Cyril H. Wecht Institute of Forensic Science

Is FORENSICS Getting Fixed?

Policy Reform in the Forensic Sciences

Victor W. Weedn, MD, JD
Chair, GWU Forensic Sciences
AAFS President-Elect

9:00 – 9:30 am EST
Friday, March 6, 2015
Pittsburgh, PA
Forensic science has become powerful and competes with traditional investigations through database searches in fingerprints, DNA, and firearms.
The forensic science community has become:

− More important
− More visible
It was good science!!!

It was bad science!!!
CALLS FOR REFORM

Forensic Science Reform
Wednesday, 29 October 2008 19:03
FEDERAL OVERSIGHT AND STANDARDS FOR FORENSIC SCIENCE

At its best, the forensic sciences can be used to exclude the innocent perpetrator of a crime. At its worst, invalid and unreliable for...

Just Science

Forensic Reform to Improve the Accuracy of the Criminal Justice System

FOR IMMEDIATE RELEASE

Forensic Science Reform Is Long Overdue

Washington, DC (Jan. 25, 2011) – As more than a decade of crime lab scandals and forensic evidence presented in court is, at times, often bogus – based on speculative

The Long-Awaited Call for Forensic Science Reform

C.S.Oy

Forensic science is badly in need of reform. Here are

Smart on Crime:
Recommendations for the Next Administration
According to IP as of 2015, there have been 325 post-conviction DNA exonerations in the U.S.
Annie Dookhan

A forensic chemist in Massachusetts admitted to fabricating evidence, affecting up to 34,000 cases. She was hired as a forensic chemist in 2003, but her fraudulent activities were not noticed until 2011. In 2012, she was charged with obstruction of justice, tampering with evidence, perjury, and falsifying her credentials and in 2013 she was sentenced to 3-5 yrs imprisonment and 2 years probation.

Brandon Mayfield case

In May of 2004, the FBI arrested Brandon Mayfield, an attorney in Oregon, for the 2004 Madrid train bombings due to an erroneous fingerprint match by their agents. The Spanish authorities contested the match and later matched the print to another, who was later convicted of the crime. Although Mayfield was never charged he was held for over two weeks. The case was resolved with a formal apology from the U.S. government and a $2M settlement.
National Academy of Sciences (NAS) Report: *Strengthening Forensic Science in the United States: A Path Forward*  

2009
FEDERAL GOVERNMENT RESPONSE

EXECUTIVE

LEGISLATIVE

JUDICIAL

SoFS, NCFS, OSAC
Leahy-Cornyn Rockefeller
Melendez-Diaz, etc.
SUBCOMMITTEE ON FORENSIC SCIENCE (SoFS)
OSTP

PCAST

Eric Lander

NSTC

COS

SoFS

Ken Melson, DOJ
Mark Stolorow, NIST

RDTE  SPP  CA  EE  OC

IWGs
NATIONAL COMMISSION ON FORENSIC SCIENCE (NCFS)
The work of the NCFS is policy
Co-Chaired by DOJ & NIST
Recommendations go to the Attorney General
The lifespan of the NCFS is limited
THE NATIONAL COMMISSION ON FORENSIC SCIENCE

Co-Chaired by:
DAG Sally Q. Yates  (replacing James Cole)
NIST Dir Willy May, PhD   (replacing Patrick Gallagher)

Vice-Chaired by:
Nelson Santos, DEA
John Butler, PhD, NIST

Commission Staff:
Brette Steele (Designated Federal Officer),
Robin Jones, Danielle Weiss
### Members

**Co-Chairs:**
- James M. Cole
- Willie May, Ph.D.

**Vice-Chairs:**
- Nelson Santos
- John Butler, Ph.D.

**Commission Staff:**
- Brette Steele
- Robin Jones

**Commission Members:**
- Suzanne Bell, Ph.D.
- Frederick Bieber, Ph.D.
- Thomas Cech, Ph.D.
- Cecelia Crouse, Ph.D.
- Gregory Czarnopys
- M. Bonner Denton, Ph.D.
- Ted Henshaw
- Linda Jackson
- John Kacavas
- Pamela King
- Marc LeBeau, Ph.D.

