Packaging Materials

• Paper bags
• Plastic bags*
• Pill boxes
• Envelopes and note pad
• Glass jars

• Paint cans
• Cardboard boxes
• Evidence tape
• Specialized materials
Choice of proper container

- Paper is the packaging material of choice
- Plastic should only be used when there is danger of liquids (biohazard or other) penetrating
Packaging Techniques

Air-Dried

- Evidence should be allowed to air-dry
- The optimal method to preserve DNA
Packaging Techniques

Tissue and liquid samples

• Keep refrigerated
Caution!!

Never freeze liquid tubes of blood

Be careful, put glass tubes in plastic bag
Packaging Techniques

• Package items separately when recovered separately

• If items found together, then package together
  • Clothing in a pile
  • Cigarettes in an ashtray
Packaging Techniques

• Don’t allow fluids or stains to touch each other or unaffected areas
Packaging Techniques

Minimize interior movement
## Packaging DNA Evidence

<table>
<thead>
<tr>
<th>Acceptable</th>
<th>Unacceptable</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Paper</td>
<td>• Plastic</td>
</tr>
<tr>
<td>• One item per bag</td>
<td>• Multiple items per bag</td>
</tr>
<tr>
<td>• Stains air-dried</td>
<td>• Stains still wet</td>
</tr>
<tr>
<td>• Do not overfill bag</td>
<td>• “Mummy wrap”</td>
</tr>
</tbody>
</table>
Labeling Packages

- Name initials of the collector
- Each person entity subsequently having custody
- Date of collection or transfer
- Agency and case #
- Victim or suspect name
- Brief description of item
Labeling Packages

• Label container before packaging
Labeling Packages

- Label and identify exterior as to content
Labeling Packages

- Label the item with warnings/hazards or other helpful information:
  - Biohazard
  - Sharp
  - Fragile
  - Unloaded
  - Etc.

COPS

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Sealing the Package

• Seal packages with tape
  • Prevents items from falling in
  • Prevents items from falling out
  • Provides measure of security – evidence can’t be accessed unless seal is broken

• Initial across seal or under the seal
Sealing the Package

Acceptable
- Scotch tape
- Packaging tape

Unacceptable
- Masking tape
- Staples
Identify the Packaging Error
Identify the Packaging Error

DNA

COPS

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U.S. DEPARTMENT OF JUSTICE
Identify the Packaging Error
Preserving DNA Evidence

Acceptable
• Keep cool
• Bring to lab as soon as possible

Unacceptable
• Keep warm
• Delay in transport to lab
Trunk Storage
Summary

**DO**

- Air dry before packaging
- Use paper
- Use separate bags
- Use plenty of room
- Seal with scotch tape
- Initial with permanent marker
- Keep item cool
Summary

DON’T

– Package item still wet
– Use plastic
– Clump in one bag
– Use smallest bag
– Staple shut
– Initial with ballpoint pen
– Keep in trunk in July
Now What?

- Are you familiar with your lab’s DNA testing policies?
- **Do they...**
  - *Work all types of cases?*
  - *Work cases regardless of the submission of a suspect sample?*
  - *Work both subject and non-subject cases?*
- Contact lab personnel for assistance in evaluating evidence with respect to the lab’s policies and capabilities
Time to Submit!

• Follow your agency’s and forensic lab’s policies
  • Meet in person?
  • Submit only pre-approved items?
  • Special times & locations for submission?
  • Specific directions?
  • Prioritization?
    – i.e., if you get results on A, don’t worry about B….

• Continue the investigation while waiting for results!
Proper Collection, Packaging and Preservation of DNA Evidence
Where is DNA Found?

- Epithelial cell
- Sperm cell
- Tissue cells
- White blood cells
Typically Encountered Samples
Evidence Screening
Blood Examination

*Never assume a red stain is blood*

- Presumptive testing
- Confirmatory testing
- Human origin testing

*Cannot tell age of a bloodstain*
DNA Blood Facts

- Located in white blood cells
- If you can see it, we can test it
- Transfusions do not interfere with typing
Semen - General Rules

- Primary indicator of sexual activity
- Begin with body swabs, then to clothing and bedding
- With successful analysis of semen, limited further analysis will be performed
Semen Examination

- Presumptive testing
- Confirmatory testing
  - P30
  - Sperm
Human Sperm
How Many Sperm??

- **Average Human Male**
  - Deposits 3-6 ml of semen
  - 1 ml semen = > 100 million sperm
  - Possibly over 600 million sperm!!!!!!

- **Vasectomized Male**
  - Deposits 0 sperm
How Long Can Sperm Last?

- Normally ~3-4 days in vaginal cavity of living woman
- Normally ~12 hours in rectal cavity of living person
- Normally ~6 hours in oral cavity of living person
How Long Can Sperm Last?

From the Forensic Literature:

- Found in frozen body’s vaginal cavity after 19 days
- Found in frozen body’s rectal cavity after 3 years
- Found in mummified body’s vaginal cavity after 3 years
Reasons For Not Finding Sperm

- Acidic environment
- Multiple ejaculations
- Low sperm count
- Time
- Poor quality sperm
Reasons For Not Finding Sperm

- Victim bathed
- Suspect didn’t ejaculate
- Bacteria ate them
- It didn’t happen
DNA Semen Facts

- Found in sperm head
- Need 100 sperm heads for testing
- Can separate sperm DNA from other cells in stain (vaginal cells)
Saliva Examination

- Presumptive
  - Amylase
- No confirmatory test
Hair Examination

- Hair or Fiber
- Human or animal
- Body area
- DNA located in root
- Microscopic comparisons rarely performed
Urine

- Concentration varies, depending on time of void, dilution by fluid ingested
- Chemical detection tests are available
- Probative nature of urine
- Epithelial cells may be used for DNA, depending on the amount
Fecal Material

• No serological testing for identification
• Kits available for DNA testing from fecal material