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Case Management Manual

Version 2.0

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I. Introduction

The Department of Forensic Biology develops information through the identification and individualization of physiological fluids such as blood, semen, and saliva. In addition to being a powerful courtroom aid, this information can aid in the investigation of a crime or suspected crime, identify bodies or body parts, identify pattern cases, help tie a victim or suspect to a crime scene, or eliminate a suspect.

It is the aim of the Department of Forensic Biology to perform DNA profiling on as many cases as possible; the DNA profiling system(s) chosen depends on the type of case. Cases are analyzed for court, investigative, and/or databank purposes.

A. Types of cases accepted by the Department of Forensic Biology

1. Homicide cases are given FBxx- numbers, where xx is the year.
2. Sexual assault cases are given FBxx- numbers, where xx is the year.
3. Forensic paternity cases are given FBxx- numbers, where xx is the year.
4. Assaults, robberies, and other miscellaneous cases are accepted only with prior approval by the Director, Deputy Director, or an Assistant Director and are given FBxx- numbers.
5. Crime scene reconstruction cases are accepted only with prior approval by the Director or a MESATT Criminalist IV. These cases are generally part of an existing case and use the same FBxx- number.
6. Blood, oral swabs, or other exemplars from suspects are given FBxx-S numbers, where the S designates suspect cases. Blood, oral swabs, or other exemplars from individuals needed for elimination purposes are signed into the corresponding FBxx- number.
7. NYPD Backlog Project cases are being worked by contract laboratories and have case numbers assigned by them.

B. PCR DNA tests available for use

Cofiler	D5S1358, D16S539, Amelogenin, THO1, TPOX, CSF1PO, D7S820
Profiler Plus	D3S1358, VWA, FGA, Amelogenin, D8S1179, D21S11, D18S51, D5S818, D13S317, D7S820
Y M1	DYS19, DYS389I, DYS389II, DYS390
Quad	VWA, F13A1, THO1, FES/FPS (used rarely)
Powerplex 16	has been validated for casework (used rarely)

The combination of Cofiler and Profiler Plus contains all thirteen CODIS core loci.

C. DNA databanks (see also g:\users\fbiology\misc\databank)

The Department of Forensic Biology maintains a Paradox-based local DNA databank (LDAS) named "LINKAGE" of DNA profiles generated during the analysis of cases. The DNA profiles of evidence samples different than the victim are entered at the time of review. An exception is for DNA profiles known to have come from an elimination source, such as a consensual sex partner or witness, which are not entered into LINKAGE. Currently, the OCME local DNA databank is keyed to the Cofiler typing results, with most of the DNA profiles containing additional loci as well.

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The Paradox-based local DNA databank "LINKAGE" does not contain DNA profiles from convicted offenders, but does contain DNA profiles from suspects identified during the investigation of offenses and the DNA profiles of lab staff. Each DNA profile is compared to every other DNA profile in the databank.

Some DNA profiles from older evidence samples and suspects were typed only in the Quad system and are archived in a separate databank.

The Department of Forensic Biology also maintains a CODIS-based local DNA databank. This database does not contain DNA profiles of suspects nor of lab staff.

For a DNA profile to be accepted into SDIS (State DNA Index System), there must be typing data at six of the thirteen CODIS loci.

For a DNA profile to be accepted into NDIS (National DNA Index System), there must be at least an attempt to obtain typing data at all thirteen CODIS core loci and typing data at ten of the thirteen CODIS loci.

D. Scheduled analysis

The best use of limited evidence requires that information about the case be available. Such information as whether suspects were injured or victims transfused can help guide the analysis of evidence. Often, this may require the submission of additional evidence such as blood standards from suspects, witnesses, consensual sex partners, or an injured, living, victim.

In addition, it may be necessary for other types of examinations to be done before an item is examined in the Department of Forensic Biology. Fingerprint processing, gun shot residue, hair and fiber examinations, etc., may be equally or more important than the presence of biological fluids.

Depending on the case, scheduled analysis can range from determining only the presence of semen, saliva, or blood on an item to DNA analysis of stained items for comparison with victims and/or suspects. The decision of what analyses are to be performed is made by a Criminalist IV after evaluation of the evidence through review of the NYPD paperwork (vouchers, requests for laboratory examinations, and NYPD reports), discussions with detectives, and/or discussions with assistant district attorneys. In general:

1. Homicide cases

Samples are extracted and typed in Cofiler and compared to the victim, any suspect(s), and the local DNA databank. Generally, representative samples would then be typed in additional DNA systems.

Samples collected as part of a crime scene that are "thought" to have been handled and/or left behind by an assailant are **not** exemplars, but evidence.

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2. Sexual assault cases

Analysis begins with the sexual assault kit; if the kit is positive for semen and/or amylase any other submitted items are generally not examined. If the sexual assault kit is negative, other submitted items will routinely be examined.

Samples collected as part of a crime scene that are "thought" to have been handled and/or left behind by an assailant are **not** exemplars, but evidence.

A semen-positive sample gets extracted by differential extraction, typed in Cofiler, and compared to the local DNA databank. Generally, representative samples would then be typed in additional DNA systems as needed for increased statistics or CODIS purposes.

3. Assault, attempted homicide, and other cases

Samples collected as part of a crime scene that are "thought" to have been handled and/or left behind by an assailant are **not** exemplars, but evidence.

Samples are extracted and typed in Cofiler and compared to the local DNA databank. Generally, representative samples would then be typed in additional DNA systems as needed for increased statistics or CODIS purposes.

4. Suspect blood, oral swab, or other samples submitted as exemplars

An exemplar has as part of its nature some sort of proof that the sample in fact came from the person named. For a "true" exemplar such as a blood sample or an oral swab, that is the form from the MLI saying that he/she obtained the sample, the form from the NYPD that the person signs, voucher or other NYPD paperwork, or the DAO forms saying the same thing. For a "pseudo-exemplar" such as a bottle that the suspect was seen handling, that is the word of a law enforcement person.

Samples collected as part of a crime scene that are "thought" to have been handled and/or left behind by an assailant are **not** exemplars, but evidence.

Exemplars are extracted and typed in Cofiler and compared to the local DNA databank. The exemplar generally would be typed in additional DNA systems as needed.

5. Forensic paternity and body identification cases

Samples are extracted and typed in Cofiler, ProfilerPlus, and/or Y STR's or Quad or Powerplex 16 as needed.

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E. Target dates

Target dates are assigned by the Criminalist IV based on the available information. Default target dates are determined by management for different case types. *Shorter target dates may be necessary to meet court dates or investigative needs.*

Regardless of the target date, a report should be written and submitted to a supervisor for review no later than seven days after the last analytical results are available. Each supervisory level has an additional seven days for review of the case and forwarding to the next reviewer.

II. Case files - documentation

A Forensic Biology case is assigned to a Criminalist for evidence examination. Generally, the Criminalist becomes the Interpreting Analyst for that case and is responsible for case management: ensuring the evidence gets examined, samples are submitted for body fluid identification and/or DNA analysis, evaluating the analytical results as they are generated, interpreting the analytical results, writing the report, and testifying in court.

For NYPD Backlog cases, the first reviewing Criminalist becomes the Interpreting Analyst and is responsible for interpreting the analytical results, writing the report (if and when necessary), and testifying in court.

A. Case files - general

There is one case file per incident, which usually means one case file per victim. Exceptions include *multiple crimes* (more than one homicide, sexual assault, or assault at a time); for example, a double-homicide is still one incident, so there would be a file with two victims. *Serial or pattern crimes* (more than one homicide, sexual assault, or assault but over a period of time) have individual case files per victim. Each incident has a unique FB (Forensic Biology) number, and all evidence associated with that victim(s) will use the same FB number.

1. The following are clipped to the left-hand side (administrative side) of each file:
 - a. Chain of custody forms, documenting:
 - evidence received and released
 - analysis of DNA extracts
 - b. Copies of NYPD paperwork: evidence vouchers (documentation of evidence collected), request for laboratory examination forms; 61 form (NYPD complaint report).
 - c. **Copies** of sexual assault kit paperwork.
 - d. Miscellaneous correspondence, such as memos to and from outside laboratories.
 - e. Case contact forms, documenting:
 - basic information on the victim (and suspect, if applicable)
 - discussions with detectives, attorneys, or others
 - f. Scheduled analysis form, documenting:

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what items are to be analyzed and in what manner
target date, review dates, etc.

- g. Forensic Biology laboratory reports, route sheet, fax cover sheet, and any fax confirmation sheets.
- h. CODIS paperwork generated during or after the analysis.

All administrative documentation must be identified for association to the case record (e.g., FB number); multipage (stapled together) administrative documents may be identified with a single case number.

2. The following are clipped to the right-hand side (analytical side) of each file:

- a. Autopsy case worksheet, if applicable.
- b. Handwritten notes, worksheets, and photos documenting the evidence examinations.
- c. Worksheets documenting the analyses performed.
- d. The case productivity worksheet which documents the total number of examinations and tests for laboratory statistical purposes.

For each piece of evidence examined there **must** be an entry in the productivity sheet, even if no tests were performed (for example, a shoe with no stains). Whether an actual analysis is performed it takes time to examine the evidence and each examination represents, for statistical purposes, a test. The total number of tests must be summed from all summary sheets used and entered as well.

The case productivity worksheets are not intended as a summary of the analytical results and test results should not be indicated here.

The number of standards and controls also must be counted. The following should be counted in this group:

Positive and negative controls for presumptive tests, confirmatory tests, and DNA extraction, amplification, and typing
Substrate controls from evidence

- e. All information regarding a case must be kept in the case file, in a neat and organized manner. There should be no loose pages, Post-Its, etc.

If a case file becomes very large, divide it into separate file folders, labeled "1 of 2", "2/2", etc. Often, this occurs when extensive DNA testing or crime scene reconstruction is done on a case; the separate file folders may hold the different types of analyses done.

- f. All pages of analytical documentation **must** have the handwritten initials of the interpreting analyst for the case; in addition, the handwritten or computer-generated initials of the analyst performing a particular test must be present on those pages.

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3. Casefiles should be organized in a logical format; this generally does not mean chronological. A common format would be (bottom to top):

administrative side of file:

- scheduled analysis
- case contacts
- 61 form
- requests for laboratory examination
- copies of vouchers
- miscellaneous correspondence
- chains of custody
- copies of reports and distribution paperwork
- CODIS paperwork

analytical side of file:

- blood processing
- examination of evidence
- P30 ELISA and/or amylase
- DNA extraction, amplification, and typing of evidence
- DNA extraction, amplification, and typing of exemplars
- PCR statistics worksheets
- QuantiBlot worksheets (in chronological order)
- serology and DNA productivity worksheets

B. Case files - suspect files

Blood or other exemplars from suspects are analyzed separately, since they may be associated with more than one victim. The file is arranged as described above, and contains all the handwritten notes, worksheets, etc. for the analysis of the exemplar. These results stand alone and do not need to be included in any other casefiles.

The suspect DNA typing report also stands alone, and is issued separately from the report describing the DNA typing of the evidence. If the suspect does not match any previous cases, a report is written stating that. If the suspect does match previous cases, a report is written listing all the matching cases along with a summary of the analytical results from the previous cases. *See section V. Reports for more information.*

C. Case files - contract cases

Case files created by a contract laboratory will not contain much of the information listed above. The administrative paperwork, analytical paperwork, report format, etc. will differ from case files created by the Department of Forensic Biology.

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III. Evidence examination - notetaking, evidence examination, and packaging

A. Notetaking - general guidelines

Notetaking and evidence documentation is the most important aspect of casework. Done improperly, it can jeopardize any analysis that follows. The notes are used to document the condition of the packaging and evidence, describe stains that may be found, present the results of presumptive and/or visual tests, support the conclusions of the report, and refresh the analyst's memory when required to testify in court. Never use pencil for notetaking.

1. Each page of examination documentation (right side of case file), including handwritten notes, worksheets, and electropherograms, **must** have on it the following information:

- case number and date
- handwritten initials of the interpreting analyst for the case
- handwritten or computer generated initials of the analyst performing a particular test
- page number (at the bottom)

In addition, any administrative documentation (left side of case file) must be identified for association to the case record (e.g., FB number); multipage (stapled together) administrative documents may be identified with a single case number.

