Triage Works! The Effectiveness of Digital Forensics in Operation Safenet's Child Sexual Exploitation Cases

Prof Claire Gwinnett and Prof Andrew Jackson, Centre for Crime, Justice and Security, Staffordshire University

Contributors:

Marie Barrett and Jasdeep Varraich, Forensic Policy Team, Home Office

Lauren Yare, Hannah Vincent and Helen Poole, Staffordshire University

STAFFORDSHIRE POLICE

STAFFORDSHIRE UNIVERSITY

THE CONNECTED UNIVERSITY

A Study to Measure the Impact of Digital Forensics on the Investigation of Online CSE at part of Operation Safenet

Specifically *Effectiveness and Timeliness* across 7 Impact Points

- Does place of early triage have an effect on the time between scene attendance and early interview?
- Does early triage lead to early admission of guilt?
- Does delay between the date of referral and the date of scene attendance lead to loss of digital evidence?

Operation Safenet (2015-ongoing)

"Operation Safenet utilises expert digital forensic interventions at the scene of warrants, executed following intelligence of online child sexual exploitation (CSE). It aims to utilise the latest technology to gather evidence and speed up the police response in order to protect children at risk"

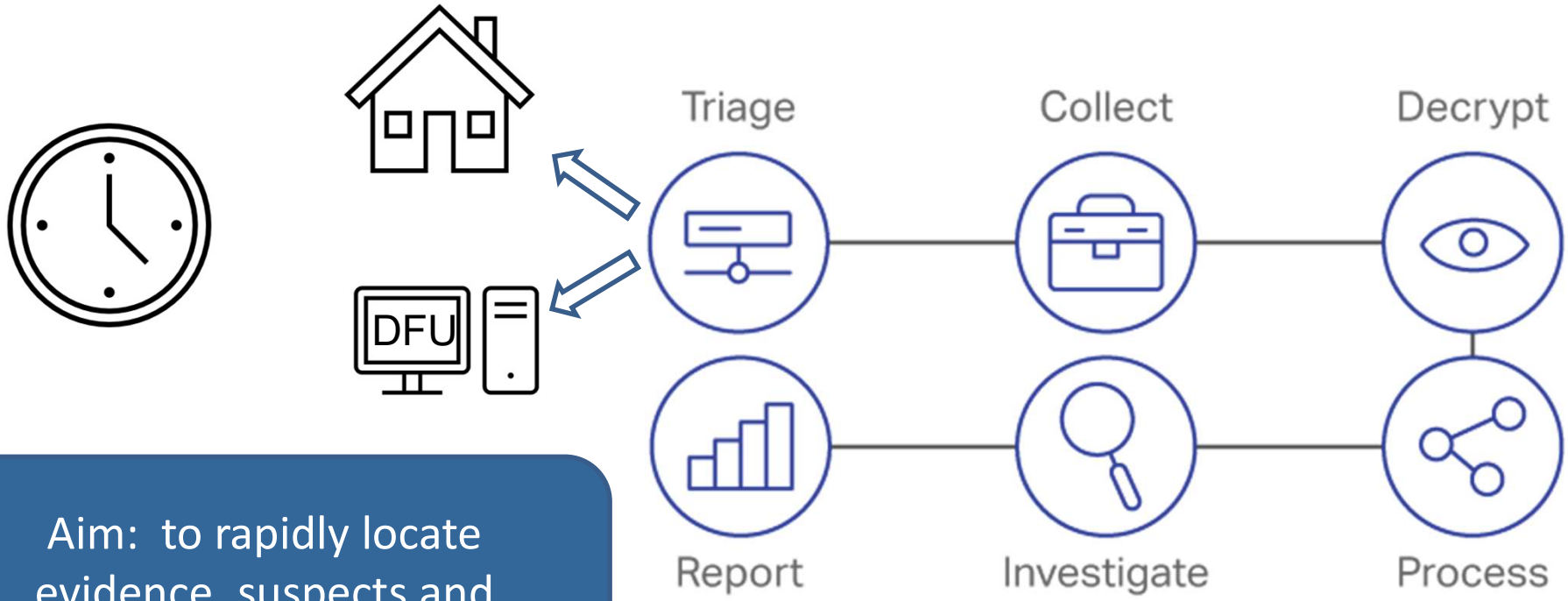
By early 2018…

373 scene triage completed

4661 exhibits triaged at scene

72% items left at scene

The Use of Digital Forensics Triage



Aim: to rapidly locate evidence, suspects and individuals who may be at risk.

