CASE MANAGEMENT MANUAL
VERSION 4.0

Effective date: July 11, 2008

REVIEWED/APPROVED BY			
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1. INTRODUCTION

The goal of the Department of Forensic Biology is to provide users of its laboratory services, the NYPD, District Attorneys, Legal Aid, Capital Defenders Attorneys, and other agencies and attorneys within or serving New York City's criminal justice system, access to scientific analyses conducted in criminal investigations. These analyses are conducted independently, objectively, and reliably, such that the test results meet New York State and Federal standards. Consistent with available resources, testing results and reports are available and represent high quality, integrity, and accuracy as dictated by the department's Quality Assurance (QA) program, which is described in the Quality Manual and other procedural manuals. The Department of Forensic Biology also seeks new methods for the analysis of biological specimen in an effort to expand it capabilities in order to remain a state-of-the-art service.

The Department of Forensic Biology develops information through the identification and individualization of physiological fluids such as blood, semen, and saliva. Test results from biological evidence are useful for the investigation of an alleged crime, in order to help tie a victim and/or suspect to a crime scene, identify pattern cases, or eliminate a suspect. Identification of missing persons and victims of mass disasters is also achieved through biological testing. When appropriate, test results are presented in court and entered into local, state, and federal databases.

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

Case Type	Associated Samples	Case Designation
Homicide	- Evidence - Elimination exemplars (such as victim, witness)	FBYY- #####
Sexual Assault	- Evidence - Elimination exemplars (such as victim, witness, consenting sexual partner)	FBYY- #####
Suspect	- Pseudo-exemplars (such as bottles, cups, cigarettes) - Exemplars (oral swab, blood)	FBYY-S####
Assault, robbery, misc. (accepted only by AD's and above)	- Evidence - Exemplars	FBYY- #####
Forensic Paternity	- Product of conception - Exemplars	FBYY- #####

Case Type	Associated Samples	Case Designation
Missing Persons	- Post-mortem samples - Kinship exemplars and pseudoexemplars (razors, toothbrushes, underwear, etc.)	FBYY- #####
Mass disaster	- Post-mortem samples - Kinship exemplars and pseudoexemplars (razors, toothbrushes, underwear, etc.)	D@YY-##### (where @ = One-letter borough designation)
mtDNA	- Evidence - Exemplars	FBYY-#####
Outsourced	- Evidence - Exemplars	Assigned by contract lab
Proficiency	- Evidence - Exemplars	Designated by vendor

B. PCR DNA tests available for use

Supplier	Kit	Loci	CODIS eligible
ABI	**COfiler***	**D3S1358, D16S539, Amelogenin, TH01, TPOX, CSF1PO, D7S820**	**Yes**
	Profiler Plus*	**D3S1358, VWA, FGA, Amelogenin, D8S1179, D21S11, D18S51, D5S818, D13S317, D7S820**	**Yes**
	Identifiler*	**D8S2279, D21S11, D7S820, CSF1PO, D3s1358, TH01, D13S317, D16S539, D2S1338, D19S433, vWA, TPOX, D18S51, Amelogenin, D5S818, FGA**	**Yes**
Promega	PowerPlex16	D3S1358, TH01, D21S11, D18S51, Penta E, D5S818, D13S317, D7S820, D16S539, CSF1PO, Penta D, Amelogenin, VWA, D8S1179, TPOX, FGA	Yes
OCME	YM1	DYS19, DYS389I, DYS389II, DYS390	No
	mtDNA	HVI, HVII direct sequencing	Yes

*Systems used for routine casework

C. DNA databanks

The Department of Forensic Biology accesses DNA databanks at three different levels: local, state, and national. Eligible profiles are entered into each of the three databanks.

1. LOCAL

   a. DNA profiles from casework samples are eligible for the local databank "LINKAGE," except for victims' profiles and elimination profiles (such as consenting sexual partners). LINKAGE does not contain DNA profiles from convicted offenders, but does contain DNA profiles from suspects tested by the Department of Forensic Biology.

   b. LINKAGE is also used for comparison of preliminary casework results. Another databank, "LAB TYPES," contains the DNA profiles of all past and present personnel of the Department of Forensic Biology. This databank must also be searched in order to assure that no casework DNA profile was contributed by a laboratory member. *See section IV Case Management for details on how to search for a profile in LINKAGE and LAB TYPES.*

   The Department of Forensic Biology also maintains a CODIS-based local DNA databank (LDIS). This database does not contain DNA profiles of suspects nor of lab staff. These profiles are uploaded to SDIS.

