

# A Field Analysis of Laboratory Case Processing: Latent Print Comparison and Examiner Conclusions

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# Disclaimers

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Opinions: My own

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# Introduction

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National Academy of Sciences Report, 2009

President's Council of Advisors on Science and Technology Report, 2016

“Resolving latent conflict: What happens when latent print examiners enter the cage?” Rairden et al., 2018



# Study Rationale

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Describe the casework completed by latent comparison examiners in a large laboratory over the course of one calendar year

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Describe the prevalence of examiner conclusions during that year

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Explore whether examiner conclusions vary according to casework variables such as latent print source, offense type, or AFIS software

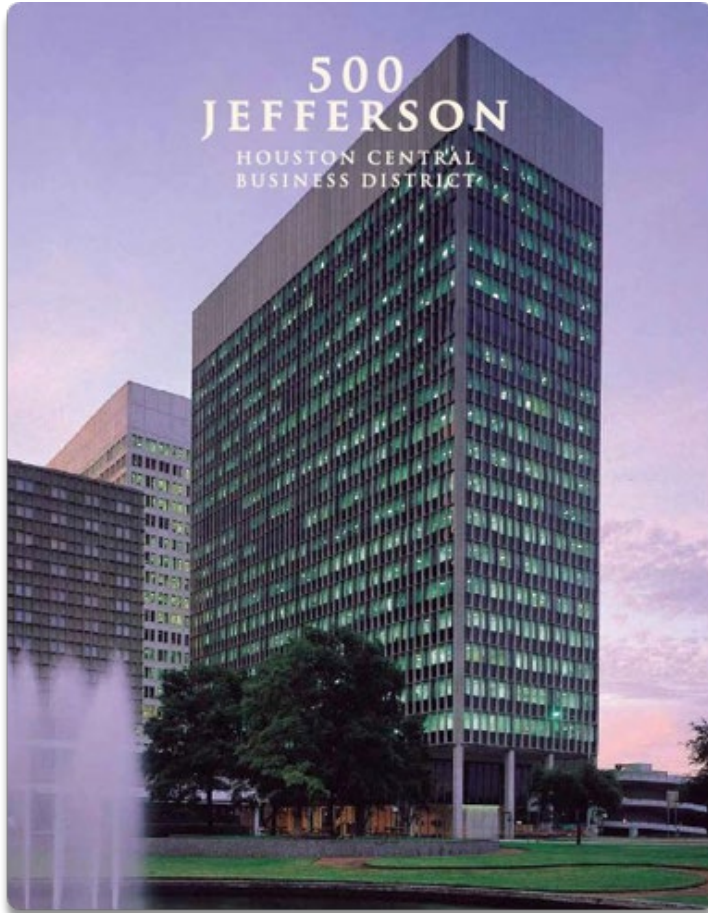
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Explore the extent to which there are examiner differences in examiner conclusions and case processing

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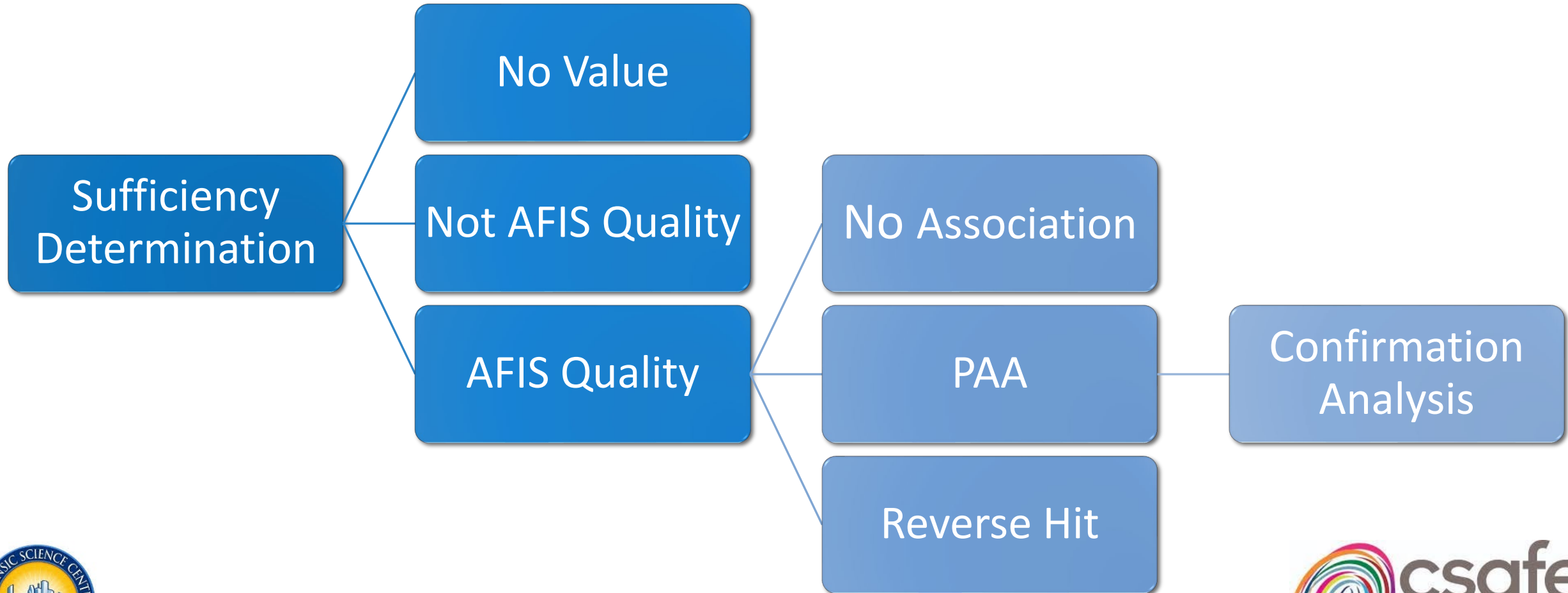
# Houston Forensic Science Center



