

A Solvability Factor Index for Burglaries in Ireland

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What's this about?

- This presentation to European policing professionals describes the development of case screening for burglary investigations in Ireland in terms of the following key questions:
 1. What is the problem?
 2. What is case screening and how can it help?
 3. What did I do and how did I do it?
 4. What were the most interesting results?
 5. What are the next steps?
 6. What are the take home points?
 7. How can we share ideas?



What is the problem?

- Burglary is common but detections are down
- 2015 public attitudes survey: 76% said burglaries should be a high priority
- Area of concern to politicians
- One of our policing plan goals is to improve detections
- Limited resources



What is burglary case screening?

- Burglary case screening is a way for police to sort burglaries with a checklist so that they spend the most time and effort on burglaries that they are most likely to detect



Typical steps of case screening

1. Investigate all burglaries
2. Sort undetected burglaries into solvable and not
3. Investigate solvable burglaries



Amount of investigations that are continued in different police forces

Police force	Amount
Danish police	20%
Denver, Colorado	77%
Metropolitan Police Service	50%
West Yorkshire Police	45-60% across divisions



How can case screening help the Irish police force?

- Increase detection rates
- Use staffing and investigative resources better
- Achieve organisational goals
- Address stakeholder concerns



What did I do?

1. I listed and described all of the factors that might make a burglary more detectable
2. I found out if these factors were more common in detected burglaries
3. I found out if the factors that were more common in detected burglaries were still more common after I considered other factors
4. I defined a case screening process based on these findings



How did I do it?

- I used big data analysis on 2 years of burglary data from the Irish police force PULSE software:
 - Creating variables with Excel
 - Text mining with R
 - Regression model with SPSS
- I tested different ways of turning the statistics into checklists
- I whittled down a list of about 100 factors to a final checklist of 17 questions



What were the most interesting results?

Included / Excluded	Time period	Count	% of detected burglaries
Excluded	Offender caught red handed	2193	26%
Excluded	Not red handed but within one day	1767	21%
Included	After one day	4338	52%
Included	Not detected	45196	-



Top five most powerful predictors

1. CCTV (+363%)
2. Suspect named (+305%)
3. Vandalism (+290%)
4. Offender's vehicle (+286%)
5. Suspect description (+275%)

