possible.
- Coordinated the development of a new subcommittee (CSI Subcommittee) to include supporting, recruiting and administrative activities related to the new committee
- Voted on six standards from Fire and Explosion Subcommittee
- 18 other standards/guidelines are in the pipeline from various subcommittees
- Performed outreach at multiple discipline-specific conferences
- Published OSAC articles in relevant journals and other media

## Anthropology Subcommittee

### SCOPE

The Anthropology Subcommittee will focus on standards and guidelines related to application of anthropological methods and theory—particularly those relating to the recovery and analysis of human remains—to resolve legal matters.

# Items reached RA-100: 0
# Items reached SDO-0 or SDO-100: 14

### CHAIR

**Thomas Holland,** a Scientific Director at the Department of Defense POW/MIA Accounting Agency, is the chair.

### BY THE NUMBERS

Applicants: 39 | Members: 20

Task Groups:

- Age Estimation
- Ancestry Assessment
- Code of Ethics and Conduct
- Determination of Medicolegal Significance, Documentation, Reporting and Testimony
- Facial, Identifying and Describing Pathological Conditions, Lesions, and Anomalies
- Intent to Create Standards and Guidelines
- Method Development and Validation
- Personal Identification
- Proficiency Testing
- Resolving Commingled Human Remains
- Scene Detection and Processing
- SDO Process Investigation
- Sex Assessment
- Skeletal Sampling and Preparation
- Statistical Methods
- Stature Estimation
- Taphonomic Observations in the Postmortem Interval
- Terminology
- Training/Competency
- Trauma Analysis

### Standards/Guidelines Projects

- *Standard Guide for Stature Estimation from Human Remains.* The objective of this document is for skeletal remains to be analyzed in a reliable and systematic manner for estimating stature using appropriate techniques.
- *Glossary for Forensic Anthropology.* The objective of this document is to ensure consistent use of terminology within forensic anthropology.
- *Standard Guide for Training and Competency in Forensic Anthropology.* Prescribes minimum qualifications to practice forensic anthropology.
- *Facial Approximation in Forensic Anthropology.* Recommendation for the production and assessment of facial approximations.
- *Sex Assessment in Forensic Anthropology.* To establish guidelines for the valid assessment of gender from the skeleton.

## Disaster Victim Identification Subcommittee

### SCOPE

The Disaster Victim Identification (DVI) Subcommittee advances the scientific basis for disaster victim identification by assembling multi-disciplinary professionals from the DVI community in a collaborative effort to develop consensus standards, guidelines and best practices supporting mass fatality/casualty management for use by domestic and international medicolegal and emergency management practitioners. The groups' primary audience is medical and legal examiners, although emergency management practitioners inherit this responsibility when the office in question is very small.

### CHAIR

**Jason Wiersema,** a Forensic Anthropologist and Director of Forensic Emergency Management at the Harris County Institute of Forensic Sciences, is the chair.

### BY THE NUMBERS

| Applicants: 49 | Members: 16 |
|---|---|

Task Groups:

- DVI DNA
- DVI Forensic Pathology
- DVI Data Management
- DVI Fingerprint
- DVI Anthropology
- DVI Scene Processing
- DVI Ethics and Law
- DVI Management
- DVI Terminology
- Forensic Odontology
- Friction Ridge
- Molecular Biology
- Reconciliation
- Victim Identification Center/Family Assistance

# Items reached RA-100: 0

# Items reached SDO-0 or SDO-100: 4

### Standards/Guidelines Projects

- *Standard Practices for DNA Analysis for Human Identification in Mass Fatality Incidents.*
- *Standard Practices for the Forensic Pathologist in the Disaster Victim Identification Context*. The intended scope of this document is to provide standard practice guidelines regarding postmortem data collection by forensic pathologists during a mass fatality incident response.
- *Mass Fatality Incident Data Management: Standard Practices for the Medicolegal Authority*. The intended scope of this document is to provide standard practice guidelines for the management of DVI data (antemortem and postmortem).
- *Postmortem Impression Submission Strategy for Comprehensive Searches of Essential Automated Fingerprint Identification System Databases.* The intended scope of this document is to provide standard practice guidelines regarding postmortem fingerprint impression evidence during a mass fatality incident response.
- *Forensic Anthropology in DVI*: Standard Practices for the Medicolegal Authority. The intended scope of this document is to provide standards regarding the application of forensic anthropological methods in the mass fatality context.
- *Mass Fatality Incident Scene Processing: Standard Practices for the Medicolegal Authority*. The intended scope of this document is to provide standards for the management of human remains recovery from a mass fatality incident scene.