2. STATE

   Refer to the Forensic Biology CODIS Manual for further information.

3. NATIONAL

   Refer to the Forensic Biology CODIS Manual for further information.

D. Scheduled analysis

Depending on the case, it may be necessary for other types of examinations to be done before or after the Department of Forensic Biology examines an item. Fingerprint processing, gun shot residue, hair and fiber examinations, etc., may be equally or more important than the presence of biological fluids.

The 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. The scheduled analysis can change if prioritized items are negative and additional evidence must be examined, or if additional evidence is accepted by the laboratory.

E. Target dates

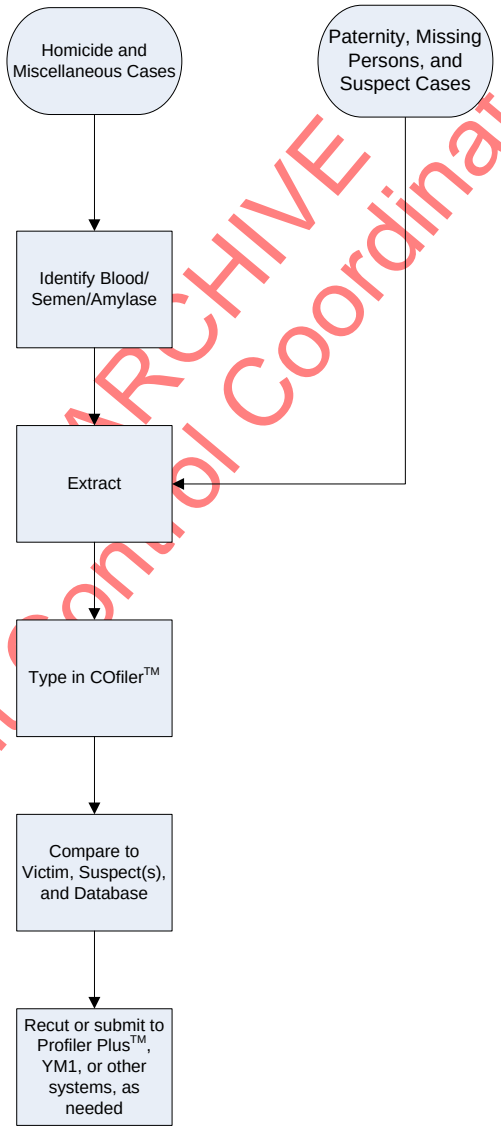
Target dates are assigned by the Criminalist IV based on the available information.

Case Type	Default Target Date
Homicide	60 days
Sexual Assault (Kit Serology Report)	30 days
Sexual Assault (Kit DNA Report)	30 days from the date of Serology Report
Sexual Assault (Additional Evidence)	60 days
Forensic Paternity	60 days
Missing Persons	30 days
Suspect	30 days
MtDNA	90 days
Proficiency	Assigned by vendor
Miscellaneous	60 days

