



2006 Alaska Information Assurance Workshop

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2006 Alaska Information Assurance Workshop

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Daubert and Digital Forensics: Admissibility of Digital Evidence

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Who is an “Expert”?

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- **An expert is an authority in any discipline that requires specialized knowledge and/or experience.**
 - Basis for expertise could be knowledge, training, experience, education or skill
- **There are a variety of certifying bodies and institutions that grant certifications to “experts” in the fields they supervise.**
 - Courts normally do not doubt such credentials
 - Court rules require early identification of experts and a proffer of their testimony

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Who is an Expert Witness

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- **It's not enough to be technically proficient at your specialty**
- **You have to have excellent communications skills**
- **You have to educate the audience in the complicated application of your specialty to the facts of the case**
- **You have to persuade the trier of fact of the truth of your opinions**

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Legal Requirements for Witnesses

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- **Fed. R. Evid. 601 - “[e]very person is competent to be a witness except as otherwise provided in these rules.”**
 - Similar rules apply in State courts
- **Fed. R. Evid. 602 - A witness may not testify to a matter unless evidence is introduced sufficient to support a finding that the witness has personal knowledge of the matter. ... This rule is subject to the provisions of rule 703, relating to opinion testimony by expert witnesses.**
- **Fed. R. Evid. 603 - Must give oath or affirmation.**
- **Fed. R. Evid. 606 - Not the judge or the jurors.**

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Roles for Experts

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- **Consulting experts**
- **The court's expert**
- **Testifying experts**
- **Experts who are witnesses to facts**

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Timelines - Plaintiff's Side

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- **Driven by the need to state an adequate case in the complaint**
- **Driven by need to craft discovery**
- **Plaintiff controls the timeline up to filing**
- **Typically, pre-complaint period is two months or more**
- **In emergency situations, this can shorten to a few days**
 - **Need for temporary restraining order**
 - **Statutes of limitation**

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Timelines - Defendant's Side

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- **Experts may be consulted in anticipation of a lawsuit**
- **Rule 16 conferences - judge may require counsel to report on the number of experts they intend to call and the time needed for discovery**
- **After the trial date is set, the Fed. Rules of Civ. Proc. Impose deadlines**
- **Rule 26(a)(2) states that both parties must provide a written report signed by their experts**
 - **Submit 90 days before trial date**
 - **30 days for rebuttal reports**

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Contents of the Expert's Report

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- **Complete statement of all opinions to be expressed and the basis and reasons for them**
- **The data or other information considered by the witness in forming the opinions**
- **Any exhibits to be used**
- **The qualifications of the witnesses, including all publications within preceding 10 years**
- **Compensation to be paid for study and testimony**
- **List of other cases in which the witness has taken part within the preceding 4 years**

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Federal Rules that Apply

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- **FREV 702**
- **FREV 703**
- **FREV 104(a)**
- **FREV 1101(d)(1)**
- **FREV 103**
- **FRCP 26(a)(2)**
- **FRCP 37(b)**

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Cases that Apply

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- *Frye v. U. S.*, 293 F. 1013 (D. C. Cir., 1923)
- *Daubert v. Merrell Dow Pharmaceuticals*, 509 U. S. 579 (1993)
- *General Electric v. Joiner*, 522 U. S. 136 (1997)
- *Kuhmo Tire v. Carmichael*, 526 U. S. 137 (1999)
- *Samuel v. Ford Motor Company*, 96 F. Supp. 2d 491; 2000 U.S. Dist. LEXIS 9491; 54 Fed. R. Evid. Serv. (Callaghan) 725 (U. S. Dist. Ct., MD, 2000)
- *U. S. v. Horn*, 185 F.Supp. 530 (D. Md., 2002)
- **Many others**

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- **“Junk science” was under fire in the courts from 1960-1990**
 - Dalkon Shield
 - Saddlebag gas tanks
 - Asbestos
 - Tobacco
- **Merrell Dow Pharmaceuticals introduces Bendectin**
 - Used in first trimester to alleviate morning sickness
 - Seemed to be effective
 - Turned out to be teratogenic (babies born with birth defects)
 - Lawsuits inevitably followed across the United States

- **Two suits were file in D. C.**
 - One case in city court (Superior Court for D. C.)
 - One case in Federal District Court for D. C. based on diversity
 - Two different Plaintiff represented by same Plaintiffs’ law firm
 - Defendant represented by same law firm in both cases
 - Extent of birth defects was similar
 - Cases proceeded simultaneously
 - Central expert witness was Dr. Done in both cases
 - Both courts used *Frye* test for admissibility: general acceptance in the relevant scientific community.
 - 5 animal studies showed no teratogenic effects
 - Dr. Done combined the data and concluded that Bendectin was the cause of the birth defects



Daubert v. Merrell Dow (cont.)

