

WHAT IS OSAC UP TO? A BEHIND THE SCENES LOOK



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



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Death, Crime Scenes, and OSAC

Crime Scene/Death Investigation SAC

American Academy of Forensic Science (AAFS) 2018



CS/DI SAC

- Presenter's Contact

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Chair, Crime Scene/Death Investigation SAC

- Scope of the OSAC units

- SAC – *approves standards identified by subcommittees and coordinates standards spanning multiple disciplines.*

- *Sub-committees - work to identify existing high-quality standards and to facilitate the development of new standards by Standards Development Organizations*

- Members – 16, including crime scene investigators (including fire and dog specialists), death investigators (anthropologists, coroner, forensic pathologists, odontologists), epidemiologist



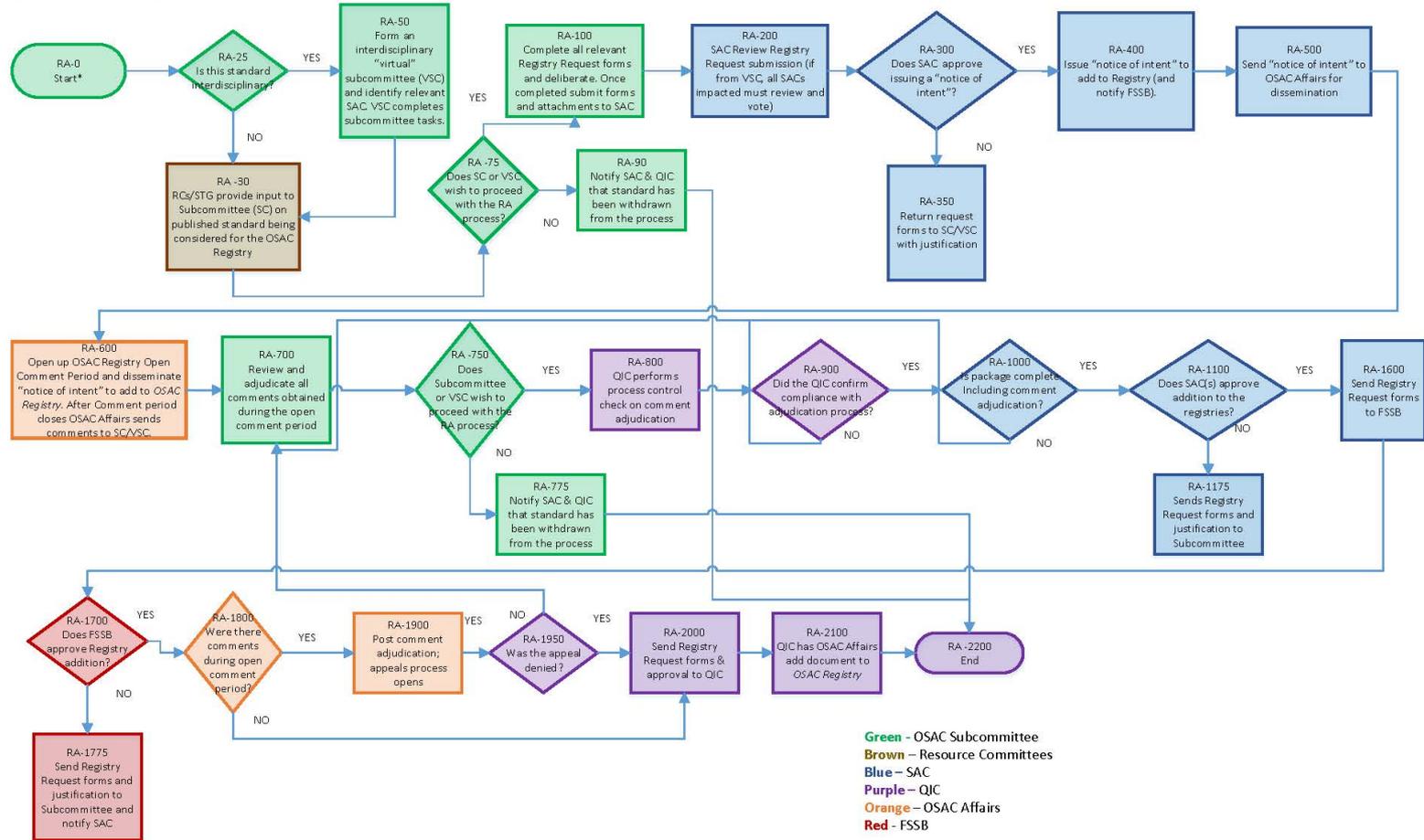
CS/DI SAC

- CS/DI SAC sub-committees
 - *Anthropology*
 - *Crime Scene Investigation*
 - *Disaster Victim Identification*
 - *Dogs and Sensors*
 - *Fire and Explosion Investigation*
 - *Medicolegal Death Investigation*
 - *Odontology*
- Work
- Challenges and Lessons Learned



OSAC Standards Approval Process

OSAC Registry Approval (RA) Process



Anthropology

- Chair
 - *Thomas D. Holland, PhD*
- Scope of OSAC unit – focuses on standards and guidelines related to application of anthropological methods and theory, particularly those relating to the recovery and analysis of human remains
- Members – 18 members, 3 new
- Work Products
 - *1 document on Stature Estimation in Academy Standards Board (ASB).*
 - *3 documents approved by sub-committee, gone to Resource Committees for comment.*
 - *1 document (Age Estimation) ready to send to RC's.*
 - *17 additional documents developed by SWG ANTH have been approved for posting as legacy documents and as draft documents for forthcoming proposed standards.*
 - *Sub-committee preparing an additional 4 documents not based on SWG documents (Statistical Methods, Forensic Archaeology, Isotopes, and Method Selection)*
 - *Glossary*



Anthropology

- Challenges and Lessons Learned
- Research Topics/Needs
 - *Controlled experimental bone trauma studies in collaboration with biomechanical engineers to further the understanding of fracture patterns in bone.*
 - *Determination of healing rates of fractures, especially to estimate time since injury in children and the elderly.*