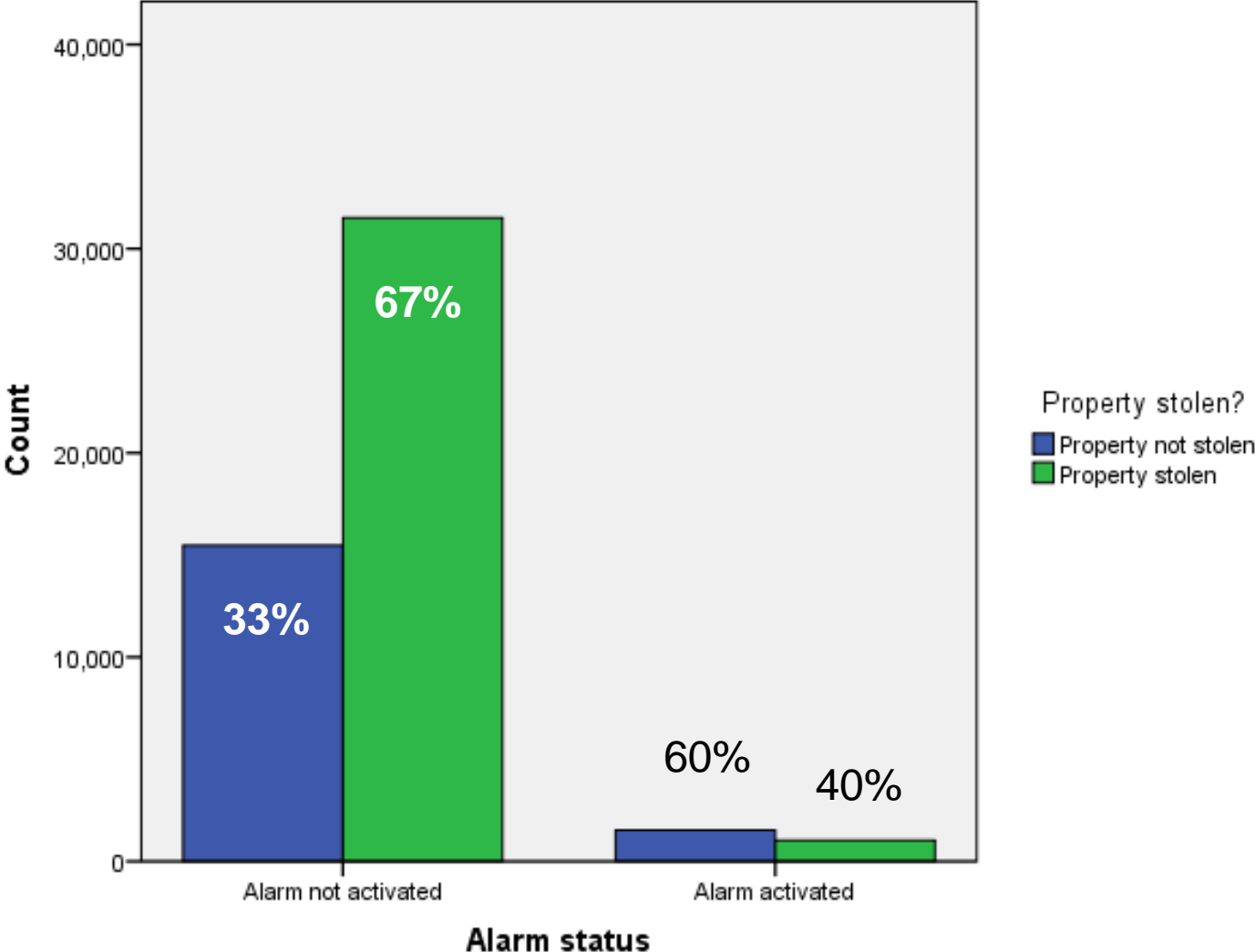


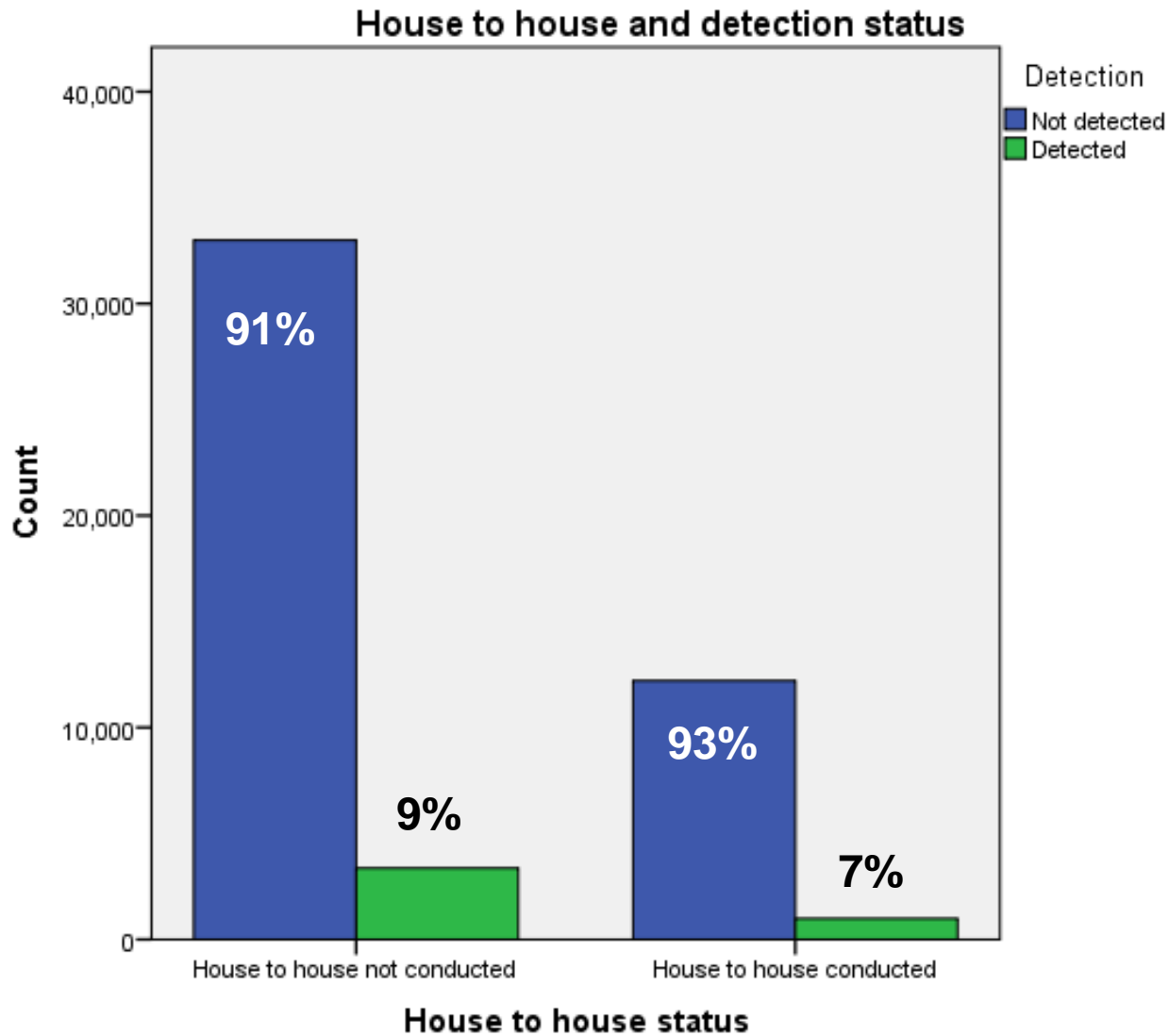
Some interesting predictors

- Alarms
- House to house
- Vandalism

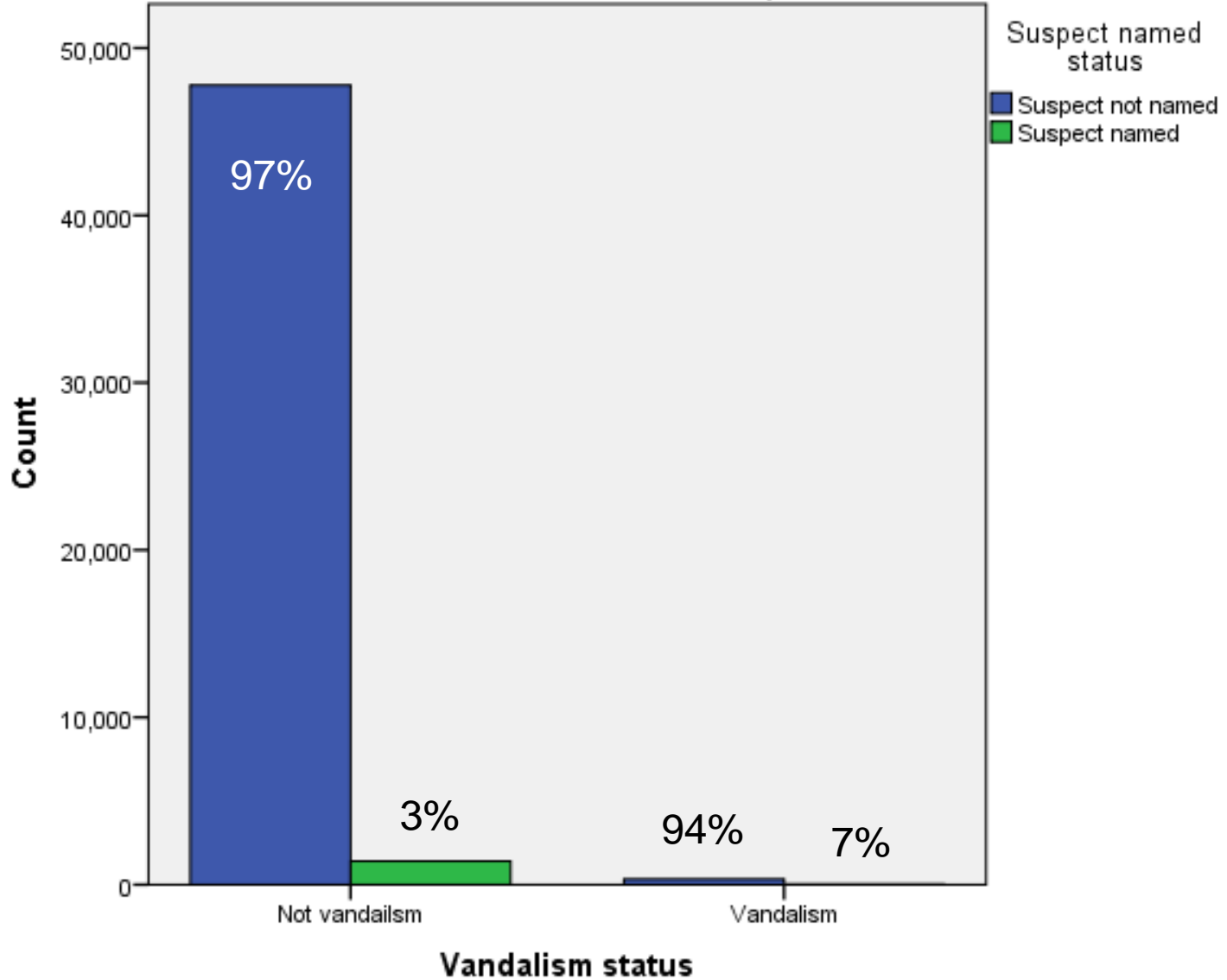


Alarm status and property stolen



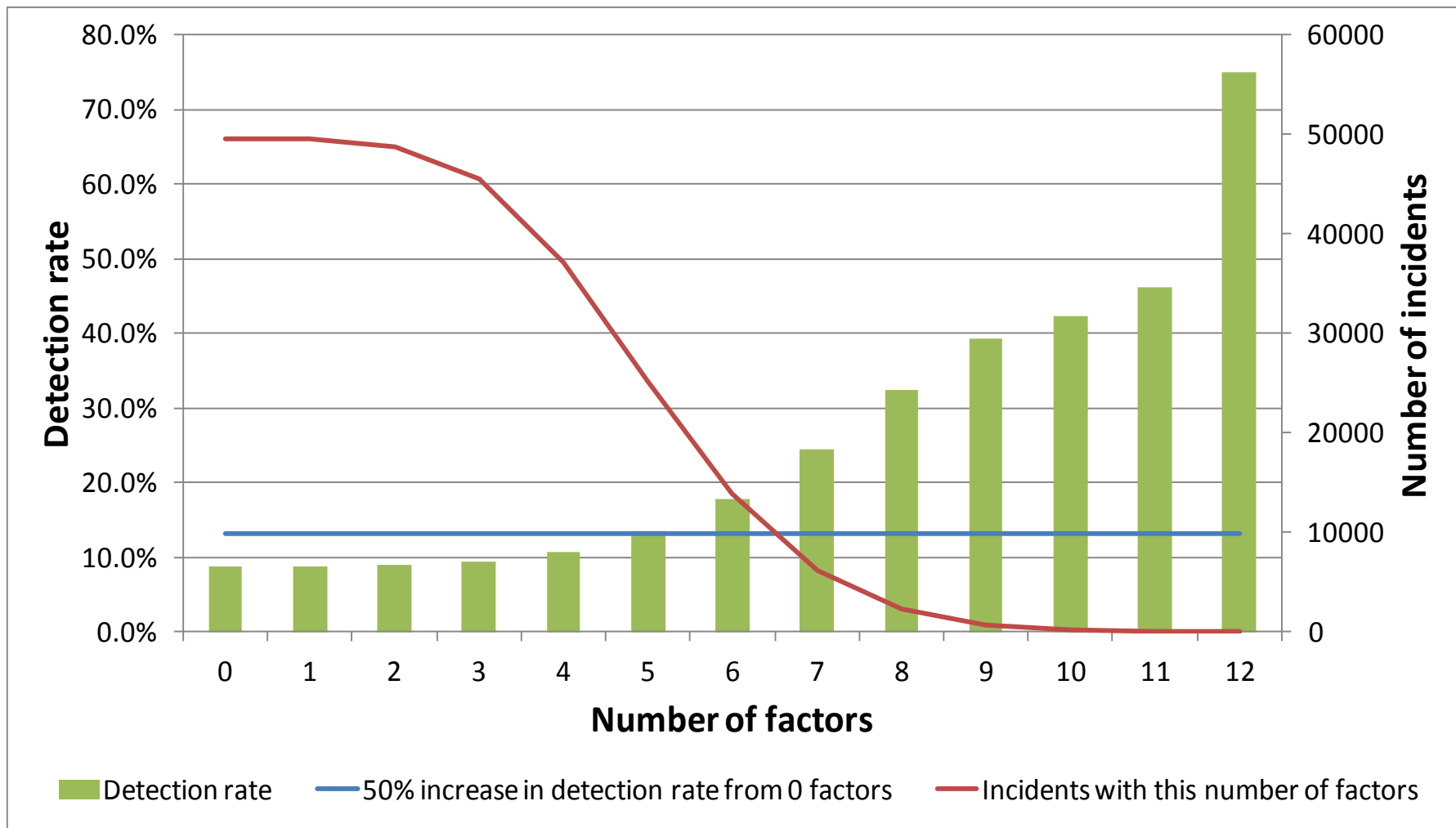


Vandalism status and suspect named

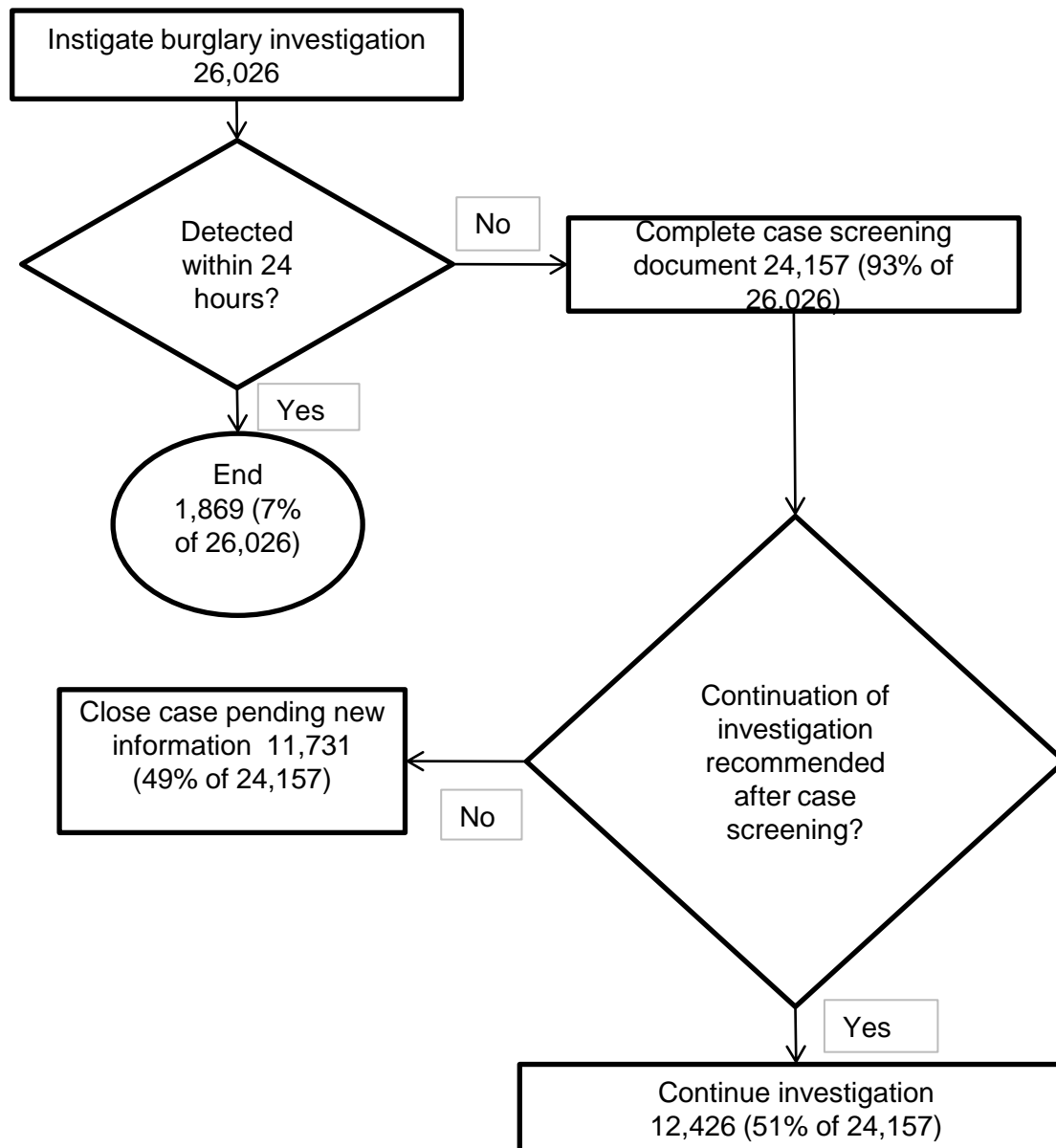


STATEMENT	TRUE	FALSE
CCTV of the burglary is available for circulation	1	0
A description of the suspect is available	1	0
A name of the suspect is available	1	0