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- **Jury in Superior Court for D. C. awards \$1 million**
- **Jury in Federal Court also awards \$1 million**
- **But Trial Judge in Federal Court sets aside the jury verdict and awards the Plaintiff nothing**
 - Affirmed on appeal
- **Across the country, the outcome was repeated**
 - Dr. Done testifies again and again
 - Some courts award Plaintiff big bucks
 - Some courts award nothing
- **Question: who gets to decide on reliability of expert testimony, and on what basis?**

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Daubert v. Merrell Dow (cont.)

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- **Parents of Jason Daubert file suit in Federal court in Los Angeles**
 - Assert that mother's use of Bendectin cause birth defects
- **Federal judge grants Merrell Dow's motion for summary judgement**
 - Dr. Done's testimony held inadmissible because it did not meet the *Frye* test
 - U. S. Court of Appeals (9th Cir.) upheld the district court
 - U. S. Supreme Court granted *certiorari*

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Daubert v. Merrell Dow (cont.)



- **Justice Blackmun, for a unanimous Court, held that *Frye* was no longer the appropriate test for admissibility of scientific evidence in federal courts**
- **Two prong test based on FREV 702**
- **Court must perform a “gate keeping” function under FREV 104(a) and determine that**
 - **The evidence is reliable**
 - **It has a basis in the methods of science**
 - **and is supported by appropriate validation**
 - **The evidence will be helpful in assisting the trier of fact to understand the evidence or determine a fact at issue**
 - **Helpfulness prong is one of “fit”**

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Daubert v. Merrell Dow (cont.)



- **Relevance - does the evidence help the trier of fact?**
 - **Pretty low bar; not hard to satisfy**
- **Fit - do the methods/principles “fit” in this case?**
 - **Reliability - reproducibility of results in successive tests?**
 - **Validity - do these methods/principles shed light on the issues in this case?**

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- **Reliability turns on the words “scientific knowledge” in Rule 702**
 - Scientific certainty not required
 - Trial judge must assess whether the reasoning or methodology underlying the testimony is scientifically valid
 - Focus is solely on the principles and methodology and not on the conclusion they generate (hard to separate in practice)
- **Factors to consider (but list is not exhaustive)**
 - Whether the theory or technique can be or has been tested
 - Peer review and publication
 - Known potential rate of error
 - General acceptance by the scientific community

- **On remand, the trial court exercised its new gatekeeper function to reject the Plaintiff’s proffered scientific proof (Dr. Done’s analysis) as failing to meet the *Daubert* criteria**
- **Judge said the first prong of the test required *some* objective, independent validation of the expert’s methodology**
- **Added two criteria to the Supreme Court’s list**
 - Expert testimony is based on pre-litigation research, *or*
 - Expert’s research must have been peer reviewed
- **Plaintiff still lost**



After Daubert

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- **Additional criteria considered in later cases**
 - Relationship of proffered methodology to other methodology previously held to be reliable
 - Particular qualifications of the expert using the methodology
 - Internal logical consistency
 - Precision of the results
 - Extent to which the research preceded development of conclusions
- **In *General Electric v. Joiner*, the U. S. Supreme Court held that the standard of appellate review of decisions to admit or exclude evidence is the same “abuse of discretion” test used for all evidence**

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Kuhmo Tire v. Carmichael

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- ***Daubert* applies to scientific evidence**
- **If evidence was excluded, was it**
 - Because it wasn’t “scientific”, or
 - Because it was scientific but failed the *Daubert* criteria
- **In *Kuhmo Tire v. Carmichael*, the Supreme Court ruled that the *Daubert* approach to assuring validity applied to *all* expert knowledge, whether it was scientific, technical or “other specialized” knowledge.**
- **Now *every* expert is subject to challenge for reliability**
 - Including experts on computer science and information technologies
 - Including experts on digital forensics

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Rule 702

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- **Changed 12/1/2000**
- **Original requirements**
 - Applied to scientific, technical or specialized evidence
 - Helpful to the trier of fact
 - Understanding the evidence, or
 - Making a determination of an issue of fact
 - Basis for expertise could be knowledge, training, experience, education or skill
 - Permits experts to offer opinion/inference or “other” testimony (e.g. explanation of concepts, principles, etc.)