Digital Triage at Staffordshire Police as part of Operation Safenet

DFU Team

+

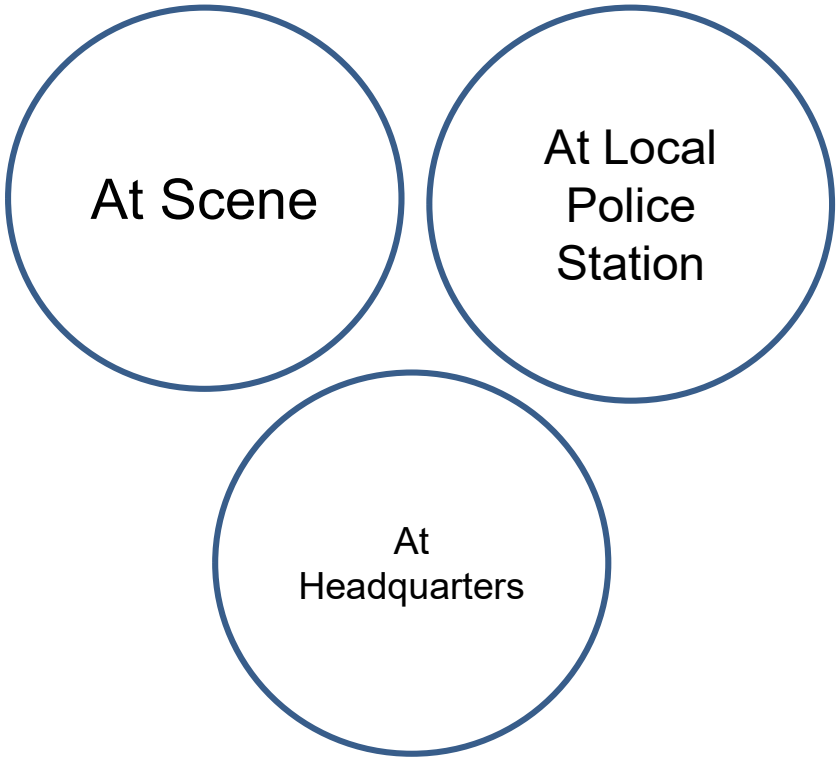
Technological Approach

Police Officer

+

Decision-based device triage approach

‘*Early Triage*’



BENEFITS OF DIGITAL FORENSIC TRIAGE

ADF
ADF4N6.COM

STAFFORDSHIRE UNIVERSITY
THE CONNECTED UNIVERSITY

Potential Benefits of Digital Forensic Triage

- Rapid elimination of devices and individuals believed to be involved in a crime
- Improved communication between digital experts and police
- Improved searching and recovery of evidence