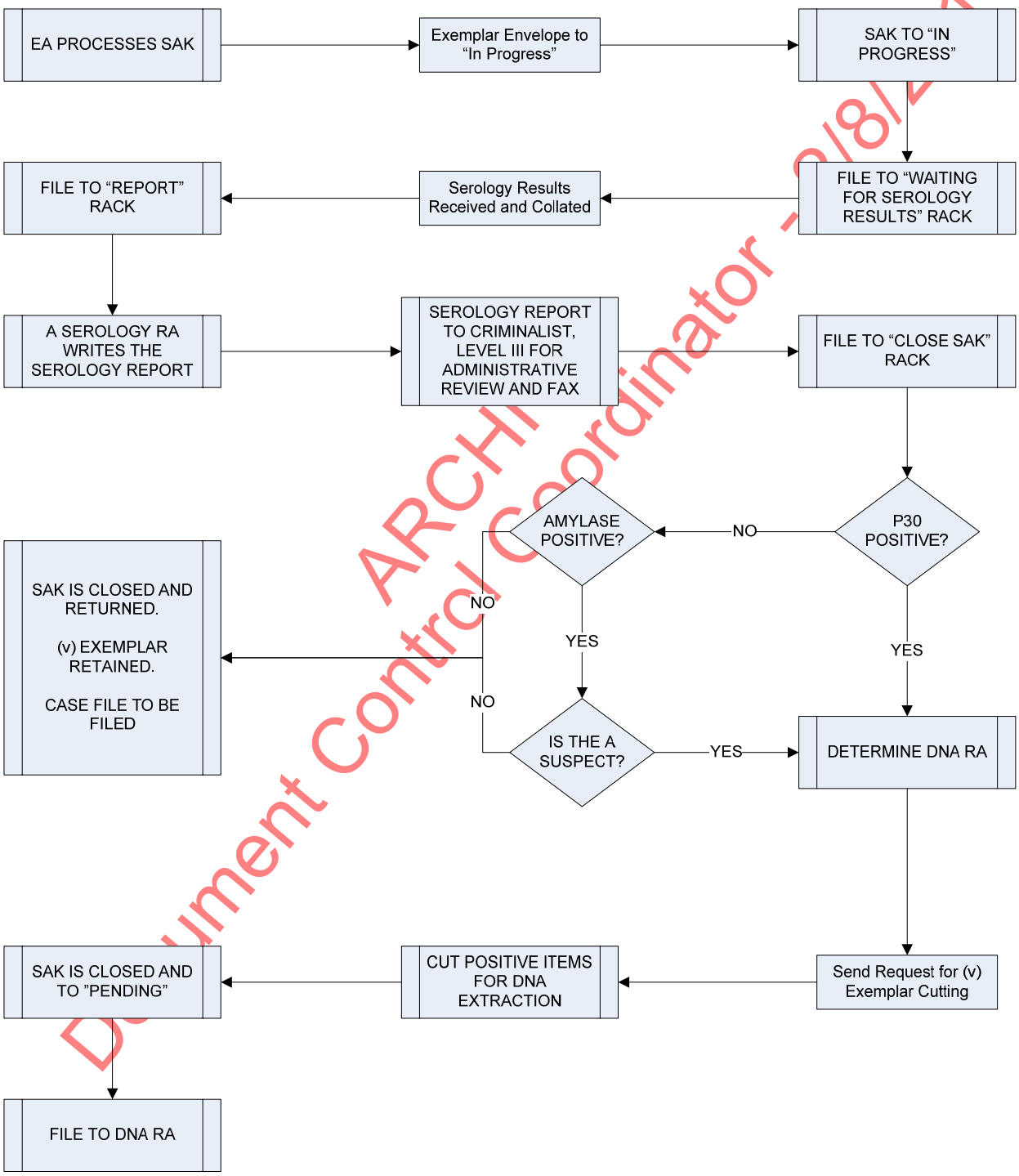
Target dates can fluctuate in order to accommodate court dates, investigative leads, or if additional evidence is signed into the laboratory.

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.

General Processing Flow Chart



Sexual Assault Kit (SAK) Processing Flow Chart



2. CASE FILES

The first step in proceeding with casework is evidence examination. Criminalist I's (or an equivalent non-DNA Interpreting Analyst) performs examination on sexual assault kits, swabs and exemplar processing. Criminalist II's and above (or an equivalent DNA Interpreting Analyst) performs examination on all types of cases. The results of the evidence examination, in addition to the scheduled analysis, determine subsequent laboratory testing. Submission of samples and evaluation of analytical results becomes the responsibility of the Interpreting Analyst (IA) for the case. After testing is completed, the IA writes the report for the case. The Criminalist (or supervisor) who signs the report testifies in court when necessary. For outsourced cases where testing is already completed, the first Criminalist to review the case becomes the IA and will write additional reports and testify as needed.

Serial or pattern cases (see description below) are transferred to the IA who managed the first case in the pattern.

General Guidelines

Each incident has a unique Forensic Biology (FB) number, which usually means one case file per victim. Exceptions include *multiple crimes* (mass disasters, 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. All evidence associated with that incident will use the same FB number.

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 of 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. Notes should be legible and organized.

If changes are made on the examination documentation (right side of file), a single line strikethrough must be drawn through the error and initialed by the person making the changes. Additional notations, including interlineations, made on the examination documentation must also be initialed. **Never** obliterate, including using "white-out," any notes or entry in a worksheet.

Blood or other exemplars from suspects are analyzed separately, since they may be associated with more than one victim. The file is arranged in the same format as evidence files, containing 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 case files.

