Expertise

As good as it is…
TV is TV!

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TRUTH
Reality is reality – or is it?

Kennedy Assassination

the remarkable path of the pristine bullet (per the Warren Commission)
Qualifications?
A long time ago, in a place far, far away...
Death Investigation Deficiencies
Is Mississippi’s forensic evidence system dysfunctional?

Radley Balko | October 29, 2007

"The Mississippi medical examiner system doesn't exist, except in name only." So says Dr. Vincent DiMaio, a renowned forensic pathologist, and author of the guiding textbook for medical examiners. And he isn't alone. Talk to forensic pathologists across the country about how the state of Mississippi conducts its forensic autopsies and you'll get chuckles, exasperated sighs and indignation. What you'll be hard-pressed to find, however, is anyone outside the state who thinks things are being done properly.

Here's how it works: Each county in Mississippi elects a coroner to take the lead in conducting death investigations. The job requires no prior training, medical or otherwise - only a high school degree. If a death appears to have been caused by criminal activity, the coroner will consult with the local district attorney. Between the two of them, they'll then refer the body to a private
Forensic Death Investigation Summit

• National study on death investigation
  MEs/Coroners/Investigators/other
• NIJ effort
• NAS report

Botched autopsy may free accused killer in cases crippled

"They've crippled us in those cases," Hoague said. "We might limp on by in some, but still damage has been done to each and every case because the value of the medical examiner's testimony is not going to be as good."
Autopsy

heart
lungs
liver
spleen
kidneys
genitals
endocrine
GI tract
CNS
M/S

History

clothing
trauma
toxicology
odors
personal effects
foreign materials
specialized testing
microscopics
Autopsy

heart lungs liver spleen kidneys genitals endocrine GI tract CNS M/S clothing trauma toxicology odors personal effects foreign materials specialized testing microscopics

History

medications symptoms activities changes scene EMTs medical social drug terminal witnesses family
Questions

other(s)?
why?
how?
where?
when?
what?
who?
Cause of Death

- Proximate or underlying triggering event
- Determined by medical examination > other

- Multiple medical diagnoses
  - heart attack (ASCVD)
  - pulmonary embolus (PE)
  - cancer

- Trauma
  - GSW, blunt/sharp force, MVC, etc.
Classes of Death Certification

V. Adams & C. Hirsch

• I – inconsistent with life
  certainty
  irrefutable
  5% of natural deaths
• II – Potentially lethal
• III – Marginal
• IV – No demonstrable lesion
• V - Undetermined
# Cause of Death Classification

V. Adams & C. Hirsch

<table>
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<th>Relative Significance</th>
<th>Pathology</th>
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<th>Scene</th>
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Pneumonia

Bronchopneumonia

Lobar pneumonia
“You can see a lot just by looking"
- Yogi Berra
Pneumonia

↑

C6 fracture
Pneumonia

C6 fracture

GSW
Manner of Death

- Circumstances of cause
- Determined by investigation > other

- Natural
- Accident
- Suicide
- Homicide
- Undetermined
History

Clinical

Physical

Correct diagnosis
Forensic Autopsy

(aka medicolegal autopsy)

• Complete exam
  External & internal (gross ± micro)
  Fluids
  Labs
  Clothes
  Trace evidence
  History

What’s missing?

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The Scene!
Autopsy is not a substitute for an investigation.
“Living is easy with eyes closed, Misunderstanding all you see.”

- Winston O’Boogie
Order of wounds?
GSW #1

+stipple (?assn A)
-soot (copious dried blood)

~60 down
~30 L→R
~20 L→R (C5-7)

Mid L mandible
L base tongue
L thyroid horn
Anterior C5-7
*R anterior C7

Moderate hemorrhage
Head tilted back
GSW#2

?stipple
?soot

~15-20 down
~25 back

L anterior SCM
Posterior to carotid
Scalene
~C6
Cord
R supraspinatus fossa
*posterolateral R shoulder

Lateral neck flexion
hemorrhagic
GSW#3

?seared
+stipple 1-1/4”
?soot
-subjacent GSR

~30 down
~45 back

Copious liquid blood
~2000 ml B chest

L#3
LUL lingula
L basilar heart
Aorta
Anterior lower T spine
*RLL base
Functionality

• What was possible?
• What did the witnesses say?
• Is there doubt?
  
  check case materials

  “difference of opinion”

  “defer to other(s)”
Other findings/
Patterned Injury
Even the smallest thing might be important
Case History

- 5 week BM
- Lived w/ parents & 4 yo sib
- Father babysitting while mom worked (PM)
- Mom returned ~ 0800
- Found unresponsive by mom ➔ 911
Toxicology

- CO-Hb <2.0%
- Met-Hb – 6.1%
- Lorazepam – 190 ng/mL (tx 140-240)
- Ibuprofen – trace
- Atropine – positive
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Find answers where you can
14 mo WF

• Found in pond near home
  No vital signs
• 911 @ 2043h
  EMS ➔ ER
  T= 93.7 F
  CPR unsuccessful
• POD @ 2151
• Vaginal & rectal samples - negative
FINAL ANATOMICAL DIAGNOSIS

Evidence of **blunt force trauma to abdomen** with:
- a) Contusion of distal ileum with intraluminal hemorrhage.
- b) Fresh hemoperitoneum, estimated volume 75 ml.
- c) No soft tissue contusions appreciated on abdominal wall.