Impact Points used in Safenet study

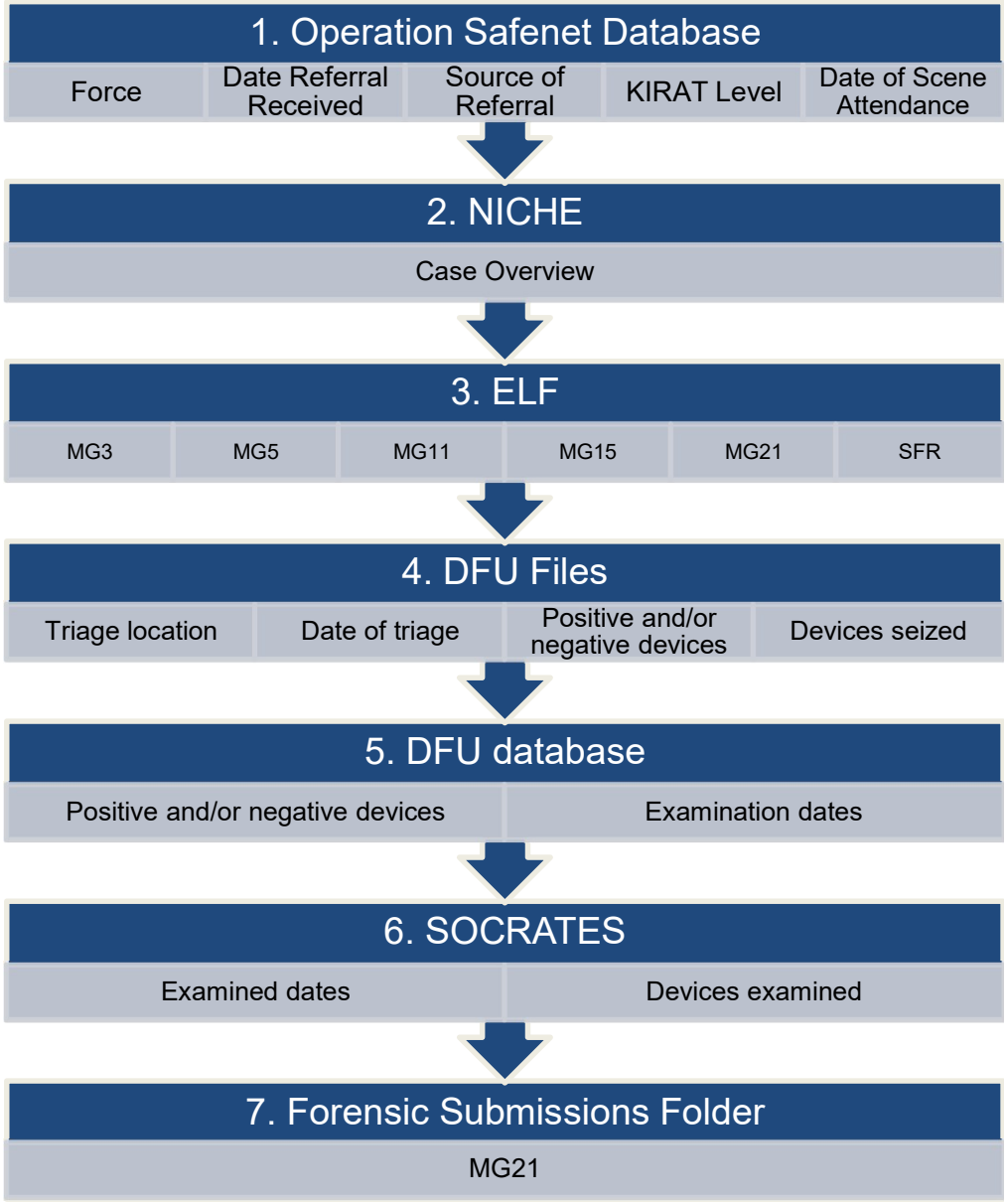
Impact Point	Question Posed
Establish crime committed	Can we determine if a crime has been committed?
Identify victim	Can we determine who is the victim of this crime?
Safeguarding victims and suspects	Can we positively contribute to safeguarding victims and suspects?
Inform interview strategies	Can we determine information that will inform our interview strategy?
Admission of guilt at an earlier stage	Was evidence provided that led to a suspect admitting their guilt prior to them being charged with the offence?
Validate or refute accounts/sequence of events of the intelligence package	Can we validate or refute this account of events?
Referral for charging	Can evidence be provided that will directly lead to the referral of case for charging?

All used to assess *Effectiveness,* highlighted orange = also used to assess *Timeliness*

STAFFORDSHIRE UNIVERSITY
THE CONNECTED UNIVERSITY

Method: Observational Based Approach

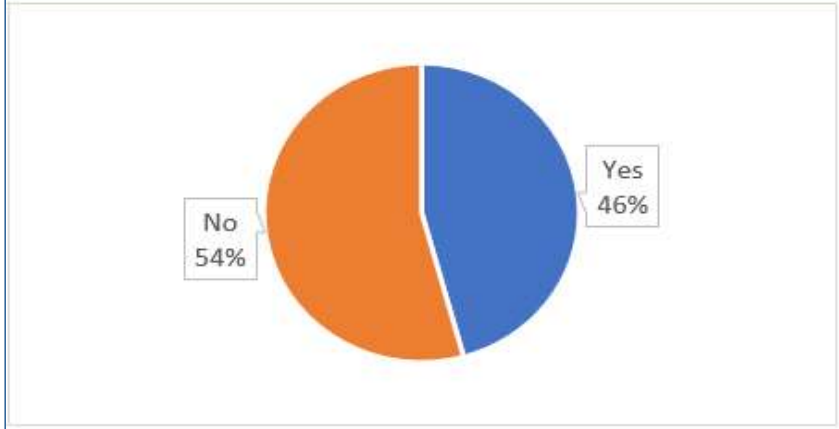
- 243 Operation Safenet cases
- Included cases with early triage and without
- 6 July 2016 to 16 December 2019
- 92 case characteristics collected
  - Pre-scene attendance
  - Scene attendance
  - Early investigation
  - DFU laboratory
  - Investigation
  - Disposal
  - Approach taken to answer Q
- For every instance where forensics could have contributed – 7 IP questions were asked = Yes or No