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. All cross-referenced cases should be written on the outside of each file. *See "Section 5 – Reports" for more information.*

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

1. All administrative documentation (left side) **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. The following are clipped to the left-hand side of each file from bottom to top:

    a. Case contact forms, documenting:
        Basic information on the victim (and suspect, if applicable)
        Discussions with detectives, attorneys, or others

    b. Scheduled analysis form, documenting:
        What items are to be analyzed and in what manner
        Target date and review dates, etc.
        What items are not to be analyzed

    c. Copies of NYPD paperwork: 61 form (NYPD complaint report), request for laboratory examination forms, evidence vouchers (documentation of evidence collected)

d. Miscellaneous correspondence, such as, **copies** of sexual assault kit paperwork or memos to and from outside laboratories.

e. Chain of custody forms, documenting evidence received and released

f. DNA extract tracking forms

g. Forensic Biology laboratory reports, route sheet, and any fax confirmation sheets.

h. CODIS paperwork generated during or after the analysis.

2. All pages of examination documentation **must** have the **case number and date, the handwritten initials of the interpreting analyst for the case, the handwritten initials of the analyst performing a particular test, and page numbers**. The following are clipped to the right-hand side (analytical side) of each file from bottom to top:

a. Autopsy case worksheet, if applicable.

b. Blood processing worksheets

c. Handwritten notes, worksheets, and photos documenting the evidence examinations.

d. P30 ELISA and/or amylase worksheets

e. DNA extraction, amplification, and typing results

f. Quantitation worksheets

g. PCR statistics worksheets

h. The case productivity worksheet, documenting 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 from previous summary sheets should **not** be included in any subsequent summary sheets.

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

3. NOTE TAKING, EVIDENCE EXAMINATION, AND PACKAGING

A. Note taking – general guidelines

Note taking 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 note taking.

1. Note taking starts with a description of the evidence packaging; a worksheet is available to document critical information about the packaging, including:

   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..

   Each package **must** be hand marked by the analyst with the case number, date, and his/her initials. Finding the marks in court is easier if the analyst always chooses the same location to put his or her marks.

2. Next is a description of the contents, the evidence itself. Specific suggestions concerning different types of evidence will be discussed later.

   Any discrepancies between the voucher and the items in the package must be clearly documented. This refers to items that were submitted but weren't included on the voucher. These items must also be examined. Give the item the next item number. If upon opening a package 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.

   Standardized worksheets are available with diagrams of pants, shirts, shoes, etc., to aid in documenting stain 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.

   Standardized worksheets are also available for the documentation of cigarette butts, drink containers, 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.

Each item of evidence **must** be hand 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.

3. 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.

   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 "HG8". *Ensure that the same identifier is not also used on another voucher in the case.*

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

4. 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 case file.

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 and conveniently located, that there is adequate lighting available, and that note taking 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.

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 before and after each use. The recommended cleaning method is 10% bleach, distilled water, and 70% ethanol. Gloves should be changed between each item, and as needed.

1. Open the packaging. Avoid breaking existing seals when possible.

2. Remove items from packaging with care. Remember, materials of evidentiary value may adhere to the item and/or the packaging. Opening the evidence over bench paper will prevent the loss of these materials.

3. 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 must be retained within the thin paper.

4. Be certain that the previous item has been re-packaged before opening another item on the work surface.

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. If mold is present, a supervisor must be consulted to determine if further testing is suitable.

6. The initial evaluation of the evidence is a visual inspection. 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.

7. A tactile examination is sometimes helpful for locating some biological stains, notably semen stains. Using gloved fingertips, lightly brush over the surface of the object, feeling for changes in surface texture or stiffness.

8. Remove any easily visible surface debris such as hairs, fibers, wood fragments, etc. and return to the original package. The location on the item of all trace evidence removed should be documented by diagram, photography, or described in the notes.

9. Perform the appropriate screening tests, such as Kastle-Meyer or Acid Phosphatase. The lot numbers of all reagents must be recorded in the notes.

10. All positive biological stains **must** be documented by notes, diagrams, and/or photography. Note the location of the stain, size, heaviness (soaked into fabric, surface smear, etc.). Each photograph **must** have a ruler visible in the frame, either a plain straight ruler or an x, y axis ruler.

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

    Document whether or not the biological stains exhibit directionality.

11. Cut, scrape, and/or swab the stain from the evidence item at the time of examination for the purpose of further testing. It is no longer necessary to retain the stain within the laboratory.

