



Forensic Science

Two Very Different Paths to a Common Goal.

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Forensic Science- oil and water?

- Science
 - Experiment
 - Controls
 - Repeated
 - Reviewed (in house)
 - Published
 - Peer Reviewed
 - Prior to publication
 - Afterwards
 - Accepted
- Law
 - Presentations by each side
 - Decision by judge or jury
 - Accepted unless overturned on appeal
 - Poll: Eye witnesses

Voir Dire: What is it that you do.....exactly?

- Toxicology-The study and research of the effects of drugs and poisons on the human body.
- Forensic-Simply applying (fill in the blank) to the investigation of a crime.
- Circa 1920-Alexander Gettler (chemist) teamed up with Charles Norris (M.D.) working in the morgue in Bellevue Hospital.
 - Gettler was the first to match up established chemical tests to look for substances in the human body in the capacity of post-mortem investigations.

Evolution of Science

- Right around this same time, comparative methodologies (fingerprinting, ballistics) were being integrated into forensics.
- So science did what science was suppose to do and expanded its knowledge base.
- In doing so, the areas such as DNA analysis left a footprint in the forensic arena.
- Key scientific experiment methodologies (controls, blinds, etc.) improved the comparative methodologies already being used and brought them into their own forensic disciplines.
 - Collectively known as “Forensic Sciences”

Forensic Science

- Up until recently, given that forensic science was thought of as a “science”, regulation was left to the scientists and the administrators of the crime labs.
 - Problem.....the idea that scientists are infallible.
 - Ask juries not to give more weight to my testimony than a lay eye witness....but do they?
- Other than a few outliers (Dookan), those analysts practicing in forensic sciences are generally well-intentioned.

Then it hit.....



The 2009 NAS report

Vinaigrette

- DOJ partnered with NIST in 2013 to form NCFS, National Commission on Forensic Sciences.
 - Willie May (NIST) and Sally Yates (DOJ)
- NCFS generated work products that included initial and final drafts and adoption of policy.
 - Scientific Literature (adopted)
 - Discovery (final draft)
 - Expert testimony (initial draft)
 - Terminology (adopted)

Scientific Literature-Criteria

(adopted)

- Peer-reviewed in the form of original research, clinical trial reports, reports of consensus development conferences.
- Published in a journal or book that has an International Standard Number (ISSN or ISBN) and recognized experts as authors or on its editorial board.
- Published in a Journal that maintains clear and publicly available statement of purpose that encourages ethical conduct. (i.e. disclosure of conflicts of interest)
- Published in a journal that utilizes rigorous review with independent external reviewers to validate consistency with overall norms of practice.
- Published in a journal that searchable by free, publicly available search engines that search major databases of scientific literature
- Published in an indexed journal available through academic libraries and other services.

Discovery Policy

(final draft)

- When a party proposes to use forensic evidence in a criminal case, the adversary party should be provided with access to everything in detail. (exam itself, raw data, observations and conclusions, and the basis of obs. and conc.)
- Access to such information should be made in sufficient time for the adversary party to make effective use of the information.
- Access to such information should be equally available to both sides, regardless of which side is proposing to use the evidence.
- Access to such information should be enforceable by the parties through the courts.

Expert Testimony

(initial draft)

- Experts should be asked to identify and explain the theoretical and factual basis for any conclusion and the reasoning on which the conclusion is based — and any limitations of their conclusions.
- Experts should present testimony in a manner that is accurate, fair, and unambiguous.
- Experts should remain neutral, and attorneys should respect this neutrality.
- Experts should not testify beyond their expertise .
- Experts should not testify on direct or redirect examination concerning case-specific conclusions not contained in the report.

Expert Testimony

- Experts should not testify concerning conclusions that are beyond the limits of a laboratory's testing protocols.
- Experts should not use invalid or problematic terms in their reports or when testifying.
- Experts should not use misleading terms that suggest that the methodology or the expert is infallible when testifying.
- Experts should not use potentially misleading terms in their reports or when testifying without a clear explanation of the term's significance and limitations.
- Experts should not use the term "scientific" when testifying unless the basis for their opinions has been scientifically validated.

Expert Testimony

- Trial judges should not declare a witness to be an expert in the presence of the jury.
- Attorneys have an obligation to understand the discipline underlying the expert testimony
- The proponent of the expert testimony should not cause an expert to testify beyond the opinion submitted in discovery or beyond the limits of the laboratory's testing protocols.
- Attorneys should not mischaracterize expert evidence in their comments to the jury.

Terminology

- “match,” “consistent with,” “identical,” “similar in all respects tested,” and “cannot be excluded as the source of.”
 - “profound effect on how the trier of fact in a criminal or civil case perceives and evaluates scientific evidence.”
- Varied between labs in the same discipline and within the same lab of different disciplines
- Get the SOP, Quality Manual, etc. ahead of time and know the definition of the words used.
- Settled the issue of terminology.....except for one term.....

Terminology

- “REASONABLE SCIENTIFIC CERTAINTY”
- This term ended up being its own publication by NCFS, and is still in the draft phase.
- States that RSC is meaningless, assumptive and should be avoided.
- Broad brush.

What now?

- From the initial intertwinement of our fields to today's policy changes and into our foreseeable future, our fields strive to improve.
- In a theater where ambiguity, misperception, and subtle differences in syntax can have perpetuating ramifications, we are attempting to give concrete policies and guidelines that are generated from both science and the law.



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(Supplemental information)

Accreditation

- ASCLD/LAB
 - Several labs
 - Does NOT fit Forensic Toxicology at all.
- ABFT
 - Recognized authority in Forensic Toxicology
- NAME
 - Medical examiners
- ISO17025
 - Universally recognized, refocuses goals that are customer service oriented.
 - Do what you say you are going to do, prove you can do it
 - Contracts with customer