**Ex-Officio Members:**
- Julia Leighton
- Troy Duster, Ph.D.
- Jules Epstein
- Stephen Fienberg, Ph.D.
- Andrea Berlin
- Michael "Jeff" Salyards, Ph.D.
- Peter Neufeld
- Phil Pulaski
- Matthew Redle
- Ryant Washington
- Hon. Jed Rakoff
- Mark Weiss, Ph.D.
What a NCFS Meeting Looks Like

37 Commissioners + DOJ/NIST Leadership Team
(Feb 3-4, 2014 with ~100 public attendees)

THE NATIONAL COMMISSION ON FORENSIC SCIENCE

Meetings:

1. 2/3-4/2014
2. 5/12-14/2014
3. 8/26-27/2014
4. 10/28-29/2014
5. 1/29-30/2015
   (4/30-5/1/2015)
NCFS Subcommittees

- Accreditation & Proficiency
- Interim Solutions
- Medicolegal Death Investigation
- Reporting & Testimony
- Scientific Inquiry & Research
- Training on Science and Law
Draft Work Products:
- Discovery
- Expert Testimony
- Definitions
- Inconsistent Terminology

Final Work Products:
- Survey of Forensic Providers
- Universal Accreditation
- Certification of MLDI
- Accreditation of ME/C
- Scientific Literature
Type of Work Product: Views Document

Recommendation
It is the view of the National Commission on Forensic Science (NCF) that, for purposes of their work products, the terms forensic science and forensic science service provider will be defined as follows:

**FORENSIC SCIENCE** - The application of scientific practices to the recognition, collection, analysis, and interpretation of physical evidence for criminal and civil law or regulatory purposes.¹

**FORENSIC SCIENCE SERVICE PROVIDER** - A person or entity that (1) applies scientific practices to recognizing, collecting, analyzing or interpreting physical evidence and (2) issues test results, provides reports, or provides interpretations, conclusions, or opinions through testimony with respect to such evidence.

¹ This definition is inclusive of digital evidence and the medical-legal community.

Delete "science"?

"scientific & technical"?

Should it?
Recommendation:
AG to direct BJS to conduct a survey to determine forensic capabilities for those who write reports and offer testimony within federal, state and local law-enforcement and for medical examiner and coroner offices.
Recommendation:
It is recommended that all Forensic Service Providers become accredited.
Recommendation:
The NCFS requests that the AG approve a policy that recommends that all offices, facilities, or institutions performing medicolegal death investigation activities be accredited by the year 2020.

Recommendation:
The NCFS requests that the AG approve a recommendation that the Office of Justice Programs to establish a priority to use grant funds to defray the cost of ensuring all medicolegal death investigators (MDI) and Coroners (functioning as MDI) in the United States obtain professional certification by the year 2020.
Recommendation:
1. Pretrial disclosure should be comprehensive
2. Results of all examinations and expert opinions should be reduced to writing
3. Results of all examinations and expert opinions should be subject to disclosure
4. An expert witness’s qualifications should be subject to disclosure
5. Disclosure should be timely
NIST
ORGANIZATION OF
SCIENTIFIC AREA
COMMITTEES
(OSAC)

2014
NIST ORGANIZATION OF SCIENTIFIC AREA COMMITTEES

NFSC (FACA rules)
- Policy
- limited term
- recommends to AG

NIST OSAC (not FACA)
- Practice
- unlimited term
- community-driven
19 SWGs

DOJ Scientific Working Groups

2012-2014

NIST Organization of Scientific Area Committees (OSAC)

EXCEPT: SWGDAM, SWGDRUG, SWGDE
OSAC Organizational Chart

Forensic Science Standards Board (FSSB)

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

SAC
- Biology/DNA
  - DNA Analysis Sub1
  - DNA Analysis Sub2
  - Wildlife Forensics Sub
- Chemistry/Instrumental Analysis
  - Controlled Substances Sub
  - Fire Debris and Explosives Sub (lab)
  - Geological Materials Sub
  - Gunshot Residue Sub
  - Materials (Trace) Sub
  - Toxicology Sub
- Crime Scene/Death Investigation
  - Anthropology Sub
  - Disaster Victim Identification Sub
  - Dogs and Sensors Sub
  - Fire Scene and Explosives Sub
  - Fire Scene and Death Investigation Sub
  - Medical/Legal Death Investigation Sub
  - Odontology Sub
- IT/Multimedia
  - Digital Evidence Sub
- Physics/Pattern
  - Blood Stain Pattern
  - Analysis Sub
  - Friction Ridge Sub
  - Firearms & Toolmarks Sub
  - Footwear & Tire Tread Sub
  - Questioned Documents Sub