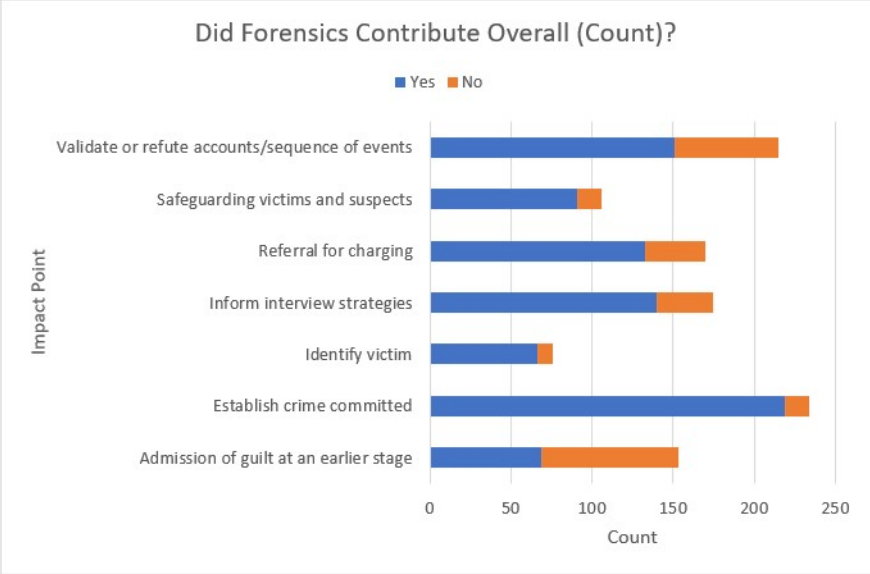
STAFFORDSHIRE UNIVERSITY
THE CONNECTED UNIVERSITY

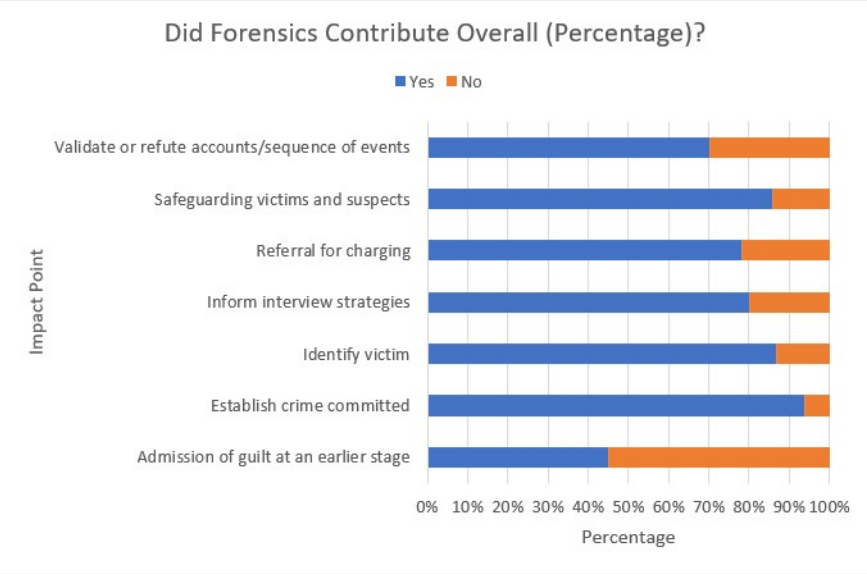
Overall Digital Forensics Contribution to IPs

Did Forensics Contribute Exclusively?	Count	Percentage
Yes	516	45.70%
No	613	54.30%
Grand Total	**1129**	**100.00%**

