Governor’s Commission to Prevent Violence Against Women
May 16, 2019
ADVANCED DNA TECHNIQUES

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FORENSIC GENEALOGY

An evaluation of inherited DNA markers in an effort to locate a family lineage that the perpetrator may belong to

- Usually evaluating Y-STR markers
- Search of publicly available databases
- Not done by forensic laboratories
  - Forensic Genealogist
FORENSIC GENEALOGY

The Golden State Killer

- Suspected of 12 murders and 50 rapes in the Sacramento, CA area
- Family tree identified by forensic genealogist
- Investigators traced family tree in many directions
- Joseph James DeAngelo arrested in April 2018
FORENSIC DNA PHENOTYPING

- **Parabon Snapshot**
- Examines hundreds of SNPs ("snips") DNA locations
- Generates a model of the appearance of the perpetrator
- Has been useful in several cases, mostly directing the investigation to previously known individuals
**Definitions**

- **Genotype**: The genetic makeup (*DNA blueprint*) of an organism

- **Phenotype**: An observable characteristic or trait of an organism

- **SNPs**: Single nucleotide polymorphisms are changes in the DNA sequence at a single site in the genome
  - SNPs are responsible for genetic variation among organisms
  - There are more than 30 million SNPs in the human genome
  - SNP variations are what makes humans different from one another
  - Snapshot analyzes SNPs

- **Genotyping**: A laboratory assay that determines the sequence (A, C, G, or T) at particular SNPs in an organism’s genome
What Is DNA Phenotyping?

- Predicting the ancestry and/or appearance ("phenotype") of a person from their DNA
  - Snapshot looks at only traits one would know about themselves by looking in a mirror or knowing their family lineage

- Scientific methodology for Snapshot is sound.
  - Analogous to personalized medicine, where doctors predict a person’s response to a drug or treatment from their DNA
Definitions: SNPs vs. STRs

Cannot Use an STR profile. An STR profile does not contain the genetic information Snapshot requires. Snapshot uses SNPs.

<table>
<thead>
<tr>
<th>Current</th>
<th>New</th>
</tr>
</thead>
<tbody>
<tr>
<td>“DNA Fingerprint”</td>
<td>“DNA Blueprint”</td>
</tr>
<tr>
<td>DNA</td>
<td>Single Nucleotide Polymorphisms (SNPs)</td>
</tr>
<tr>
<td>Short Tandem Repeats (STRs)</td>
<td></td>
</tr>
</tbody>
</table>

... TCAT **AATG** **AATG** **TTAG** ...
  2 Repeats

... TCAT **AATG** **AATG** **AATG** **AATG** **TTAG** ...
  4 Repeats

... TCAT **AATG** **AATG** **AATG** **TTAG** ...
  3 Repeats
Snapshot Prediction Results
Composite Profile

Predicted (■) & Excluded (☒) Phenotypes

Skin Color: Lt Brown / Brown (92.8% confidence)

Eye Color: Hazel / Brown (92.3% confidence)

Hair Color: Black / Brown (99.99% confidence)

Freckles: Zero / Few (92.2% confidence)

Sex: Male

Age: Unknown

Body Mass: Unknown

Ancestry: Middle Eastern from Northwest Africa
FAMILIAL DNA SEARCHING

• Familial DNA analysis consists of a deliberate search of Arizona Convicted Offender and Arrestee DNA profiles to identify candidates who are potential close biological relatives to an unknown perpetrator.

• A statistical comparison is completed between the profile of the unknown perpetrator and the Arizona Convicted Offender and Arrestee profiles to identify candidates who have a higher statistical likelihood of being relatives.
FAMILIAL DNA SEARCHING

A database search at the state level

• Search conducted against Convicted Offender/Arrestee database
• Not conducted in CODIS
• Not conducted at the national level
ALLISON FELDMAN CASE

Scottsdale PD 2105 Homicide of Allison Feldman

• No leads in the case
• Search of the database yielded a potential relative in DOC
• Scottsdale PD had a blood sample from a sibling of the inmate
• The DNA was a match to the unknown profile from the scene, and a suspect was arrested for the murder of Allison Feldman
WHAT IS RAPID DNA?

