

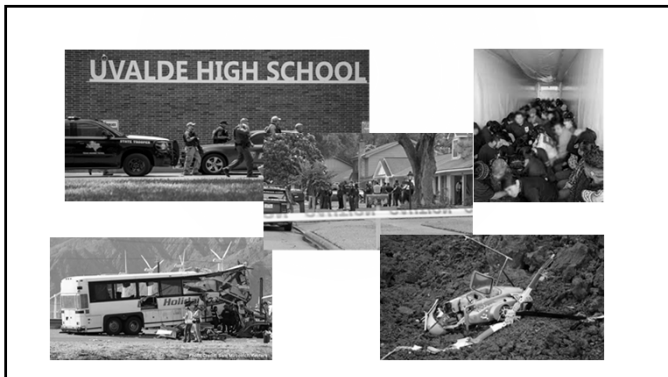
**MOBILIZING YOUR DNA LABORATORY:
developing a Rapid DNA response for mass
identification events**

Julie Sikorsky, M.S.¹, Dana A. DeVito, B.S.F.S.², Amy McGuckian, M.S.F.S.¹

¹Palm Beach County Sheriff's Office Forensic Biology Unit

²Marshall University Forensic Science Center

It's not a matter of if, it's a matter of when.





OVERVIEW

- > Planning Ahead
- > Rapid Program Goals
- > Deployment Design
- > Training
- > Exercise Execution
- > Post-Deployment
- > Available Resources

Plans are
nothing;
planning is
everything.

- Dwight D. Eisenhower

PBSO RAPID DNA PROGRAM GOALS

1. Incorporate Rapid DNA analysis into regular casework

On-line August 2020 (RHID), November 2021 (ANDE)

- Modified Rapid DNA analysis and CODIS upload
- Buccal swabs – standard-only cases, paternity/identity cases, CODIS confirmations, OL alleles
- Bone & Tissue – identity cases only (no CODIS upload)



PBSO RAPID DNA PROGRAM GOALS

2. Establish a Rapid DNA Infrastructure within our county

- Be an informed resource to:
 - local agencies regarding use and implementation
 - Currently two local agencies pursuing Rapid technology
 - Working with SNA International on DNA Connect for interagency Rapid profile searching
 - parent agency with regard to booking station implementation
 - TBD



PBSO RAPID DNA PROGRAM GOALS

3. Develop a plan to mobilize Rapid technology

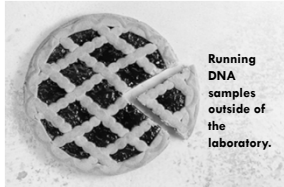


HOW DO YOU EAT AN ELEPHANT?



...one bite at a time.
-Desmond Tutu, adapted

FOCUS ON WHAT WE CAN CONTROL



Running DNA samples outside of the laboratory.

- Out of project scope:**
- × sample collection
 - × family assistance center collections
 - × match notifications
 - × sample return

VALIDATE DNA OPERATIONS EXTERNAL TO THE LAB ENVIRONMENT



COLLABORATION AND FACT FINDING

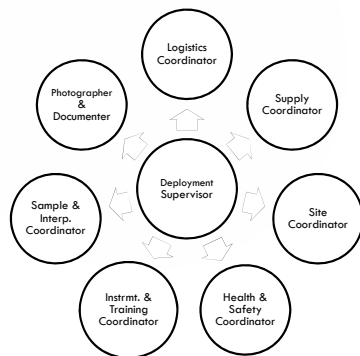
- In April 2021 FBU reached out to MUFSC
 - ANDE
 - Students & Technical Assistance Program (TAP) Interns
- Established primary objectives
 - Rapid deployment protocol with potential for CODIS entry
- Standards considerations: ANAB & QAS
- Existing resources?
 - ANDE – Response experience
 - NYOCME – Continuity of Operations Plan for Forensic Biology
 - SNA International – DVI events
 - ASCLD – Rapid DNA DVI Committee



TAP INTERN: initial materials created/adapted

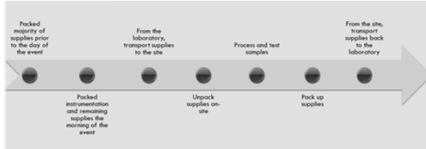
- Role List
- Role Task Checklist
- Instrumentation Training Checklist
- Supply List
 - Master
 - Station-specific
- Sample Triage List
- Debrief Sheet
- Unidentified Human Remains Collection Form
- Family Reference Collection Form

ROLES



PRE-DEPLOYMENT BRIEFING AND "TRAINING"

