# Reliability and limits of accreditation in bloodstain pattern analysis

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## Bloodstain pattern analysis… is it reliable ?

"There are numerous spots on the pillow, all over it […] This impression of this object **is similar to a pair of pliers or a surgical instrument** [...]" (Dr. Samuel R. Gerbern cross examination on 1955 Sheppard's case, p.760-762)

"The weapon […] was **not similar in any serious respect to the alleged impression of a surgical instrument on the pillow case, nor to any of a large variety of possible weapons that have been suggested by the prosecution.**" (1966 Kirk's affidavit on 1955 Sheppard's case, p.32)

**40 years later…**
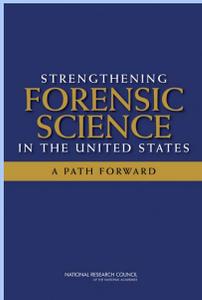
> Uncertainties/error rate are substantial
> Many sources of variability
> Experts' experience (subjective) rather than scientific foundations

Recommendations:

> Mandatory certification and accreditation
> Establish routine quality assurance and quality control procedures
> Standard terminology to be used

> Error rates
> Variability in conclusions

Recommendations:

> Should have certification and accreditation
> Standards and best practices
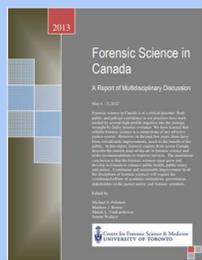
## The Holy Grail of Quality Assurance for bloodstain pattern analysis ?

A recent study in BPA (Hicklin et al., 2021) :

> Error rate is 11%
> 3% Unanimous consensus
> Agreement rate (reproducibility) is 54,6%

Another recent research (Morrison et al., 2020) states that:

> Some OSAC standard are detrimental to the scientific validity
> Requirements few and often vague
> Compliance with the standards archived with little effort
> Not sufficient to assure scientifically valid result

BPA standard ANSI/ASB 030 and ANSI/ASB 072 used as examples

**Is Quality assurance the pinnacle of reliability in BPA?**

**Which standard? Which quality assurance (17020/17025/other) for BPA?**

## Objective

> Deepen the knowledge on reliability and the limits of bloodstain pattern analysis.
> Assess the understanding of the practitioners about accreditation and its effect

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## Methodology

**ISO norms and forensic bibliography analysis**

**Online Survey**

> Online survey to collect the information needed.

> The survey will be made available through a link distributed by e-mail to volunteer forensic science laboratories or relevant associations

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**The survey takes a maximum of 1 hour to complete**

**Bloodstain Pattern modelisation**

> Relevance of bloodstain pattern Atlas

> Integrating uncertainty in Bloodstain pattern reconstruction (Attinger et Al., 2021)

## Conclusion

A deeper understanding of the reliability and the limits in bloodstain pattern analysis would lay the groundwork for future research, including how quality assurance and accreditation are used in the work force.

Indeed, where does uncertainty hide in bloodstain traces (Roux et al., 2022) ?

To know more about this research, you can communicate with the researcher at Laurence.Filiatrault@uqtr.ca

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