The offender used a vehicle to arrive at and/or depart from the burglary that was not stolen from the scene of crime and a description of that vehicle is available	1	0
The offender was disturbed by another person during the incident	1	0
At least one person who witnessed the crime is available	1	0
A separate incident has occurred at the same address within the past twelve months	1	0
Property was stolen from the scene of crime	1	0
Evidence is available for forensic analysis	1	0
An alarm was activated	0	1
The scene of crime was ransacked	0	1
Offender's motive was monetary gain	0	1
Burglary occurred during October to March between 1500 to 2300	0	1
The offender's exit method was through a door with bodily pressure or unknown	1	0
The offender's entry method was by forced window, slipped lock or through a door with bodily pressure	0	1
The injured party reported the burglary to Gardaí	0	1
The burglary was reported by alarm activation or phone call to 999 or any other number	0	1





Process flow of burglary investigations if case screening was used in 2015



2014/2015 Outcomes

- Detectives would continue to investigate about 50% of burglaries after one day
- I estimate the detection rate would increase by about 50% (from 9% to 14%)
- Detectives would have stopped investigating about 20% of cases that were detected after one day



What are the next steps?

1. Collect better data
2. Test the checklist



What are the take home points?

- Burglary is common but detections are low
- Case screening can help the Irish police force:
 - Increase detection rates
 - Use staffing and investigative resources better
 - Achieve organisational goals
 - Address stakeholder concerns
- If detectives used the case screening checklist then I estimate detection rate would increase by about 50% (from 9% to 14%)
- The next step is to test this checklist



Thank you!

- Dr. Barry Coonan
- Dr. Gurchand Singh



How can we share ideas?

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