



Attitudes Towards Forensic Autopsy Standard B3.7 and the Use of Physician Extenders in Select Autopsy Cases

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Objectives

Background

- Rationale for NAME Standard B3.7

Scope of Current Problem

- Increasing number of overdose deaths
- Is compliance with standard B3.7 feasible?

Physician Extenders

- Definition and roles: The “PA”

Focus of Current Study

- Attitudes/opinions towards standard B3.7 and the use of PAs in forensic autopsy
- Define and explore factors predicted to influence opinions

Methods

Results

Conclusions

Background

- Studies have repeatedly demonstrated that a full autopsy (complete with internal examination) is the gold-standard method of determining cause and manner of death.

National Association of Medical Examiners (NAME)

forensic autopsy standard B3.7 states that:

“...a forensic pathologist shall perform a forensic autopsy when the death is by apparent intoxication by alcohol, drugs or poison, unless a significant interval has passed, and the medical findings and absence of trauma are well documented.”

Background

Vanatta & Petty (1987): Retrospective review of 185 cases:

- External examination may be considered as a reliable alternative to full autopsy in assigning manner of death and cause of death in non-natural cases
 - 99%-100% accuracy rate in this study
- Accuracy in determining cause of death by external examination alone in natural deaths diminishes
 - 29% inaccuracy rate in this study (overdiagnosis of arteriosclerotic CVD)

Background

Nashelsky & Lawrence (2003): Retrospective review of 261 cases (natural deaths):

- **Forensic pathologists are generally able to recognize natural deaths without an autopsy**
 - 96.9% accuracy in their study
- **Forensic pathologists tend to overestimate prevalence of cardiovascular death**
 - 93.9% assigned cardiovascular cause of deaths vs. 79.7% truly cardiovascular-related
- **Forensic pathologists may underestimate the prevalence of pulmonary disease**
 - 1.9% assigned pulmonary cause of deaths vs. 18% true pulmonary-related
- **Forensic pathologists may underestimate neoplasia as cause of death**
 - 0.38% assigned cause of death due to neoplasia vs. 2.3% true death due to neoplasia
- **Without a forensic autopsy (with internal examination), forensic pathologists are prone to error when determining cause of death in natural manner cases**
 - 28.4% cases were assigned an incorrect cause of death

Background

Dye et al. (2019): Blinded review of investigative narratives based on 60 cases of suspected drug-related deaths:

- Cause and manner of death may be accurately determined by external exam alone in **75% and 80%** of cases respectively, when scene findings and/or medical history indicate evidence of illicit or prescription drug abuse.
- Demonstrated variable and inconsistent inter-reviewer agreement in assigning cause and manner of death
- Additional years of experience/practice did not correlate with accuracy when determining cause and manner of death

Scope of the problem

- Over 70,200 overdose deaths in 2017 (Centers for Disease Control and Prevention)
 - 9.6% increase in age-adjusted overdose rate from 2016 – 2017
- Some question about the feasibility of compliance with NAME standard B3.7
 - Offices located in busy urban centers
 - Offices with lower staffing ratios & finite resources
- Annual NAME Business Meeting in 2018
 - Use of physician extenders (i.e. pathologist assistant) in select forensic autopsy cases?

Physician extenders

- Physician extenders are health care professionals who are not physicians, but participate in patient care on behalf of or in conjunction with supervising physicians.
- Concept introduced in the 1960's when a surplus of medically-trained military personnel returning home from the Vietnam War were stationed in underserved areas.
- Most common physician extender roles in the United States include physician assistant and nurse practitioner.
- In pathology, the equivalent physician extender role is a pathologist assistant (PA)
- ~~PAs undergo 2 years of focused practical and academic post-graduate training~~



Focus of our study

- Consensus on the appropriateness of NAME standard B3.7
 - Consensus on the use of supervised accredited PAs in select forensic autopsy cases
 - Determine whether variables related to experience, workload and resources impact forensic pathologists' opinions
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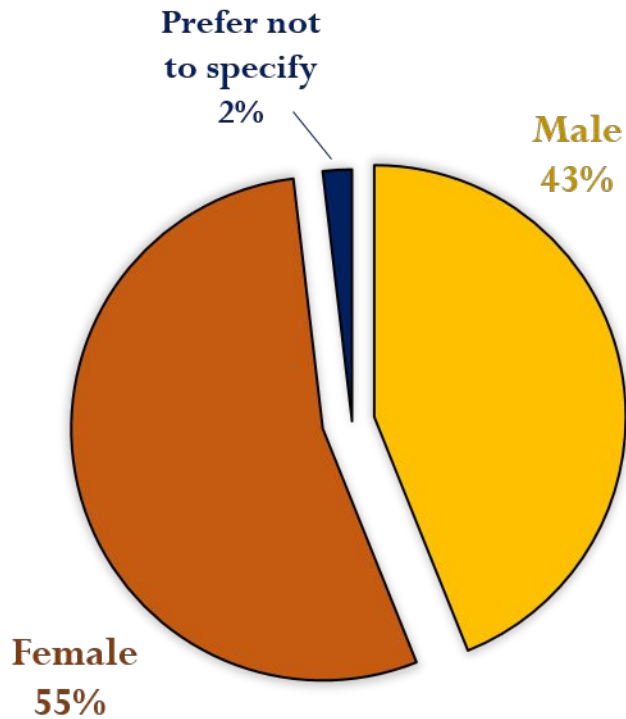


