

NIST Update for NCFS Meeting 9

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(on behalf of Willie May, NIST Director)

March 21, 2016

NIST Director Willie May speaking as part of the AAFS 2016 Plenary Session



Photo Credit: Chris McGee/Christie's Photographic Solutions

NIST Director working the AAFS Exhibit Booth



Photo Credit: John Butler (NIST)

NIST Director meeting at AAFS with NCFS Commissioner John Fudenberg and NCFS MDI Subcommittee Member Frank DePaulo

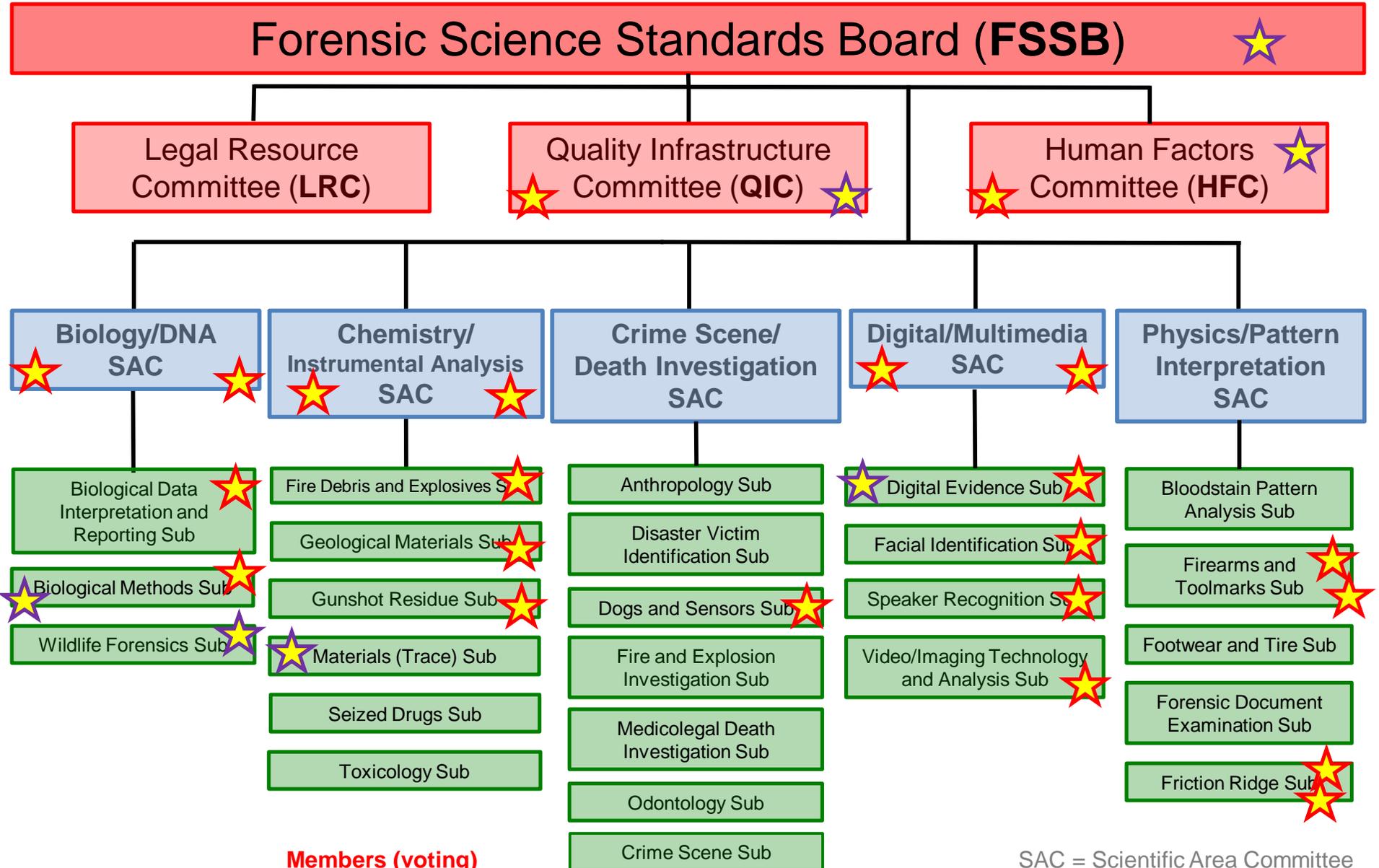


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NCFS Validation Requests of NIST