SAC = Scientific Area Committee
Sub = Subcommittee

September 8, 2014
<table>
<thead>
<tr>
<th>Rank</th>
<th>Title</th>
<th>Name</th>
<th>Organization/Institution</th>
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<tbody>
<tr>
<td>1</td>
<td>Professional - AAFS</td>
<td>Barry K Logan</td>
<td>NMS Labs/Fredric Reiders Family Renaissance Foundation</td>
</tr>
<tr>
<td>2</td>
<td>Professional - AFTE</td>
<td>Mark A. Keisler</td>
<td>Indiana State Police Laboratory</td>
</tr>
<tr>
<td>3</td>
<td>Professional - ASCLD</td>
<td>Jeremy Triplett</td>
<td>Kentucky State Police</td>
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<tr>
<td>4</td>
<td>Professional - IAI</td>
<td>Steven Lee Johnson</td>
<td>Ideal Innovations, Inc.</td>
</tr>
<tr>
<td>5</td>
<td>Professional - NAME</td>
<td>Andrew Michael Baker</td>
<td>Hennepin County Medical Examiner, Hennepin County, Minnesota</td>
</tr>
<tr>
<td>6</td>
<td>Professional - SOFT</td>
<td>Laurel J Farrell</td>
<td>ASCLD/LAB</td>
</tr>
<tr>
<td>7</td>
<td>SAC Biology Chair</td>
<td>George Herrin, Jr.</td>
<td>Georgia Bureau of Investigation-Division of Forensic Sciences</td>
</tr>
<tr>
<td>8</td>
<td>SAC Chemistry Chair</td>
<td>Scott R. Oulton</td>
<td>US Department of Justice Drug Enforcement Administration</td>
</tr>
<tr>
<td>9</td>
<td>SAC Crime Scene Chair</td>
<td>Gregory George Davis</td>
<td>University of Alabama at Birmingham</td>
</tr>
<tr>
<td>10</td>
<td>SAC IT Chair</td>
<td>Richard W. Vorder Bruegge</td>
<td>Federal Bureau of Investigation</td>
</tr>
<tr>
<td>11</td>
<td>SAC Physics Chair</td>
<td>R. Austin Hicklin</td>
<td>Nobis</td>
</tr>
<tr>
<td>12</td>
<td>Researcher 1</td>
<td>Anil K. Jain</td>
<td>Michigan State University</td>
</tr>
<tr>
<td>13</td>
<td>Researcher 2</td>
<td>Douglas H. Ubelaker</td>
<td>Smithsonian institution</td>
</tr>
<tr>
<td>14</td>
<td>Researcher 3</td>
<td>Joe Francisco</td>
<td>University of Nebraska Lincoln (American Chemical Society President 2009-10)</td>
</tr>
<tr>
<td>15</td>
<td>Researcher 4</td>
<td>Karen Kafadar</td>
<td>University of Virginia (after 8/26/2014)</td>
</tr>
<tr>
<td>16</td>
<td>Researcher 5</td>
<td>Sarah Kerrigan</td>
<td>Sam Houston State University</td>
</tr>
<tr>
<td>17</td>
<td>Ex-Officio NIST</td>
<td>Mark Stolorow</td>
<td>NIST</td>
</tr>
</tbody>
</table>

NAME Members of the OSAC

Forensic Science Standards Board
• Andrew Baker, NAME representative
• Gregory Davis

Scientific Area Committee for Crime Scene/Death Investigation
• Gregory Davis, Chair
• Scott Denton

Medical/Legal Death Investigation Subcommittee
• Steve Cina
• David Fowler
• James Gill
• Marie Herrman
• Marcus Nashelsky
• Kurt Nolte
• Bill Oliver
• Keith Pinckard
• Lindsey Thomas

Anthropology Subcommittee
• Owen Middleton

Disaster Victim Identification Subcommittee
• Suzanne Utley-Bobak
• Joyce DeJong
• Victor Weedn
CONCEPT

- Make this a creature of the community and turn this over to a forensic science professional association in 3 to 5 yrs.