Methods

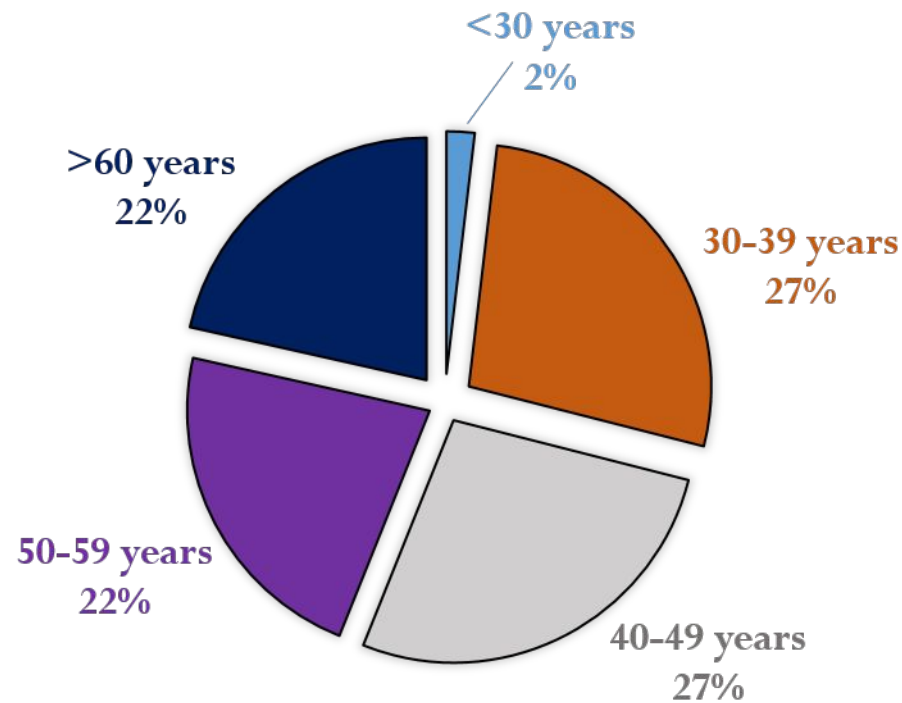
- Voluntary anonymous survey consisting of 17 multiple-choice questions and 3 fictitious death scenarios (used for internal validity).
 - The survey was constructed using Google Forms
 - Distributed via the NAME-L electronic mailing list
 - Left open for response for 3 weeks
 - Demographic statistics were obtained from Google Forms; statistical comparisons performed using SPSS software.
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Demographics