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Rule 702 (cont.)

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- **Additional requirements as of 12/1/00**
 - Sufficient factual data underlying opinion, *and*
 - Reliable methods/principles used to develop opinion, *and*
 - Methods/principles reliably applied to underlying facts/data
- **Principles of *Daubert*, *Kuhmo Tire* and Rule 702 are complementary, not identical**
 - For all testimony under Rule 702, the new factors must be applied
 - *Daubert* factors must be considered, but not all may be applicable
 - *Daubert* factors most applicable when assessing reliability of methods/principles

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Trial Judge as Gatekeeper

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- **If trial judges understood science, they'd be doctors**
- **Under FREV 104(a), Court has to make preliminary determinations regarding**
 - Admissibility of evidence
 - Qualification of witnesses
 - Existence of a privilege
- **Rules of Evidence (except for privilege) inapplicable at this stage**
- **Decision takes place outside the presence of the jury**
- **The subject of the inquiry is, by definition, beyond the ken of laymen, and the experts are advocates of a particular position**

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Burden on Counsel

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- **Must give the court the information needed, including background and supporting material to enable the judge to perform the gate keeping function**
- **Must make sure that pretrial disclosures to opposing counsel are timely and complete**
 - Civil cases only
 - Failure risks exclusion of evidence at trial

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Results of *Daubert/Kumho Tire*

- In *Daubert*, the Court found that Rule 702 was more expansive than *Frye*
- The Court may have thought that the new test would result in the admission of more scientific evidence at trial
- In practice, it serves as more of an exclusionary rule
 - Under *Frye*, the court did not have to analyze the sufficiency of the underlying facts/data
 - Under *Frye*, the court did not have to establish the reliability of principles/methodology
 - All that was needed was general acceptance
 - If in doubt, admit both and let the jury sort it out

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Results of *Daubert/Kumho Tire (cont.)*

- Methodology used by the court is different under *Daubert/ Kuhmo Tire/Rule 702* than in *Frye*, and results may differ
 - ex. *U. S. v. Horn*
- Among the States, about one-third still use *Frye* (including Maryland), and the rest follow some form of *Daubert*.
 - *Frye* States include AL, AR, CA, FL, IL, KA, MD, MI, MN, MO, NJ, NY, ND, PA, and WA
 - Some States adopted *Daubert* but not *Joiner* or *Kuhmo Tire*
 - Only nine States have adopted all of the trilogy
 - AK case *State v. Coon*. AK more lenient than federal courts in applying *Daubert*. AK rejects *Kuhmo Tire* in *Marron v. Stromstad*.

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Implications for Digital Forensics

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- **Expect increased scrutiny**
 - Digital evidence is always suspect
 - Tools for seizing and freezing digital evidence
 - Hardware tools
 - Software tools
 - Network tools
 - Processing and analysis tools
 - Encase
 - iLook
- **Courts are pragmatic**
 - In many cases, the evidence speaks for itself
 - Fingerprint cases reveal deeply pragmatic jurisprudence

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Conclusions

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- **Experts have a special role in trials**
 - Their testimony is not limited to personal knowledge FREV 703
 - They may base their opinion on reliable but inadmissible evidence FREV 703
 - They may testify as to inference or ultimate opinion FREV 704
 - The need not testify as to the basis for their opinion before giving the opinion FREV 705
 - They are allowed to testify about matters that the court or jury needs help in understanding because of the scientific, technical, or specialized nature of the subject matter FREV 702
- **There are dangers inherent in admitting unreliable expert testimony - the SWAG factor**

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Acknowledgement

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- **Some of this briefing is based on remarks by Paul W. Grimm, United States Magistrate Judge for the United States District Court, District of Maryland. Judge Grimm is a consummate expert in the realities of applying *Daubert / Kuhmo Tire / Rule 702*, and has written opinions that are landmarks in this evolving area of jurisprudence. See especially *Samuel v. Ford Motor Company*, and *U.S. v. Horn*.**