- Produce a “Code of Practice” to be published in the Federal Register, which community would adopt as voluntary consensus standards and that defense attorneys would refer.
Key OSAC Outputs

Organization of Scientific Area Committees (OSAC) → OSAC Outputs → Forensic Science Code of Practice

Accreditors
- ISO/IEC 17011 and other related documents

Laboratories
- ISO/IEC 17025 or ISO/IEC 15189
- Other relevant documents
- OSAC Approved Standards and Guidelines

Forensic Science Code of Practice

Documents the minimum requirements for:

1. Standards and guidelines used in forensic science
2. Accreditation of laboratories and investigative units supplying forensic science services
   - Discipline specific requirements to supplement international standards developed in a consensus
3. Competencies of forensic science practitioners
   - Implemented in forensic science service organizations’ management systems

VOLUNTARY CONSENSUS STANDARDS

with the moral authority of the community

“a code of practice”
--you must justify a deviation from this code
Establishes policy of preference for voluntary consensus standards
Reasonable Standards
Development Process

✓ Due Process
✓ Consensus
✓ Openness
✓ Transparency
✓ Freedom from undue influence
✓ Balance of Interests
SEN PATRICK LEAHY (D-VT) & JOHN CORNYN (R-TX) (Sen Judiciary)

Criminal Justice and Forensic Science Reform Act of 2014

S. 2177
Mar 2014

Title I – Structure and Oversight
Title II – Accreditation
Title III – Certification
Title IV – Research
Title V – Standards and Best Practices
OFFICE OF FORENSIC SCIENCE (OFS)

FORENSIC SCIENCE BOARD (FSB)

Committee
Committee
Committee
Committee
Committee
Committee
OFFICE OF FORENSIC SCIENCE (OFS)

FORENSIC SCIENCE BOARD (FSB)

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  - Fire, Gas, and Explosives Sub
  - Forensic & Tox Sub
- SAC Crime Scene/Death Investigation
  - Anthropology Sub
  - Disaster Victim Identification Sub
  - Digital Evidence Sub
- SAC IT/Multimedia
  - Digital Evidence Sub
  - Forensic & Tox Sub
  - Speaker Identification Sub
- SAC Physics/Pattern
  - Digital Evidence Sub
  - Forensic & Tox Sub
  - Speaker Identification Sub

September 8, 2014
Community-based, Self-funded Standards-Setting Development

Institutionalized Government Body with Congressional Funding
Voluntary Consensus Standards

Mandatory Standards

applicable to Federal, State, and Local Governments and Enforceable by the Federal Government
Forensic Science and Standards Act of 2014

- Creates an NSF Forensic Science Coordinating Office (FSCO)
- NSF to fund applied and basic research, challenges, and centers
- Calls for a new NAS report
- Mandates NIST to develop uniform national standards

Reintroduced Feb 11, 2014
Professionalization & Standards Setting in the Forensic Sciences

1915—IAI
1910—Lyon Crime Lab (Locard)
1909—Lausanne School (Reiss)
1893—Hans Gross’ Handbook & birth of criminalistics

1915—IAI
1923—LA Crime Lab (Vollmer)
1932—FBI Crime Lab
1933—ABMS
1936—ABP
1948—AAFS
1966—NAME
1966—IAFS
1970—SOFT
1974—ASCLD
1975—ABFT
1979—ABP-FS BC
1993—ABC
1988—TWGDAM
1982—ASCLD-LAB
1997—SWGDRUG
1999—SWGDAM
2009—SWGTOX
2011—SWGMDI
2014—OSAC

Professional Organizations

Standards
This is a model of regulation in which the regulated expert scientific community has maximal input
WORKLOAD GAP

Demand

Resources
Thus, this can be seen as the forensic science community telling the State and local governments that they need to spend sufficient resources to do their work properly.
WHAT IT IS NOT:

It does not eliminate all error
It does not eliminate cognitive bias
It does not eliminate misconduct
It does not eliminate false testimony
It does not involve scene investigation
The forensic science community should embrace this change
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