    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. Swabbing should only be done when cutting a stain is not practical or recommended.

12. 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. 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 chain of custody must reflect this. The retained sample package must be opened and re-sealed according to Departmental guidelines.

13. Unless there is case information to the contrary, all samples will be processed as if DNA typing is to be performed.

    a. For possible bloodstains that have tested positive with a presumptive test for blood, a portion of the stain or swab may need to be submitted immediately for DNA extraction, depending on the case type.
    b. For possible semen stains that have tested positive with a presumptive test for semen, a portion of the stain or swab is submitted immediately for P30 ELISA.

c. 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.
d. For sexual assault kit swabs without accompanying slides, a portion of the stain or swab is submitted for P30 ELISA.
e. For possible saliva samples, a portion of the stain or swab is submitted for amylase testing.

14. If a sample is positive for P30 or amylase, a portion of the stain or swab is submitted for DNA extraction.

15. To prepare samples for DNA extraction, label microfuge tubes with case number, sample identification, the analyst's initials and add one of the following:

a. Blood – portion of bloodstain or swab about 3mm square, enough scrapings to give a light straw colored extract, or 3µL whole blood
b. Semen – portion of semen stain about 5mm square, one third of a swab, or 3µL of whole semen
c. Amylase – portion of stain about 5mm square or one third of a swab.
d. Scrapings (of clothing items)

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

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. If possible, the entirety of an item or sample should not be consumed during analysis. It is recommended that at least 25% of the sample be saved for future analysis, if needed. However, if in the opinion of the analyst, consumption of the sample is necessary to have the best chance to obtain results, the item or sample may be consumed; the notes must clearly state this.

D. Evidence examination – weapons

Weapons are frequently submitted for bloodstain or tissue examinations or for the recovery of DNA from skin cells. 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 note taking and evidence examination when examining any weapon.

Ensure that firearms have already been unloaded by the NYPD. The Police Department will enclose a certification indicating that the firearm has been checked and unloaded. If this certification is not present, or if you are unsure whether or not this check has been done, 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 notes, 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.

E. Evidence examination – clothing

Clothing is often submitted to the Forensic Biology laboratory for examination. Follow the general guidelines for note taking 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 crevices, 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.

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 note taking 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. In addition to new lab coats and new gloves, the analyst should wear masks/face shields and hair guards.

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 1/2 to 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 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.

An extraction sheet labeled "other evidence" 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 cannot be used for bloodstains.

G. Evidence examination – sexual assault kits

Sexual assault kits are among the most common items 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, not submitted, or present but "not used" (this may require opening of the envelope). 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 PM 2A, PM 2B 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** and 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 PM 1A, PM 1B, etc).

   Vouchered kits: Inventory kit. Used envelopes will get an item number (see above) and will also be labeled with the FB number, analyst's initials, and date of examination. All the envelopes, whether used or unused should contain the analyst's initials and the identifying case number. See following for testing 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 using an alternate light source. If any fluorescing areas are observed, circle for further testing.

   If a yellowish or fluorescing stain is observed on the underwear, test the stain with AP reagent. If the stain is AP positive, 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. If the stain is AP positive, make a small cutting and submit the stain for P30 confirmation testing. KM positive stains should be documented.

In any situation, if the stain is AP negative 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 (for semen samples older than 3 months, AP can degrade and thus testing may yield a negative AP result)

At this point, be sure that any AP positive stains submitted to P30 testing are designated a stain number/letter. A stain number/letter should also be designated for KM positive stains.

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 pinkish or reddish-brown in color, test with KM reagent, and note the 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.

Whether or not a dried secretions swab continues on for DNA extraction, and if so which type of DNA extraction, depends on a number of factors: location the sample was taken from, nature of the body fluid present, presence or absence of a suspect, and what other swabs or other evidence has been submitted in the case. Refer to the Sexual Assault Kit Processing Flowchart and the Swab Processing Flow Charts for guidance.

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 the location from which the swabs were taken is unknown, make a cutting from one swab to go on for a differential extraction and DNA testing

If a swab is semen negative but amylase positive, the decision on further testing depends on the locations the swab was taken from (if known) and whether the case has a suspect. In addition, a supervisor may need to make a phone call to determine case status.

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 only processed if there is no buccal specimen or dried blood control present in the kit. If it must be processed refer to Blood Processing in the Forensic Biochemistry Methods Manual.