## Dogs and Sensors Subcommittee

### SCOPE

The Dogs and Sensors Subcommittee focuses on standards and guidelines resulting in continual improvement of consistency, performance, and legal acceptance of deployed detection teams. Focus areas include the optimal integration with other sensors designed to improve overall detection capabilities.

### CHAIR

**Kenneth Furton**, Provost and Executive Vice President of Florida International University, is the chair.

### BY THE NUMBERS

Applicants: 36 | Members: 17

Task Groups:

- Canine Terminology
- Canine Career Field Progression
- Canine Narcotic Detection
- Tracking/Trailing People Based on Last Known Position
- (K)Canine Document Cross-Utilization
- Canine Document Review (CDRTG)
- Canine Integration of Dogs and Sensors
- Canine Outreach and Education
- Canine Training/Competency

# Items reached RA-100: 0

# Items reached SDO-0 or SDO-100: 5

### Standards/Guidelines Projects

- *General Canine Guidelines*. The scope is to establish consensus-based best practice general guidelines for training, certification, and documentation pertaining to all canine disciplines. Discipline-specific guidelines are found within the corresponding subcommittee documents.
- *Working Canine Terminology.* To provide the industry with a comprehensive terminology list as it pertains to the working canine industry at large to ensure consistency and understanding of terms and the vernacular most commonly used across canine disciplines. This will benefit the forensic science community through consolidation of terms and definitions used for operational reports, testimony, report documentation, certification procedures, and training records documentation.
- *Canine Career Field Progression*. Provide recommended best practice guidelines for career progression system to ensure proper training and experience within canine organizations.
- *Canine Narcotics Detection*. To provide recommended guidelines for training, certification and documentation pertaining to narcotic detector canines.
- *Tracking/Trailing People Based on Last Known Position*. Provide recommended best practice guidelines for training, certification and documentation pertaining to tracking/trailing people based on last known position. Tracking or trailing people based on their last know position is the area of canine scent detection that utilizes a canine team to search for and follow a specific person's track or trail after the canine has been started on the person's last known position or a scented article associated with that person.

## Fire and Explosion Subcommittee

### SCOPE

The Fire and Explosion Identification Subcommittee focuses on standards and guidelines related to the investigation, analyses and interpretation of fire and explosion incidents. The subcommittee works closely with the OSAC Subcommittee on Fire Debris and Explosives (Chemistry/Instrumental Analysis SAC).

### CHAIR

**Craig Beyler,** Technical Director at Jensen Hughes, is the chair.

### BY THE NUMBERS

| | |
|---|---|
| Applicants: 67 | Members: 17 |

Task Groups:

- Competencies
- Report Writing
- Comparative Analysis
- Research Agenda

# Items reached RA-100: 0

# Items reached SDO-0 or SDO-100: 10

### Standards/Guidelines Projects

- *NFPA 921 (2014) Guide for Fire and Explosion Investigations*
- *NFPA 1033 (2014) Standard for Professional Qualifications for Fire Investigator*
- *ASTM E860, 2007 (2013) Standard Practice for Examining and Preparing Items that Are or May Become Involved in Criminal or Civil Litigation*
- *ASTM E678, 2007 Standard Practice for Evaluation of Scientific or Technical Data*
- *ASTM E620, 2011 Standard Practice for Reporting Opinions of Scientific or Technical Experts*
- *ASTM E1459, 2013 Standard Guide for Physical Evidence Labeling and Related Documentation,*
- *ASTM E1188, 2011 Standard Practice for Collection and Preservation of Information and Physical Items by a Technical Investigator*
- *ASTM E1020, 2013 Standard Practice for Reporting Opinions of Technical Experts*

*Competencies.* Evaluation of investigator competencies required

- *Documentation*. Documentation of the investigation, report preparation. Enhance quality of investigation reports

In addition to these projects, this subcommittee is analyzing cognitive bias issues.