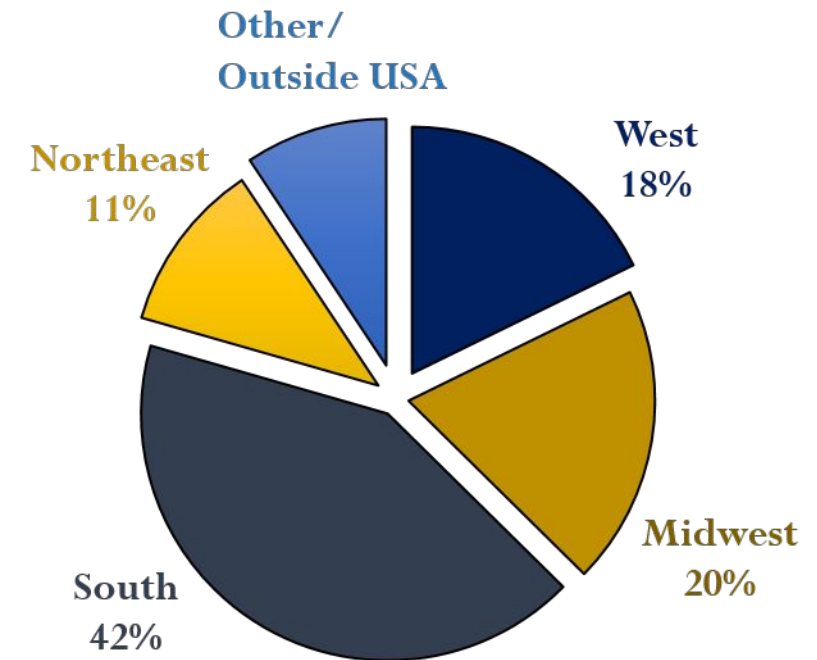
Total Responses: 107



SEX

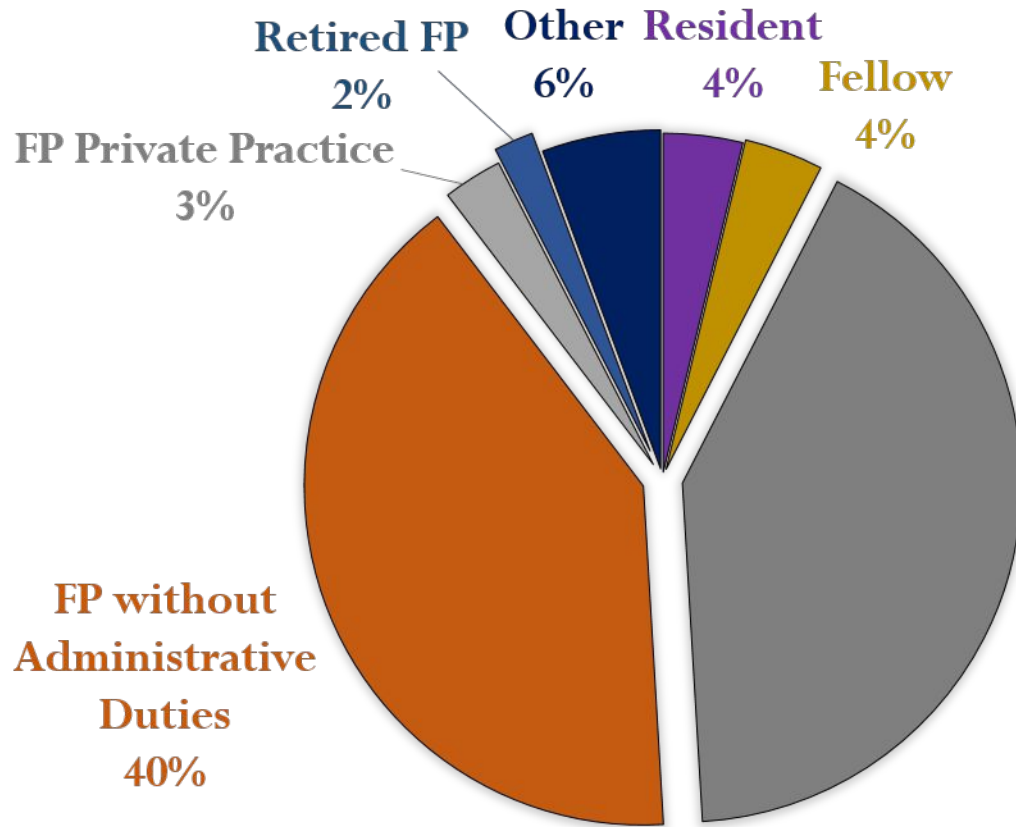


AGE

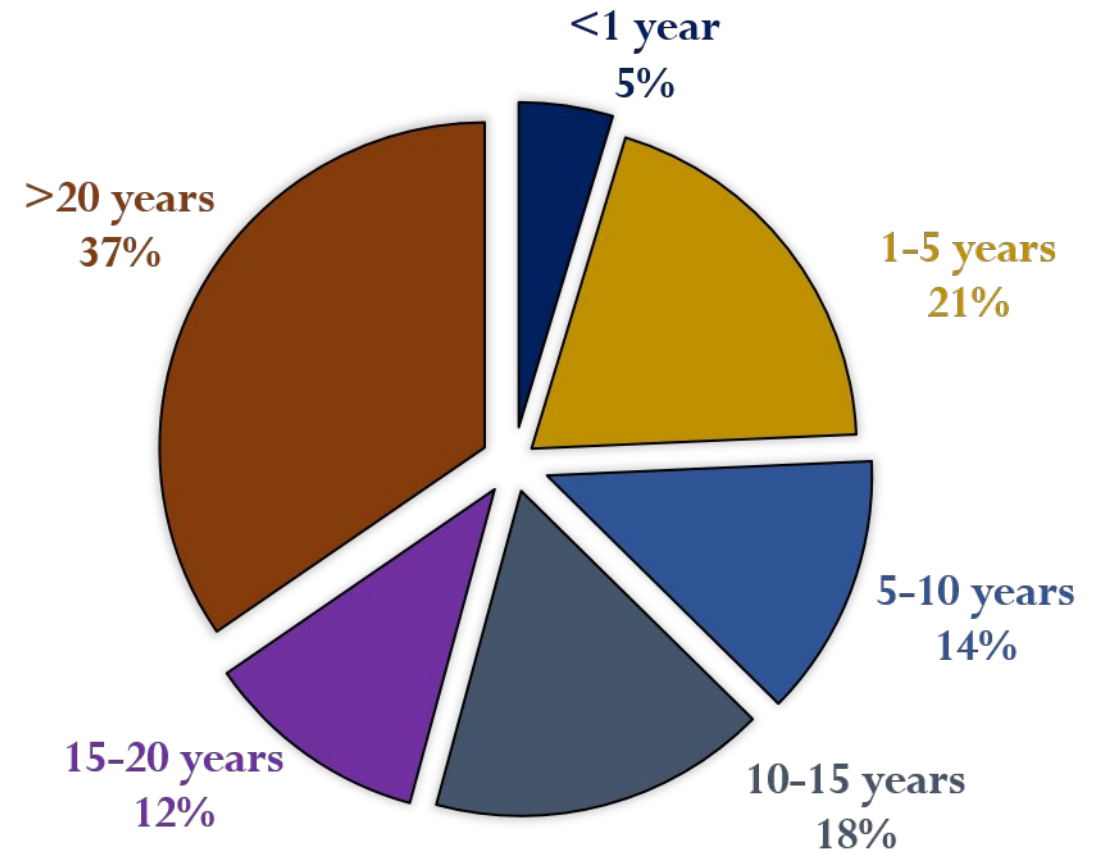


LOCATION

Demographics

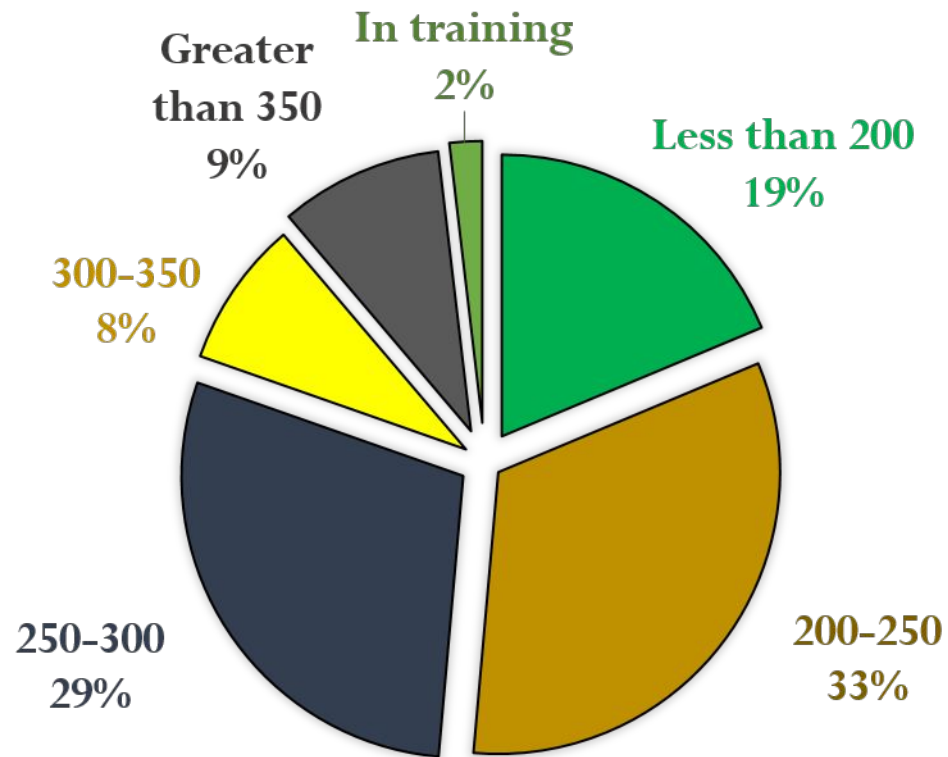


JOB ROLE/LEVEL OF TRAINING

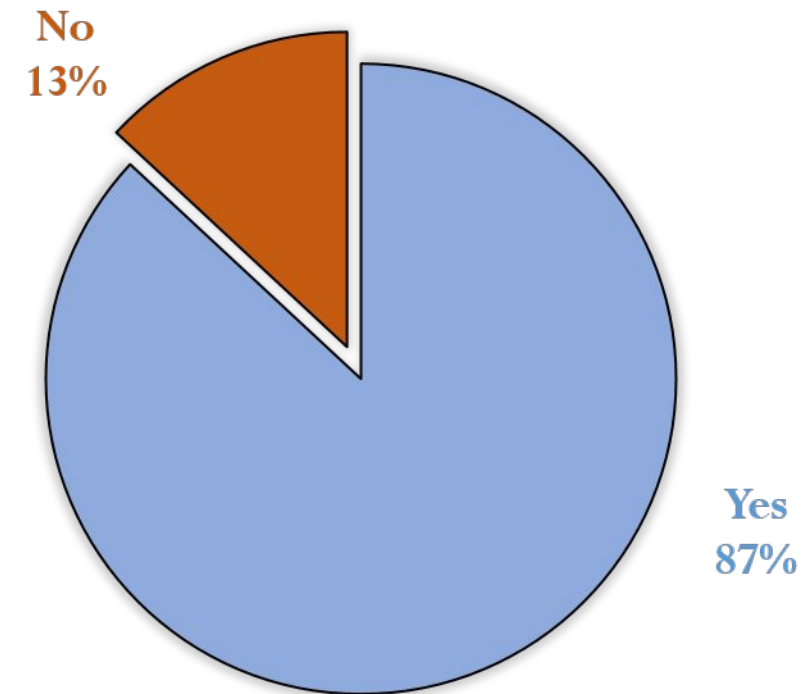


YEARS OF EXPERIENCE

Variables predicted to impact FP's opinions