8. If a **dried blood control** is present, it is only used if there is no buccal specimen present in the kit. If it must be used, 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 return to the kit.

9. The **buccal specimen** is used as the victim's exemplar. If present, the buccal specimen would be the first choice in order to avoid potential inhibition of PCR by heme degradation products.

   If no victim's exemplar is present, it may be necessary at a later time for a supervisor to make a phone call to request one.

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.

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 pinkish or reddish-brown in color, test with KM reagent; note the results.

    Refer to the Sexual Assault Processing Flow Chart or the Swab Processing Flow Charts for guidance.

    One slide accompanying each set of body cavity swabs is stained using the Christmas Tree staining procedure (refer to Christmas Tree Stain for Spermatozoa in the Forensic Biochemistry Methods Manual) and examined 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 negative 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 positive.

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

If a vaginal swab is semen negative but amylase positive, check to see if the case has a named suspect. If so, 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, consult with a supervisor. It may be necessary for the supervisor to make phone calls to determine the status of the case.

See **testing of dried secretions swabs** above for the treatment of amylase positive dried secretions swabs.

13. Return all swabs and slides to their envelopes and return to the kit.

14. The **control envelope** is a concept left over from the days of ABO testing. There is no need to examine the contents.

15. 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.

16. 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.

17. 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 and/or amylase 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 additional evidence to examine (see Scheduled Analysis), see the evidence exam supervisor. The evidence sign-in supervisor will make phone calls to determine the status of the case prior to scheduling additional evidence for testing. If testing is needed, the case file must be placed in the "to be examined" stack. The evidence sign in supervisor will add the FB number to the "evidence to be assigned" sheet and will modify the case tracking database to reflect the change in the status of the case.

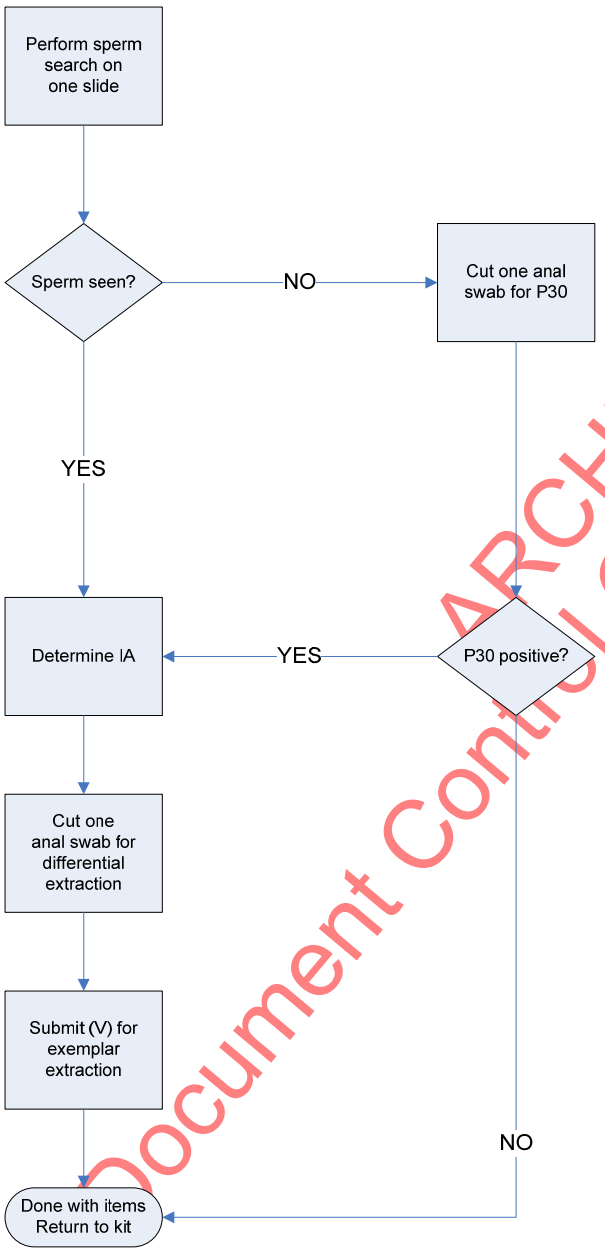
If the kit is positive for semen, and was examined by a non-interpreting analyst (such as a Criminalist I), it must be transferred to an interpreting analyst (IA) for further analysis. Check the Kit Transfer Worksheet to determine who will be the assigned IA for the file. *This must be done prior to submission to DNA extraction so that the assigned IA will receive subsequent paperwork.*

At this time the Criminalist should generally make a cutting of the victim's exemplar to submit for testing for DNA comparisons to any swabs submitted for DNA testing. See the swab processing flow charts for guidance.