2. Notes should be legible and organized. If a mistake is made, draw a single line through the error and initial and date the correction. **Never** obliterate, including using "white-out", any notes or entry in a worksheet.
3. Notetaking starts with a description of the evidence, beginning with the packaging; a packaging worksheet is available to document this.
 - a. Type of package - paper bag, manila envelope, zip-loc bag, etc.
 - b. Condition of package - wet, bloody, etc.
 - c. Type of seal - stapled, taped, unsealed.
 - d. Identifying marks - a brief description of labels, tags, handwritten notations, etc.
4. Each package **must** be marked by the analyst with the case number, date, and analyst's initials. Finding the marks in court is easier if the analyst always chooses the same location to put his or her marks.
5. Each item of evidence **must** be marked by the analyst with the case number, date, and analyst's initials. Marking may be done by affixing a tag with the information or by writing directly on the item.
6. Next is a description of the contents, the evidence itself. Specific suggestions concerning different types of evidence will be discussed later.
7. Standardized worksheets are available with diagrams of pants, shirts, shoes, etc., to aid in documenting staining patterns. If a diagram must be hand-drawn, make sure it is large enough to allow room to document all of the stains present. It is preferable to have only one diagram per page.

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Standardized worksheets are also available for the documentation of cigarette butts and swab evidence.

Digital, 35 mm, or Polaroid photography may be substituted for diagrams. Each photograph **must** have a ruler visible in the frame, either a plain straight ruler or an x, y axis ruler.

8. Each stain **must** be given a unique identifying number, clearly shown in the notes. A standard approach should be taken:

- a. An item listed as item 1 on the voucher should be item 1 in the notes. The first stain removed from it is stain 1A, the second is stain 1B, etc. A substrate control (if taken) is 1SC.
- b. If there are several items submitted as one, give them all individual identifiers. For example, on a voucher, socks were identified as "item 1". Upon opening the package, there were three; they should be given the identifiers 1A, 1B, and 1C. The first stain removed from sock 1A is stain 1A-A, second stain 1A-B, etc. Alternatively, the stains could be designated as 1A-1, 1A-2, etc.

For multiple samples (such as swabs from a crime scene) it may make sense to use the identifiers given by the NYPD, such as "S1" or "R38". *Ensure that the same identifier is not also used on another voucher in the case.*

- c. If there are items submitted that weren't included on the voucher, they still must be examined. Give the item the next item number.
- d. If upon opening an item it was discovered that the description on the voucher was incorrect (for example, a tank top was submitted, but the voucher says "T-shirt"), use the correct description in your notes and subsequent analyses. Do not perpetuate the mistake.

Each stain **must** be marked by the analyst. Marking may be done by affixing a tag with the information or by writing directly on the item.

9. For further analyses, such as species determination and DNA analyses, make use of worksheets. Make sure all worksheets are filled out completely and legibly. If there is any deviation from the written protocol, it must be noted.

For most tests, original worksheets are stored in a central location; photocopies are supplied for each casefile.

10. When all the analytical work is completed, place page numbers at the bottom of the pages on the right-hand side of the file, beginning with the bottom page in a file. The last pages, the productivity worksheets, will have the highest number and be on the top.

When additional analyses are done after a report has been issued, continue the page numbering. Do not start over with page one.

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B. Preparing for the examination

Before examining evidence, certain preparations should be made:

1. Review the "Scheduled Analysis" section of the case contact/control form; this section outlines the examinations requested by the supervisor.

Review all the information provided in the case file. This includes the case contact form, vouchers, requests for laboratory examination, any previous laboratory reports, and police reports. If further information or clarification is needed, obtain it before beginning analyses.

2. Plan your approach to the case. Certain items may have greater potential information value than others, or may need to be analyzed first as an investigative aid.
3. Prepare the work area. The bench must be clean and free of clutter. The work area should be covered with paper to prevent the loss of small particles of evidence and to prevent the cross-transfer of materials from one item to another. Change the paper when a new case is begun, between different types of evidence within a case (such as between victim's and suspect's belongings), or when necessary.
4. Make sure the necessary tools and reagents for the examination are clean, conveniently located, that there is adequate lighting available, and that notetaking materials are at hand to record your observations. Also make sure that all reagents used have passed QC and have not expired.
5. Prepare yourself with lab coat, gloves, and any other necessary safety items.

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C. Evidence examination - general guidelines

The examination of objects will be described in a general sense, covering a broad range of topics applicable to most items of evidence.

Use an Evidence Packaging Worksheet for initial documentation of each item.

NOTE: All cutting utensils, tweezers, etc. must be cleaned with ethanol before and after each use. Gloves should be changed between each item.

1. Examine one item at a time.

If it is known that an item still requires trace evidence examinations, place an additional sheet of thin (newspaper weight) paper on top of the regular paper prior to opening an item of evidence. When done examining the item, wrap it up in the thin paper and place the entire bundle back into the original packaging. Any trace evidence that was dislodged from the item will be retained by the thin paper.

2. Be certain that the previous item has been re-packaged before opening another item on the work surface.
3. Open the packaging. Avoid breaking existing seals when possible.
4. Remove packaging with care. Remember, materials of evidential value may adhere to the item and/or the packaging. Opening the evidence over the paper will prevent the loss of these materials.
5. If an item of evidence is found to be wet when opened, the item should be allowed to air dry. The item should not be heated or exposed to direct sunlight. If the item has become foul smelling, allow it to dry in the hood with the fan running.
6. Each item **must** be marked with identifying case information, either by affixing a tag with the information or by writing directly on the item.
7. At this point, a visual inspection should be conducted. It may be necessary to use a high intensity light source, UV light source, or alternate light source during the inspection, especially if semen or saliva is suspected. Magnification may be necessary.
8. A tactile examination is sometimes helpful for locating some biological stains, notably seminal stains. Using gloved fingertips, lightly brush over the surface of the object, feeling for changes in surface texture or stiffness.
9. Remove any easily visible surface debris such as hairs, fibers, wood fragments, etc. and package. The location on the item of all trace evidence removed should be documented by diagram and/or photography.
10. All stains **must** be documented by diagrams and/or photography. Note the location of the stain, size, heaviness (soaked into fabric, surface smear, etc.), and any directionality of the stain pattern. Each photograph **must** have a ruler visible in the frame, either a plain straight ruler or

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an x, y axis ruler.

If it is apparent that there is a spatter pattern, consult a supervisor or MESATT member for guidance. Select appropriate stains for further testing based on any spatter analysis.

If stains do not exhibit directionality, note that as well.

Perform the appropriate presumptive tests on the stains.

11. A substrate control should be selected from each item, if possible; it should be collected as close to the stained area as practical. If an item has stains on more than one substrate (for example, stains on pant leg and in the pocket), select more than one substrate control. Its location should be documented in the same way as stained areas.

A presumptive test may be performed, if desired; do not submit the substrate controls for further testing.

The substrate control may be used to investigate the possibility of background effects of the substrate, if subsequent DNA typing results of the stain make it necessary.

12. Cut, scrape, or swab the stain and/or substrate control from the evidence item and place in individually labeled envelopes (these are now considered "sub-item(s)"). It is most time-effective if all stains and substrate controls are collected at the time of evidence examination, rather than returning at a later time.

When swabbing an area, the number of swabs collected must be recorded and each swab given a unique identifying number. Refer to the unique number when analyzing the swab.

Place the sub-item(s) into the packaging holding the evidence item from which they were removed. If the items are small and self-contained (e.g., a blood sample from a scene), there is no need to create a sub-item.

13. When the examination of an item or voucher is complete (body fluid identification complete and appropriate "sub-items" submitted for DNA testing), seal the packaging with its permanent seal. The original packaging must be sealed, dated, and initialed across the seal; attach a copy of the voucher with the initials of your AD/DD prominently indicated. Transfer the evidence to the Evidence Unit for storage in the "pending report review" area.

Since post-mortem items are not vouchered, transfer them to retained storage once they are ready for storage.

Each time a retained sample is removed for analysis, the retained sample package must be opened and re-sealed according to Departmental guidelines and the chain of custody filled out.

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14. Unless there is case information to the contrary, all samples will be processed as if DNA typing is to be performed.
 - a. For possible blood stains, testing positive with a presumptive test for blood, a portion of the stain or swab is submitted immediately for DNA extraction.
 - b. For sexual assault kit swabs with accompanying slides, a portion of the swab is submitted directly for DNA extraction if sperm are found on the slides.
 - c. For possible semen samples without accompanying slides, a portion of the stain or swab is submitted for P30 ELISA.
 - d. For possible saliva samples, a portion of the stain or swab is submitted for amylase testing.
15. If a sample is positive for P30 or amylase, a portion of the stain or swab is submitted for DNA extraction.
16. To prepare samples for DNA extraction, label microfuge tubes with case number, sample identification, and your initials and add one of the following:
 - a. blood - portion of bloodstain or swab about 3 mm square, enough scrapings to give a light straw colored extract, or 3 μ L whole blood
 - b. semen - portion of semen stain about 5 mm square, one third of a swab, or 3 μ L of whole semen
 - c. amylase - portion of stain about 5 mm square or one third of a swab.
 - d. scrapings (of clothing items)

Transfer the microfuge tubes containing the samples to the Chelex extraction refrigerator; add the information to the appropriate extraction worksheet (exemplars, bloodstains, semen stains, or one-step).

When handling each sample:

- a. Use a clean cutting surface for each sample, such as a Kimwipe.
- b. Use clean scissors for cutting each sample.
- c. Use Kimwipes to open sample tubes and blood tubes.
- d. Try not to consume more than 75% of the sample, when possible. Samples may not be consumed in their entirety without prior notification and agreement of the prosecution and defense attorneys; a letter stating this is preferred but a documented phone conversation is adequate.

Transfer the microfuge tubes containing the samples to the Chelex extraction refrigerator; add the information to the appropriate extraction worksheet. Placing a sample on an incorrect Chelex extraction worksheet may lead to the subsequent results being declared inconclusive; see a supervisor if you have any questions about whether a particular sample is evidence or an exemplar.

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D. Evidence examination - weapons

Weapons are frequently submitted for bloodstain or tissue examinations. Be aware that latent prints may be present on the weapon. That possibility should be discussed with the detective handling the case, and a decision made whether processing for prints should be done prior to examinations by the Forensic Biology laboratory.

Weapons can consist of knives, guns, bottles, baseball bats, and numerous other items. Be aware that blood and hairs can flake off from a non-porous surface quite easily.

Weapons should be thoroughly described and examined. Follow the general guidelines for notetaking and evidence examination when examining any weapon.

Firearms must be unloaded and handled safely. If you are unsure about how to handle a weapon, see the Evidence Examination supervisor.

Beware of sharp objects that have penetrated their packaging and/or are loose inside their package and could inflict injury.

Use an Evidence Packaging Worksheet for initial documentation of each item.

1. Describe the general condition of the item, such as presence of rust or fingerprint powder.
2. Measure the physical dimensions of the item. In the case of a knife, this should include description of knife blade such as thickness, shape, cross-sectional shape, length, width, number of blades, brand names, etc. Trace and/or photograph the knife.
3. If necessary, examine under a magnifier or stereomicroscope for traces of fibers, hairs, blood, or other materials of evidentiary value. All trace evidence removed should be documented in the notes using either diagrams and/or photography.
4. Look carefully for directional spatters of blood on weapons. Discuss any directional stains with a supervisor before performing any analyses.
5. Knives, sheaths, or other weapons may be dismantled as necessary for further examination. Always photograph or diagram the intact items before dismantling.
6. All stains **must** be documented by diagrams and/or photography. Note the location of the stain, size, heaviness (soaked into fabric, surface smear, etc.), and any directionality of the stain pattern. Each photograph **must** have a ruler visible in the frame, either a straight ruler or an x, y axis ruler.

If stains do not exhibit directionality, note that as well.

7. After examining a knife or other sharp object, package it in a safe manner for return to the Evidence Unit.

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E. Evidence examination - clothing

Clothing is often submitted to the Forensic Biology laboratory for examination. Follow the general guidelines for notetaking and evidence examination when examining any item of clothing.

Use an Evidence Packaging Worksheet for initial documentation of each item.