## Medicolegal Death Investigation Subcommittee

### SCOPE

The Medicolegal Death Investigation Subcommittee focuses on standards and guidelines related to deaths reportable to coroners and medical examiners including sudden, unattended, unexpected, or suspicious deaths and deaths due to violence (accidents, suicides and homicides). This subcommittee also focuses on education, research, certification, accreditation, systems administration, and the value of medicolegal death investigation to public health.

### CHAIR

**John Fudenberg,** Coroner at the Clark County Office of the Coroner/Medical Examiner, is the chair.

### BY THE NUMBERS

| Applicants: 136 | Members: 17 |
|---|---|

Task Groups:

- Autopsy Standards
- MDLI Glossary
- Medical Legal Death Scene Investigation
- Peer Review
- Quality Assurance & Human Factors and Cognitive Bias
- Standards Document Review

# Items reached RA-100: 0

# Items reached SDO-0 or SDO-100: 10

### Standards/Guidelines Projects

- Communicating findings, including final cause and manner of death and access to autopsy reports, to the next of kin of decedents.
- Documentation of medicolegal death investigator findings
- Jurisdictional determination by certified medicolegal death investigators
- Collection of blood or other appropriate samples for potential genetic testing in sudden, unexplained deaths that remain unexplained at the completion of the autopsy
- Determination of cause of death
- Evaluation of circumstances surrounding death
- Medical examiner and coroner independence
- Recognition of the NAME Forensic Autopsy Standards as the National Practice Model
- Forensic pathology as the practice of medicine
- Medicolegal death investigation offices shall participate in local or state level child fatality review teams.

## Odontology Subcommittee

### SCOPE

The Odontology Subcommittee focuses on standards and guidelines related to the application of dentistry to legal issues including, but not limited to, human identification, bitemark analysis, age estimation, litigation, oral and facial injuries, and human abuse and neglect.

### CHAIR

**Robert Barsley, D.D.S.,** a professor and division head at the Louisiana State University Health Science Center, is the subcommittee chair.

### BY THE NUMBERS

| | | | |
|---|---|---|---|
| Applicants | 55 | Members | 17 |

Task Groups

- Dental Identification
- Dental Age Assessment
- Oral and Perioral Injuries: Abuse and Neglect
- Bitemark

# Items reached RA-100: 0

# Items reached SDO-0 or SDO-100: 3

### Standards/Guidelines Projects

- *ANSI/ADA Standard No. 1058, Forensic Dental Data Set*
  - Uniform nomenclature for forensic dental data with standardized terms to convey information for human identification
- *ADA Technical Report Addressing Dental Age Assessment*
- *ADA Technical Report No. 1088, Human Identification by Comparative Dental Analysis*
  - Guidelines for dental identification formatted for SDO
- *Performed an analysis of potential SDOs for the committee.*
- *Performed review of other relevant standards, guidelines, and reference materials.*

## Digital/Multimedia SAC

### SCOPE

The Digital/Multimedia SAC manages the activities of four subcommittees which include Digital Evidence, Facial Identification, Speaker Recognition and Video/Imaging Technology and Analysis (VITAL)

### CHAIR

**Richard Vorder Bruegge,** a Senior Photographic Technologist, the FBI, is the chair. He has performed analyses of thousands of image and in-depth analysis examinations.

### BY THE NUMBERS

| | |
|---|---|
| Applicants: 100 | Members: 15 |

### Activities

The SAC and its subcommittees are working to:

- Define the discipline
- Develop a SAC-wide terminology document in order to establish consistency within the SAC where possible.
- Professional qualifications
- Gap analysis/research agenda
- Sample identification and collection
- Validation
- Methods, tools, people
- Documentation
- Conclusion scales
- Interpretation of results
- Human factors
- Automated systems

There are approximately 80 relevant existing documents that fall within the area of expertise of this SAC.

Key challenges include:

- Defining the scientific paradigm for digital/multimedia forensics
- Error rates through testing examiners (human beings are an important part of this forensic science discipline)
- Working closely with the Physics/Pattern SAC on conclusion scales
- Working to define discipline-specific terminology, as well as global terminology

## Digital Evidence Subcommittee

### SCOPE

The Digital Evidence Subcommittee focuses on standards and guidelines related to information of probative value that is stored or transmitted in binary form. This subcommittee's activities are more encompassing of digital evidence overall, whereas the other subcommittees in this discipline are more specialized.