- Highest Priorities – Documents in SDO process



Crime Scene Investigation

- Chair
 - *Marilyn T. Miller, EdD*
- Scope of OSAC unit – focuses on developing standards and guidelines related to investigation of crime scenes including search for, documentation of, and presentation of evidence associated with the crime scene.
- Members – 17 members, 3 new
- Work Products
 - *Glossary*
- Research Topics/Needs
 - *Crime Scene Research Database and Information Clearinghouse*
 - *Crime Scene Investigation Documentation Technology*
 - *Human Factors in Crime Scene Investigation*
 - *Use of Laboratory Based Techniques and Technology at the Crime Scene*
 - *Crime Scene Contamination*
 - *Evaluation of Personal Protective Equipment at the Crime Scene*
- Highest Priorities – Time to work to catch up with others in OSAC
- Progress
 - *Education, Credentials, Training*
 - *Topics listed in Research Needs above*



Disaster Victim Identification

- Chair
 - *Jason Wiersema, PhD*
- Scope of OSAC unit – focuses on standards and guidelines related to fatality management of a mass fatality incident that involves the scientific identification of human remains
- Members – 15 members, 1 new (data management)
- Work Products
 - *6 documents with ASB (posted as drafts on sub-committee web page; documents concern scene investigation, data management, and use of anthropology, DNA analysis, fingerprint analysis, and forensic pathology); fingerprint document with ANSI and expected approval in next month*
 - *4 documents in preparation for submission to SDO*
 - *Glossary*
- Challenges and Lessons Learned



Disaster Victim Identification

■ Research Topics/Needs

- *No means to anticipate volume and variety of data that result from and must be managed following a mass fatality incident. Existing assumptions are anecdotal and based on a small number of incidents. The volume of data (missing persons call centers, victim information centers, hospitals, law enforcement etc.) available from previous incident after action reports should be used to systematically develop reliable expectations for medicolegal operations*
- *No means to quantify individualistic value of contextual identifiers, and thus no measure of confidence associated with contextual decedent identifications. Need for development of population-level likelihood values for human characteristics/circumstances that are regularly used in support of scientific identification methods (including scars/marks/tattoos, body location, etc.)*