Use a Clothing Description Worksheet for documentation of each clothing item.

1. Describe the color or pattern of the item of clothing, fabric type (denim, corduroy, etc.), fabric make-up (cotton, polyester, etc., from label, if present), and size (if marked on item). If an item is submitted inside-out, record this information.
2. Spread out the item of clothing, looking carefully at the front, back, and inside for any possible evidentiary material.
3. Describe the general cleanliness of the item of clothing. Note any defined soiled areas (biological and/or non-biological) on the garment, for example knees, buttocks, or cuffs. Note whether the garment appears freshly washed or not (for example, wet or damp).
4. Describe any damage to clothing which may have evidentiary value. For example, torn or missing buttons, torn or cut areas, damaged areas, or burned areas should be described.
5. Note the presence of any suspected stab holes or bullet holes. Diagram the location, orientation, size, and shape of any holes. Do not overlook the possibility that more than one hole may be caused by a single stab or shot due to the folding of the fabric. When sampling a stain from the area of a suspected stab hole or bullet hole, DO NOT cut through or otherwise disturb the hole. Take a sample away from the existing hole.
6. Carefully examine any pockets, inside and out. CAUTION IS ADVISED WHEN PLACING THE HAND IN A POCKET. An unexpected sharp object could cause serious injury.
7. Carefully examine the waistband, lining, cuff area, and collar area. This may require turning an item inside-out.
8. Examine shoes very carefully. Shoes are less often discarded than other items of clothing. They also have many nooks and crannies which could retain material of evidentiary value. Look carefully in the groove between the sole and upper shoe. Shoes with tongues should be checked for blood which may have fallen between the shoelaces.

Shoes may be dismantled as necessary for further examination. Always photograph or diagram the intact items before dismantling.
9. All stains **must** be documented by diagrams and/or photography. Note the location of the stain, size, heaviness (soaked into fabric, surface smear, etc.), and any directionality of the stain pattern. Each photograph must have a ruler visible in the frame, either a plain straight ruler or an x, y axis ruler.

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F. Evidence examination - clothing (for skin cells)

Clothing items that are scheduled to be examined for the DNA of the individual who wore the item should be processed using the scraping method. This method has been shown to yield more DNA than a cutting or a swab. Follow the general guidelines for notetaking and evidence examination when examining any item of clothing.

Use an Evidence Packaging Worksheet for initial documentation of each item.

Use a Clothing Description Worksheet for documentation of each clothing item.

After the steps described in E., do the following:

ATTENTION: Do not perform this procedure near an air conditioning unit. The preferred site is the Lumalite room.

1. Make sure bench top is covered with paper. Take a piece of white bench paper (paper side up) and fold the edges on each of the four sides up to form a $\frac{1}{2}$ to $\frac{3}{4}$ inch high rim. Tape the corners to maintain the raised edges. For small items the bench paper should be folded in half before doing this. This will serve as a collection device for the scrapings.
2. Use a clean unused razorblade to vigorously scrape the inside of the item, paying special attention to friction areas such as the cuffs and the neck line. Do not scrape too hard or you will produce too much lint. Make sure to cover the complete surface. *If the item also contains biological stains, it is important not to include these areas when scraping.*

The best way of doing this is to fold each item symmetrically, lay it down flat in the collection bin, and scrape the surface. Re-fold and repeat until the complete inside has been scraped. This procedure will produce lint that contains the skin cells; consider this lint as a carrier for the cells.

3. Collect the lint by brushing the fibers into one corner of the bench paper (use razorblade), use tweezers to transfer material into an extraction tube. If no fibers are visible, use the razorblade to scrape the bench paper surface into an extraction tube.

The scrapings should be divided into two parts; one part goes to Chelex extraction. The other part is packaged as a sub-item into an individual envelope and labeled. Place the sub-item into the packaging holding the evidence item from which it was removed.

A Chelex extraction sheet labeled "other evidence" was made and should be used for items to be processed with the modified procedure. This is because the Chelex procedure was modified to give higher DNA yields with scrapings and swabbings taken from hard surfaces such as knife handles and bottles. Since the initial deionized water soaking step was eliminated this modified procedure can not be used for blood stains.

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G. Evidence examination - sexual assault kits

Sexual assault kits are the most common item of evidence submitted to the Forensic Biology laboratory for examination. Follow the general guidelines for note taking and evidence examination when examining any sexual assault kit. Follow the general guidelines for clothing examination when examining any clothing items packaged in a sexual assault kit.

Use an Evidence Packaging Worksheet for initial documentation of each sexual assault kit.

Use the Sexual Offense Evidence Collection Kit Inventory and Clothing Description Worksheet (for testing of underwear or related items) forms for further documentation.

1. Note the name of the victim and information about when and where the kit was collected. Ensure that the name of the victim corresponds to the name listed on the paperwork in the case file.
2. As prompted by the Sexual Offense Evidence Collection Kit Inventory, indicate whether each kit component is sealed, unsealed, present but "not used" (this may require opening of the envelope), or "not submitted". Consecutive item numbers are assigned to only those items that are present and used (e.g. 1A, 1B, 1C1-C2 for swab and slide pairs; use a PM2A, PM2B designation for post-mortem kit items).

PM kits: Inventory kit. Unused envelopes contained within the PM kit do not need any identifying information nor do they need an item number. Any **unused envelopes** in addition to the kit box should subsequently be thrown away. The **used envelopes** will all be labeled with item numbers and pertinent identifying information and subsequently retained in the laboratory, regardless of testing results (label as PM1A, PM1B, etc).

Vouchered kits: Inventory kit. Used envelopes will get an item number (see above) and will also be labeled with the FBI analyst's initials, and date of examination. All the envelopes, whether used or unused should at the least contain the analyst's initials and the identifying case number. See following for testing/retaining of the vouchered kit.

3. underwear or related items contained within kit :

If **underwear or related items** (e.g., pantiliner) are in the kit, examine them using the Clothing Description Worksheet. If stains are observed, underwear are most efficiently documented using the diagrams that are available or by a quick sketch; photography is not generally needed.

Testing of underwear or small clothing items contained within kit :

Visually check underwear for any biological stains. Additionally, observe the underwear under an alternate light source, i.e. Lumalite. If any fluorescing areas are observed, circle for further testing.

If yellowish or fluorescing stain is observed on the underwear, test the stain with AP reagent. If AP (+), make a small cutting and submit the stain for P30 confirmation testing. If a reddish-brown stain is observed on the underwear, test the stain with KM reagent and AP reagent, even if the area does not appear to fluoresce with the aid of the alternate light source.

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If AP (+), make a small cutting and submit the stain for P30 confirmation testing.

In any situation, if AP (-) and the time since date of occurrence is more than 3 months, the analyst should submit a small portion of the area for P30 testing to confirm negative results (over time AP, especially semen samples older than 3 months, can degrade and thus testing will yield a negative AP result).

At this point, be sure that any AP (+) or stains submitted to P30 testing are designated a stain number/letter. Any other stains are not labeled.

If there are no biological stains on the item(s), a diagram is not necessary; write a short description of the item using a Clothing Description Worksheet.

4. The **debris envelope** is used by hospital personnel to collect loose, obvious trace evidence from the victim's body and/or the clothing.

If a debris envelope was used, note the location from which the debris was collected, or note that the location was not given. Since trace evidence examinations are not performed in the Department of Forensic Biology, there is generally no need to examine the contents.

5. The **dried secretions swabs** are used to collect possible biological fluids from areas other than the body cavities. This could include semen from the skin or saliva from bite marks, for example.

If dried secretions were taken, note the number of swabs and the location from which the secretions were collected, or note that the location was not given. Each swab must be individually labeled (1D-1, 1D-2, etc.). See below for further testing procedures:

Testing of dried secretions swabs:

Visually check the swabs for the presence of biological fluids. If the swabs are reddish brown in color, be sure to test with KM reagent, note results. Submit a cutting from each of the swabs present for P30 confirmatory test for semen. If the location from which the dried secretions swabs were taken is known, **this information must be included** on the P30 worksheet. These swabs will all automatically be tested for the presence of amylase.

If the swabs are semen and amylase negative, there is no need to retain the swabs, even if KM+.

If semen positive, make a second cutting from one swab **from each designated area** that is P30 positive. For example, if two swabs were taken from the "perianal" area and two from the "inner thigh", make a cutting of one swab from the "perianal" and one from the "inner thigh" to go on for differential extraction and DNA testing.

If semen negative but amylase positive, check to see if the case has a known suspect. If so, again, make a second cutting from one swab **from each designated area** (as above) that is amylase positive. Submit this cutting to YSTR typing. If the case has an unknown suspect, speak to the kit supervisor and together determine whether the situation deems (based on location of where swab was taken) that testing of the dried secretions swab should be done.

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6. The **fingernail scrapings (or clippings)** are used to collect trace evidence from the fingernails.

Since trace evidence examinations are not performed in the Department of Forensic Biology, there is generally no need to examine the contents. However, requests are occasionally made to examine the fingernail scrapings; discuss with a supervisor before starting any examinations of fingernail evidence. Generally, a Criminalist II or higher will do this type of examination

7. If a **liquid blood exemplar** is present, it is good practice to process the liquid blood by dripping onto a stain card regardless of whether there is a dried blood control present in the kit. Fill out a blank stain card (FB number, victim's name, date, and initials), process the liquid blood in the presence of a witness, allowing the blood to dry (refer to Blood Processing in the Forensic Biochemistry Methods Manual). Insert the dried bloodstain card into a Kapak envelope, seal, and retain in the laboratory. This can then be used as a back up exemplar for the victim in case the dried blood control does not contain enough blood or does not yield enough DNA for testing.
8. If a **dried blood control** is present, it will be retained with other exemplars (i.e. with the stain card processed from the liquid blood contained within a kit). Fill out a blank stain card (FB number, victim's name, date, and initials), attach the dried blood control to it, insert into a Kapak envelope, seal, and retain.
9. If a liquid or dried blood sample was submitted, there is no need to analyze the **saliva sample** or **buccal sample**. However, the saliva sample is retained as an exemplar in the absence of blood samples. Fill out a blank stain card (FB number, victim's name, date, and initials), attach the saliva sample to it, insert into a Kapak envelope, seal, and retain.

If multiple exemplars are present (dried blood control, liquid blood exemplar, saliva/buccal sample) any of them could be submitted for extraction. If present, the buccal sample would be the first choice so as to avoid potential inhibition of PCR by heme degradation products.

10. The **pulled head hair and pulled pubic hair** are collected as exemplars for any future microscopic hair comparisons.

Since trace evidence examinations are not performed in the Department of Forensic Biology, there is generally no need to examine the contents. However, requests are occasionally made to use the pulled head hair for exemplar DNA testing; generally, hair DNA testing is not performed until hair comparisons have been made by the NYPD forensic laboratory.

11. The **pubic hair combings** are used to collect possible trace evidence from the pubic hair of the victim.

Since trace evidence examinations are not performed in the Department of Forensic Biology, there is generally no need to examine the contents.

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- 12A. The three **body cavity swabs (oral, vaginal/penile, and anal)** are used to collect possible biological fluids from those areas; the smears are used for a sperm search. The body cavity swabs and/or dried secretions swabs may also be tested for the presence of condom lubricants.

Testing of body cavity swabs (oral, vaginal/penile, and anal):

Visually check the swabs for the presence of biological fluids. If the swabs are reddish brown in color, be sure to test with KM reagent; note results. The slides accompanying the body cavity swabs are stained using the Christmas Tree staining procedure (refer to Christmas Tree Stain for Spermatozoa in the Forensic Biochemistry Methods Manual, version 4.0) and examined briefly for the presence of sperm; this search need not be exhaustive and should take no longer than five minutes. *A new Criminalist must have the sperm search witnessed for a period of six months and the reviewing Criminalist must add their initials and date to the kit inventory form.*

If sperm is found on a slide, a cutting from the accompanying swabs can go directly for DNA extraction. The analyst at this point should be sure to make an additional cutting from the vaginal or penile swab to submit for amylase testing (be sure to always treat penile swabs as an external area or "stain" for the purposes of P30 and/or amylase interpretations).