### CHAIR

**James Darnell,** Assistant to the Special Agent in Charge at the U.S. Secret Service, is the chair.

### BY THE NUMBERS

Applicants: 135 | Members: 19

Task Groups

- Training/ Certification
- Education
- Audio
- Mobile Devices
- Computer
- Quality Assurance

# Items reached RA-100: 0

# Items reached SDO-0 or SDO-100: 4

### Standards/Guidelines Projects

With input from members as well as affiliates representing national and international agencies, the subcommittee is working on the following projects:

- *Minimum Requirements for Quality Assurance in the Processing of Digital and Multimedia Evidence*. This document proposes minimum requirements regarding training/education, examiner certification, examination requirements, and lab requirements. The objective is to describe minimum requirements to achieve quality assurance in regard to completing digital evidence forensic examinations. The subcommittee is placing a lot of care on defining what the proper certification requirements should be.
- The subcommittee has begun paperwork to submit *ASTM E2678-09 Standard Guide for Education and Training in Computer Forensics*.
- The subcommittee is developing documents related to Forensic Audio Examination, Retrieval, Workflow; these will be new standards derived from Scientific Working Group on Digital Evidence (SWGDE) Best Practices for Forensics Audio. The objective of these documents is to provide forensic audio practitioners recommendations for the handling and examination of forensic audio evidence.
- *Best Practices for Preservation, Isolation, and Acquisition of Mobile and Other Embedded Systems*; new guidelines derived from NIST 800-101 (3 new documents). The objective of these documents is to help organizations evolve appropriate policies and procedures for dealing with mobile devices and to prepare forensic specialists to conduct forensically sound examinations involving mobile devices.

The subcommittee is focused on completing all of the OSAC forms and putting new documents into specific SDO templates for submission to the SDOs. Long term, the subcommittee is currently considering questions related to lab accreditation and to what level it should be necessary. Another long-term consideration are the potential harmful effects of long-term exposure of practitioners to questionable stressful material.

## Facial Identification Subcommittee

### SCOPE

The Facial Identification .Subcommittee facilitates development and promotes consensus standards and guidelines for the image-based comparisons of human facial features and to provide recommendations for the research and development necessary to advance the state of the science.

### CHAIR

**Lora Sims,** a Biometric Examiner at Ideal Innovations, is the chair.

### BY THE NUMBERS

| Applicants: 70 | Members: 16 |
|---|---|

Task Groups:

- One -to-One
- Systems and Capture
- Public Communications
- Training

Items reached RA-100: 0

Items reached SDO-0 or SDO-100: 5

### Standards/Guidelines Projects

With input from members as well as affiliates representing national and international agencies, the subcommittee is working on the following projects:

- *Facial Image Comparison Feature List for Morphological Analysis*. The scope of this document is to provide a standardized list to be considered when conducting morphological analysis
- *Capture and Equipment Assessment for Face Recognition Systems*. The scope of this document is to provide best practices for collection to ensure the images captured are suitable for Face Recognition (FR) system use
- *Guidelines for Post Mortem Facial Image Capture*. The scope of this document is to provide guidelines for capturing postmortem facial images of unidentified human remains in a controlled (morgue) and semi-controlled (field) settings to facilitate Facial Recognition (FR) searches or facial comparison that may contribute to determining the identity of the unidentified person.
- *Facial Comparison Overview*. The scope of this document is to provide an overview of how facial comparisons are used in the security, intelligence, law enforcement, and forensic communities.
- *Guidelines for Facial Comparison Methods*. The scope of this document is to describe current methods for facial comparison and to provide guidelines for their appropriate use.

