

When your case involves

FORENSIC
-SCIENCE-

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What do we mean by “forensic science”?

- The application of scientific principles and techniques to matters of criminal justice
- Relating to the collection, examination, and analysis of physical evidence
- A type of evidence

The word “science” in forensic science doesn’t make it infallible

- *“The Law’s greatest dilemma in its heavy reliance on forensic evidence, however, concerns the question of whether—and to what extent—there is any science in any given ‘forensic science’ discipline.” (NAS, 87)*
- 343 people exonerated by DNA
- 46% involved misapplication of forensic science (Innocence Project)
- *“These trials most commonly included testimony concerning serological analysis and microscopic hair comparison, but some included bite mark, shoe print, soil, fiber, and fingerprint comparisons, and several included DNA testing.” (B. Garrett & P. Neufeld, 2009)*

IN THE UNITED STATES

A PATH FORWARD

Forensic science is a type of evidence

- Like with any type of evidence that you may encounter
 - Familiarize
 - Scrutinize
 - Utilize
 - (to advance the theory of your case)

What are some types of cases where I could expect to see forensic science?

- Arson
 - Investigation of fire, and explosion scenes and devices
- Child/Sexual Abuse
 - Medical and/or psychological evidence
- DNA
 - (Exclusion, inclusion, reinterpretation, retesting, touch DNA and secondary transfer)
- Death Investigation
 - Pathology - cause and manner of death
- Digital Evidence
 - Cell phones/towers, computers, internet, social media, etc.
- Drug Cases
 - detection dogs, DRE, presumptive tests vs. confirmatory tests
- Eyewitness
 - Identification System variables and estimator variables
- False Confessions
- Firearms
- Toxicology
 - detection of alcohol, drugs, and other toxic substances in the human body

When the state tries to use “science” against you...

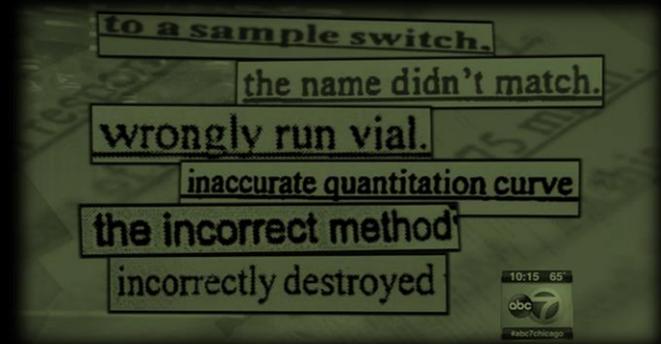
- “The fire was arson.”
- “Subdural hematoma, retinal bleeding, and brain swelling = shaken baby syndrome/abuse head trauma” (“the triad”)
- “Defendant’s profile included in mixture”
- “Cause of death: trauma (gunshot wound); manner of death: homicide.”
- “Defendant’s calls hit tower x, y, z, therefore defendant was at this location”

Attack their science through cross examination and/or defense expert

- Can't definitively say arson; consistent with electrical fire
- Injuries consistent with accidental fall.
- Actually exclusion because allelic dropout/drop in
- Gun shot wound/trajectory consistent with self defense
- Tower hits also consistent with client being at different location

Familiarize

- Specific forensic science discipline
 - Protocols, standards, what's commonly accepted



- Science

- Good science, scientific methods, procedures

The scientific method

- A method of research in which a problem is identified, relevant data are gathered, a hypothesis is formulated, and the hypothesis is empirically tested.
- Ideally, the method is:
 - objective (unbiased)
 - verifiable (we can know how well it works)
 - empirical (through observation)

Steps of the scientific method

- Question
- Hypothesis
- Experiment
- Results
- Conclusion



How can you tell if the method is scientifically valid?

- Does it accurately and reliably measure/do what it claims to measure/do?

Accuracy/Validity and Reliability

- Accuracy/Validity

- The degree to which a test or instrument accomplishes the purpose for which it is being used.

- Reliability

Reliable, not Valid

Valid, not Reliable

Neither Valid,
nor Reliable

Both Valid,
and Reliable

– The measure of how stable, dependable, trustworthy, and consistent a test is in measuring the same thing each time

The Daubert Standard

- Standard for the admission of expert evidence
- Scientific, technical, or other specialized knowledge
- Wis. Stat. § 907.02
 - Such evidence is admissible if based upon sufficient facts or data, product of reliable principles or methods, and applied reliably to the facts of the case
- 3 cases:
 - Daubert v. Merrell Dow Pharm. Inc.*, 509 U.S. 579 (1993)
 - General Electric Co. v. Joiner*, 522 U.S. 136 (1997)
 - Kuhmo Tire v. Carmichael*, 526 U.S. 136 (1999)

Daubert factors – Do these factors look familiar?

- No bright line test
- Courts have considered whether:
 - The theory or technique has been tested
 - Subjected to peer review and publication
 - Rate, or potential rate of error is known
 - General acceptance in the field

How to find protocols, standards, and what's commonly accepted?

- Discovery statute, Wis. Stat. § 971.23
- Specific discovery demand tailored to the facts and/or requirements of your case
 - Case file, lab protocols, accreditation, certification, validation studies, communications, etc.
- Scientific working groups (SWGDM, SWGDE, SWGGUN, etc.)
 - See National Institute of Standards and Technology (NIST) website for full list
- Academic articles
- Experts

Scrutinize

- Bias?
- Lack of validation?
- Lack of peer review?
- Protocol vs. best practice
- Can't be sure of conclusion?
 - Focus on limits of “science”
 - Evidence is consistent with other conclusions
- Try to meet with the analyst
- Consult with an expert

Utilize

- Pretrial
 - Motion(s) in limine
 - Daubert motion(s)
- Trial
 - Cross examination
 - Best practice v. protocols; protocols v. actual practice
 - Bias
 - Limitations
 - Learned Treatise, Wis. Stat. § 908.03(18)
 - Direct examination
 - Expert testimony
 - Closing argument
 - How does it fit with defense/theory of case?

Questions?

- Contact info:

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