If no sperm is found on a slide, submit a cutting from one of each of the sperm (-) body cavity swabs for P30 confirmatory testing. Again, the pertinent swabs (vaginal/penile and dried secretions) will all automatically be tested for the presence of amylase by the P30 ELISA rotation upon completion of the P30 testing.

If the swabs are semen and amylase negative, there is no need to retain the swabs, even if KM+.

Upon completion of P30 testing, interpret results (refer to the Biochemistry Methods Manual) to determine further steps to take. If semen positive, make a second cutting from each P30 positive swab for DNA testing.

If semen negative but amylase positive, check to see if the case has a named suspect. If so, again, make a second cutting from one swab **from each designated body cavity area** that is amylase positive. Submit this cutting to one-step Y STR typing. If the case has no named suspect, retain the amylase positive items(s) for further testing if deemed necessary. See **testing of dried secretions swabs** above for the treatment of amylase positive dried secretions swabs.

- 12B. If the vaginal swabs are semen negative, submit a cutting for FTIR analysis for the presence of condom lubricants. Testing of any other items for the presence of condom lubricants will be at the discretion of the interpreting analyst.
13. The **control envelope** is a concept left over from the days of ABO testing. There is no need to examine the contents.
14. The **questionnaire, body diagram sheets, and instruction sheets** are intended for the use of the medical personnel. If present, make a copy of the questionnaire and/or body diagram sheets for the left side of the case file; leave all originals in the kit. No item number is assigned if present.
15. Photographs and/or other paperwork are not supposed to be included in a kit. If present, make a note of it; leave them in the kit. No item number is assigned if present.

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16. Once all serology testing is completed on a kit, **it should be promptly dealt with**. Perform additional cutting all at once for time efficiency. Additionally, return the sexual assault kit to the Evidence Unit personnel for storage in the “pending report review” area. These tasks should be done within seven days of the date of testing for the last P30, amylase, and/or FTIR results that are obtained.

If the kit is negative for semen, and there is no other evidence to examine, the case is finished and the report may be written.

If the kit is negative for semen, and there is other evidence to examine (see Scheduled Analysis), the case file must be replaced in the “to be examined” stack. See the evidence exam supervisor to ensure this gets done properly. The FB number is added to the “evidence to be assigned” sheet; the evidence sign-in supervisor modifies Paradox to reflect the change in the status of the case.

If the kit is positive for semen, and was examined by a Crim I, it needs to be transferred to an interpreting analyst (this process is not generally necessary if the kit was examined by a Crim II or higher; that criminalist will generally keep the case file for DNA testing and interpretations). Contact the next Crim IV on the Kit Transfer Worksheet to determine who will be the assigned IA for the file. Fill this information in on the “to be assigned” sheet. *This needs to be done prior to submission to Chelex so the assigned Criminalist II, III, or IV will receive subsequent paperwork.*

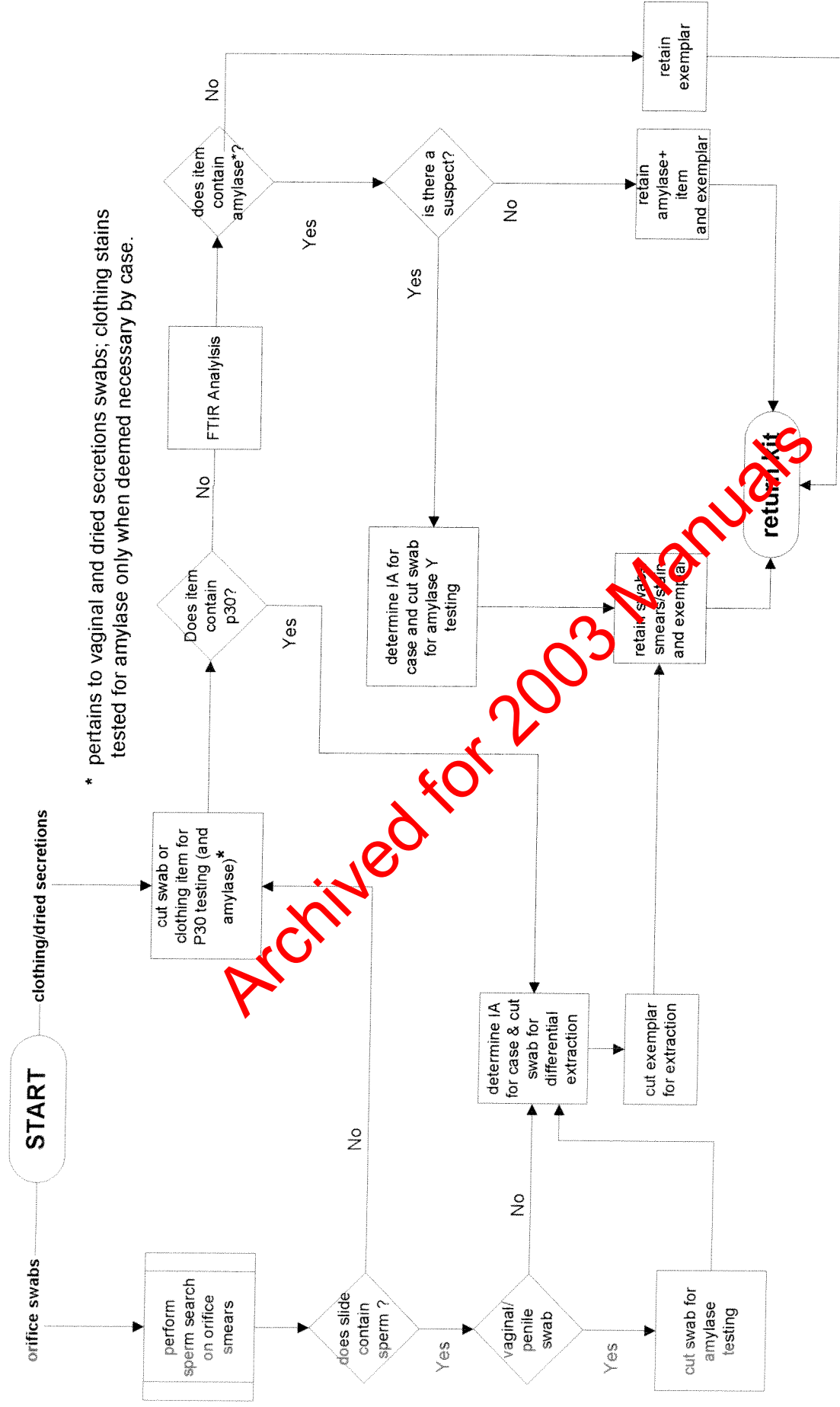
At this time the Criminalist should make a cutting of the victim’s exemplar to submit for testing for DNA comparisons to any P30/amylase positive swabs submitted for DNA testing.

17. The person who examined a kit is responsible for returning the kit to the Evidence Unit personnel for storage in the “pending report review” area (vouchered kit) or transferred to retained storage (post mortem kits) upon completion of P30, amylase, and/or FTIR testing.

For **post-mortem kits**, all used envelopes containing post mortem items are retained; the kit box and any unused envelopes are discarded.

18. Retained items may remain in the possession of the interpreting analyst during any further testing. Once testing is complete, they must be properly sealed and transferred to retained storage.

Sexual Assault Kit Processing Flowchart



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H. Evidence examination - non post-mortem exemplars

Exemplars are often submitted to the Forensic Biology laboratory for analysis. Follow the general guidelines for notetaking and evidence examination when examining any exemplar item.

An exemplar has as part of its nature some sort of proof that the sample in fact came from the person named. For a "true" exemplar such as a blood sample or an oral swab, that is the form from the MLI saying that he/she obtained the sample, the form from the NYPD that the person signs, voucher or other NYPD paperwork, or the DAO forms saying the same thing. For a "pseudo-exemplar" such as a bottle that the suspect was seen handling, that is the word of a law enforcement person.

Use an Evidence Packaging Worksheet for initial documentation of each item.

1. For a blood sample, follow the bloodstain preparation section of the Biochemistry Manual. Prepare the sample for DNA extraction as described in the Evidence examination - general guidelines, labeling the sample with the name or initials of the individual.
2. For an oral swab, document the sample using a Swab Examination Worksheet. Prepare the sample for DNA extraction as described in the Evidence examination - general guidelines, labeling the sample with the name or initials of the individual.
3. For a cigarette butt "pseudo-exemplar", document the sample using a Cigarette Butt Examination Worksheet. Prepare the sample for DNA extraction as described in the Evidence examination - general guidelines, clearly labeling the sample to indicate that it is not a "true" exemplar. For example: cigarette butt "smoked by deft". Since this sample is considered an exemplar, it must be extracted on an exemplar Chelex sheet.
4. For other sorts of "pseudo-exemplars", such as chewing gum, bottles, cups, and the like, document as for an evidence item. Cut or swab the item as necessary; it is not necessary to perform amylase or other serology tests on an item submitted as a "pseudo-exemplar". Prepare the sample for DNA extraction as described in the Evidence examination - general guidelines, clearly labeling the sample to indicate that it is not a "true" exemplar. For example: gum from "trash in interview room", bottle that "suspect drank from". Since this sample is considered an exemplar, it must be extracted on an exemplar Chelex sheet.
5. Retain "true" exemplars and "pseudo-exemplars" since it is possibly that further testing may be required in the future if a CODIS match is involved.

For blood samples, retain the staincard and return the empty tube(s) along with the packaging to the Evidence Unit.

For a single oral swab, retain the swab and return the packaging. For multiple oral swabs, retain one and return the rest along with the packaging to the Evidence Unit.

For "pseudo-exemplars", retain the cutting or swabbing and return the item along with the packaging to the Evidence Unit.

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I. Evidence examination - condom

Condoms are often submitted to the Forensic Biology laboratory for examination. Follow the general guidelines for notetaking and evidence examination when examining a condom.

Use an Evidence Packaging Worksheet for initial documentation of each item.

1. Describe the general condition of the condom (laid out flat, wadded up), color, and any trace evidence if present. If the condom was submitted "tied off", document it as received then cut open for sampling.
2. If applicable, any stains **must** be documented by diagrams and/or photography. Note the location of the stain, size, heaviness (surface smear, etc.), and any directionality of the stain pattern. Each photograph must have a ruler visible in the frame, either a plain straight ruler or an x, y axis ruler.
3. Note whether fluids are present (liquid or dried). If the condom is found to be wet when opened, the item should be allowed to air dry after samples are taken. The item should not be heated or exposed to direct sunlight. If the item has become foul smelling, allow it to dry in the hood with the fan running.
4. Separately swab both the "inside" and "outside" of the condom, using one or more swabs for each surface. Since it usually can't be conclusively determined which surface is which, use quotes to describe the "inside" and "outside".
5. Test both sets of swabs for the presence of blood, semen, and/or amylase as needed. Since the presence of a victim's DNA on a condom can often be important, it may be necessary to perform DNA testing on a sample from a condom even if no blood, semen, or amylase is detected.

Do not sample a condom by cutting a portion of the condom.

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IV. Case management

Case management is the process by which an analyst shepherds the evidence samples through the testing process. It is the responsibility of the analyst to ensure that samples receive the necessary analysis, analytical results are evaluated promptly, any analytical problems resolved, the results interpreted, and the final report written - all within the time frame dictated by the target date.

A. Rotation system

1. Many of the processes described in the following sections are handled by the rotation staff and not the interpreting analyst. It is the responsibility of each rotation analyst and/or rotation supervisor to review the paperwork and/or data for completeness and accuracy. Any discrepancies or omissions need to be corrected by the analyst who performed the test or the supervisor who reviewed the data.
2. Each rotation analyst must make sure that the case number, initials of the interpreting analyst, target date, etc. are listed on the paperwork as needed.
3. One goal of the rotation system is to rapidly and efficiently extract, quantify, and amplify samples. Automatic submission of sexual assault samples to extraction and "autoaliquot" for amplification are two examples of this. Workflow and paperwork is coordinated by the supervisors and distributed to the interpreting analysts.

B. Case assignment

Case management begins as soon as an analyst picks up a file for evidence examination.

