

Is the Expert an Expert???

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- Conflict of interest statement: Dr. Jenny has served as an expert witness in criminal trials, family court trials, civil trials, and military courts marshal for prosecution, plaintiffs, and defendants.

There are lots of experts out there---

- How do you know if their opinions are valid?
- Can you identify bias?
- What are the recognized professional standards for medical expert witnesses?

A case example---

- 2 ½ yo girl, home with Mom's boyfriend, had unobserved fall from a bed, suffered a fatal head injury.
- Mom's boyfriend charged with murder.

Defense Biomechanics Expert

- Modeled fall from bed in the room where the child was found down using HYBRID-3 yo dummy.



Results: Hybrid III 3 Year Old

| Test ID | HIC | Peak G's | Peak Angular Vel (rad/s) | Angular Accel (rad/s ²) |
|---|------|----------|--------------------------|-------------------------------------|
| Hybrid III - 3 YO – Fall off Bed | | | | |
| Impact_1 | 1426 | 210 | 30 | 16600 |
| Impact_2 | 4066 | 370 | 32 | 33457 |
| Impact_3 | 1944 | 227 | 53 | 18720 |
| Impact_4 | 4055 | 371 | 77 | 44180 |
| Impact_5 | 1707 | 205 | 31 | 11350 |
| Impact_6 | 3685 | 355 | 44 | 26270 |
| Impact_7 | 3402 | 337 | 24 | 20140 |
| Impact_8 | 354 | 88 | 26 | 3140 |
| Impact_9 | 1585 | 208 | 50 | 15600 |
| Hybrid III - 3 YO – Manual Shake | | | | |
| Shake#1 | 8 | 23 | 27 | 3450 |
| Shake#2 | 10 | 46 | 28 | 6010 |
| Shake#3 | 16 | 32 | 30 | 4890 |

Injury Reference Value (570 HIC, 175 G)

Expert's conclusion

- In 8 of 9 tests, fall of dummy to floor exceeded head injury thresholds.
- Conclusion: A fall from a bed from a standing position could have easily killed this child.

What are the fallacies in the defense expert's opinion?

1. The HIC of 570 is value that is correlated with a 50% chance of linear skull fracture, not complex basilar fracture, subdural hemorrhage, and death.
2. HIC for child/infant dummy are not derived from experimental data, but are scaled from adult data.

Fallacies

3. If the model is accurate, we would expect 8 out of 9 toddlers to die who fell from the height of a bed. (Not consistent with actual experience)
4. Engineer demonstrated child falling onto the back of her head, ignoring multiple head impact sites when forming his opinion.

Is the Expert and Expert?

- Check the credentials
 - Academic affiliations? (Regular faculty, clinical faculty, volunteer faculty)
 - Is the person testifying about information within their area of expertise?
 - Is the person still actively practicing medicine versus retired?
 - Has the expert testified solely for one side?
 - Have they been recognized by others in their field for expertise (journal editors, awards, published research in credible journals)?

Things are not always what they seem to be---



This expert was censured for unprofessional conduct by the American Association of Neurological Surgeons



- FOR DOING THE FOLLOWING WHEN TESTIFYING IN CHILD ABUSE TRIALS—
 - Giving testimony that exhibited undue advocacy and that is not the type of balanced testimony required under the AANS rules for experts.
 - Unwillingness to consider other injuries the child sustained (such as fractures, bruises and liver lacerations).
 - Misrepresenting generally accepted neurosurgical knowledge.
 - Giving evasive answers on cross examination.
 - Failing to recognize different view points.

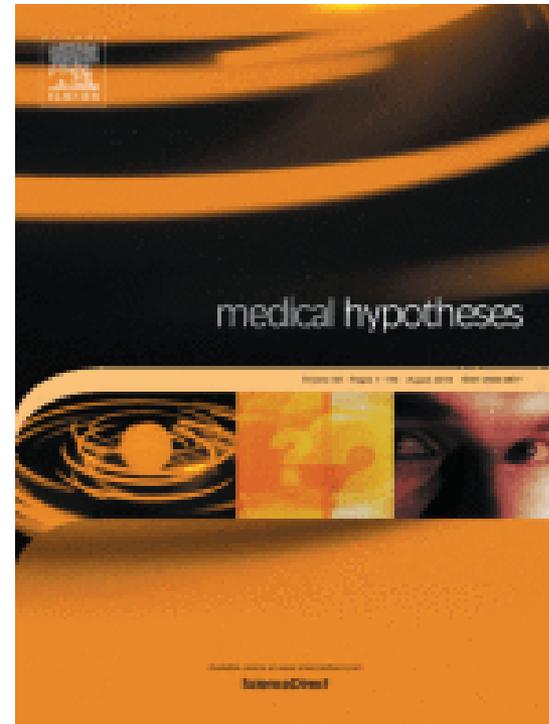
- **AND HE STILL REGULARLY TESTIFYS
IN COURTS OF LAW IN CHILD ABUSE
TRIALS.**

Evaluating experts qualifications-- Publishing in the medical literature

Peer-reviewed journals vs. non-peered reviewed journals

'*Medical Hypotheses* will publish papers which describe theories, ideas, and some **hypotheses** where experimental support is yet fragmentary'.