- **Rapid DNA** is an automated process of developing a DNA profile from a sample (either from a crime scene or a person) using a single instrument that completes the analysis in a short period of time.
  - Typically less than two hours from start to finish.
- **FBI Definition**
TRADITIONAL FORENSIC DNA ANALYSIS

• **4 STEPS**
  • **Extraction**
  • **Quantitation**
  • **Amplification**
  • **Analysis**

• **Each step requires hands-on by a scientist and/or the use of instrumentation**

• **Total time for steps averages 16-18 hours**

• **Can handle all types of DNA samples**
TRADITIONAL FORENSIC DNA ANALYSIS
Rapid DNA Analysis

• 3 Steps
  • Extraction
  • Amplification
  • Analysis

• All steps completed by one instrument

• Total time for steps is two hours or less

• Focused on single source samples
RAPID DNA ANALYSIS
HOW IS AZDPS USING RAPID DNA?

• **Rapid Arrestee Program – In Lab Analysis**

• **FBI Booking Station Pilot Program**

• **Rapid Crime Scene Program**
RAPID DNA CRIME SCENE PROGRAM

• HAS BEEN UTILIZED IN MORE THAN 400 CASES STATEWIDE SINCE 2014
• HAS RESULTED IN NEARLY 150 INVESTIGATIVE LEADS
• ALL TYPES OF CASES
  • OFFICER INVOLVED SHOOTING
  • BANK ROBBERY
  • CHILD MOLESTATION
  • ID OF BODY FOUND IN DESERT
  • BREAKING AND ENTERING SEX ASSAULT
Governor’s Commission to Prevent Violence Against Women
May 16, 2019
Phoenix Sexual Assault Response Team
Jody Wolf | Phoenix Police Department - Laboratory Services Bureau
Phoenix Sexual Assault Response Team (SART)

The City of Phoenix was awarded $1.59 million from the Bureau of Justice Assistance FY 2016 Sexual Assault Kit Imitative to build a comprehensive program for a SART that is victim-centered and trauma-informed.
Background

- 2013 - SAFER Act passed by Congress
- 2015 – BJA SAKI Grant ($41 Million)
- 2015 – DANY Grant ($38 Million)
  - MCAO Awarded $2 Million
  - MOU with Phoenix
  - MDT Formed
- 2016 – FY16 SAKI Grant
  - MCAO Awarded $1.29 Million
  - Phoenix Awarded $1.59 Million
  - Governor’s Task Force on Sexual Assault Kits
  - Test All SAKs
- 2016 – FY17 SAKI Grant
  - MCAO Award
  - ARS 13-1426
  - ARS 13-1427
  - County Protocol
- 2017 – FY18 SAKI Grant
  - MCAO Application
  - Phoenix Application
  - AZ Guidelines for Coordinated Community Response
Objectives

1. Implement a comprehensive sexual assault program
   a) Inventory
   b) SART

2. Complete DNA testing of previously unsubmitted SAKs

3. Develop/implement victim-centered protocols and procedures
   a) Maricopa County Protocol
   b) Direct to DNA Approach
   c) Enhance Victim Support Services
   d) Tracking system for SAKs

4. Investigate and prosecute sexual assault/abuse cases
Objectives

1. Implement a comprehensive sexual assault program
   a) Inventory - **COMPLETE**
   b) SART - **COMPLETE**

2. Complete DNA testing of previously unsubmitted SAKs – *In-Progress*

3. Develop/implement victim-centered protocols and procedures – **COMPLETE**
   a) Maricopa County Protocol – **COMPLETE**
      1) Phoenix Protocols - **COMPLETE**
   b) Direct to DNA Approach - **COMPLETE**
   c) Enhance Victim Support Services – *In-Progress*
   d) Tracking system for SAKs - **COMPLETE**

4. Investigate and prosecute sexual assault/abuse cases – *In-Progress*
Objectives

1. Implement a comprehensive sexual assault program
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2. Complete DNA testing of previously unsubmitted SAKs – **In-Progress**

3. Develop/implement victim-centered protocols and procedures – **COMPLETE**
   a) Maricopa County Protocol – **COMPLETE**
      1) Phoenix Protocols - **COMPLETE**
   b) Direct to DNA Approach - **COMPLETE**
   c) Enhance Victim Support Services – **In-Progress**
   d) Tracking system for SAKs - **COMPLETE**

4. Investigate and prosecute sexual assault/abuse cases – **In-Progress**
Direct to DNA (Y-Screening)

What is it?