1. Cases are self-assigned by the analyst by taking the next case in target date order. Review the "to be assigned" sheets in the binder (evidence, kits, or vouchered blood) for the case with the nearest target date and obtain the casefile. Enter your initials in the "EA" column as the examining analyst. If the "IA" column is blank, enter your initials there as well and fill in the initials of your supervisor in the appropriate column. If the "IA" column already has initials, you will be examining additional evidence on a pre-existing case.
2. Review the casefile (see evidence exam - general guidelines).

If this is additional evidence or an exemplar on a previously reported case, evaluate the earlier work.

- a. It may be necessary to submit earlier DNA extracts for additional testing.
 - b. If an exemplar is submitted, type it in all DNA systems necessary for comparison.
3. Obtain the evidence from the evidence storage area and sign the chain of custody.

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C. Initial analyses

1. Examine the evidence (see evidence exam).
2. Submit samples for P30, amylase, or DNA extraction as needed. Ensure that “true exemplar” samples and “pseudo-exemplar” samples are submitted on exemplar Chelex sheets and that evidence samples are submitted on the appropriate non-exemplar Chelex sheet.
3. At this point, a draft report should be started by the analyst. Fill in the top block, evidence received section and the signature block at a minimum. Depending on the case, it may be possible to start work on the examinations section (tables) and the disposition section as well.
4. A case tracking worksheet should also be started by the analyst. These worksheets allow for tracking of samples, including analytical results, dates of submission for the different tests, etc.
5. When P30 or amylase results are returned to you, review the paperwork for completeness and accuracy; any discrepancies or omissions need to be corrected by the analyst who performed the test. Check especially for correct FB number, swab description or stain description.

If a sample is negative for P30 or amylase, but the facts of the case indicate a condom may have been used, a portion of the swab should be retained for future testing.

The P30 and amylase results must be properly interpreted; review the interpretation guidelines in the Biochemistry Manual if necessary.

If P30 results are less than but close to the 2 ng level (for body cavity swabs) or the 0.05 level (for other samples), a slide should be prepared from the sample and a sperm search done.

6. When Chelex and QuantiBlot results are returned to you, review the paperwork for completeness and accuracy; any discrepancies or omissions need to be corrected by the analyst who performed the test. Check especially for correct FB number, swab description or stain description. In addition, review all the QuantiBlot results for your case.
 - a. Does the extraction negative contain DNA? If so, it should be re-submitted for QuantiBlot; if it still contains DNA the extraction must be repeated.
 - b. Do the neat and 1/10 dilution results correlate with each other? If not, resubmit the sample for QuantiBlot.
 - c. Is the DNA concentration too high? If so, submit additional dilutions for QuantiBlot.
 - d. Was there a problem with colored impurities preventing a determination of the DNA concentration? If so, the sample may need cleaning up using a Microcon followed by QuantiBlot.

If re-quantitation is needed, make sure it is done promptly so as not to hold up the extraction set. This is generally taken care of automatically by the QuantiBlot rotation.

See the QuantiBlot procedure and trouble-shooting in the STR Manual, if necessary.

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3. Once initial DNA results are obtained (generally Cofiler results), compare them to the LINKAGE database for potential matches. This may require you to determine the DNA profile(s) present in a mixture, and may require consultation with a supervisor.

There are two ways to perform the comparison with LINKAGE; either or both may be used. It is possible for potential matches not to be found using LINKAGE especially when partial profiles are being considered; this is due in part to the inability of LINKAGE to handle more than two alleles per locus. *Any potential case-to-case matches not identified in LINKAGE will be picked up by LDIS once the profile is entered there.*

- a. Scan LINKAGE visually for your profile.

Use this approach for profiles that include a D3S1358 result. Place the cursor in the D3S1358 field and press Ctrl-Z (zoom), then enter your D3S1358 value (e.g. 15 space 16, or 15) and click on OK. This will take you to the part of LINKAGE where all profiles beginning with that value reside. Move the cursor to the D16S539 column, then page/scroll down to see if your D16S539 value is represented. Repeat for each locus until you discover a potential match or determine there is none.

It is not necessary to scan the partial profiles listed at the beginning of LINKAGE.

- b. Perform a query in LINKAGE

This approach may be used for full or partial profiles. Under the File menu, select "NEW", then select "QUERY"; select g:\users\fbiology\database\LINKAGE as the database to query. Place a checkmark in **all loci**, FB # and Backlog #. Type in the desired values (e.g., some or all of the Cofiler alleles). Enter values for as many or as few loci as wanted; understand, however that entering few may yield a large number of potential matches to evaluate and entering many may miss a potential match that is lacking one or more loci. It may be helpful to choose rarer alleles when performing a query. Run the query by pressing F8, clicking on the "blue gears" on the menu bar, or choosing "Run Query" from the Query menu.

When entering values for the DNA alleles, do not use commas or more than one space between alleles, as that will cause a potential match to be missed. Also, it is necessary to type "9.3/10" for THO1 alleles 9.3 and 10, or a potential match will be missed.

If a sample from your case matches a sample from a previous case, consult with your supervisor and follow the current local hit notification guidelines.

D. DNA typing and case evaluation

1. Once acceptable QuantiBlot results are available, the DNA samples requiring amplification must be aliquotted. This is generally taken care of automatically by the STR rotation for the initial extraction sets of evidence for Cofiler, exemplars for Cofiler, and exemplar duplication samples for Profiler. Any additional testing, reamplifications, etc. are taken care of by the IA.

- a. Check the amplification paperwork to see if the extraction set already has an amplification worksheet started. If so, add your samples to that worksheet.

If there is no amp worksheet for this extraction set, start one.

- b. Fill out the amplification worksheet, listing the samples and their concentrations. Do not fill out the "tube label" section - that will be done by the person setting up the amplification.
 - c. Aliquot your samples and place in a labeled rack in the freezer in the set-up room. If you are starting an amplification worksheet for an extraction set, aliquot the extraction negative as well.
 - d. Sign the DNA extract tracking form. Note the purpose the aliquot(s) were taken for (Cofiler, Profiler, Y's, etc.).

Aliquot samples promptly so as not to hold up the extraction set.

2. Once amplification and DNA typing results are returned to you, review the paperwork for completeness and accuracy; any discrepancies or omissions need to be corrected by the analyst who performed the test. Check especially for correct FB number, swab description or stain description. In addition, review all the electropherograms and tables for your case.

- a. Did the positive control, amplification negative, and extraction negative (if applicable) give the expected results? If not, the samples may need to be re-amplified or even re-extracted.
 - b. Did your samples amplify? If not, it may be necessary to re-amplify with more DNA extract or less DNA extract (if PCR inhibitors are suspected), or perform a microcon procedure.

In some situations, it may be necessary to start the DNA analysis over at the DNA extraction step or consider organic extraction.

- c. Was a partial DNA profile detected in your sample? If so, it may be necessary to perform further analysis.

A complete DNA profile may be obtained by re-running the sample with more amplification product or a longer injection time. If so, add it to the list of samples to be re-run and specify how much amplification product should be run or increased injection time. Racks to hold samples to be re-run are in the amplified DNA refrigerators. This is

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generally taken care of automatically by the STR rotation.

Alternatively, it may be necessary to re-amplify with more DNA extract or less DNA extract (if PCR inhibitors are suspected), or perform a microcon procedure.

- d. Was your sample over-amplified? If so, add it to the list of samples to be re-run and specify how much amplification product should be run. Racks to hold samples to be re-run are in the amplified DNA refrigerators. This is generally taken care of automatically by the STR rotation.

Alternatively, submit the sample for amplification again with less DNA extract.

See the STR Manual if necessary.

- e. Were your samples properly edited? Evaluate any editing that was done on your samples; examine the electropherograms for artifacts, over-amplification, or other problems. If the sample was not edited properly, ask the analyst to re-edit and reprint the electropherograms and table; make sure the new editing is added and dated on the editing worksheet.
- g. Is there a mixture of DNA in your sample? If so, it may require duplication in a DNA system (the same one or a different one).

See the STR Manual concordant analyses and/or interpretation sections if necessary.

- h. Are there other samples that may require duplication? If so, identify those samples and start the appropriate steps (i.e. re-extraction or re-amplification).

See the STR Manual concordant analyses section if necessary.

- i. Do the DNA results make sense in the context of the case and/or sample? If not, there may have been a sample mix-up at the aliquot, amplification, or DNA typing steps. Discuss with your supervisor.

Review the DNA typing paperwork as soon as possible so that ample time remains to deal with any analytical problems.

See the STR procedures and trouble-shooting in the STR Manual, if necessary.

- 3. Once initial DNA results are obtained (generally Cofiler results), compare them to the DNA LINKAGE database for matches. If a sample from your case matches a sample from a previous case obtain that casefile and discuss with your supervisor.
- 4. Not all samples require DNA analysis in all available DNA systems; in fact, the majority of samples require only Cofiler. Generally, a minimum of samples should be typed in Profiler Plus and/or Y's, for the generation of statistics or for CODIS purposes.
 - a. If there is only one Cofiler DNA profile in the case, choose one sample from each type of evidence for additional typing. For example, one stain from suspect's clothes and one

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stain from a weapon. Crime scene samples matching the victim do not generally require additional systems.

- b. If there are different Cofiler DNA profiles (more than one person) in the case, choose at least one sample representative of each DNA profile for additional typing.
 - c. For semen samples, choose one clean sperm fraction (or the mixture that is most easily interpreted) for additional typing.
 - d. For epithelial cell fractions, the Cofiler DNA profile is generally sufficient.
 - e. If DNA typing was being done as part of a crime scene reconstruction, the Cofiler DNA profiles may be sufficient. Discuss with your supervisor.
5. The DNA system chosen for additional testing may depend on the nature of the case.
- a. Were the only DNA alleles detected in a semen-containing sample those of the victim? If so, amplification using Y STR's may be needed.
 - c. Does it appear that there are multiple semen donors? If so, amplification in Y's may be needed.
 - d. Does the case involve a body identification of a male, and are there paternal relatives available for testing? If so, amplification using Y STR's may be needed.
6. Ensure that the laboratory concordance policy is satisfied. *See the STR procedures in the STR Manual, if necessary.*
7. Prepare a PCR Statistics sheet if necessary. Enter all alleles that meet the allele calling criteria, excluding off-ladder alleles such as "14.x" and ">30".
8. Prepare an LDIS/LINKAGE case evaluation form, if necessary. Follow the guidelines listed for eligible profiles to determine how many (if any) alleles to enter at each locus.
9. Do a review of the file to ensure that all the necessary paperwork is present and is organized in a logical format.
10. Finalize the report. Before submitting it to a supervisor for review, make sure the report is logical, consistent, accurate, and complete.

V. Reports

A. General guidelines

1. A report is the last step in a case. It brings together all of the analytical results and conclusions found in the case notes, in an easily readable style. Overly technical terminology or misleading statements must be avoided. The conclusions in each report must be supported by the analytical data.
2. Regardless of the target date, a report should be written and submitted to a supervisor for review no later than seven days after the last analytical results are available. Each supervisory level has an additional seven days to review the case and forward it to the next reviewer; if additional analytical work is needed the case returns to the analyst. Each reviewer must date and initial the scheduled analysis sheet.
3. DNA reports must include the following:
 1. case identifiers
 2. description of evidence examined
 3. description of the methodology
 4. loci tested
 5. results and/or conclusions
 6. an interpretive statement, either quantitative (statistics) or qualitative
 7. date issued
 8. disposition of evidence
 9. signature and title of person(s) accepting responsibility for the content of the report

These requirements are met in the sections of the report: top block, SUMMARY, EXAMINATIONS, EVIDENCE RECEIVED, DISPOSITION, and signature block.

Additional reports may not require all of the above.

4. Template reports are available for use in the departmental computer network directories and should be used. These template reports have many pre-written statements which are applicable to most cases and save valuable time by eliminating the need to write the same sentences over and over. There are different template reports depending on the DNA tests used (DNA cases, suspect cases, kinship cases); make sure you use the correct template for the type of case you have.

B. Evidence reports versus suspect (exemplar) reports

1. The DNA typing of evidence is often completed long before a suspect is identified or an exemplar is provided from an identified suspect. Sometimes, more than one suspect is developed on a case, such as when the initial suspect has been eliminated (especially with pattern cases). It is also possible for a suspect whose blood was collected for one investigation to end up linked to a totally different case. *For these reasons, an evidence report stands alone, without inclusion of any suspect DNA typing results.*

The evidence report describes the examination of any evidence that was submitted, DNA

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typing results from the evidence and victim(s), and the statistical statements of the DNA typing results of the evidence.