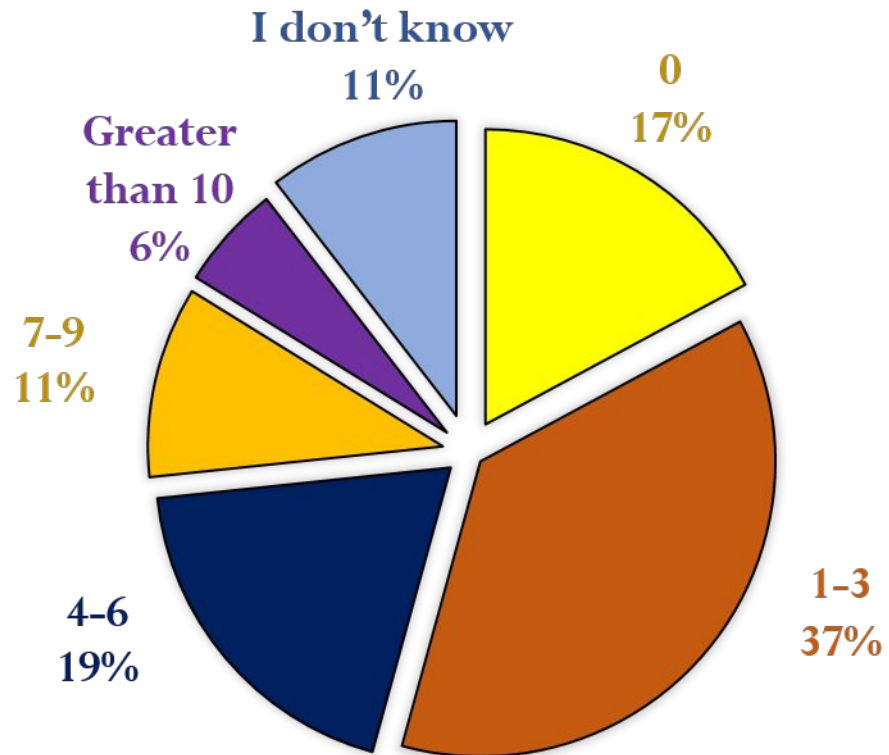


INDIVIDUAL AUTOPSIES

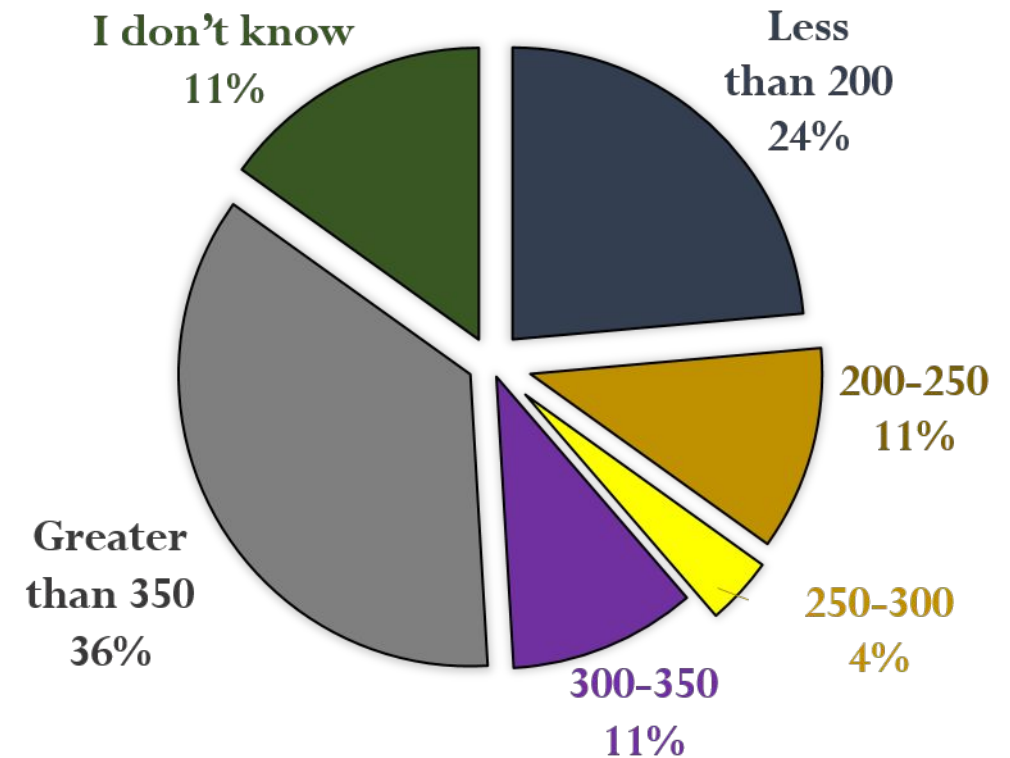


OFFICE EMPLOYEES MORGUE
TECHNICIANS

Variables predicted to impact FP's opinions

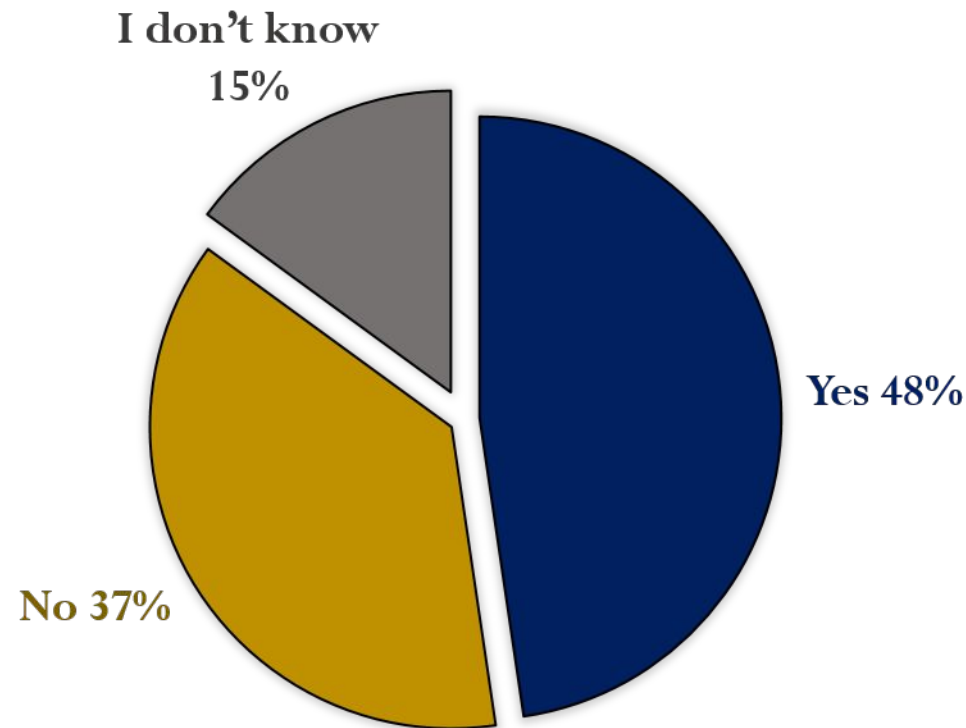


NUMBER OF FPs PERFORMING
>275 AUTOPSIES

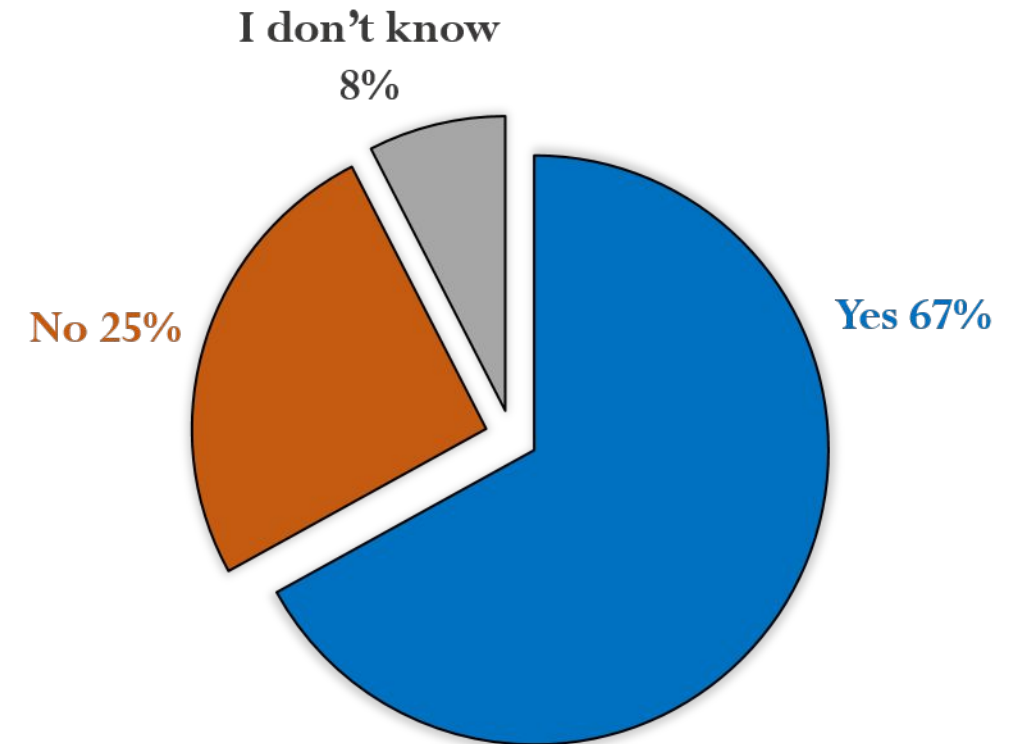


NUMBER OF OVERDOSE CASES
PER OFFICE PER YEAR