- Local government corporation
- Accredited by ANAB
- Study parameters:
  - 2018 calendar year
  - 17 latent print examiners
  - 5 to 36 years of work experience

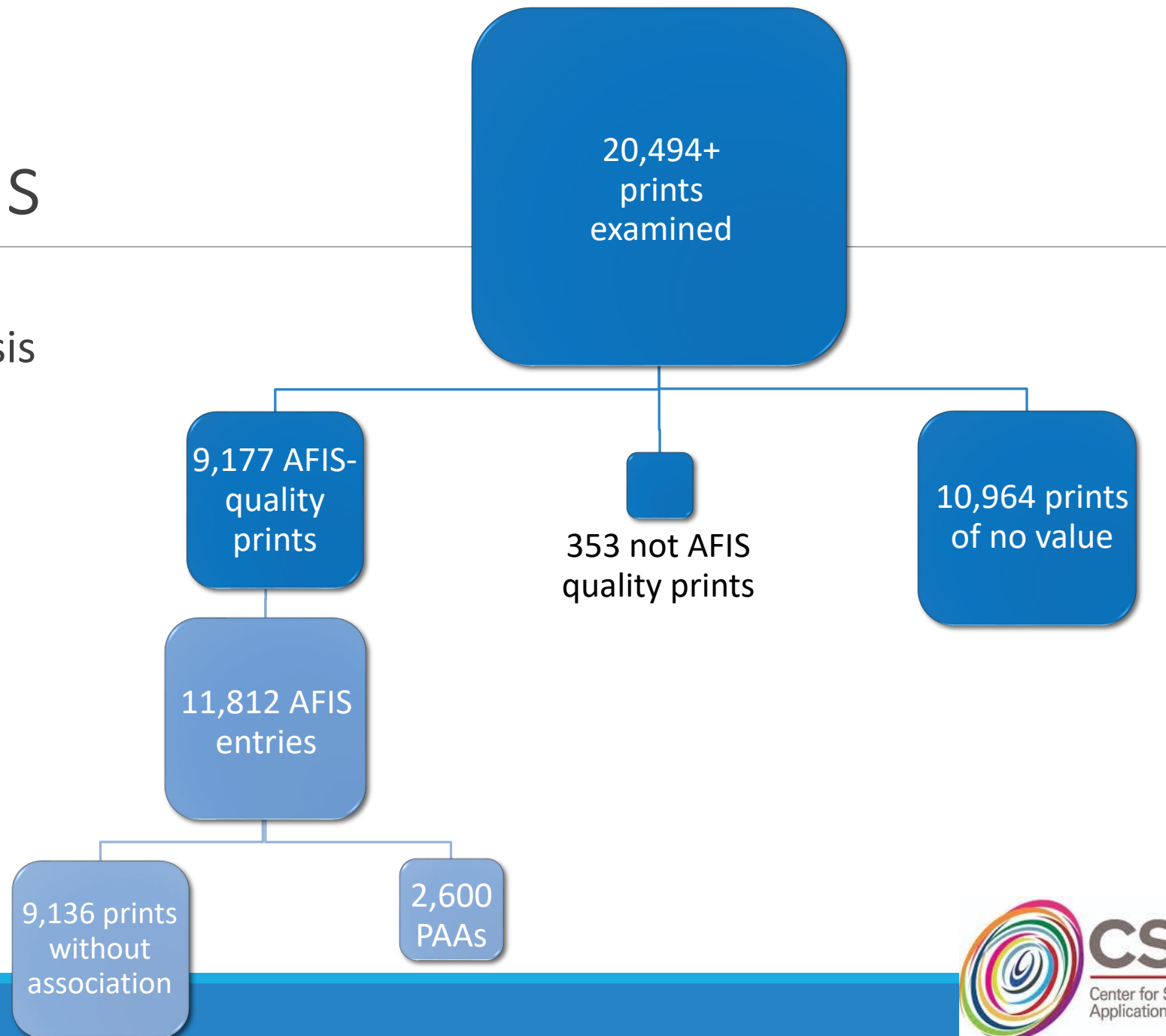
# LPC Procedures

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# Examiner Conclusions

- 2975 cases - 3239 requests for analysis
  - 69.1% BNT
  - 16.3% robbery
  - 4.4% homicide
  - 10.1% other
- AFIS outcomes
  - 65.0% county
  - 16.9% state
  - 18.1% federal



# AFIS Outcomes

Anatomical Source	PAA	Reverse Hit	No Association	Total
Fingerprint	22.7% (n = 1,411)	2.0% (n = 127)	75.2% (n = 4,667)	100% (n = 6,205)
Palm print	27.4% (n = 708)	1.5% (n = 39)	71.1% (n = 1,837)	100% (n = 2,584)
Joint print	4.3% (n = 7)	0.0% (n = 0)	95.7% (n = 156)	100% (n = 163)
Unspecified impression	4.7% (n = 9)	0.0% (n = 0)	95.3% (n = 182)	100% (n = 191)
Total	23.4% (n = 2,135)	1.8% (n = 166)	74.8% (n = 6,842)	100% (N = 9,143)

Note. N = 9,143 prints with available data of the 9,177 total prints deemed to be of sufficient quality for AFIS entry.





# Individual Differences

Examiner	Case Processing					Sufficiency Determination			AFIS Conclusion		
	Months Employed	Requests	Requests/ Month	Prints/cards Examined	Prints/ Month	% AFIS Qual.	% Not AQ	% NLoV	% PAA	% Reverse Hit	% No Hit
A	4.7	118	25.1	747	158.9	37.8%	0.1%	62.1%	22.4%	0.7%	76.9%