The evidence report may have the name, arrest number and/or NYSID number of an identified suspect in the top block of the report; a cross-reference to the FBxx-S number is included if one exists.

2. If an evidence case is determined to be linked to another evidence case or pattern, *the link between the cases is described in the evidence report(s)*. List all the linked previous cases (case number, victim's names, and all report dates) in the summary and include the pattern designation if known.
3. If a suspect is determined to be linked to a case or pattern, *the link between the suspect and the evidence is described in the suspect report*. If the suspect is linked to only one case, the precinct and complaint number information can be included; if linked to a pattern, leave that information out. List all the linked previous cases (case number, victim's names, and all report dates) in the summary and include the pattern designation if known.

The table of DNA results is prefaced by the statement **"This is a summary of allelic typing results; see previous report(s) for further details"** and includes the DNA profile of the suspect along with a summary of the DNA typing results from the linked previous cases. Generally, it is sufficient to pick the single best example from each linked case (i.e., the cleanest sperm cell fraction or unmixed bloodstain); it is not often necessary to list all the samples typed in the evidence cases. If the evidence results are clean types, the DNA profile of the victim(s) may not be necessary.

A matching suspect report is dated later than the evidence case (even if just one day) and is issued separately from the evidence report describing the DNA typing of the evidence.

4. If a suspect does not match any previous cases, a report is written stating that. If a suspect is known to be excluded from a particular case (for example, after Cofiler results) there is no need to hold up the suspect report for the conclusion of the evidence report. The District Attorney's Office should be notified and the suspect report issued.
5. If a suspect is subsequently found to match a case, an additional report is issued using the format described in 3 above.
6. For a kinship (paternity, maternity, etc.) case, a single report is generated using the kinship report template. Both FB numbers are used on the report and a copy is put into each case file.
7. Since the statistical statements are found in the evidence report, and are associated with the DNA profiles found on the evidence, suspect reports do not generally have any statistical statements of their own.

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C. Top block

1. Each report will have specific identifying information in the top block. Not all of the following are available for each case. The information may vary depending on the case type and/or whether the case is an NYPD submitted case.

- a. report date - the date the report was *written*
- b. name of deceased or victim
- c. case number
- d. ME number
- e. physician that conducted the autopsy and autopsy date
- f. name of suspect
- g. arrest number and/or NYSID number of suspect
- h. precinct of incident
- i. NYPD complaint number

With this information, the medical examiner, detective, or assistant district attorney that receive the reports will know where to file them.

2. If an additional report is generated, this will be noted immediately prior to the SUMMARY section using the following standard statement:

ADDITIONAL REPORT

This is an additional report. For previous examinations, evidence submitted, and disposition, see report(s) dated (insert date or dates of prior reports).

3. If an amended (corrected) report is generated, this will be noted immediately prior to the SUMMARY section using the following standard statement:

AMENDED REPORT

This is an amended version of the report dated (insert date of original report). *An additional sentence describing the nature of the correction must be included.*

An amended report should be exactly like the original report; the only difference is the corrected section(s).

4. In those instances when additional reports are generated for a particular case, the most recent report will be signed by the analyst who works on that portion of the case. The SUMMARY section should generally discuss only the new analyses. If the new data includes additional genetic testing, the report may be cumulative, including the new genetic testing results plus the genetic testing results from past reports.
5. The body of a report will have three or four sections, depending on the complexity of the case. For examples of reports, see completed case files beginning in 1998 and later.

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D. Summary of results

The summary section contains results and/or conclusions and the interpretive statement (quantitative or qualitative).

The summary should be a brief synopsis of the analytical results; it should **answer the questions** that were posed by the submission of the physical evidence, such as: Is there blood? Could it be the victim's? Are there samples foreign to the victim? Is there semen? Was the DNA profile of the semen donor determined? Are there any other body fluids?

The summary of a suspect (exemplar) file states whether or not the suspect matches any previously analyzed cases.

Before you write your summary, ask yourself **"WHAT DOES READER OF THE REPORT NEED TO KNOW?"** Then write a short, clear summary answering those questions. The summary should give all of the answers in a simple manner; save all technical explanations for the EXAMINATIONS section.

The template reports contain many pre-written sentences to guide you in your explanation and interpretation of results.

1. For the majority of cases, the following type of summary is sufficient:

a. Human blood was found on the knife.

PCR DNA testing was done; the blood on the knife could not have come from the victim, Jane Doe. This combination of DNA alleles would be expected to be found in approximately:

b. Human blood was found on the knife handle and knife blade.

PCR DNA testing was done; blood from two people was found.

c. Semen was found on the vaginal swab, based on the presence of P30 antigen and sperm.

PCR DNA testing was done; the DNA profile of the semen donor was determined. This combination of DNA alleles would be expected to be found in approximately:

d. Amylase was found on all three cigarette butts found in the "living room."

e. No blood was found on the pants or shoes taken from the "suspect".

f. The standard forensic paternity conclusions.

2. Many DNA results can also be dealt with in the SUMMARY section:

a. For samples that do not yield enough DNA for typing, list them.

The following sample(s) had an insufficient amount of DNA; therefore, the samples

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could not be typed:

- b. For samples where typing was attempted with no alleles detected, list them.

PCR DNA typing was attempted on the following sample(s), but no alleles were detected. Therefore, no conclusion can be drawn regarding the DNA profile of the blood / semen donor:

- c. For samples that were extracted but not typed (such as multiple samples from a single item), list them.

The following sample(s) were extracted but did not have PCR DNA typing:

- d. For samples with no foreign DNA (intimate samples such as body swabs, underwear, etc.), list them.

PCR DNA typing was done on the following sample(s); all of the alleles seen were the same as the alleles of the victim. Therefore, no conclusion can be drawn regarding the DNA profile of the semen donor:

3. Complicated or unusual cases involving mixtures of body fluids, multiple contributors, etc. can be difficult to write. The template reports are a place to start, and many valuable insights can be gained by reading previous reports covering similar cases. It is a good idea for each analyst to maintain a file of his or her complicated reports for future reference.
4. For cases where there are similar items but can be differentiated by color or other descriptions:
- a. Human blood was found on the blue shirt. No blood was found on the green shirt.
- b. Human blood was found on the samples from the "doorway" and "hall."
5. Avoid the exclusive use of voucher and item numbers, since that forces the reader to look elsewhere to find out what is being described. However, voucher and item numbers may be used in conjunction with the item description if necessary to avoid confusion. If the collecting officer used notations to identify samples, these may be useful to differentiate between many items.

For example, if the items need to be identified by item and/or voucher numbers:

- a. Human blood was found on the shirt (item 1). No blood was found on the other shirt (item 2).
- b. Human blood was found on the shirt (item 1, voucher E111111). No blood was found on the other shirt (item 1, voucher E111112).
- c. Human blood was found on samples "S1" and "S2".
6. If items were removed from an object, location or person, it is useful to put that information in the summary. Since you don't have personal knowledge of this, use quotation marks.

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Remember that quotation marks means you are copying EXACTLY information as it is written elsewhere, including any misspellings:

- a. Human blood was found on the sample taken from the "bedroom door."
- b. Human blood was found on the shirt taken from "the defendant."

If there is conflicting information in the voucher, request for laboratory examination, and/or crime scene report it may be impossible to determine which is correct; in that case, do not include any information.

- 7. If when examining evidence, you collect trace evidence (hairs, fibers, etc.), they should be mentioned in the summary:
 - a. Hairs and/or fibers were collected from the shirt. They were packaged separately and returned with the shirt.
 - b. Glass fragments were found on the sneakers. They were packaged separately and returned with the sneakers.
- 8. All items submitted must be mentioned in the report. If nothing of evidentiary interest was found on an item:
 - a. No blood was found on the shirt or pants.
 - b. No semen was found on the vaginal swabs, oral swabs, or rectal swabs from the victim.
- 9. If items were not examined, the items should be mentioned. If necessary, the reason for not examining may be mentioned.
 - a. The "clothes from victim" were not examined.
 - b. The shirt was submitted wet, making it unsuitable for DNA analysis.
 - c. The knife was not examined, pending fingerprint examinations.
- 10. Quantitative (statistical) statements are often part of the summary. They are calculated for probative samples when:
 - a. The sample is apparently unmixed.
 - b. The sample appears to be a mixture of two components and the source of one component is known (i.e. when epithelial cells are present in the sperm cell fraction).
 - c. If there is a large difference in peak heights between the major and minor components and the genotype of the major component is easily inferred.
 - d. Statistics are not calculated for expected inclusions such as epithelial cells from a swab giving a profile consistent with the donor of the swab.

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See the STR Manual if necessary.

11. After you write a summary, review it carefully. Does it answer all of the questions? Is it clear? Are all submitted items accounted for?

See the Report Procedures, Interpretation of Results in Report, Interpretation of Complex Autosomal STR Results, and Interpretation of Y STR Results in the STR Manual if necessary.

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E. Examinations

The examinations section contains a description of the methodology, the loci tested, tables of results, and may also contain re-statements or elaborations on results and/or conclusions.

This section is used when there are analytical results, such as DNA typing, that need a more detailed presentation than is used in the summary. In most cases, this will take the form of a table comparing evidence typing results with the blood of the victim and/or suspect.

The section consists of four parts: a standard explanatory statement, the table of results, a key to explain any symbols in the table, and an interpretation following the table.

1. Standard explanatory statements are in the template reports; make sure you use the correct explanatory statement for the type of genetic markers you used. The explanatory statements consist of several paragraphs; choose those that apply to the results in the case, deleting any paragraphs or loci that don't apply.

The explanatory statement can be further modified to reflect the analyses performed in a specific case, if necessary.

The explanatory statement is also used for all suspect reports, whether DNA typing data is included or not.

2. The table(s) of results lists those genetic marker results **used to draw the important conclusions** of the case. The format of the table(s) depends on the complexity of the results.

If there were multiple extractions of a sample, put only the results you are drawing a conclusion from in the table. For example, if the first extraction of a vaginal swab did not yield a male profile, but the second did, just use those results in the table.

For Y tables, list those samples that were amplified and gave results used to draw a conclusion. There is no need to list samples not tested, those that were NEG, or to list a female victim.

For differential extractions, only list in the tables those fractions that yielded useful STR alleles used to draw important conclusions. For example, a SR that was never tested need not be listed in the table (or in the SUMMARY).

- a. *For a simple case:*

ITEM	D3S1358	D16S539	Amel	THO1	TPOX	CSF1PO	D7S820
Jane Doe	15, 16	11, 12	X	6, 7	8, 9	10	8
shirt from "suspect"	15, 16	11, 12	X	6, 7	8, 9	10	8

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- b. For many different items and/or multiple stains on one item it may be necessary to identify different stains on clothing by their location on the item. This is important information that can be used to help interpret results.