Dogs and Sensors

- Chair
 - *Kenneth G. Furton, PhD*
- Scope of OSAC unit – focuses on standards and guidelines for continual improvement of consistency, performance, and legal acceptance of deployed detection teams. Focus areas include optimal integration with other sensors designed to improve overall detection capabilities
- Members – 19 members, 2 new
- Work Products
 - *General Canine Guidelines*
 - *Working Canine Terminology*
 - *Tracking/Trailing People Based on Last Known Location*
 - *Pre-Scented Canine - Aged Trail Search*
 - *Pre-Scented Canines - Location Check*
 - *Canine Career Field Progression*
 - *Glossary*
- Challenges and Lessons Learned



Dogs and Sensors

■ Research Topics/Needs

- *Identification of odorant chemicals present in and above targets (particularly human remains, as well as live human scent, explosives and drugs) including novel applications (chemical, microbes, etc.).*
- *Development of methods for monitoring levels of contamination of aids. Identify when training aids are contaminated, how long it takes to dissipate the contamination odor off the pure odor training aid.*
- *Development of reliable surrogate aids (particularly for human remains, as well as live human scent, drugs and explosives). These must provide controlled delivery of chemicals to allow for an assessment of threshold variance, but not to be used for certification purposes (canine and possibly equipment calibration). This also pertains to emerging threats.*
- *Integration of canine and instrumental detectors: Identifying applicability of certified detector dogs and sensors to reliably detect target odors; Comparison of detection capabilities of canines and instrumentation; Identifying complementary instrumentation for application with canines; Comparison of dogs to other biological detection entities.*
- *Evaluation of the dissipation of odorant: Research is needed to understand the dissipation/permeation rates of various odors that originate from canine training aids. Currently odorants dissipate from canine training aids at unknown rates, this results in canines being exposed to aids without knowing if the aid is in fact releasing sufficient odor before, during, or after use under various environmental conditions.*

■ Highest Priorities – Move work products above through registry approval pathway to SDO



Fire and Explosion Investigation

- Chair
 - *Craig Beyler, PhD*
- Scope of OSAC unit – focuses on standards and guidelines related to the investigation, analyses and interpretation of fire and explosion incidents. Our discipline deals with fire and explosion investigations without initial regard for whether the event is possibly arson. It is antithetical to our methodologies to presume any cause of the incident.
- Members – 19 members, 2 new
- Work Products
 - *Strategic Plan for Fire and Explosion Investigation, expect publication in 2018*
 - *Proposal to NFPA for Standard for Fire and Explosion Investigation Units, work to begin in 2018*
 - *Open comments for next revision of NFPA 921 shared with OSAC members, comments submitted for review committee to consider in making next revision*
 - *Glossary*
- Highest Priorities – Develop standards for Fire and Explosion Investigation Units



Medicolegal Death Investigation

- Chair
 - *J. Keith Pinckard, MD, PhD*
- Scope of OSAC unit – focuses
- Members – 15 members
- Work Products
 - *1 document (Competent Medicolegal Death Investigation) with ASB*
 - *2 documents of recommendations for medical examiners and coroners concerning investigation and certification of deaths potentially related to drugs.*
 - *Glossary*
 - *Exploring common data elements collected in medicolegal death investigations with intent of developing a means to capture, retrieve, and share these data.*



Odontology

- Chair
 - *Robert E. Barsley, DDS*
- Scope of OSAC unit – focuses on standards and guidelines related to application of dentistry to legal issues including human identification, bitemark analysis, age estimation, litigation, oral and facial injuries, and human abuse and neglect.
- Members – 15 members
- Work Products
 - *2 documents (ADA 1058 – forensic dental data set, ADA 1088 – dental identification) approved by ANSI/ADA*
 - *1 document (Estimating age) in final draft*
 - *Glossary*
- Task Group
 - *Bitemark task group meeting with other odontologists in Seattle to work toward a unified diagnostic algorithm, which all agreed to on February 19.*
- Research Needs
 - *Studies of 3D imaging of patterned injuries, normal dentition, and bitemark analysis*
 - *Datasets for teeth in populations of differing ages and backgrounds*





QUESTIONS?

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