Variables predicted to impact FP's opinions

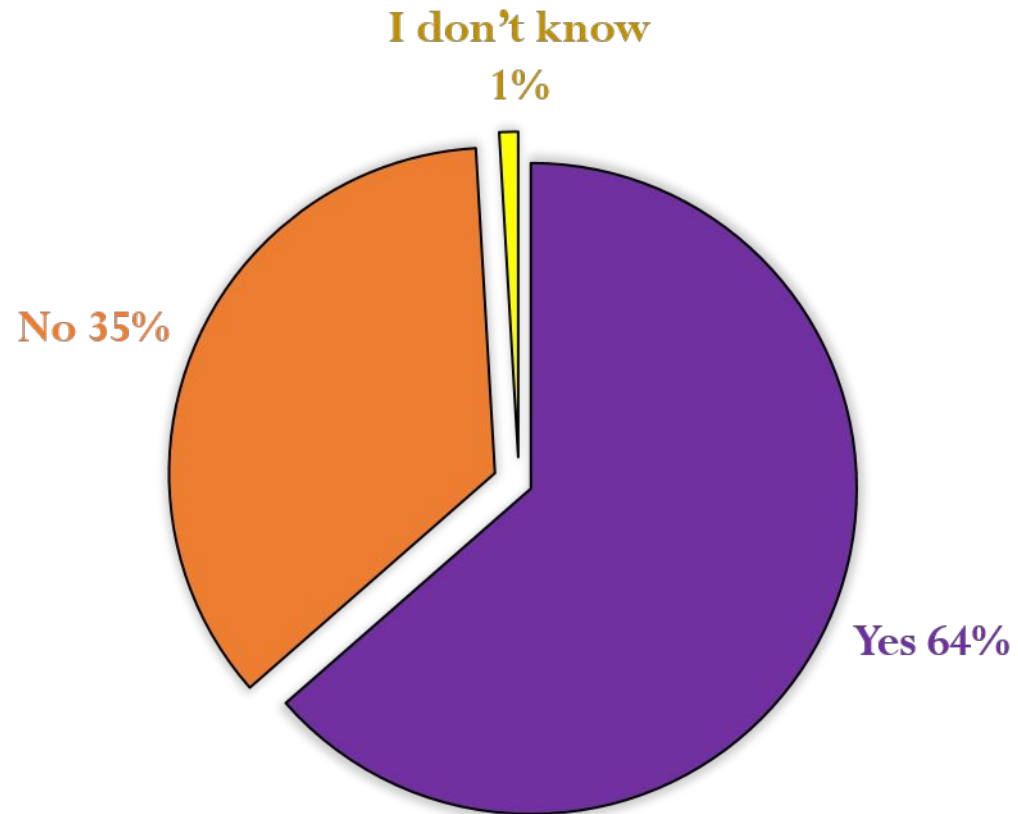


JURISDICTION THAT ROUTINELY
PROSECUTES DRUG DEALERS

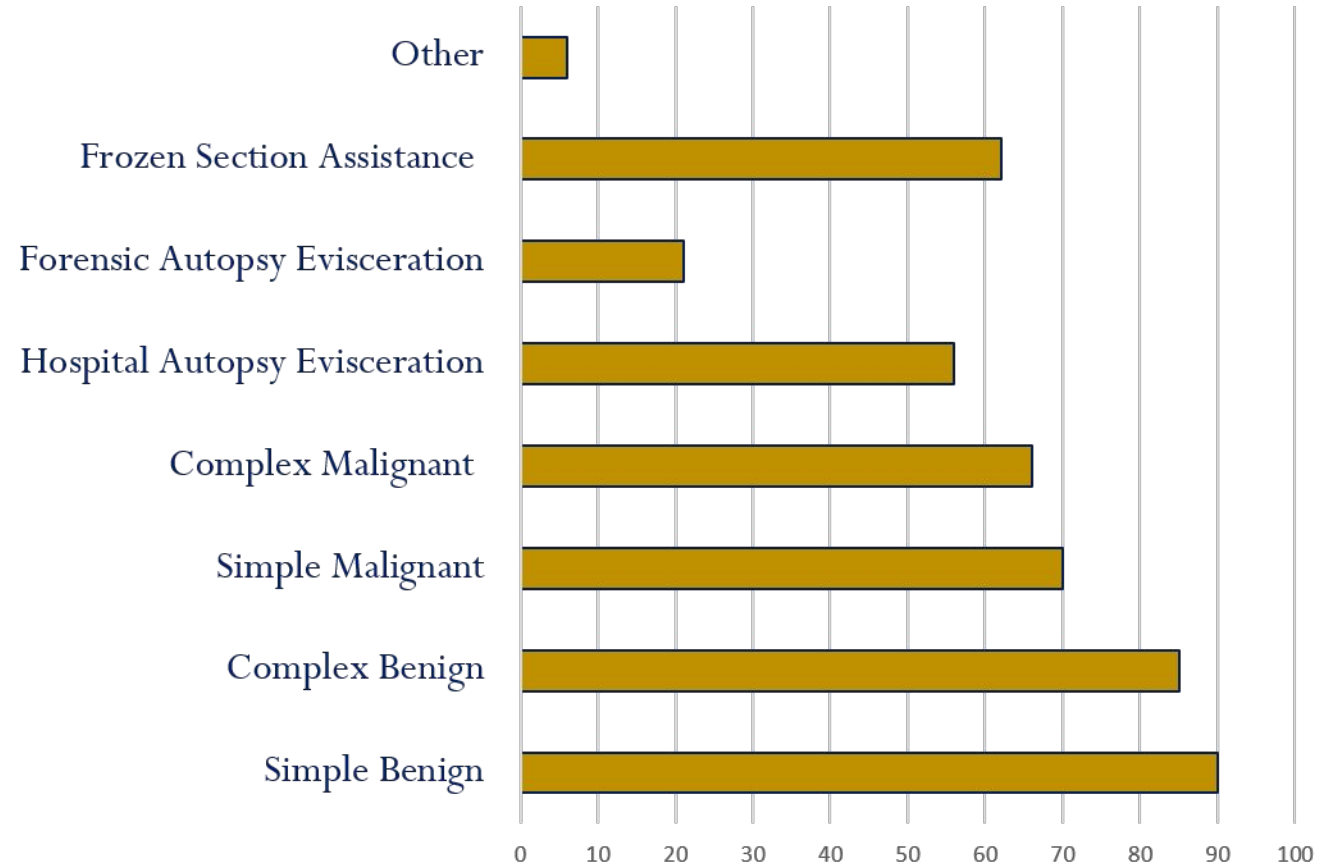


AUTOPSY FINDINGS RADICALLY
CHANGED DIAGNOSIS

Variables predicted to impact FP's opinions

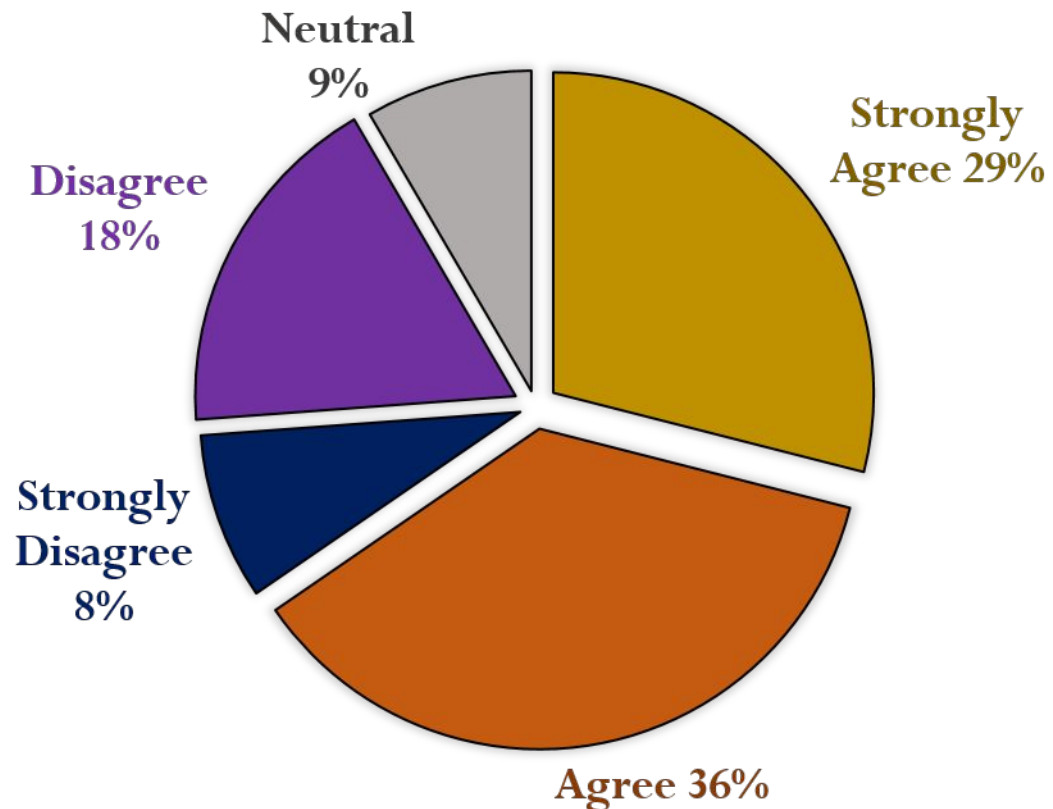


PAST EXPERIENCE WITH PAs

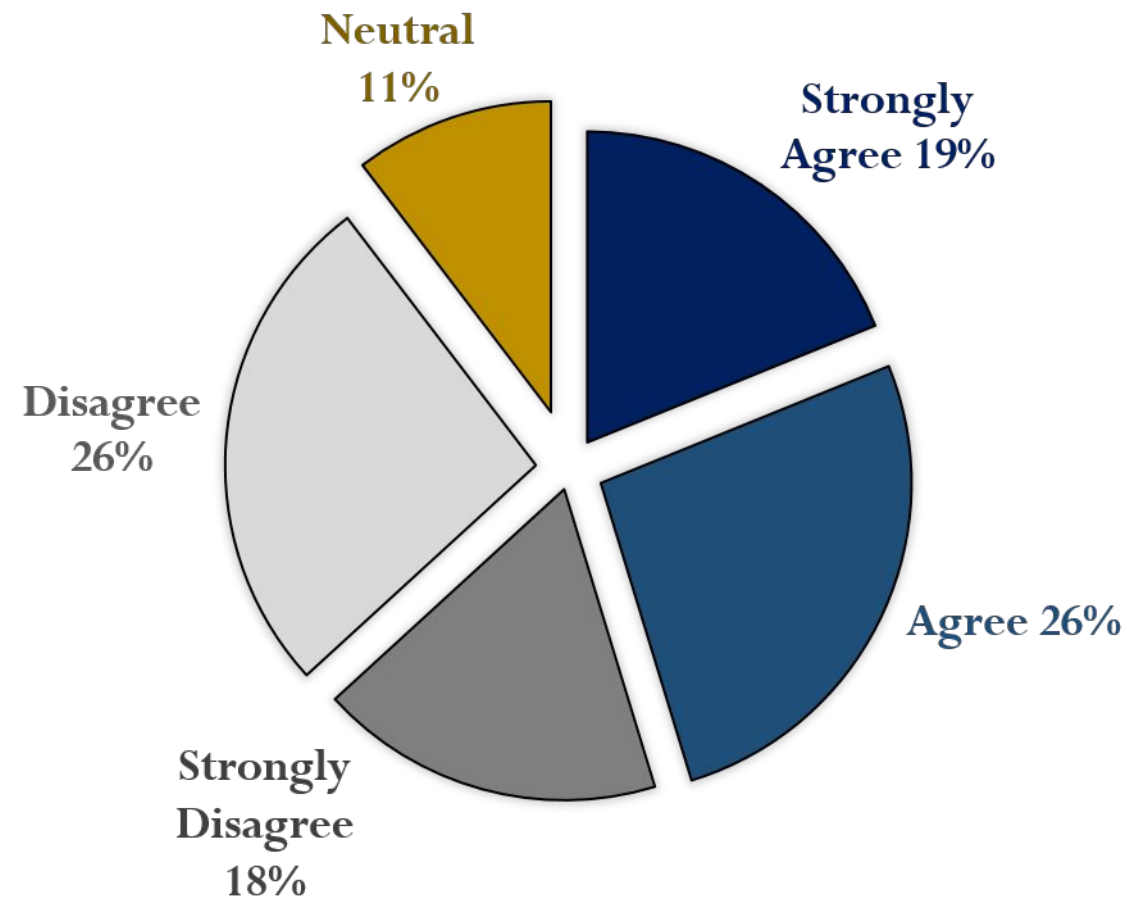


EXAMPLES OF PA RESPONSIBILITIES

outcomes



AGREEMENT WITH NAME
STANDARD B3.7



WILLINGNESS TO SUPERVISE AN ACCREDITED
PA IN SELECT FORENSIC AUTOPSY CASES

Results

Predictive Variables vs. Agreement with NAME Standard B3.7	df	F	P-value
Years of experience in forensic pathology	1,106	2.01	0.08
Number of forensic autopsies individually performed per year	1,106	0.71	0.62
Number of colleagues (working in same office) who perform >275 forensic autopsies per year	1,86	1.86	0.13
Number of potential overdose cases per office per year	1,105	1.62	0.52
Office employment of morgue technicians	1,106	0.13	0.72
Experience working with PAs	1,106	2.64	0.08
Working in jurisdiction that routinely attempts to prosecute drug dealers in overdose deaths	1,106	1.21	0.30