ITEM	D3S1358	D16S539	Amel	THO1	TPOX	CSF1PO	D7S820
Jane Doe	15, 16	11, 12	X	6, 7	8, 9	10	8
shirt from "suspect"							
stain 1A, left sleeve	15, 16	11, 12	X	6, 7	8, 9	10	8
stain 1B, collar	15, 16	11, 12	X	6, 7	8, 9	10	8
pants from "suspect"							
stain 3A, left leg	15, 16	11, 12	X	6, 7	8, 9	10	8
stain 3B, left cuff	15, 16	11, 12	X	6, 7	8, 9	10	8

- c. In a case where there are stains of different types, the table could also be arranged so that items of the same type are together:

ITEM	D3S1358	D16S539	Amel	THO1	TPOX	CSF1PO	D7S820
Jane Doe	15, 16	11, 12	X	6, 7	8, 9	10	8
shirt from "suspect"							
stain 1A, left sleeve	15, 16	11, 12	X	6, 7	8, 9	10	8
stain 1B, collar	15, 16	11, 12	X	6, 7	8, 9	10	8
bedspread							
stain 3A	18	12, 13	X, Y	7, 8	8, 9	10, 11	7, 9
stain 3B	18	12, 13	X, Y	7, 8	8, 9	10, 11	7, 9

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- d. *Alternatively, there could be separate tables altogether, with each type represented in its own table:*

TABLE 1 -

ITEM	D3S1358	D16S539	Amel	TH01	TPOX	CSF1PO	D7S820
Jane Doe	15, 16	11, 12	X	6, 7	8, 9	10	8
shirt from "suspect"							
stain 1A, left sleeve	15, 16	11, 12	X	6, 7	8, 9	10	8
stain 1B, collar	15, 16	11, 12	X	6, 7	8, 9	10	8

TABLE 2 -

ITEM	D3S1358	D16S539	Amel	TH01	TPOX	CSF1PO	D7S820
Jane Doe	15, 16	11, 12	X	6, 7	8, 9	10	8
bedspread							
stain 3A	18	12, 13	X, Y	7, 8	8, 9	10, 11	7, 9
stain 3B	18	12, 13	X, Y	7, 8	8, 9	10, 11	7, 9

- e. *Complex samples, such as mixtures, may be more clearly presented in a table separate from other samples in the case:*

TABLE 3

ITEM	D3S1358	D16S539	Amel	TH01	TPOX	CSF1PO	D7S820
Jane Doe	15, 16	11, 12	X	6, 7	8, 9	10	8
vaginal swab							
swab remains	15, 16, 17, 18	11, 12	X, Y	6, 7, 9.3	8, 9, 10, 12	10	8, 9, 11

3. The Forensic Biology Department has prepared a standard set of symbols to be used in the key to genetic marker tables. See the STR manual if necessary.

Additional symbols may be necessary for unusual circumstances.

4. After the table, an explanatory interpretation section is needed to explain conclusions, especially in cases with lots of stains or semen evidence. This may contain re-statements or elaborations on results and/or conclusions previously made in the summary.

For a simple case:

The stain on the shirt had the same DNA alleles as the victim, Jane Doe. Therefore, the stain

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could have come from her.

For cases involving mixtures:

A person can have a maximum of two DNA alleles at a given DNA locus. Since more than two DNA alleles were seen in at least one DNA locus, a mixture of DNA is present in the sperm cell fraction of the vaginal swab. A minimum of two people must have contributed to this sample.

Many of these DNA alleles are the same as the DNA alleles of the victim. Assuming a single semen donor, she could be the source of those DNA alleles and could be a contributor to the mixture. However, some of the DNA alleles are foreign to the victim and could not have come from her. These DNA alleles must have come from the semen donor.

For cases with amelogenin results:

The blood stains from the shirt came from a male.

For cases with Y STR results:

A mixture of DNA was found on the sperm cell fraction of the vaginal swab. The Y STR results are consistent with a single semen donor; therefore, the mixture of DNA in the sperm cell fraction of the vaginal swab is consistent with being from a male and a female.

The Y STR results show that there are two semen donors.

For inconclusive results:

The blood stain on the chest of the shirt gave inconclusive typing results. No conclusion can be drawn concerning its source.

No DNA alleles foreign to the victim were detected. Therefore, no conclusion can be drawn regarding the source of the semen.

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F. Evidence received

This section will list all evidence received, whether from a submitting agency or from an autopsy. The post-mortem items from autopsy are given PM numbers to differentiate them from other evidence.

Make sure that all items signed into the laboratory, whether or not you examined them, are listed in the EVIDENCE RECEIVED section.

The date the evidence was received into the laboratory is also included. It is only necessary to give the date once for each voucher or group of PM evidence.

1. Using the paperwork and your notes, list the item numbers, voucher numbers, date received, and a description of the item. If items were removed from an object, location or person, it is useful to put that information in the description. Since you don't have personal knowledge of this, use quotation marks. Remember that quotation marks means you are copying EXACTLY information written elsewhere.

ITEM	VOUCHER	DATE REC'D	DESCRIPTION
1	E111111	4/15/99	sample from "bedroom door"
2	"		knife
1	E222222	4/21/99	shirt from "suspect"
2	"		pants from "suspect"
3A-B	"		socks
PM 1	---	4/10/99	blood sample from victim
PM 2-3	---		vaginal and rectal swabs

2. If there are several items submitted as one, give them all individual identifiers, both in your notes and in the report.

ITEM	VOUCHER	DATE REC'D	DESCRIPTION
1A-C	E111111	4/15/99	three cigarette butts

On the voucher, the cigarette butts were identified as "item 1". Upon opening the package, there were three; they were then given the identifiers 1A-C.

3. If there are items submitted that weren't included on the voucher, they still need to be listed in the evidence section:

ITEM	VOUCHER	DATE REC'D	DESCRIPTION
1A-B	E111111	4/15/99	shoes
2A-B	"		socks (not listed on voucher)

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4. If upon opening the items it was discovered that the description on the voucher was incorrect (for example, a tank top was submitted, but the voucher says "T-shirt"), put the correct description in the EVIDENCE RECEIVED section.
5. If upon opening the items it was discovered that an item was missing, they still need to be mentioned in the evidence section:

ITEM	VOUCHER	DATE REC'D	DESCRIPTION
1A-B	E111111	4/15/99	shoes
2A-B	"		socks (not received)

6. If items were submitted to the laboratory, but not examined, the item description should be copied from the voucher and listed in quotation marks:

ITEM	VOUCHER	DATE REC'D	DESCRIPTION
1A-B	E111111	4/15/99	"shoes" (not examined)

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G. Disposition

This section tells what has happened to the exemplars, vouchered evidence, post-mortem evidence, and samples removed from the evidence.

1. Always keep a portion of a "true" exemplar or "pseudo-exemplar". If no blood sample was submitted in a sexual assault kit, keep the saliva sample, buccal sample, or other suitable item.

A dried stain prepared from victim's blood will be retained in the laboratory.

An oral swab from John Smith will be retained in the laboratory.

A sample from the "can used by John Smith" will be retained in the laboratory.

2. For post-mortem samples, all sexual assault kit items are retained. If there are hair standards, fingernails, etc., retain them as well.

Items PM 2A- 2H will be retained in the laboratory.

Item PM 3-4, fingernails from victim, will be retained in the laboratory.

3. For vouchered sexual assault kits, no items (except exemplar) are retained.

4. For vouchered evidence, no items are retained.

5. If numerous items are being kept, it is easier to write it in this way:

The following items are being retained in the laboratory:

dried stain prepared from victim's blood
head and pubic hairs from victim

6. If an item has left the lab, NOT through our Evidence Unit:

The gun was returned to Det. Smith on 5-7-90.

7. If a sample was consumed during the analysis, that must be mentioned in the disposition.

8. For DNA cases, all DNA extracts are retained.

DNA extracts for all samples and controls tested will be retained in the laboratory.

9. For items that have been transferred to the Evidence Unit:

The remainder of the evidence has been released to the Evidence Unit.

9. For DNA cases, all DNA extracts are retained.

DNA extracts for all samples and controls tested will be retained in the laboratory.

10. For items that have been transferred to the Evidence Unit:

The remainder of the evidence has been released to the Evidence Unit.

H. Signature block

1. Each report has one signature, the person who is the interpreting analyst for the case.

A non-DNA case requires an interpreting analyst who is competent in all of the techniques used in the case.

A DNA case requires an interpreting analyst that has finished all aspects of the training program, who is competent in all of the techniques used in the case, AND who fulfills the educational and experience requirements for a DNA analyst, including at least six months experience in a forensic DNA laboratory.

2. Reports are not considered official until the interpreting analyst has signed and the report has had the technical and administrative review.

I. Report distribution

Reports are supplied to OCME Records Department (for deaths only), and/or the District Attorney's Office (to the assigned ADA), and/or the precinct or other NYPD units (to the assigned Detective). *For sexual assault cases, the reports are always faxed to the Bureau Chief of the appropriate Sex Crimes Bureau; do this even if the report was sent to an assigned ADA.*

The supervisor is responsible for filling out the Forensic Biology Route Sheet with the names and fax numbers of the persons to receive the report. Reports are sent via fax or mail; if sent via fax, the fax confirmation sheet should be added to the case file.

Reports are supplied to the defense bar upon request or subpoena.

J. Discovery requests

Formal or informal requests for a photocopy of a case file can be handled by the IA or a secretary; make sure to note in the case contacts the date upon which a copy of the file was supplied.

Discovery requests are often much more involved. The IA should discuss any such request with their supervisor; it may be necessary to involve the Technical Leader and/or OCME counsel. Depending on the nature of the request, any or all of the documents requested may be refused.

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an x, y axis ruler.

If it is apparent that there is a spatter pattern, consult a supervisor or MESATT member for guidance. Select appropriate stains for further testing based on any spatter analysis.

If stains do not exhibit directionality, note that as well.

Perform the appropriate presumptive tests on the stains.

11. A substrate control should be selected from each item, if possible; it should be collected as close to the stained area as practical. If an item has stains on more than one substrate (for example, stains on pant leg and in the pocket), select more than one substrate control. Its location should be documented in the same way as stained areas.

The substrate controls are retained for possible further testing. A presumptive test may be performed, if desired; do not submit the substrate controls for further testing.

The substrate control may be used to investigate the possibility of background effects of the substrate, if subsequent DNA typing results of the stain make it necessary.

12. Cut, scrape, or swab the stain and substrate control from the evidence item and place in individually labeled envelopes. Small items may be kept in their entirety. It is most time-effective if all stains and substrate controls are collected at the time of evidence examination, rather than returning at a later time.

When swabbing an area, the number of swabs collected must be recorded and each swab given a unique identifying number. Refer to the unique number when analyzing the swab.

13. When finished examining an item of evidence, it must be packaged for return to the Evidence Unit following the current evidence return guidelines. The original packaging must be sealed, dated, and initialed across the seal; the original voucher (or copy with Property Clerk storage number) is attached and the items signed over to the Evidence Unit.

Samples that are actively being tested are maintained in the custody of the analyst until the case is completed. At that time, retained samples, items that have been analyzed but are to be kept in the laboratory, must be properly sealed before being put into storage. The packaging must be sealed, dated, and initialed across the seal.

Each time a retained sample is removed for analysis, the retained sample package must be opened and re-sealed according to Departmental guidelines and the chain of custody filled out.

14. Unless there is case information to the contrary, all samples will be processed as if DNA typing is to be performed.
 - a. For possible blood stains, testing positive with a presumptive test for blood, a portion of the stain or swab is submitted immediately for DNA extraction.
 - b. For sexual assault kit swabs with accompanying slides, a portion of the swab is submitted directly for DNA extraction if sperm are found on the slides.
 - c. For possible semen samples without accompanying slides, a portion of the stain or swab

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is submitted for P30 ELISA.

- d. For possible saliva samples, a portion of the stain or swab is submitted for amylase testing.
15. If a sample is positive for P30 or amylase, a portion of the stain or swab is submitted for DNA extraction.

If a sample is negative for P30 or amylase, but the facts of the case indicate a condom may have been used, a portion of the swab should be retained for future testing.

16. To prepare samples for DNA extraction, label microfuge tubes with case number, sample identification, and your initials and add one of the following:
- a. blood - portion of bloodstain or swab about 3 mm square, enough scrapings to give a light straw colored extract, or 3 μ L whole blood
 - b. semen - portion of semen stain about 5 mm square, one third of a swab, or 3 μ L of whole semen
 - c. amylase - portion of stain about 5 mm square or one third of a swab.
 - d. scrapings (of clothing items)

Transfer the microfuge tubes containing the samples to the Chelex extraction refrigerator; add the information to the appropriate extraction worksheet (exemplars, bloodstains, semen stains, or one-step).

When handling each sample:

- a. Use a clean cutting surface for each sample, such as a Kimwipe.
- b. Use clean scissors for cutting each sample.
- c. Use Kimwipes to open sample tubes and blood tubes.
- d. Try not to consume more than 75% of the sample, when possible. Samples may not be consumed in their entirety without prior notification and agreement of the prosecution and defense attorneys; a letter stating this is preferred but a documented phone conversation is adequate.

Transfer the microfuge tubes containing the samples to the Chelex extraction refrigerator; add the information to the appropriate extraction worksheet. Placing a sample on an incorrect Chelex extraction worksheet may lead to the subsequent results being declared inconclusive; see a supervisor if you have any questions about whether a particular sample is evidence or an exemplar.

