

# Preventing Errors in Death Investigation using Forensic Pathology Beyond the Autopsy



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## Elizabeth A. Laposata, MD, FCAP, FASCP

- Diplomat of the American Board of Pathology
  - Anatomic & Forensic Pathology
- Over 35 years experience
  - Assistant medical examiner in St. Louis, Delaware, Philadelphia
  - Chief Medical Examiner State of Rhode Island
  - President , Forensic Pathology & Legal Medicine an independent medicolegal consulting practice

# Beyond the autopsy

- Analyzing all forensic evidence and facts of the case
  - DNA
  - Trace evidence
  - Ballistics
  - Toolmarks
  - Fingerprints
  - Surveillance video
  - Crime scene reports and photographs
  - Autopsy

# Medical examiner's office

- Autopsy done to professional standards
  - Photographs and X-Rays
  - Medical interventions
  - Histology
  - Toxicology
- Medical history
- Scene photographs
- Witness statements

# Pathology expert

- Autopsy done by qualified, experienced doctor with license to practice medicine and board certified in forensic pathology
- “We see only what we know.”

*-Johann Wolfgang Goethe*

# Six questions to be answered from examination of the body

1. Who is the victim?
2. When did the death and/or injuries occur?
3. Where was the scene; what were the circumstances?
4. What injuries are present?
5. Which injuries are significant?
6. Why & how were the injuries produced?



From: Adelson L (1974) *Pathology of Homicide*  
Charles C. Thomas; Springfield, IL

# Beyond the autopsy

- Use the forensic pathologist's training in clinical medicine diagnosis to analysis all the facts of the death investigation using
  - Inferential thinking or reasoning to develop a differential diagnosis

# Using a medical model to prevent errors in death investigation

- Why do doctors in clinical medicine make mistakes?



- Answer: deductive reasoning

- What do they do about it?



- Answer: inferential reasoning

# Deductive reasoning ( no differential diagnosis)

- Top-down logic given a fact or finding
- A conclusion based on a fundamental dictum known to be true

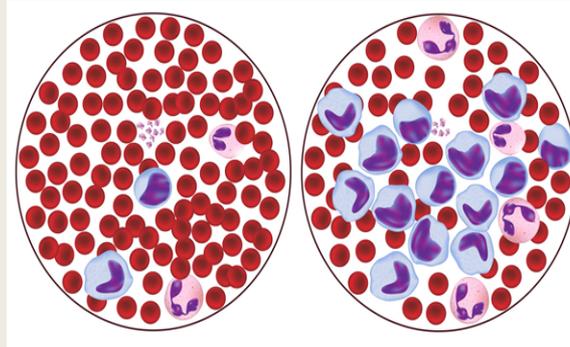
Finding



# Deductive: top-down logic

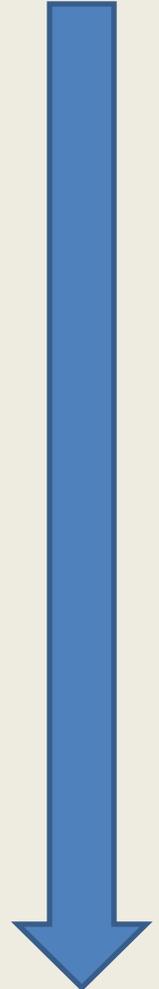
- Patients with infection have high white blood cell counts

- My patient has a high WBC count



FINDING

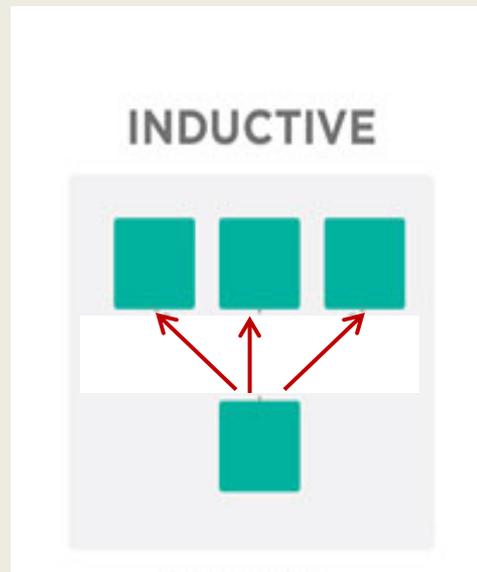
- Diagnosis: My patient has an infection
  - Start antibiotics; culture blood, urine, cerebrospinal fluid; place in isolation



# Inductive reasoning (creates a differential diagnosis)

- Bottom-up logic
- Generates a list of possible ways a certain outcome could have been produced

Inductive reasoning  
generates ideas



Ideas as  
to possible  
causes



Finding

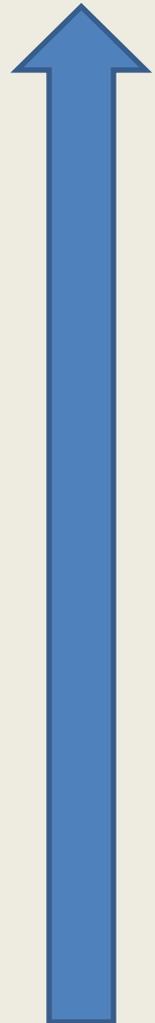
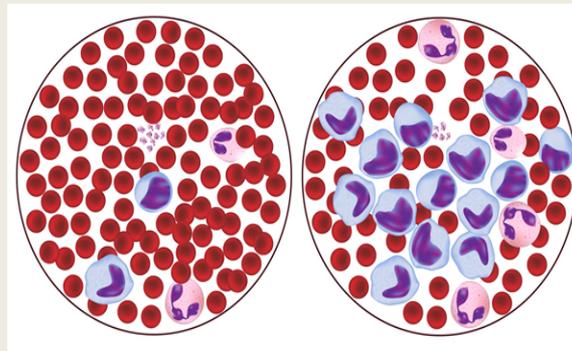
# Inductive reasoning: bottom-up logic

- Create a differential diagnoses

infection   leukemia   drug reaction   autoimmune disease   acute stress reaction

- How many ways could my patient develop a high WBC?

- My patient has a high WBC count



# Case 1: child with abdominal trauma

Case sensitive material omitted for distribution

# Case 2: Man with Stab Wounds

Case sensitive material omitted for distribution

# Case 3: Death After Fight with Police

Case sensitive material omitted for distribution

# Case 4: Naked Woman Dead on Ground Outside House

Case sensitive material omitted for distribution

# Barriers to Inductive Reasoning

- Group think
- Bias
- Silos
- Premature closure
- “Wicked” problems

# Work with the forensic pathologist at the beginning of the case

- Dismantle silos and share information
- Develop a list of differential diagnoses by using inductive reasoning
- Utilize targeted testing to get answers that are probative

# Cases for Information Sharing and Inferential Reasoning: How else could it have occurred?

- Triage
  - High profile cases
    - Deaths of children and infants
    - Deaths in custody
    - Deaths of individuals of public interest
  - Complex cases with multiple data points or types of evidence