Non-peer reviewed



Even in peer-reviewed papers--

Authors might present inaccurate or misleading data (or omit important data) to prove their point!



Seminars in
Pediatric
Neurology

Infant Acute Life-Threatening Event—Dysphagic Choking Versus Nonaccidental Injury

Patrick D. Barnes, MD,* John Galaznik, MD,[†] Horace Gardner, MD,[‡] and Mark Shuman, MD[§]

A 4-month-old male infant presented to the emergency room with a history of choking while bottle feeding at home, and was found by emergency medical services (EMS) to be apneic and pulseless. He subsequently developed disseminated intravascular coagulopathy and died. Computed tomography (CT) and magnetic resonance imaging (MRI) showed subdural hemorrhages (SDHs), subarachnoid hemorrhage (SAH), and retinal hemorrhages (RHs), along with findings of hypoxic-ischemic encephalopathy (HIE). The caretaker account appeared to be inconsistent with the clinical and imaging features, and a diagnosis of nonaccidental injury with “shaken baby syndrome” was made. The autopsy revealed diffuse anoxic central nervous system (CNS) changes with marked edema, SAH, and SDH, but no evidence of “CNS trauma”. Although NAI could not be ruled out, the autopsy findings provided further evidence that the child’s injury could result from a dysphagic choking type of acute life threatening event (ALTE) as consistently described by the caretaker.

Semin Pediatr Neurol 17:7-12 © 2010 Elsevier Inc. All rights reserved.

- Authors presented a case where a man was accused of child abuse, when actually the child had choked on his formula and died.
- Problems with the paper:
 - Authors didn't disclose they were witnesses for the defense.
 - They didn't mention that the man had not claimed that the baby had choked until he testified at trial.
 - They didn't mention that the child had fractured bones.
 - They didn't mention that the man waited for 45 minutes before seeking help for a baby that wasn't breathing.
 - They didn't mention that the man was convicted and the conviction was upheld on appeal.

Problems with peer review---

Ferguson C, et al. The peer-review scam. *Nature* 2014; 515:480-482.

- Describes a prestigious journal that asks authors to submit suggestions for possible peer reviewers.
- An authors submitted names of famous scientists and provided fake email addresses for them—the requests for review came back with glowing recommendations for acceptance.
- The reviews were all actually written by the authors themselves.

In the past 2 years, 110 such examples of fraud have been discovered.

And then there is the proliferation of “open access” journals on the internet.

- A group or individual make up a legitimate-sounding journal title and solicits manuscripts from scientists and physicians.
- They then send the articles for fraudulent “peer-review”.
- The article routinely gets accepted and the author is then asked to pay \$500-\$1,000 to have their work published on the internet.

Bohanan J. Who's afraid of peer-review? *Science* 2013; 342:60-65.

- Constructed bogus scientific papers on a new substance that killed cancer cell.
- Made sure that the papers included “fatal flaws” that made them obviously unacceptable for publication.
- He submitted the bogus papers to 301 on-line “open access” journals.
 - 49 journals’ web sites had been shut down.
 - Of the remaining 255 journals, the fake papers were accepted for publication by 157 of them (62%).

Problems

- Who has time to do the research required to detect “junk science”?
- How is it that so many “expert witnesses” are not experts in the field, or have even worked in the field?
- How can judges and juries discern real from fake science?

AMA standards for testimony

- Doctors have an ethical obligation to assist the court impartially.
- Doctors should not act as advocates in the court—they should be honest and impartial.
- They should give honest representations of their experience, knowledge and credentials.
- They should confine their testimony to within the bounds of their expertise.
- They should have no competing interests.
- “If you do not have the relevant experience you will still be regarded as an expert, even if your opinions differ from you colleagues . . .” ????

Personal ethical dilemmas

- Can you testify for the defense, even if you think the defendant is guilty?
- Can you testify for the prosecution even if you think the defendant is innocent?
- How much can you charge and not be affected by the money? What's a fair price?