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F. Evidence examination - clothing (for skin cells)

Clothing items that are scheduled to be examined for the DNA of the individual who wore the item should be processed using the scraping method. This method has been shown to yield more DNA than a cutting or a swab. Follow the general guidelines for notetaking and evidence examination when examining any item of clothing.

Use an Evidence Packaging Worksheet for initial documentation of each item.

Use a Clothing Description Worksheet for documentation of each clothing item.

After the steps described in E., do the following:

ATTENTION: Do not perform this procedure near an air conditioning unit. The preferred site is the Lumalite room.

1. Make sure bench top is covered with paper. Take a piece of white bench paper (paper side up) and fold the edges on each of the four sides up to form a $\frac{1}{2}$ to $\frac{3}{4}$ inch high rim. Tape the corners to maintain the raised edges. For small items the bench paper should be folded in half before doing this. This will serve as a collection device for the scrapings.
2. Use a clean unused razorblade to vigorously scrape the inside of the item, paying special attention to friction areas such as the cuffs and the neck line. Do not scrape too hard or you will produce too much lint. Make sure to cover the complete surface. *If the item also contains biological stains, it is important not to include these areas when scraping.*

The best way of doing this is to fold each item symmetrically, lay it down flat in the collection bin, and scrape the surface. Re-fold and repeat until the complete inside has been scraped. This procedure will produce lint that contains the skin cells; consider this lint as a carrier for the cells.

3. Collect the lint by brushing the fibers into one corner of the bench paper (use razorblade), use tweezers to transfer material into an extraction tube. If no fibers are visible, use the razorblade to scrape the bench paper surface into an extraction tube.

The scrapings should be divided into two parts; one part goes to Chelex extraction. The other part is retained.

A Chelex extraction sheet labeled "other evidence" was made and should be used for items to be processed with the modified procedure. This is because the Chelex procedure was modified to give higher DNA yields with scrapings and swabbings taken from hard surfaces such as knife handles and bottles. Since the initial deionized water soaking step was eliminated this modified procedure can not be used for blood stains.

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12. The three **body cavity swabs (oral, vaginal/penile, and anal)** are used to collect possible biological fluids from those areas; the smears are used for a sperm search.

Testing of body cavity swabs (oral, vaginal/penile, and anal):

Visually check the swabs for the presence of biological fluids. If the swabs are reddish brown in color, be sure to test with KM reagent, note results. The slides contained within the kit accompanying the body cavity swabs are stained using the Christmas Tree staining procedure (refer to Christmas Tree Stain for Spermatozoa in the Forensic Biochemistry Methods Manual, version 4.0) and examined briefly for the presence of sperm; this search need not be exhaustive and should take no longer than five minutes. *A new Criminalist must have the sperm search witnessed for a period of six months and the reviewing Criminalist must add their initials and date to the kit inventory form.*

If sperm is found on a slide, a cutting from the accompanying swabs can go directly for DNA extraction. The analyst at this point should be sure to make an additional cutting from the vaginal or penile swab to submit for amylase testing (be sure to always treat penile swabs as an external area or "stain" for the purposes of P30 and/or amylase interpretations).

If no sperm is found on a slide, Submit a cutting from one of each of the sperm (-) body cavity swabs to submit for P30 confirmatory testing. Again, the pertinent swabs (vaginal/penile and dried secretions) will all automatically be tested for the presence of amylase by the P30 ELISA rotation upon completion of the P30 testing.

If the swabs are semen and amylase negative, there is no need to retain the swabs, even if KM+.

Upon completion of P30 testing, interpret results (refer to the Biochemistry Methods Manual) to determine further steps to take. If semen positive, make a second cutting from each P30 positive swab for DNA testing.

If semen negative but amylase positive, check to see if the case has a known suspect. If so, again, make a second cutting from one swab **from each designated body cavity area** that is amylase positive. Submit this cutting to one-step YSTR typing. If the case has an unknown suspect, retain the amylase positive items(s) for further testing if deemed necessary. See **testing of dried secretions swabs** above for the treatment of amylase positive dried secretions swabs.

13. The **control envelope** is a concept left over from the days of ABO testing. There is no need to examine the contents.
14. The **questionnaire, body diagram sheets, and instruction sheets** are intended for the use of the medical personnel. If present, make a copy of the questionnaire and/or body diagram sheets for the left side of the case file; leave all originals in the kit. No item number is assigned if present.
15. Photographs and/or other paperwork are not supposed to be included in a kit. If present, make a note of it; leave them in the kit. No item number is assigned if present.
16. Once all serology testing is completed on a kit, **it should be promptly dealt with**. Perform

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additional cutting and retaining of kit items all at once for time efficiency. Additionally, return the sexual assault kit to the Evidence Unit personnel. These tasks should be done within seven days of the date of testing for the last P30/amylase results that are obtained. Promptly type up finalized report if the case deems semen(-) results:

If the kit is negative for semen, and there is no other evidence to examine, the case is finished and the report may be written.

If the kit is negative for semen, and there is other evidence to examine (see Scheduled Analysis), the case file must be replaced in the "to be examined" stack based on the P30 target date. See the evidence exam supervisor to ensure this gets done properly. The FB number is added to the "evidence to be assigned" sheet; the evidence sign-in supervisor modifies Paradox to reflect the change in the status of the case.

If the kit is positive for semen, and was examined by a Crim I, it needs to be transferred to an interpreting analyst (this process is not necessary if the kit was examined by a Crim II or higher; that criminalist will keep the case file for DNA testing and interpretations). Contact the next Crim IV on the Kit Transfer Worksheet to determine who will be the assigned IA for the file. Fill this information in on the "to be assigned" sheet. *This needs to be done prior to submission to Chelex so the assigned Criminalist II, III, or IV will receive subsequent paperwork.* Upon the additional cutting, retaining and returning of the sexual assault kit, it is at this time the Criminalist I should make a cutting of the victim's exemplar to submit for testing for DNA comparisons to any P30/amylase positive swabs submitted for DNA testing.

17. The person who examined a kit is responsible for returning the kit. It should be promptly returned to the Evidence Unit (for a vouchered kit) or transferred to retained storage (post mortem kits) upon completion of P30/amylase testing. **There is no need to wait for completion of DNA testing to return a kit.**

Prior to the return of a **vouchered kit** to the Evidence Unit, the items to be retained must be separated out and placed in an accommodating manila envelope. Ensure that the envelope is labeled with the appropriate identifying case information for the purpose of easy identification in retained storage. See below as a guide for which items should be retained:

any P30/sperm positive swabs and slides
any amylase positive swabs
any semen positive stains from underwear or other clothing items
substrate controls if applicable
dried blood control (or other exemplar such as saliva sample or semen-free oral swab or semen-free/amylase-free vaginal swab - even if kit is negative for semen)

For **post-mortem kits**, all used envelopes containing post mortem items are retained; the kit box and any unused envelopes are discarded.

18. **Retained items** may remain in the possession of the interpreting analyst during any further testing. Once testing is complete, they must be properly sealed and transferred to retained storage.

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H. Evidence examination - non post-mortem exemplars

Exemplars are often submitted to the Forensic Biology laboratory for analysis. Follow the general guidelines for notetaking and evidence examination when examining any exemplar item.

An exemplar has as part of its nature some sort of proof that the sample in fact came from the person named. For a "true" exemplar such as a blood sample or an oral swab, that is the form from the MLI saying that he/she obtained the sample, the form from the NYPD that the person signs, voucher or other NYPD paperwork, or the DAO forms saying the same thing. For a "pseudo-exemplar" such as a bottle that the suspect was seen handling, that is the word of a law enforcement person.

Use an Evidence Packaging Worksheet for initial documentation of each item.

1. For a blood sample, follow the bloodstain preparation section of the Biochemistry Manual. Prepare the sample for DNA extraction as described in the Evidence examination - general guidelines, labeling the sample with the name or initials of the individual.
2. For an oral swab, document the sample using a Swab Examination Worksheet. Prepare the sample for DNA extraction as described in the Evidence examination - general guidelines, labeling the sample with the name or initials of the individual.
3. For a cigarette butt "pseudo-exemplar", document the sample using a Cigarette Butt Examination Worksheet. Prepare the sample for DNA extraction as described in the Evidence examination - general guidelines, clearly labeling the sample to indicate that it is not a "true" exemplar. For example: cigarette butt "smoked by deft". Since this sample is considered an exemplar, it must be extracted on an exemplar Chelex sheet.
4. For other sorts of "pseudo-exemplars", such as chewing gum, bottles, cups, and the like, document as for an evidence item. Cut or swab the item as necessary; it is not necessary to perform amylase or other serology tests an item submitted as a "pseudo-exemplar". Prepare the sample for DNA extraction as described in the Evidence examination - general guidelines, clearly labeling the sample to indicate that it is not a "true" exemplar. For example: gum from "trash in interview room", bottle that "suspect drank from". Since this sample is considered an exemplar, it must be extracted on an exemplar Chelex sheet.

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G. Disposition

This section tells what has happened to the vouchered evidence, post-mortem evidence, and samples removed from the evidence.

1. Always keep a dried stain of victim's blood or suspect's blood. If no blood sample was submitted in a sexual assault kit, keep the saliva sample or other suitable item.

A dried stain prepared from victim's blood will be retained in the laboratory.

2. For post-mortem samples, all sexual assault kit items are retained. If there are hair standards, fingernails, etc., retain them as well.

Items PM 2A- 2H will be retained in the laboratory.

Item PM 3-4, fingernails from victim, will be retained in the laboratory.

3. For vouchered sexual assault kits, items that are positive for semen or amylase are retained.

The vaginal swabs and smears will be retained in the laboratory.

The dried secretions swab "from bite mark" will be retained in the laboratory.

4. Any remaining stains from clothing, stains taken off of knives, etc., will be retained for possible further analysis.

Stains and controls from the pants and shirt will be retained in the laboratory.

The blood swabbed off the knife will be retained in the laboratory.

5. If an entire item is retained:

Item 1, sample from "bedroom door", will be retained in the laboratory.

6. If numerous items are being kept, it is easier to write it in this way:

The following items are being retained in the laboratory:

dried stain prepared from victim's blood
head and pubic hairs from victim
stains and controls from the shirt and pants
item 1, sample from "bedroom door"

7. If an item has left the lab, NOT through our Evidence Unit:

The gun was returned to Det. Smith on 5-7-90.

8. If a sample was consumed during the analysis, that must be mentioned in the disposition.

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9. For DNA cases, all DNA extracts are retained.

DNA extracts for all samples and controls tested will be retained in the laboratory.

10. For items that have been transferred to the Evidence Unit:

The remainder of the evidence has been released to the Evidence Unit.

H. Signature block

1. Each report has two signatures: the person who is the interpreting analyst for the case and a supervisor.

A non-DNA case requires an interpreting analyst who is competent in all of the techniques used in the case.

A DNA case requires an interpreting analyst that has finished all aspects of the training program, who is competent in all of the techniques used in the case, AND who fulfills the educational and experience requirements for a DNA analyst, including at least six months experience in a forensic DNA laboratory.

2. Reports are not considered official until both the analyst and supervisor have signed and the report has had the technical and administrative review.

I. Report distribution

Reports are supplied to OCME Records Department (for deaths only), and/or the District Attorney's Office (to the assigned ADA), and/or the precinct or other NYPD units (to the assigned Detective). *For sexual assault cases, the reports are always faxed to the Bureau Chief of the appropriate Sex Crimes Bureau; do this even if the report was sent to an assigned ADA.*

The supervisor is responsible for filling out the Forensic Biology Route Sheet with the names and fax numbers of the persons to receive the report. Reports are sent via fax or mail; if sent via fax, the fax confirmation sheet should be added to the case file.

Reports are supplied to the defense bar upon request or subpoena.

J. Discovery requests

Formal or informal requests for a photocopy of a case file can be handled by the IA or a secretary; make sure to note in the case contacts the date upon which a copy of the file was supplied.

Discovery requests are often much more involved. The IA should discuss any such request with their supervisor; it may be necessary to involve the Technical Leader and/or OCME counsel. Depending on the nature of the request, any or all of the documents requested may be refused.