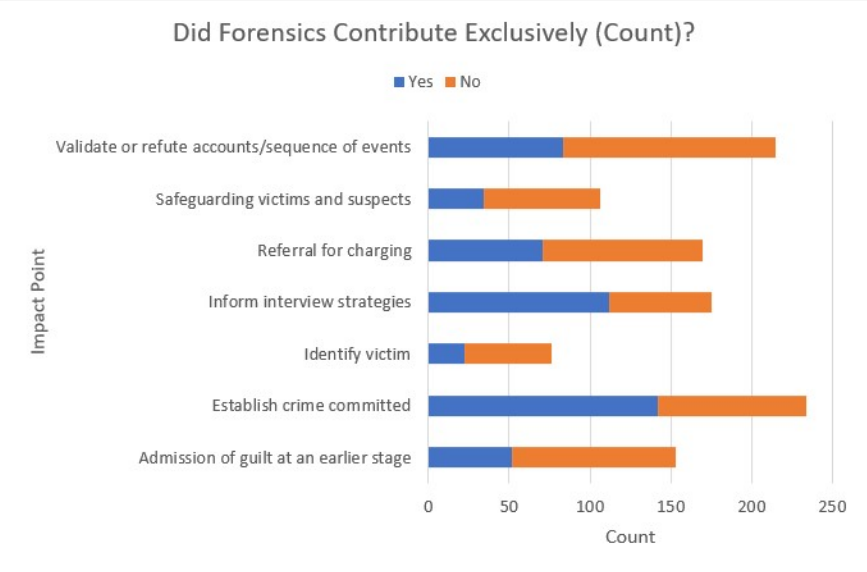


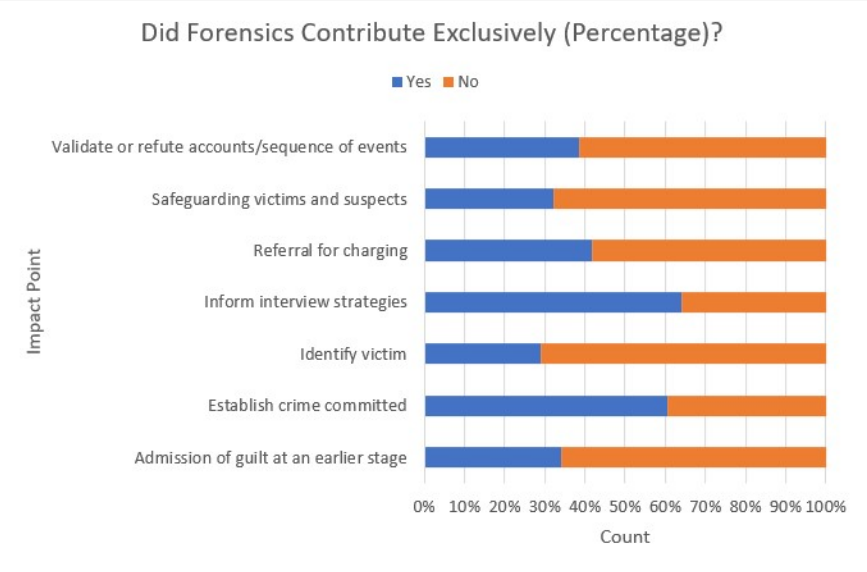
Did Forensics Contribute Overall?	Count Yes	Count No	Percentage Yes	Percentage No	Total Count	Total Percentage
Admission of guilt at an earlier stage	69	84	45%	55%	153	100%
Establish crime committed	219	15	94%	6%	234	100%
Identify victim	66	10	87%	13%	76	100%
Inform interview strategies	140	35	80%	20%	175	100%
Referral for charging	133	37	78%	22%	170	100%
Safeguarding victims and suspects	91	15	86%	14%	106	100%
Validate or refute accounts/sequence of events	151	64	70%	30%	215	100%
Grand Total	**869**	**260**	**77%**	**23%**	**1129**	**100%**





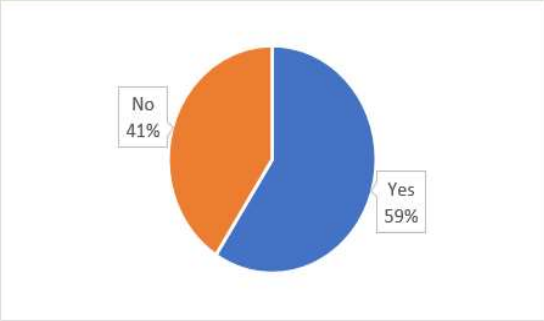
Did Forensics Contribute Exclusively?	Count Yes	Count No	Percentage Yes	Percentage No	Total Count	Total Percentage
Admission of guilt at an earlier stage	52	101	34%	66%	153	100%
Establish crime committed	142	92	61%	39%	234	100%
Identify victim	22	54	29%	71%	76	100%
Inform interview strategies	112	63	64%	36%	175	100%
Referral for charging	71	99	42%	58%	170	100%
Safeguarding victims and suspects	34	72	32%	68%	106	100%
Validate or refute accounts/sequence of events	83	132	39%	61%	215	100%
Grand Total	**516**	**613**	**46%**	**54%**	**1129**	**100%**



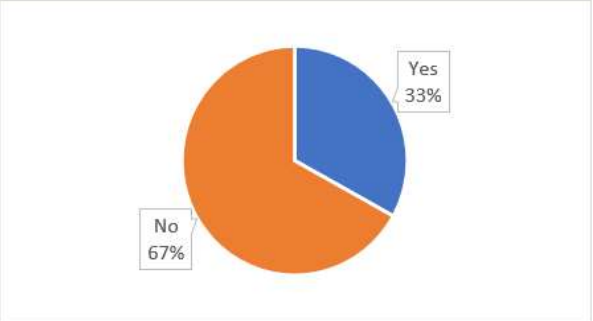


Does the Use of Triage make a difference?