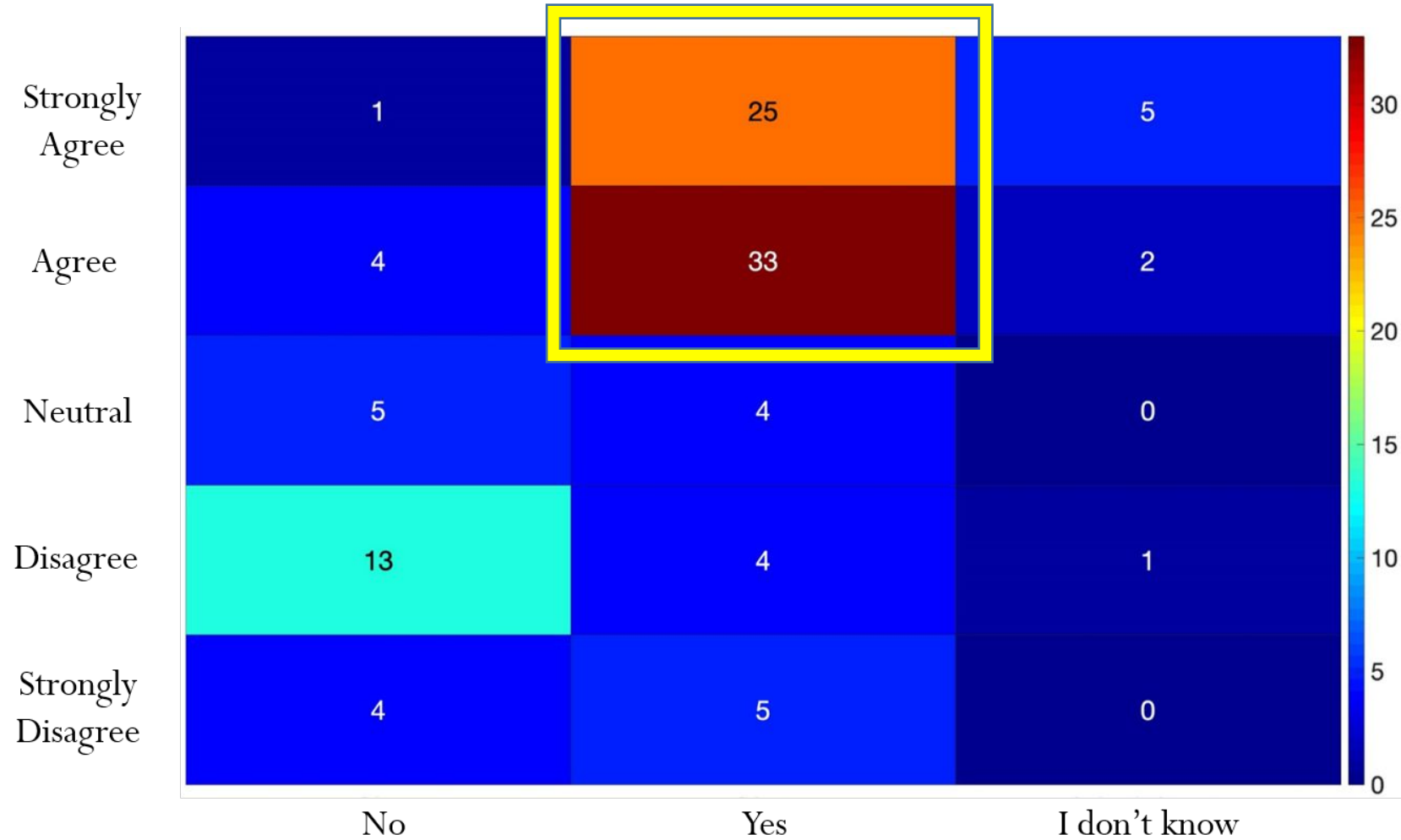
Results

Predictive Variables vs. Use of PAs in Select Forensic Autopsy Cases

	df	F	P-value
Years of experience in forensic pathology	1,105	0.70	0.62
Number of forensic autopsies individually performed per year	1,105	1.62	0.16
Number of colleagues (working in same office) who perform >275 forensic autopsies per year	1,86	0.78	0.54
Number of potential overdose cases per office per year	1,104	0.97	0.44
Office employment of morgue technicians	1,105	0.02	0.88
Experience working with PAs	1,105	0.23	0.80
Working in jurisdiction that routinely attempts to prosecute drug dealers in overdose deaths	1,105	0.78	0.46

Results

Is the current NAME standard to autopsy every overdose case appropriate?



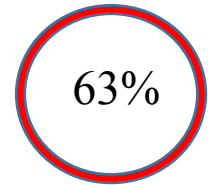
$$p = 8 \times 10^{-7}$$

Do you recall a potential overdose case where autopsy findings radically changed a diagnosis that may have been reached by external exam (+toxicology testing) alone?

Death scenarios in which respondents were asked to specify the minimum acceptable examination type they would deem suitable within the scope of their current or past practice

SCENARIO 1:

A 63 year old man with history of hypertension, hyperlipidemia, diabetes mellitus, and previous myocardial infarction requiring RCA stenting is found deceased in his secured residence when he failed to answer the phone for two days. The medicolegal investigator finds a “dime bag” and unmarked pills on the decedent’s nightstand.



Full
Autopsy

External
Exam

63%

37%

SCENARIO 2:

A 28 year old woman is found unconscious by her roommate in their secured apartment. The decedent has history of illicit substance use including opioids, however, her roommate reports she has been “trying to stay sober” for the past 6 months. The immediate scene lacks visible drug paraphernalia, however, marijuana and a prescription for benzodiazepines are identified in the decedent’s drawer (name on prescription matches that of the decedent). On external exam, the decedent has scarring in her left antecubital fossa. Urine quick tox testing is positive for marijuana, opioids, benzodiazepines and cocaine.

73%

27%

SCENARIO 3:

A 31 year old man collapses while jogging with his partner. The decedent was a surgical resident who frequently took stimulant medication (ie. Dexedrine) to stay awake. External examination is unremarkable and urine quick tox screening is not performed.

99%

1%

Results summary

- A majority of respondents agreed with NAME standard B3.7 (65%)
 - Consensus on the use of PAs in non-suspicious forensic autopsy is split
 - 45% Agree
 - 44% Disagree
 - Tendency to agree with either standard B3.7 and the use of PAs in select forensic autopsy cases was independent of virtually all of the variables we chose to examine in this study.
 - Respondents were more likely to agree with NAME standard B3.7 ($p < 0.001$) if they had a past experience where autopsy findings radically altered diagnosis in an otherwise suggestive overdose death.
 - There was no significant relationship between agreement with the use of PAs in select forensic autopsy cases and such past experience.
 - Internal control (scenario 1) response for full autopsy approximated agreement with ~~B3.7~~
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Conclusions

- Forensic pathologists rely on clinical judgement when determining which cases should receive a full autopsy vs. external examination alone.
 - Tendency to agree with the use of PAs in forensic autopsy is independent of all predictive variables measured in this study.
 - Forensic pathologists are more likely to agree with standard B3.7 if they have encountered unexpected autopsy findings in an otherwise suggestive overdose death.
 - The use of PAs in select forensic autopsy cases may be one solution to ensuring every potential overdose death receives a full autopsy.
 - Future research is warranted in order to characterize the role of PAs in forensic autopsy and for the development of practice guidelines.
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Thank-you
