Technical Working Group on Biological Evidence Preservation
Project Briefing

American Academy of Forensic Science (AAFS) Annual Meeting
Thursday, February 20, 2014
The State of Biological Evidence Preservation

“In order for qualified forensic science experts to testify competently about forensic evidence, they must first find the evidence in a usable state and properly preserve it.”

- NAS Report
What does your evidence room look like?
“Bad” Evidence Rooms
“Bad” Evidence Rooms
“Good” Evidence Rooms
“Good” Evidence Rooms
Group Charge

To create best practices and guidance to ensure the integrity, prevent the loss, and reduce the premature destruction of biological evidence -- after collection through post-conviction proceedings.
TWG Members

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Shannan Williams, Associate, Forensics Program, NIST/OLES
Group Outputs


2. **TWG Website:**
   

3. **Biological Evidence Preservation: Considerations for Policy Makers** *(To be released in Spring 2014)*

4. **RFID Technology in Forensic Evidence Management: Assessment of Barriers, Benefits, and Costs to Implementation** *(To be released in Spring 2014)*
The Biological Evidence Preservation Handbook: Best Practices for Evidence Handlers

Published April 2013

Available at: http://www.nist.gov/oles/forensics/bioev.cfm
Retaining Biological Evidence – Key Recommendations

I-1: All persons who have responsibility for the intake and/or storage and disposition of biological evidence should take online, in-classroom, or other forms of training on evidence management.

I-2: Prior to a property and evidence custodian accepting biological evidence, it should be clearly marked and labeled by the submitter as biological evidence, allowing it to be tracked within the evidence management system and stored appropriately from intake through disposition.
### Retaining Biological Evidence – Key Recommendations

#### Table I-2: Summary of Biological Evidence Retention Guidelines for Crime Categories

<table>
<thead>
<tr>
<th>Crime Categories (NIBRS*)</th>
<th>CASE STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Open†</td>
</tr>
<tr>
<td>Homicide Offenses</td>
<td>Retain indefinitely</td>
</tr>
<tr>
<td>Sexual Offenses</td>
<td>At a minimum, retain for the length of the statute of limitations‡</td>
</tr>
<tr>
<td>Assault Offenses, Kidnapping/Abduction, Robbery</td>
<td>All Other Group A &amp; B Offenses</td>
</tr>
<tr>
<td></td>
<td>Dispose of upon receipt of authorization§</td>
</tr>
</tbody>
</table>

* The Federal Bureau of Investigation’s National Incident-Based Reporting System (NIBRS) classifies 22 types of offenses as Group “A” crimes and 11 types of lesser offenses as Group “B” crimes. Table I-2 uses the NIBRS crime categories.

† Cases in which someone was found not guilty after criminal proceedings and additional suspects have not yet been identified or charged should follow the same guidance as open cases.

‡ Statutes regarding the disposition of biological evidence from homicide, sexual offenses, and other crime categories vary from state to state. Almost all states that have statutes require that such evidence be held for the period of incarceration; a few states require that the evidence be held for the period of probation, parole, or registration as a sex offender. Custodians should check their state statutes. Written authorization for disposal should be obtained from the assigned case investigator. (Note: If the assigned investigator is no longer employed by the agency, a designated investigator should give written approval.)

§ Section V provides further guidance regarding the disposition process.
Retaining Biological Evidence – Key Recommendations

I-3: Property and evidence custodians should consult with investigators, laboratory analysts, and, when appropriate, prosecutors to determine whether only representative sample(s) should be retained in situations in which samples are too large or too costly to store. Property and evidence custodians, investigators, laboratory analysts, and prosecutors should discuss situations in which prosecutors should be consulted. These decisions should not be made exclusively by property and evidence custodians.

Figure I-1: Collection of evidence from large/bulky items.
Packaging and Storing Biological Evidence – Key Recommendations

III-1: In tandem with state or local legislatures, managers in law enforcement and relevant stakeholders should advocate for additional resources and funding to ensure the integrity of biological evidence through prioritizing the packaging, storage, maintenance, and security of the evidence in their jurisdictions.

III-3: Each law enforcement agency should develop a protocol for standardizing evidence packaging materials and customizing shelving to allow for more efficient retrieval of evidence stored in property rooms.

III-5: Each law enforcement agency should have a policy and procedure for the storage of biological evidence.
# Short-Term Storage Conditions

<table>
<thead>
<tr>
<th>Type of Evidence</th>
<th>Frozen</th>
<th>Refrigerated</th>
<th>Temperature Controlled</th>
<th>Room Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid Blood</td>
<td>Never</td>
<td>Best</td>
<td>Less than 24 hours</td>
<td></td>
</tr>
<tr>
<td>Urine</td>
<td>Best</td>
<td>Less than 24 hours</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dry Biological Stained Item</td>
<td></td>
<td>Best</td>
<td></td>
<td>Acceptable</td>
</tr>
<tr>
<td>Wet Bloody Items (if cannot be dried)</td>
<td>Best</td>
<td>Acceptable</td>
<td>Less than 24 hours</td>
<td></td>
</tr>
<tr>
<td>Bones</td>
<td>Acceptable</td>
<td>Acceptable</td>
<td>Acceptable</td>
<td>Acceptable</td>
</tr>
<tr>
<td>Hair</td>
<td></td>
<td>Best</td>
<td>Acceptable</td>
<td>Acceptable</td>
</tr>
<tr>
<td>Swabs with Biological Material</td>
<td></td>
<td>Best (wet)</td>
<td>Best (dried)</td>
<td></td>
</tr>
<tr>
<td>Vaginal Smears</td>
<td></td>
<td>Best</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feces</td>
<td>Best</td>
<td></td>
<td></td>
<td>Less than 24 hours</td>
</tr>
<tr>
<td>Buccal Swabs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