## Speaker Recognition Subcommittee

### SCOPE

The Speaker Recognition Subcommittee supports and promotes the scientific foundations and practice of speaker recognition, voice data collection, measurement, transmission, and retrieval, through the development and dissemination of consensus-based standards, guidelines, best practices, and recommendations for forensic and investigatory applications. Activities:

- Identifying the scope, theories, and practice areas of the disciplines of voice biometrics, speaker identification, voice data collection, measurement, transmission, and retrieval
- Recommending best practices for data collection, quality assessment, compression, decompression, transmission protocols, reports, and terminology
- Proposing standard procedures for data interpretation and wording of conclusions presented in court
- Suggesting education, training, and continuing education requirements for practitioners
- Promulgating and disseminating research and development priorities to the community
- Collecting and distributing discipline-specific information on scientific foundations
- Seeking international recognition and harmonization of appropriate work products

### CHAIR

**Hirotaka Nakasone,** a Senior Audio Electronics Engineer at the FBI, is the chair.

### BY THE NUMBERS

| Applicants: | 65 | Members: | 24 |
|---|---|---|---|

Task Groups:

- Research, Development, Test and Evaluation
- Best Practice
- Legal Aspect of Speaker Recognition (LASR)
- Ad hoc Committee

# Items reached RA-100: 0

# Items reached SDO-0 or SDO-100: 0

### Standards/Guidelines Projects

- Speech collection guidelines for speaker recognition applications
- Recommendations for prioritized research areas
- Data and evaluation surveys
- Annotated list of important speaker recognition cases
- Guidelines for Data Preparation
- Guidelines for the Use of ANSI/NIST-Information Technology Laboratory (ITL) Type 11 Voice Records
- Forensic Speaker Recognition Process Map
- Contributions to law journals on the current technical and legal status of speaker recognition methods
- Annotated list of important speaker recognition cases

## Video/Imaging Technology and Analysis (VITAL) Subcommittee

### SCOPE

The VITAL Subcommittee focuses on standards and guidelines related to the application of methods and technologies to analyze information related to forensic imagery from a variety of systems. This encompasses aspects of capture, storage, processing, archiving, quality assurance and training. Major areas of interest include:

- Photography - forensic photographic acquisition and documentation
- Image Analysis - examine, evaluate, and render an opinion pertaining to an image and/or image-related data
- Video Analysis - the acquisition, examination and evaluation pertaining to a video and/or video-related data for rendering an opinion.

### CHAIRS

**Carl Kriigel,** a Digital Evidence Examiner at the Defense Forensic Science Center, is the chair. Bill Trenkle is the vice chair, and Christina Malone is the executive secretary.

### BY THE NUMBERS

| Applicants: 71 | Members: 16 |
|---|---|

Task Groups:

- Image Analysis
- Video Analysis
- Photography
- VITAL

# Items reached RA-100: 0

# Items reached SDO-0 or SDO-100: 2

### Standards/Guidelines Projects

With input from members as well as affiliates representing national and international agencies, the subcommittee is working on the following projects:

- *Guidelines for the Forensic Use of Photogrammetry* involves the process of obtaining dimensional information as regards objects and people depicted in imagery. For forensic purposes, photogrammetry provides information including, but not limited to, the heights of individuals, velocity of vehicles, and/or lengths of objects.
- *Standards for Image Authentication* is a subtask of Image Analysis. This document addresses issues specific to Image Authentication. One question involved in authentication is the issue of image manipulation.
- *Best Practices for Data Retrieval from Digital Video Recorders (DVR).* This document is intended to provide procedures for the collection of data from digital video recorders (DVRs) that ensure playback while maintaining best evidence.
- *Latent Print Evidence Photography.* The scope of this document is to provide recommendations on the best practices for properly trained and qualified personal to capture images of latent print evidence using a digital single lens reflex camera or a flatbed scanner that is suitable for comparison purposes.
- *Training Guidelines for Video Analysis, Image Analysis and Photography.* This document recommends topics and guidelines for training within the disciplines of video analysis, image analysis and photography.

## Physics/Pattern SAC

### SCOPE

The Physics/Pattern SAC fosters the development of rigorous standards and guidelines within and across the pattern disciplines, assists in the adoption of these standards/guidelines, encourages enforcement of the standard/guidelines through accreditation, certification, and training, and encourages evaluations to test and validate procedures. The SAC encourages research to improve the disciplines and enhance the rigor of these disciplines through transparent, accurate, and reliable processes.