- NIST supports the general concepts raised with the Scientific Inquiry & Research subcommittee that will be discussed tomorrow afternoon
 - Is there value in NIST initiating a series of publications that address validation issues within metrology areas of relevance to forensic sciences?
 - How will the anonymity of participants in Interlaboratory studies be realized?
 - Will additional resources be required to extend efforts beyond current six NIST research program areas?
 - What options exist for performing appropriate studies in the areas that NIST does not have in-house expertise:
 - Other Federal Agencies?
 - Private Sector?
 - International Partners?
 - Academic Partners?

NIST Membership within OSAC



Members (voting)
Affiliates (non-voting)

SAC = Scientific Area Committee
Sub = Subcommittee

Forensic Research in NIST Labs Today

Forensic Genetics

**Ballistics and Associated Tool
Marks**

**Digital and Identification
Forensics**

Statistics

Toxins

Trace

NCFS Requests of OSAC

- Many of the NCFS requests for OSAC fall outside the mission, scope, and resources of OSAC
 - The primary purpose of OSAC is the development and promulgation of documentary standards.

NCFS Previous Requests of OSAC

- **Prioritizing and Performing Research**
 - Prioritizing research gaps in forensic science disciplines
 - Conducting forensic science research
 - Conducting scientific validation studies before forwarding standards onto the OSAC Registry of Approved Standards
- **Defining Limitations**
 - Determining what is task relevant for each forensic science discipline in the preparation of OSAC standards and guidelines
 - Calling for a moratorium in the practice of forensic science disciplines determined to lack appropriate underlying scientific foundations
- **Enforcing Ethics**
 - Enforcing code of ethics violation among practitioners' forensic service provider agencies
- **Developing Training Materials**
 - Writing forensic science training course curricula for lawyers, prosecutors, defense attorneys and practitioners

OSAC Mission

Stated OSAC purposes (in charter and bylaws):

1. Facilitate development and promulgation of consensus-based documentary standards
2. Promote use of OSAC standards by accrediting bodies
3. Establish and maintain working relationships with other similar organizations
4. Promote standards that are fit-for-purpose and **based on sound scientific principles**

OSAC Charter and Bylaws:

<https://workspace.forensicosac.org/kws/public/download.php/3808/20151118%20OSAC%20Charter%20and%20Bylaws%20v%201.1.pdf>

NIST
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NIST Statement on ASTM Standard E2329-14

March 17, 2016

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Since 2013, NIST has partnered with the U.S. Department of Justice to establish improved, more scientifically rigorous methods for collecting, analyzing, and reporting on forensic evidence. As part of this process, NIST Director Willie May co-chairs the National Commission on Forensic Science, and the NIST Special Programs Office serves as the administrator for the Organization of Scientific Area Committees (OSAC). Established in the last two years by NIST, these committees include more than 600 volunteer members from the forensic science community.

On Jan. 11, 2016, the OSAC Forensic Science Standards Board (FSSB) voted to elevate ASTM Standard E2329-14 "Standard Practice for Identification of Seized Drugs" to the OSAC Registry of Approved Standards. The standard is used by law enforcement agencies as a protocol for testing seized evidence to determine if drugs of abuse such as cocaine or heroin are present. The standard describes a qualitative, pass/fail process whereby evidence either does or does not contain specific substances. This is the first standard posted to the registry.

At the same time, concerns have been raised that some of the language in the standard is not scientifically rigorous. Both NIST and the FSSB have independently asked that ASTM review the language. For example, the standard currently states that "an appropriate analytical scheme effectively results in no uncertainty in reported identifications." NIST recognizes that the scientific community is still working to develop language that completely captures the confidence that should be associated with a qualitative measurement. Nevertheless, based on accepted scientific protocols, no measurement, qualitative or quantitative, should be characterized as without the risk of error or uncertainty. It is important to note that NIST is not contesting results obtained from seized evidence using the standard.