Evidence of **shaken baby syndrome** with:
- a) Cerebral edema (brain weight 1032 grams).
- b) Hemorrhage adjacent to superior sagittal sinus.
- c) Pinch marks to posterior neck.
- d) Recent pulmonary contusions.
- e) Recent hemorrhage around posterior esophagus & aortic arch vessels.

Evidence of **recent sexual assault** with:
- a) Swelling and erythema of vulva.
- b) Recent contusions & small superficial lacerations on clitoris & labia minora.
- c) Rupture of posterior hymen.
- d) Abnormal dilation with superficial lacerations of rectum.

Contusions and small abrasions of forehead, lower extremities, anterior surfaces of ankles.

No anatomical evidence of drowning; no water within lungs or middle ear chambers.

**PRELIMINARY CAUSE OF DEATH:** Cerebral edema & intra-abdominal hemorrhage due to blunt force trauma consistent with **shaken baby syndrome**.

**MANNER OF DEATH:** *Homicide.*
“Technically… better than many exams….”
“There are no standards….”
“…better than the majority…..”
“…always details that can be criticized….”
“…variations in practice.”
“…easy to criticize after the fact…..”
“…surprised if the rank and file… would find significant fault…”
“There are differences of opinion.”
Don’t take someone else’s sword
Case example – “missed” GSW
Dickering Points

“Boy, do you folks like to argue….”
Challenges

• NAS report “Strengthening Forensics”
  Intent?
  Origin?

• What are the provisions?
  Independent entity (NIFS)
  Improve scientific foundation
  Abolish coroners
The “State’s Expert”

- Overworked & underpaid
- A cutter
- A state employee
- Biased
  
  only favor the state
  a shill for the DA
  crusader
- Police agencies
The “Defense Expert”

- “Could be” vs. “is”
- Possible vs. probable
- “Concern” or “interest”

- What is reasonable medical certainty?
  - no doubt?
  - little doubt?
  - the appendectomy rule

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Attacks can get very personal
the other side is an idiot! (or worse)

Typically
defense = Witness

Having
Other
Rationalized
Explanation
Ethical Duty

• If competent individuals will not take a position contrary to their own, who is left to speak for the other side?
• “They” may not like what you have to say, but are you willing to take the case – even if it tends to incriminate/exculpate
Case example - EJ
Shouting match between lawyers
a drama fit for TV

- Sentenced to death
- Conviction overturned by AL Supreme Court
- Forensic testimony expected to be key
The State’s Problem?

- 4 mo MBFI (aka SBS)
- Mediocre autopsy
- Negligible documentation
- No credibility
The Defense’s Strengths

- Flaws in state’s case
- History of maternal abusive tendencies
- Passage of time
- Internationally renowned expert

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Expert for defense questions timeline of injuries to victim in suspect’s retrial

- a prominent forensics expert, offered testimony that may shake the prosecution's timeline of events

- “I can state with assurance that this took hours....”

- questioned the quality of the autopsy performed
- suggested the head and body injuries may have occurred at different times

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Extensive Bilateral Retinal Hemorrhages
per Dr. Steve Lovelady
per Dr. Ashley Evans
Bleeding into chest cavities
1 oz. right / 1 oz. left

Bleeding in thymus

Laceration left lung
Laceration of Liver
Lacerations of Spleen

SX #18
Bleeding in Pancreas
Bleeding in Adrenal
Bleeding around Kidney

SX #50
Bleeding into Abdomen
1-2/3 oz.
Bleeding *in* both testes
Right Skull Fracture

SX # 21

Bleeding over Right Side of Skull
Subarachnoid Hemorrhage

Parasagittal Hemorrhage

Brain Contusion
24 rib fractures
12 right
12 left
Total blood volume at 2 months = 11 oz.
  Right chest = 1 oz.
  Left chest = 1 oz.
  Abdomen = 1-2/3 oz.

Total liquid blood = 3-2/3 oz.

Additional blood loss:
  “large amount” abdomen ER
  scalp subarachnoid
  brain contusion thymus
  liver pancreas
  spleen adrenal
  kidney both testes
  24 rib fractures

1/3 blood lost
Extensive injuries with bleeding
Hemoglobin 2.9
Hematocrit 11.4%
3/4 blood lost
- per Dr. L
ER Attending Physician
Ebious’ injuries occurred
within 1 hour of admission
- per Dr. Downs
Chief Medical Examiner

Not at all unusual to see this much fall in hematocrit within 30 to 60 minutes with such massive trauma to a child
- per Dr. Hardin, Pediatric Trauma Surgeon
State expert testifies in retrial

• “strongly” disagreed
  “I respect him. He’s a friend of mine. But I disagree with him in this case....”

• Defense:
  amount of leaked blood pumped into body cavities indicated the child was still alive for at least two hours before he died.

• with the wounds the child suffered, he could not have lived more than an hour... and even that was a generous estimate.
state expert testifies in retrial

- brain swelling common in shaken babies barely appeared in this case, suggesting a quick death stopped the swelling

- “If you don’t live long enough for that swelling reaction, you don’t get that…."

- questioned qualifications in assessing child abuse cases failure to view all medical and autopsy
Bleeding into chest cavities
1 oz. right / 1 oz. left

Bleeding in thymus

Laceration left lung

SX #50
Defendant speaks out during trial

- “I didn’t kill that damn baby….”
- “I think this trial has been very unfair to my witnesses and their credibility….”
- testimony “bogus”
- pledged to fight on
“That's all Folks!”