- Expectations vs. reality
- Roles assigned



- Timeline
- Site Layout
- Logistics
- Roles
- Sample Testing

SAMPLES

ANDE

- 2 i-Chips
 - Chip 1 –
 - 4 Swab-to-swab buccal samples for QA/QC
 - Chip 2 –
 - Fresh Tissue 1 (fresh protocol)
 - Male Bone 1 (fresh protocol)
 - Fresh Tissue 2 (fresh protocol)
 - Male Bone 2 (fresh protocol)
 - Simulated protocols – time constraints
 - Phantom aged bone
 - Phantom degraded bone, e.g. burned
- * simulate possible unidentified human remains samples that may come from the site

RHID

- 2 ACE Cartridges
 - 1 QA/QC sample
 - 1 simulated family reference buccal sample
- RHID needed to be the *last thing* packed at the lab and the *first thing* unpacked on-site - required power for refrigeration



JUNE 28 –29, 2022



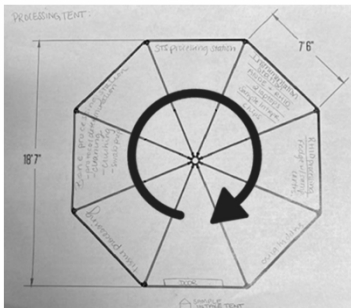
SITE SET-UP FOR FBU MASS IDENTIFICATION EVENT

• June 29, 2022




Western Shelter GateKeeper 20 (286 ft²), Two portable 5-ton AC units






STATIONS FOR FBU PROCESSING TENT


Bone and Swab-the-Swab Stations




Tissue Station



ANDE®




RapidHIT™ ID




Portable refrigerator

ON-SITE TRAINING FOR NON-TECHNICAL PERSONNEL

- Sample loading and operation of ANDE and RHID.
- Forensic biologist expertise needed for profile interpretation



• Developpe




ing/

REPORT OF PLANTER PROFILES

Task Checklist: Installation/Setup Training
Responsible for loading, handling the instrument and/or the acquisition of samples to be done on the field and/or in the laboratory

| Task/Requirement | Completed | Date | Trainer | Trainee(s) |
|---|--------------------------|------|---------|------------|
| Remove proper PPE requirements | <input type="checkbox"/> | | | |
| Verify instrument(s) has appropriate files | <input type="checkbox"/> | | | |
| Explain the function of the instrument | <input type="checkbox"/> | | | |
| Demonstrate how to properly load/prepare the samples/instruments | <input type="checkbox"/> | | | |
| Demonstrate how samples are to be stored on the instrument | <input type="checkbox"/> | | | |
| Demonstrate how to access the instrument and the samples/instruments | <input type="checkbox"/> | | | |
| Demonstrate how to insert the samples/instruments into the instrument | <input type="checkbox"/> | | | |
| Demonstrate how to remove the samples/instruments from the instrument | <input type="checkbox"/> | | | |
| Explain how to properly dispose of the samples/instruments | <input type="checkbox"/> | | | |

ON-SITE TECHNICAL SUPPORT



Rahul Patel (ANDE)

- Unaware that ANDE travel case doubled as a workstation; assisted with conversion

Scott Reierstad, Jodi Bailey & Pete Delaune (ThermoFisher)

- Assisted with reconfiguring data transfer from instrument to RapidLINK software on the travel laptop (standard configuration was for our internal network)

POST-DEPLOYMENT PROCEEDINGS

- Performance checks of instrumentation for casework use
- Organization and restock of supplies
- Debrief to identify the strengths and weaknesses of the event
- Update materials
- Monthly presentations from each team



CONTINUOUS IMPROVEMENT



- Continue to refine response plan and materials
- Order additional supplies
- FAIRS Software validation (paternity/kinship)
- On-going Mass ID exercises
 - Tabletop
 - Agency organized
- Retrofit "Forensic Response Unit" vehicle
- Keep the conversation going!
 - A seat at the table – PBSO Mass Casualty/Mass Fatality Working Group

RESOURCES FOR ALL

- www.pbso.org/inside-pbso/crime-lab
- Forensic Manuals
- Forensic Biology (manuals, forms, validation summaries)
- Mass ID Resources Folder – living documents, MSWord format



Forensic Manuals



ACKNOWLEDGEMENTS



Dana DeVito
BJA 2021 CBR Grant Award #15P8IA-21-GG-02985-DNAX



ThermoFisher
SCIENTIFIC

ANDE



??????

Julie Conover Sikorsky
sikorskyj@pbso.org