# Long-Term Storage Conditions

<table>
<thead>
<tr>
<th>Type of Evidence</th>
<th>Frozen</th>
<th>Refrigerated</th>
<th>Temperature Controlled</th>
<th>Room Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid Blood</td>
<td>Never</td>
<td>Best</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urine</td>
<td>Best</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dry Biological Stained Items</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bones</td>
<td></td>
<td></td>
<td>Best</td>
<td></td>
</tr>
<tr>
<td>Hair</td>
<td></td>
<td></td>
<td>Best</td>
<td>Acceptable</td>
</tr>
<tr>
<td>Swabs with Biological Material</td>
<td></td>
<td></td>
<td>Best</td>
<td></td>
</tr>
<tr>
<td>Vaginal Smears</td>
<td></td>
<td></td>
<td>Best</td>
<td></td>
</tr>
<tr>
<td>Feces</td>
<td>Best</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buccal Swabs</td>
<td></td>
<td></td>
<td>Best</td>
<td></td>
</tr>
<tr>
<td>DNA Extracts</td>
<td>Best (liquid)</td>
<td>Acceptable (liquid)</td>
<td>Acceptable (dried)</td>
<td></td>
</tr>
</tbody>
</table>

TWG did not recommend that all biological evidence be frozen for the following reasons:

1. **Scientific research and current trends in DNA analysis.** Studies have demonstrated the highly stable nature of DNA and technology has become more sensitive, enabling analyses of smaller amounts of DNA.

2. **Evidence is often held in multiple locations throughout its lifecycle.** This makes it extremely difficult to maintain the evidence in a constant frozen state and scientific evidence shows that thawing and re-freezing biological evidence degrades the DNA and hinders analysis.

3. **Lengthy retention times required by legislation make freezing all biological evidence types extremely costly.** Given the marginal benefits and potentially destructive nature of freezing and thawing cycles, the cost of freezing for indefinite periods of time may be an unnecessary expense for resource strapped jurisdictions.
IV-3: Yearly inventories should be conducted to verify that the evidence in the property room is present and in its specified location.

IV-5: Each agency must develop an identification system so that each item of evidence has a unique identifier. Evidence items created from analysis or separated from the original evidence item should be documented to show the linkage between it and its parent.

IV-11: Jurisdictions should work to assess and improve communications regarding forensic evidence by developing consistent procedures and packaging guidelines and by integrating evidence-tracking systems across locations.
Biological Evidence Disposition – Key Recommendations

V-1: Case status reviews should be conducted at least once a year to determine eligibility for disposition of evidence containing biological evidence.

V-2: Each agency should designate those authorized to sign off on the disposition of biological evidence within a jurisdiction.

V-4: An evidence disposition process should be part of each agency’s policy and procedures.
Biological Evidence Disposition – Key Recommendations

1. Identify Evidence Due for Disposition
   - Yearly inventory identifies evidence due for destruction
   - Notification of destruction sent per statutory requirements
   - In-house “tickler” system tracks evidence and identifies upcoming disposition time

2. Confirm Case Status
   - Contact relevant parties to confirm case status
   - Prepare necessary paperwork to request status of case from investigator

3. Get Final Sign Off
   - If item is of value, determine if the item will be returned to owner or diverted for department use
   - Obtain written approval to return, release, or destroy the item

Final Disposition of Evidence

- Return to Owner
  - Notify owner on record
  - Locate item on shelf
  - Obtain government identification and signature from owner
  - Return item to owner
  - Update manual or electronic records

- Release for Auction/Diversion/Permanent Transfer
  - Obtain approvals for auction, diversion, or perm. transfer per departmental policy
  - Locate item on shelf
  - Obtain signature from final user
  - Release to requesting party
  - Update manual or electronic records

- Destroy
  - Notify management of upcoming destruction
  - Locate item on shelf
  - Identify and obtain signatures from parties to destroy evidence (contractor or in-house)
  - Conduct destruction with witness and per relevant biological disposal laws
  - Update manual or electronic records
Group Outputs


2. TWG Website:
   http://www.nist.gov/oles/forensics/bioev.cfm

3. Biological Evidence Preservation: Considerations for Policy Makers (To be released in Spring 2014)

4. RFID Technology in Forensic Evidence Management: Assessment of Barriers, Benefits, and Costs to Implementation (To be released in Spring 2014)
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Biological Evidence Preservation: Considerations for Policy Makers

Purpose of Providing Legislative Guidance

- Law compels compliance more than guidelines/best practices alone
- Statutory requirements elevates the importance of proper handling among various holders of evidence
- Legislation addresses consequences for denial of access

Audience

- Policy makers, law enforcement management, property and evidence management

Release Date

- Spring 2014
Biological Evidence Preservation: Considerations for Policy Makers

Topics Covered

• State Taskforces/Commissions
• Biological Evidence Definition
• Retention Guidelines: Crime Categories and Automatic vs. Qualified
• Management
• Early Disposition
• Ramifications for Denial of Access

*Guidance is informed by in depth analysis of current legislation in 43 states and the District of Columbia
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Automated Identification Technology (AIT) in Forensic Evidence Management

Current Property and Evidence Inventory Operations

- Visual Inspection
- Manual Data Entry
- Paper-based System for Information Storage

Operations with RFID Solution

- Tag Affixed to Evidence Item and read by a manual or fixed reader
- Tag contains data on: Evidence Item Identifier, Chain of Custody, Case Information, Environmental Conditions, Laboratory Analysis Results
- Information on reader is stored on computer system

Report Release Date: Spring 2014
Questions?

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