NIST and Forensic Science - Update

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June 7, 2016
Standards of Practice for Forensic Professionals

Federal Policy to meet Societal Expectations

Research for new or improved methods and data analysis

Organization of Scientific Area Committees (OSAC)

National Commission on Forensic Science (NCFS)

NIST

NIJ

NSF
• Provide technical leadership to help develop and promulgate **consensus-based documentary standards and guidelines** for forensic science.

• Promote standards and guidelines that are **fit-for-purpose** and based on sound scientific principles.

• Promote the use of OSAC documents by accreditation and certification bodies.

• Establish and maintain working relationships with similar organizations.
OSAC Success to Date

Draws on NIST’s scientific strength/reputation and our ability to convene the relevant parties.

- Designed a system to bring balance of interests to Documentary Standards in Forensics.
- Recruited key players.
- Meetings (both in-person and virtual) are drawing strong participation.
- Engagement with SDOs is encouraging.
- First “Standard” on the registry.
OSAC Registry of Approved Standards

- ASTM: E2329-14 Standard Practice for Identification of Seized Drugs
  [In Revision: ASTM WK53625]
4.2 Correct identification of a drug or chemical depends on the use of an analytical scheme based on validated methods (see Practice E2549) and the competence of the analyst. *It is expected that in the absence of unforeseen error, an appropriate analytical scheme effectively results in no uncertainty in reported identifications.*
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.

Challenges

Transition to OSAC “2.0”
  – to allow “regulatory role”
  • Retain NIST involvement
  • Establish independence from NIST
    • allows regulatory role
  • Looking at the National Conference on Weights and Measures as a MODEL
Federal Policy to meet Societal Expectations

Nelson A. Santos
Vice-Chair (DOJ)

Sally Q. Yates
Deputy Attorney General
DOJ Co-Chair

Willie E. May
Director of NIST
NIST Co-Chair

John M. Butler
Vice-Chair (NIST)
Some of the Recommendations from NCFS

Accreditation and Proficiency Testing
  - Universal Accreditation

Interim Solutions
  - Transparency of Quality Management System
  - Automated Fingerprint Identification System (AFIS) Interoperability

Scientific Inquiry and Research

Medicolegal Death Investigation

Reporting and Testimony
  - Use of the Term “Reasonable Scientific Certainty”

Training on Science and Law
Immediate Challenge

Subcommittee on Research and Integrity

- Scientific foundations of Forensic analysis
  - NIST in-house capability to assess the technical merit of the forensic disciplines.
  - NIST expertise gaps in the current forensic disciplines
  - Include assessments of the validity of published studies through associated open data and/or original work.

Discussions with OSTP

- Engage with *Metrologia* to be the open access resource for data and papers on the metrological aspects of Forensics
NIST Membership within OSAC

Forensic Science Standards Board (FSSB)

- Legal Resource Committee (LRC)
- Quality Infrastructure Committee (QIC)
- Human Factors Committee (HFC)

- Biology/DNA SAC
  - Biological Data Interpretation and Reporting Sub
  - Biological Methods Sub
  - Wildlife Forensics Sub

- Chemistry/Instrumental Analysis SAC
  - Fire Debris and Explosives Sub
  - Geological Materials Sub
  - Gunshot Residue Sub
  - Materials (Trace) Sub
  - Seized Drugs Sub
  - Toxicology Sub

- Crime Scene/Death Investigation SAC
  - Anthropology Sub
  - Disaster Victim Identification Sub
  - Dogs and Sensors Sub
  - Fire and Explosion Investigation Sub
  - Medicolegal Death Investigation Sub
  - Odontology Sub
  - Crime Scene Sub

- Digital/Multimedia SAC
  - Digital Evidence Sub
  - Facial Identification Sub
  - Speaker Recognition Sub
  - Video/Imaging Technology and Analysis Sub

- Physics/Pattern Interpretation SAC
  - Bloodstain Pattern Analysis Sub
  - Firearms and Toolmarks Sub
  - Footwear and Tire Sub
  - Forensic Document Examination Sub
  - Friction Ridge Sub

SAC = Scientific Area Committee
Sub = Subcommittee
Research for new or improved methods
Forensic Research in NIST Labs

Common Themes
- Error and Uncertainty
- Data and Information
- Algorithm Development
- Method Validation
- Training

Research for new or improved methods

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Challenges

- NIST co-leads
- DOJ directly funds ($1M) this effort

- All Funding ($3M) comes to NIST from DOJ.
- Relies on Accrediting bodies for compliance
- OSAC 2.0 - Regulatory flavor and sound science

- Funding: ~$15M SPO, ~$5M Labs, ~$5M OA
- Proposed “Validation” efforts could exceed NIST funding and divert our experts.