- Allows for the selection of evidence for DNA analysis based on case scenario and the amount of MALE DNA present

- Most laboratories found that Y-screening is more sensitive than traditional serology for detection of male cells

- Fast extraction method to help decide which items to move forward with DNA analysis
How can we focus on Male DNA?
How can we focus on Male DNA?
Y-Screening Method

- Use of a commercially available chemistry kits
- All swabs present in a sexual assault kit will be portioned and processed
- Standard quantitation method used to determine the presence of male DNA
- Screening tool
  - \textit{indicates if male DNA is present or not}
<table>
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<td><strong>Total SAK Inventory (June 2018)</strong></td>
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<tr>
<td>Previously Tested SAKs</td>
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<tr>
<td><strong>Total SAK Inventory (June 2018)</strong></td>
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<tr>
<td>Previously Tested SAKs</td>
<td>5,948</td>
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<td>SAKs Not Requiring Testing</td>
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<td>SAKs Requiring Testing (Un-submitted)</td>
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<td>SAKs sent to Private Vendors</td>
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<td>DNA SAK Reports Issued</td>
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<td>1,037</td>
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<td>CODIS Hits</td>
<td>496</td>
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<td>Cases submitted for Prosecution</td>
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**233 Remaining!!!**
Enhance Victim Support Services

- Victim and Community Outreach
  - PPD Web page enhancements for community and victim information
  - Flyers, Posters, FAQ brochures, shoe cards, and banners
  - Five Annual Sexual Assault Victim-Support Based Events
  - Community presentations 2-3 per month
  - Public Service Announcement for social media utilization
  - Translation of materials to Spanish
Other SAK Testing Efforts (April, 2019)

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Looking Forward

- Continuation of SAK Testing, Investigation, Victim Support Services, etc.
- Hiring of grant personnel
- Enhancement of Phoenix Program
- SME Training
Thank you!

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Governor’s Commission to Prevent Violence Against Women
May 16, 2019
Sexual Assault Awareness Month
Overview
#TEALinitiative
Outreach and Awareness

• Myths and Facts Cards
• Tabling at ASU, Take Back the Night, and Capitol Farmer’s Market
• Buttons-Funded by DHS
• Materials donated by DHS
  • Information Cards
  • Ribbons
  • Stickers
  • Bracelets
  • Pens
• Governor’s Proclamation

The #TEALinitiative is a community response to sexual violence that promotes statewide understanding that the conversation surrounding this pressing social should include:

- Trauma-informed services
- Empathetic responses
- Accountability of perpetrators
- Learning turned into action
FACTS VERSUS MYTHS OF SEXUAL VIOLENCE

Most sexual assaults are committed by strangers.

It’s not sexual assault if it happens after drinking or taking drugs.

Victims provoke sexual assaults when they dress provocatively or act in a promiscuous manner.

Sexual assault is based on sex and physical attraction.

Only young women are sexually assaulted.

Eight out of ten rapes are committed by someone the victim knows.

A person who is cognitively impaired due to the influence of drugs or alcohol is not able to consent to sexual activity.

Neither provocative dress nor promiscuous behavior are invitations for unwanted sexual activity.

Forcing someone to engage in non-consensual sexual activity is sexual assault regardless of the way that person dresses or acts.

Sexual assault is a crime of power and control, and offenders often choose people whom they perceive as most vulnerable to attack or over whom they believe they can assert power.

Victims come from all walks of life. They can be of any age, race, gender, or sexual orientation. Assumptions about the “typical” sexual assault victim may further isolate those victimized.

GOVERNOR DOUGLAS A. Ducey
STATE OF ARIZONA
PROCLAMATION

WHEREAS, rape, sexual assault, and sexual harassment harm our communities and have widespread physical and mental health implications; and
WHEREAS, statistics show nearly one in two women and nearly one in four men have been victims of contact sexual violence at some point in their lives; and
WHEREAS, the Arizona Department of Public Safety indicates that 3,279 rapes were reported to police in 2015; and
WHEREAS, individuals with disabilities are seven times more likely to be sexually assaulted; and
WHEREAS, the Centers for Disease Control and Prevention found that 115.5 percent of girls and 45.5 percent of boys in grades 9 through 12 reported they were physically forced to have sexual intercourse against their will; and
WHEREAS, in addition to the immediate physical and emotional costs to victims, sexual assault can lead to long-term, devastating health effects, including post-traumatic stress disorder, substance abuse, depression, homelessness, eating disorders, and suicide; and
WHEREAS, through prevention education, awareness efforts, a strong network of victim services, and holding perpetrators responsible for their actions, we can work together to better address sexual violence and create safer communities for all Arizonans; and
WHEREAS, through collaborative efforts, individuals, agencies, organizations, and communities can work together to prevent sexual assault and support victims and survivors.
NOW, THEREFORE, I, Douglas A. Ducey, Governor of the State of Arizona, do hereby proclaim April 2019 as
SEXUAL ASSAULT AWARENESS MONTH