Did Forensics Contribute Overall?	Count	Percentage
Yes	136	59.13%
No	94	40.87%
Grand Total	**230**	**100.00%**



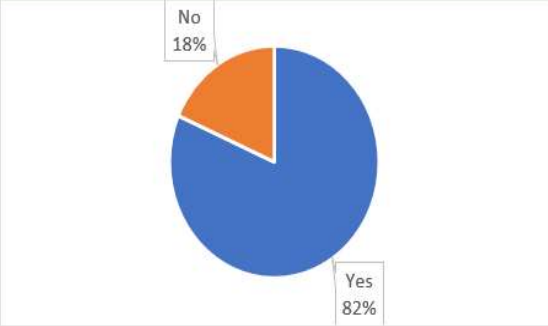
Did Forensics Contribute Exclusively?	Count	Percentage
Yes	76	33.04%
No	154	66.96%
Grand Total	**230**	**100.00%**



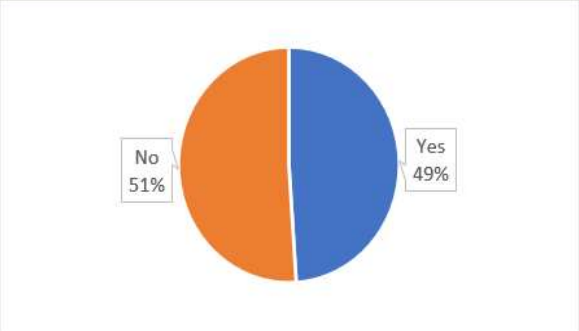
Instances where there was NO early triage

Does the Use of Triage make a difference?

Did Forensics Contribute Overall?	Count	Percentage
Yes	733	81.54%
No	166	18.46%
Grand Total	**899**	**100.00%**



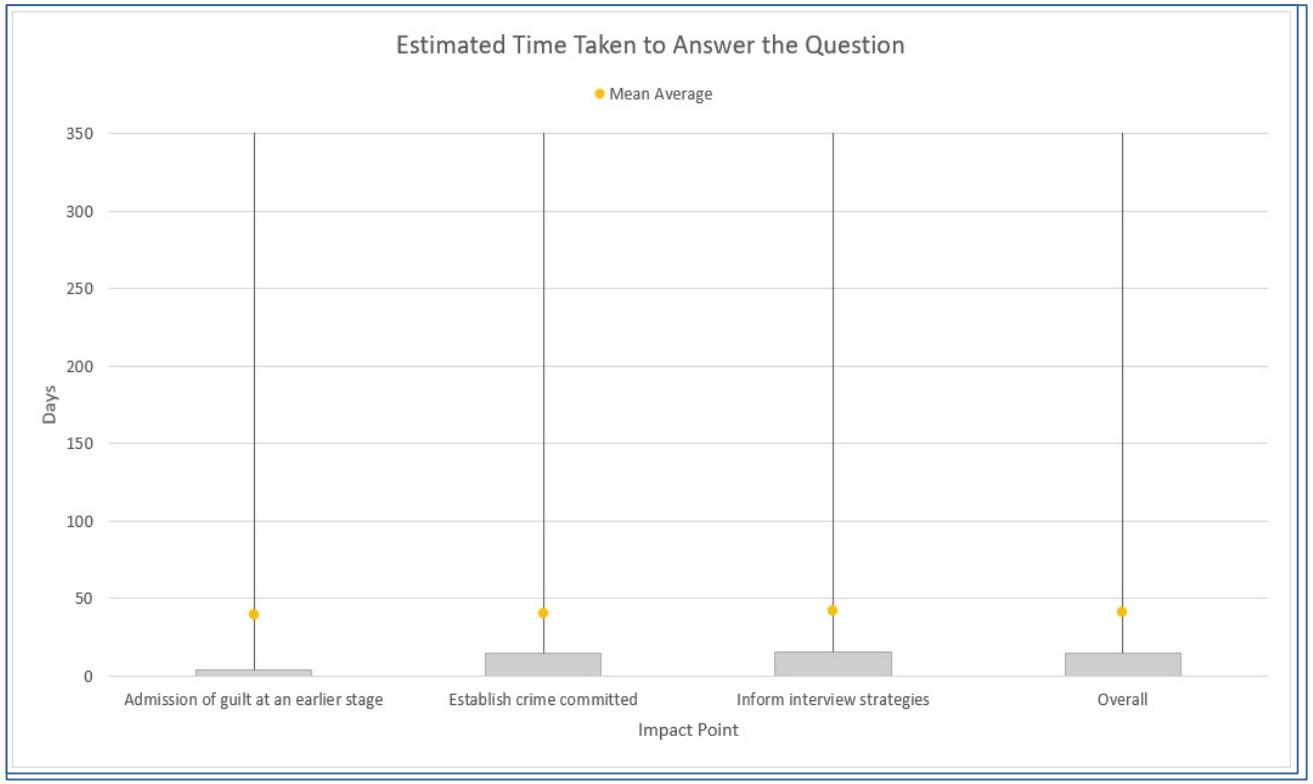
Did Forensics Contribute Exclusively?	Count	Percentage
Yes	440	48.94%
No	459	51.06%
Grand Total	**899**	**100.00%**