### CHAIR

**Austin Hicklin,** the chair**,** is a Fellow at Noblis.

### BY THE NUMBERS

Applicants: 158

Members: 15

Task Groups:

- Terminology
- Collection Crime Scene Investigation
- Conclusions
- Documentation
- Imaging
- Reporting
- Research
- Testimony
- Training/accreditation
- Validation
- Website

### Activities

The Physics/Pattern SAC has set goals for the standards and guidelines within the group. Standards and guidelines need to be rigorous as practical given current capabilities, but OSAC also needs to recommend research to continually improve the disciplines in these areas.

The SAC is facilitating consistent terminology and conclusions across the disciplines, requesting that procedures be as quantitative and objective as practical, and that documentation is complete and transparent.

Standards and guidelines related to reporting and testimony should:

- include all data on which conclusions are based
- distinguish data, conclusions, and opinions
- clearly state the limitations and caveats of conclusions
- clearly specify the bases of opinions

## Bloodstain Pattern Analysis Subcommittee

### SCOPE

The Bloodstain Pattern Analysis (BPA) Subcommittee, one of the subcommittees within the Physics/Pattern Interpretation SAC, focuses on standards and guidelines related to the scientific detection and analysis of bloodstain patterns present at crime scenes and on associated evidence. The committee focuses on standards and guidelines related to two distinct roles in bloodstain pattern analysis—first is related to the analyst who goes to a crime scene to perform onsite interpretations, perform reconstructions, and develop documentation. There are also lab-based analysts who interpret stains on clothing and other associated evidence.

### CHAIR

**Toby L. Wolson**, M.S., F-ABC is a forensic consultant with 33 years of experience. Prior to being a consultant he was a Criminalist Supervisor in the Forensic Biology Section of the Miami-Dade Police Department Forensic Services Bureau.

### BY THE NUMBERS

| Applicants: 106 | Members: 19 |
|---|---|

Task Groups:

- BPA Reports and Validation
- BPA Training & Education
- BPA Quality Assurance and Standard Operating Procedures
- BPA Research
- Terminology, Taxonomy, and Conclusions

# Items reached RA-100: 0

# Items reached SDO-0 or SDO-100: 10

### Standards/Guidelines Projects

With input from members as well as affiliates representing national and international agencies, the subcommittee completed the initial draft of discipline-relevant terminology for consideration by the SAC. The subcommittee is currently working on development of standardized conclusion statements. After that it will focus on conclusion statements for bloodstain pattern reconstructions. The subcommittee is working on guidelines for reporting, and guidelines for the validation of new methods. The task group has also begun discussions for the development of taxonomy for bloodstain pattern identification.

Standards/guidelines projects include:

- *BPA Terminology*
- *Development of Conclusion Statements for BPA*
- *Development of BPA Taxonomy*
- *Guidelines for Report Writing in Bloodstain Pattern Analysis*
- *Guidelines for the Validation of New Procedures in Bloodstain Pattern Analysis*
- *Guidelines for the Minimum Education and Training Requirements for Bloodstain Pattern Analysts*
- *Guidelines for a BPA Certification Program*
- *Guidelines for a Quality Assurance Program in Bloodstain Pattern Analysis*
- *Guidelines for Developing Standard Operating Procedures for Bloodstain Pattern Analysis*
- *Guidelines for Proficiency Testing in Bloodstain Pattern Analysis*

The BPA Subcommittee currently has 50+ BPA experts who are approved to be affiliates. They include citizens of 6 countries, public, private, academia, law enforcement, crime scene investigations, crime laboratory, and judicial sectors.

## Firearms and Toolmarks Subcommittee

### SCOPE

The Firearms and Toolmarks Subcommittee, within the Physics/Pattern Interpretation SAC, focuses on standards and guidelines related to the examination of firearm and toolmark evidence. This includes the comparison of microscopic toolmarks on bullets, cartridge cases, and other ammunition components. Examinations may also include firearm function testing, serial number restoration, muzzle-to-object distance determination, tools, and toolmarks.

### CHAIR

**Andy Smith** is the Supervisor of the Firearm and Toolmark Unit for the San Francisco Police Department Crime Lab. He is currently a board member for the Association of Firearm and Tool Mark Examiners and was previous chair of Scientific Working Group for Firearms and Toolmarks.