To respond to NIST's concerns, ASTM has listed the standard as "Under Revision," a process likely to take several months. To date, the OSAC has continued to include the standard on its registry. NIST hopes to assist ASTM in strengthening the technical merit of the standard over the coming months. In the meantime, NIST will work with the FSSB and all OSAC groups on process improvements to help ensure consistently high quality scientific reviews of documentary standards that the forensic science community can endorse as trusted, valuable resources.

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Forensic Science

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- ASTM: E2329-14 Standard Practice for Identification of Seized Drugs
[In Revision: ASTM WK53625]

NIST Statement on ASTM Standard E2329-14

OSAC Registry Growing Pains

- E2329-14 is on the Registry and states “no uncertainty”
 - NIST perspective: show stopper with this phrase
 - Challenge of interconnectivity between standards in play
- Lessons learned at NIST
 - We need researchers metrologists and statisticians input earlier in the process within OSAC and SDOs
 - Scientists, metrologists and statisticians may not engage assertively enough in the OSAC process
- Possible OSAC improvements
 - Strengthening the technical merit checklist
 - Regular convening of NIST experts to review documents
 - Statistician task group weighing in on their opinions

The Challenge

A “**Liberal**” perspective
towards scientific principles

A “**Conservative**” perspective
towards scientific principles

“**Protocol Protection**”

“**Protocol Perfection**”

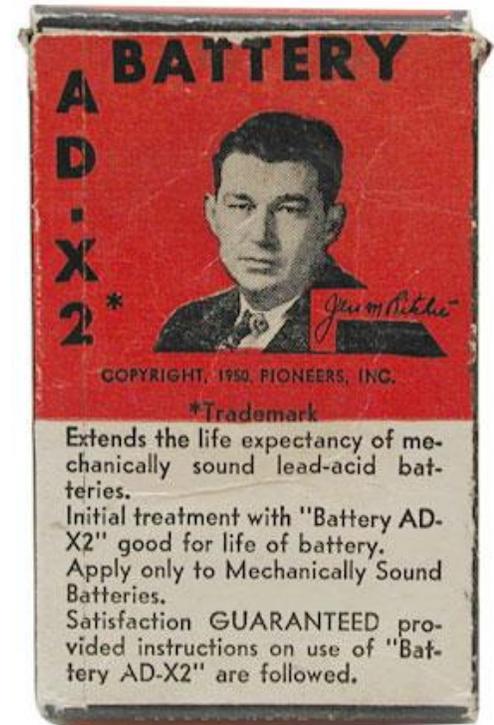
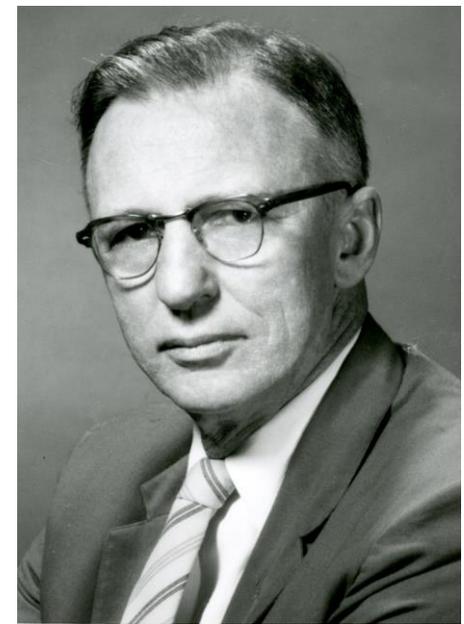
**Forensic
Practitioners**>

<.....
**NIST Scientists
& Statisticians**

*Learning is taking place on both sides,
but in the end
some compromise will be required to
move forward*

AD-X2

- Over a period of five years, during the late 1940s and into the '50s, NBS was awash with allegations surrounding a new consumer product - a battery additive - AD-X2.
- Central to the issue was the difficulty of trying to prove a negative,
 - in this case demonstrating unequivocally that any given additive would never save a failing battery.
- On March 24, 1953, the Department asked Allen V. Astin, the NBS Director, to resign.
- Statements from the Federation of American Scientists, the American Physical Society, and the NBS Visiting committee ultimately led to Astin's reinstatement on August 21, 1953



Looking Forward to Hosting NCFS Meeting 11 Gaithersburg, MD Sept 12-13, 2016