Instances where there WAS early triage

Impact Point	Percentage of opportunities where an overall contribution was made to the attainment of the Impact Point concerned	
	Without triage	**With triage**
Admission of guilt at an earlier stage	22	**49**
Establish crime committed	84	**97**
Identify victim	68	**93**
Inform interview strategies	23	**85**
Referral for charging	58	**84**
Safeguarding victims and suspects	63	**95**
Validate or refute accounts/sequence of events	53	**76**
Range	22 to 84	**49 to 97**
Average (mean)	**53.0**	**82.7**

‘Timeliness’ – Does Early Triage make a difference?



Are there less items submitted to DFU when Early Triage is used??

No Early Triage (median) = 2

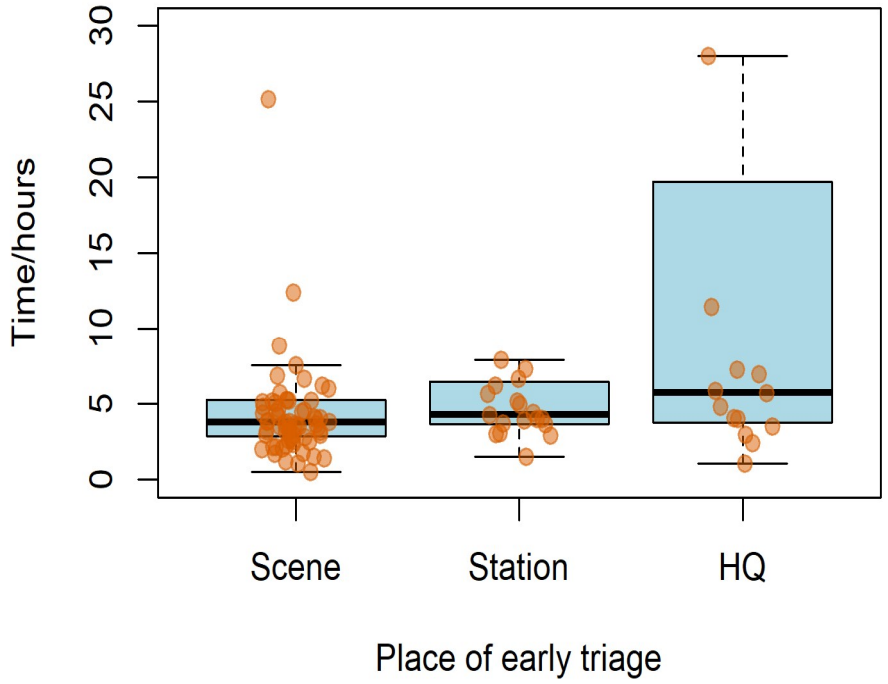
Early Triage (median) = 3

(Wilcoxon rank sum test with continuity correction p = 0.013)

Does place of early triage have an effect on the time between scene attendance and early interview?

The time, *T*, between scene attendance and early interview was calculated

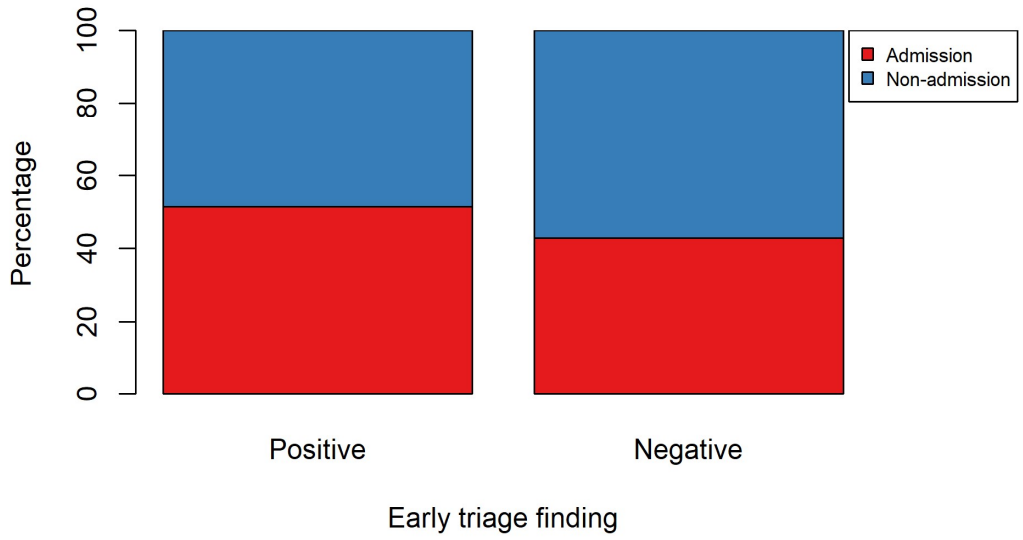
Recommendation:
Where possible conduct triage at scene or local station