### BY THE NUMBERS

| | |
|---|---|
| Applicants: 93 | Members: 20 |

Task Groups:

- Technology Development, Validation, and Implementation
- Firearm and Toolmark Examination Standards
- Uncertainty of Measurement
- Training Program
- Standard Criteria for Identification, Documentation, and Reporting

# Items reached RA-100: 0

# Items reached SDO-0 or SDO-100: 9

### Standards/Guidelines Projects

Within the past year, the subcommittee has been working on terminology and conclusions documents as well as the projects listed below. They have also provided a written response to a series of questions asked by the President's Council of Advisor's on Science and Technology (PCAST). The subcommittee has been working to make sure task groups are strategically focused on completing the proposed projects and prepared for submission to the selected SDO body. Standards/guidelines projects include:

- *Topography Analysis and Comparison Software for Toolmarks*
- *Implementation of 3D Technologies in Forensic Laboratories*
- *3D Measurement Hardware and Measurement Quality Control*
- *Standard Guideline/Best Practice for the Safe Handling of Firearms and Ammunition*
- *Standard Test Method for the Physical Examination and Classification of Firearms*
- *Standard Test Method for Function/Operability Testing of Firearms*
- *Standard Test Method for Measuring Trigger Pull of Firearms*
- *Standard Test Method for Measuring Barrel and Overall Length of Firearms*
- *Guidelines for Barrel and Overall Length Measurements for Firearms*
- *Uncertainty for B/OL Measurement and Two Spreadsheets*
- *Minimum Qualifications for Firearm and Toolmark Examiner*
- *Minimum Qualifications for Firearm and Toolmark Examiner Trainee*
- *Required Material/Modules of Instruction for Firearm and Toolmark Examiner in Training*
- *Standard Criteria for Identification, Documentation, and Reporting*

## Friction Ridge Subcommittee

### SCOPE

The Friction Ridge Subcommittee, one of the subcommittees within the Physics/Pattern Interpretation SAC, focuses on standards and guidelines related to the forensic examination of friction ridge detail from the hands and feet.

### CHAIR

**Melissa Gische** works for the Federal Bureau of Investigation. She has over sixteen years of experience as a latent print examiner and was an active member of Scientific Working Group on Friction Ridge Analysis, Study and Technology prior to its transition to OSAC.

### BY THE NUMBERS

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|---|---|
| Applicants: 137 | Members: 20 (+ 3 routine international guests) |

Task Groups:

- Research
- Articulation
- Training
- Examination
- Conclusions
- Process Map
- Roadmap
- Terminology

# Items reached RA-100: 0
# Items reached SDO-0 or SDO-100: 5

### Standards/Guidelines Projects

Within the past year, the Friction Ridge Subcommittee (FRS) has focused on consolidating and reorganizing tasks, staffing task groups with affiliates, navigating SDO issues, and identifying a strategic path forward. The FRS finalized priority research needs and completed a draft of the Guideline for the Articulation of the Source Identification Conclusion in Friction Ridge Examinations. The FRS has worked on defining conclusions and criteria for examination decisions, as well as developing both a terminology document and a training guideline. Members of the subcommittee have also participated in several interdisciplinary virtual subcommittees, including one established to create a process map across multiple disciplines. As the subcommittee evolves from primarily focusing on best practices and standards solely geared towards practitioners to also considering standards and guidelines that may be adopted by the accrediting bodies, an additional task group has been created to develop a roadmap for the subcommittee. Standards/guidelines projects include:

- *Guideline for the Articulation of the Source Identification Conclusion in Friction Ridge Examinations*
- *Guideline for Friction Ridge Examiner Training*
- *Standard for Examination*
- *Standard for Conclusions*
- *Terminology*
- *Roadmap*
- *ACE Process Map*
- *ANSI/NIST-ITL 1-2011 Update: 2013 Data Format for the Interchange of Fingerprint, Facial & Other Biometric Information*
- *ISO/IEC 17020:2012(E) Conformity Assessment — Requirements for the Operation of Various Types of Bodies Performing Inspection*
- *ISO/IEC 17025:2005(E) General Requirements for the Competence of Testing and Calibration Laboratories*

## Footwear and Tire Subcommittee

### SCOPE

The Footwear and Tire Subcommittee, one of the subcommittees within the Physics/Pattern Interpretation SAC, focuses on standards and guidelines related to the detection, documentation, recovery, examination and comparison of footwear and tire evidence.