and encourage all citizens, parents, governmental agencies, public and private institutions, businesses, hospitals, schools, and citizens in the state of Arizona to join together and raise awareness about sexual assault, provide support for survivors, and strive to achieve a state where sexual assault victims have a clear path to justice and our communities, families, and children are protected.

GOVERNOR DOES NOT REPORT THE POLICE.

• IT IS NOT EASY TO TALK ABOUT BEING SEXUALLY ASSAULTED.
• THE EXPERIENCE OF TELLING WHAT HAPPENED MAY CAUSE THE PERSON TO RELIVE THE TRAUMA.
• FEARS OF REPERCUSSION BY THE OFFENDER.
• FEARS OF BEING BLAMED FOR THE ASSAULT.

Victims can report a sexual assault to criminal justice authorities at any time, whether it be immediately after the assault or within weeks, months, or even years after the assault.

To report a sexual assault, call your local police station.

HOW TO RESPOND WHEN SOMEONE TELLS YOU THEY’VE BEEN ASSAULTED

• ALLOW THEM TO TELL YOU AS MUCH OR AS LITTLE AS THEY WANT.
• LET THEM KNOW THAT THEY ARE BELIEVED AND SUPPORTED.
• AVOID ASKING QUESTIONS ABOUT THE DETAILS. YOUR RESPONSIBILITY IS TO SUPPORT THE PERSON, NOT INVESTIGATE.
• VALIDATE THEIR FEELINGS AND COMPREHEND EMPATHY.
• RESPECT THEIR PERSONAL SPACE.
• REASSURE THEM THAT YOU ARE THERE TO HELP.
• ASK THEM WHAT THEY NEED.
• PROVIDE THEM WITH INFORMATION ABOUT LOCAL SEXUAL ASSAULT SERVICES AND SUPPORT THEM IN REACHING OUT TO THOSE SERVICES.
Brown Bag Sessions

• 3 Sessions
  • DHS
  • DES
  • Executive Tower
• Training provided by ACESDV
• Appx. 20 participants at each session
• Outreach to:
  • All State Offices in Executive Tower
  • State Agency Public Information Officers
  • House and Senate Offices
  • GOYFF Social Media
Faith Community Sexual Assault Awareness Roundtable

- Hosted by St. Patrick’s Catholic Community
- 110 attendees
- 4.88 out of 5 overall rating of event

**Agenda**

**Welcome**
- Director Maria Cristina Fuentes, GOYFF

**Sexual Assault 101**
- Tasha Menaker, ACESDV

**Survivor Story**
- ACESDV Speaker’s Bureau

**Mandatory Reporting**
- Marina Awerbuch, Childhelp

**Trauma-Informed Approach to Healing**
- Brenda Cochran, Pure Heart Church

**Sexual Assault Prevention**
- Rachel Mitchell, Maricopa County Attorney’s Office

**Panel Discussion**
- Rachel Mitchell, Maricopa County Attorney’s Office
- Sanghoon Yoo, The Faithful City
- Jessica Nicely, Winged Hope
- Survivor
- Doreen Nicolas, ACESDV
Sexual Assault Response Symposium

- 90 attendees
- 4.5 out of 5 rating of overall event
- Highest Ratings: Judiciary Services Panel and SART Panel
- Meet and Greet with Governor Ducey and SART Leaders

Agenda

- Introduction
  - Director Maria Cristina Fuentes, GOYF
- Welcome
  - Governor Doug Ducey
- Recommended Guidelines
  - Lindsay Ashworth, ACESDV
- Victim Services Panel
- Trauma Certified Organizations
  - Dr. Robert Rhoton, Arizona Trauma Institute
- Law Enforcement Panel
- Judiciary Services and Prosecution Panel
- SART Panel
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