B	12	155	12.9	1,201	100.1	56.5%	0.3%	43.1%	17.8%	2.3%	79.9%
C	12	336	28.0	1,862	155.2	45.0%	3.3%	51.8%	27.1%	0.0%	72.9%
D	12	220	18.3	1,209	100.8	48.5%	1.3%	50.2%	17.3%	2.2%	80.5%
E	12	172	14.3	1,121	93.4	44.6%	0.2%	55.2%	13.3%	2.8%	83.9%
F	11	254	23.1	1,411	128.3	40.7%	1.5%	57.8%	25.4%	2.5%	72.2%
G	12	146	12.2	794	66.2	44.3%	1.0%	54.7%	16.8%	4.2%	79.1%
H	12	206	17.2	1,197	99.8	40.7%	2.7%	56.6%	15.2%	0.6%	84.2%
I	12	550	45.8	3,222	268.5	38.6%	0.2%	61.1%	24.5%	1.7%	73.8%
J	7	149	21.3	980	140.0	35.8%	0.1%	64.1%	13.7%	0.2%	86.0%
K	12	136	11.3	1,134	94.5	52.3%	0.4%	47.4%	23.0%	1.4%	75.6%
L	12	293	24.4	2,248	187.3	46.6%	5.4%	48.0%	18.9%	0.4%	80.7%
M	11.3	217	19.2	1,576	139.5	50.4%	2.0%	47.7%	20.4%	0.5%	79.1%
N	12	178	14.8	1,221	101.8	49.8%	1.7%	48.5%	22.8%	1.5%	75.8%
Total	M = 11		M = 20.6		M = 141.5	44.8%	1.7%	53.5%	20.7%	1.5%	77.8%

Note. Three examiners were excluded because they only completed independent casework for a single month during the data collection period





# Discussion

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## Compared to Rairden et al., 2018

- 2014-2016 = 2,535 cases; 12 examiners
- 2018 = 2,975 cases; 17 examiners
- Similarities in offense type and AFIS quality numbers

## Future directions

- Multiple lab workflow comparison
- AFIS limitations
- Increasing transparency



# Thanks!

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