### CHAIR

**Matt Johnson** works for the Orange County (California) Sheriff's Department, OC Crime Lab and is a footwear and tire track examiner.

### BY THE NUMBERS

| Applicants: 70 | Members: 23 |
|---|---|

Task Groups:

- Footwear and Tire Examination/Comparison Methods
- Footwear and Tire Research/Technology
- Footwear and Tire Terminology, Training and Competency
- Footwear and Tire Processing/Enhancement Methods
- Footwear and Tire Detection/Collection Methods, Resources, Footwear & Tire Statistics

# Items reached RA-100: 0

# Items reached SDO-0 or SDO-100: 5

### Standards/Guidelines Projects

Within the past year, the subcommittee has focused on standards and guideline projects. In addition, we added a task group to communicate between the subcommittee and NIST researchers conducting research into quantification of footwear evidence. We also have been discussing a report writing/testimony document to complement the conclusions scale document under consideration. Our Kavi Workspace staff have been busy creating "Projects" in Kavi Workspace, and all of us on the subcommittee are learning how to work with documents within Kavi Workspace.

Standards/Guidelines Projects Include:

- *Footwear/Tires Test Impression Guide*
- *Footwear/Tire Terminology Guide*
- *Footwear and Tire Examiner Scope of Work, Minimum Requirements, and Training Standard* (tentative title)
- *Footwear and Tire Impression Chemical Enhancement Guide*
- *Guide for Casting Footwear and Tire Impression Evidence*
- *Guide for Lifting Footwear and Tire Impression Evidence*
- *Guide for the Forensic Documentation and Photography of Footwear and Tire Impressions at the Crime Scene*

## Forensic Document Examination Subcommittee

### SCOPE

The Forensic Document Examination Subcommittee, one of the subcommittees within the Physics/Pattern Interpretation SAC, focuses on standards and guidelines related to the discipline, including:

(1) source of handwriting, (2) source of machine-produced documents, typewriting, or other impressions and marks, (3) materials and devices involved in the production of documents, (4) genuineness and alterations, (5) preservation and/or restoration of legibility, (6) documentation and reporting, and (7) training and competency.

### CHAIR

**Rigo Vargas** works with the Mississippi Forensics Laboratory located in Biloxi, Mississippi. Mr. Vargas is the past chairman of the former E30.02 subcommittee on Questioned Documents in ASTM and the current vice-chair of Scientific Working Group for Forensic Document Examination.

### BY THE NUMBERS

| Applicants: 80 | Members: 19 |
|---|---|

Task Groups:

- Expressing Conclusions
- Handwriting
- Questioned Document Terminology
- Scope of Work
- Training
- Human Factors (Research)

# Items reached RA-100: 1
# Items reached SDO-0 or SDO-100: 7

### Standards/Guidelines Projects

With input from members as well as affiliates representing national and international agencies, the subcommittee is working on the following projects. Standards/Guidelines Projects include:

- *Standard Guide for Minimum Training Requirements for Forensic Document Examiners.* This guide provides minimum requirements and procedures that should be used for the fundamental training of forensic document examiners.
- *Scope of Expertise in Forensic Document Examination.* This guide describes the responsibilities and general qualifications of individuals engaged in the scientific practice of forensic document examination.
- *OSAC Standard Terminology Relating to the Examination of Questioned Documents.* This technical report includes terminology that relates to the examinations performed by forensic document examiners.
- *OSAC Standard for Examination of Handwritten Items.* This standard provides procedures that should be used by forensic document examiners (SWGDOC Standard for Scope of Work of Forensic Document Examiners) for examinations and comparisons involving handwritten items and related procedures.
- *OSAC Standard for Source Conclusions.* This standard is a multi-disciplinary effort being crafted by all five Physics/Pattern subcommittees in unison.
- *Standard Guide for Indentation Examinations.* This standard provides procedures that should be used by forensic document examiners (SWGDOC Standard for Scope of Work of Forensic Document Examiners) for examinations and comparisons involving visualization and recording of indentations.
- *Standard Guide for Examination of Altered Documents.* This standard provides procedures for examinations that should be used by forensic document examiners (SWGDOC Standard for Scope of Work of Forensic Document Examiners) for examinations involving altered documents.
- *Standard for Bias* (to be determined).