Does early triage lead to early admission of guilt?

early admission of guilt = during an early interview, the suspect admits or partially admits the allegations, or admits to a lesser offence

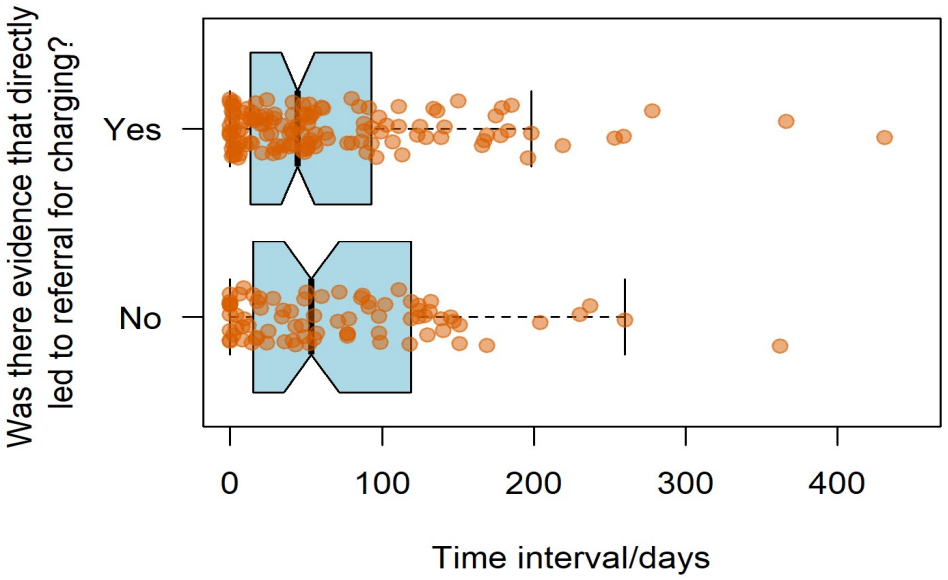
Chi-square testing of the data shown in shows an effect that is highly statistically significant ($\chi^2 = 31.24$, p = 2.7×10^{-6}),



Does delay between the date of referral and the date of scene attendance lead to loss of digital evidence?

Recommendations:

1. In intelligence initiated online CSE cases, undue delay between referral and scene attendance should be avoided.
2. However, if such delay occurs, the resourcing of the examination of devices for digital evidence should not be reduced.



Further Research Questions….

- ‘How do the costs and benefits of forensic science compare?’
- ‘What is the Effectiveness, Timeliness and Cost Benefit of the use of digital forensic methods for all 27 of the Impact Points (IPs) that have been identified by the Impact of Forensic Science project?’
- ‘Can the circumstances under which digital forensic methods provide all of the information needed to address a given IP be understood?’
- ‘Can the reasons for the variation in the utility of digital forensic methods from one IP to the next be understood?’

Recommendations

1. Continue the use of digital forensic methods in online CSE cases.
2. In intelligence initiated online CSE cases, undue delay between the receipt of intelligence and scene attendance should be avoided.
3. Continue the use of early triage where it is currently used. If the timeliness of the early interview is of importance, such triage should be conducted at the scene, not elsewhere, provided that this option is available.
4. Use the findings to maximise the benefits associated with the use of early triage and roll these benefits out to future cases that, under current practice, would not benefit from them.
5. In forces where early triage is not currently used in online CSE cases, conduct pilot studies to develop evidence-led policy on its future adoption
6. Conduct research to:
   i. establish the cause of the operational enhancements that are associated with the choice to use early triage;
   ii. look for any unwanted side effects of that choice.
   iii. how the value of forensic science can be enhanced yet further.
   iv. the utility of early triage using digital forensic methods in priority crime categories beyond online CSE, such as Rape and Serious Sexual Offences (RASSO) and Serious and Organised Crime (SOC).

Thanks to:

Staffordshire Police
John Beckwith
Claire Millar
Chris Hood
Carolyn Lovell

Please get in touch!

c.gwinnett@staffs.ac.uk
https://blogs.staffs.ac.uk/ccjs/

STAFFORDSHIRE UNIVERSITY

THE CONNECTED UNIVERSITY