

# DNA Analysis for Investigations, Confirmations and Exonerations

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Social Science Research on Forensic Science  
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## Analysis of DNA Evidence

- ▶ Contributions of DNA Analysis:
  - Investigations—especially hard-to-solve cases
  - Confirmations / Prosecutions—arresting the right person
  - Exonerations—identifying the wrongly convicted

## DNA Analysis for Investigations

- ▶ Matches between DNA profiles from scene evidence and suspect
- ▶ Exclusions showing DNA profile from scene does not match suspect
- ▶ CODIS hits
  - LDIS: Local hits connecting crimes or hits on persons not in other databases
  - SDIS: Provides greatest number of hits
  - NDIS: Occasional hits of high importance

## Use of DNA in Property Crime Investigations “DNA Field Experiment” by John Roman

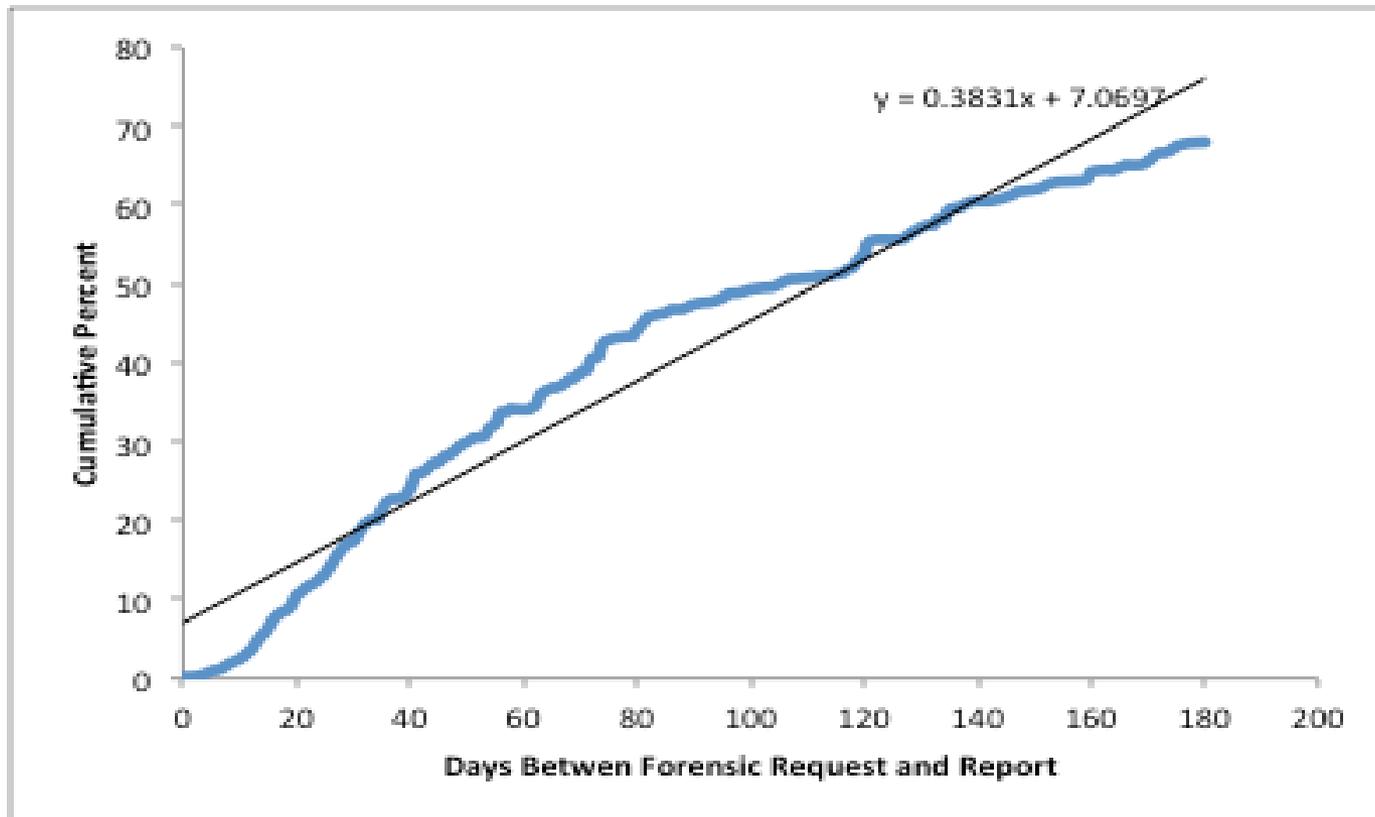
- ▶ Property crimes with processed DNA evidence are:
  - Have more than twice as many suspects identified
  - Twice as many suspects arrested
  - Twice as many cases accepted for prosecution
- ▶ DNA is at least 5 times as likely to result in a suspect identification
- ▶ Suspects identified by DNA had at least twice as many prior felony arrests and convictions

## Opportunities for DNA Analysis in Investigations

- Clearance rates:
  - 65 – 85 % for homicides and rapes
  - 25 – 35 % for assaults
  - 5 – 15 % for robberies and burglaries
- San Diego—Arrests made within 7 days
  - 54.2 % of homicide arrests
  - 34.2 % of rape arrests
  - 68.6 % of assault arrests
  - 75.1 % of robbery arrests
  - 66.9 % of burglary arrests

# Days between Lab Request and Report Phoenix Homicides

8.7 % completed with 7 days



## DNA Analysis for Arrest Confirmations / Prosecutions

- ▶ Since we have an arrestee:
  - Compare DNA profile of arrestee against other evidence
  - Do the same with fingerprints and latent prints
  - If you're lucky, firearms analysis
- ▶ In short, more forensic analysis of all types

## Number of DNA Tests Homicide Cases Closed by Arrest Phoenix, Arizona

Arrest Time	Before Arrest	After Arrest
60 Arrests within 2 days	0	143
49 Arrests in 2 - 21 days	21	125
47 Arrests > 21 days	54	26

## DNA Analysis for Exonerations

- ▶ Well documented that DNA analysis has led to exonerating wrongly convicted
  - Innocence Project lists 302 exonerations with many related to DNA
  - “Post-Conviction DNA Testing and Wrongful Conviction” by Roman, et al.
    - Reviewed 634 sexual assault and homicide cases from Virginia from 1973–87
    - In 5 percent, DNA testing eliminated the convicted offender as the source of the incriminating physical evidence.

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