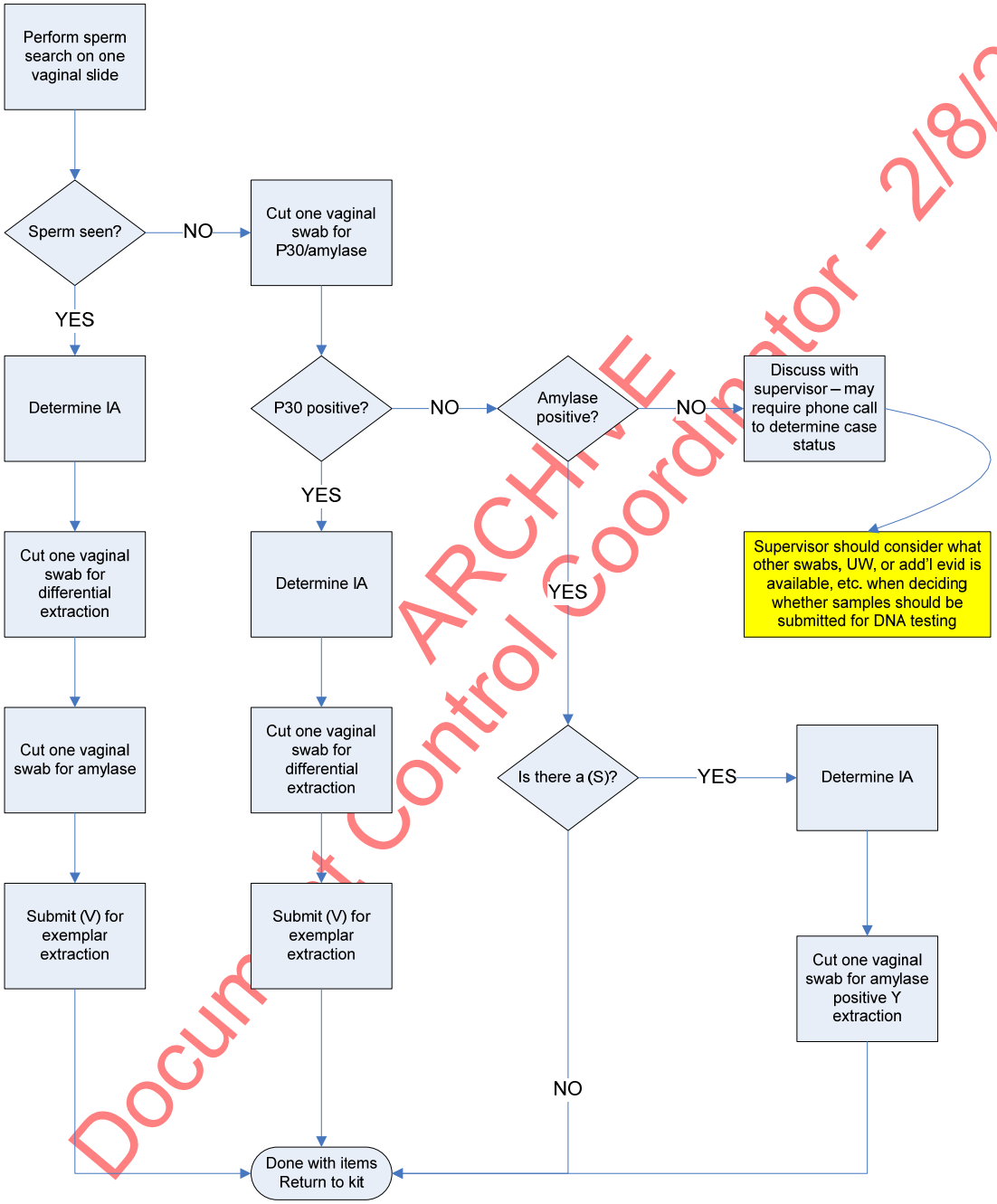
18. The person who examined a kit is responsible for returning the entire kit (vouchered kit) or the post mortem items (PM kit) to the Evidence Unit personnel for storage in the "pending report review" area upon completion of P30 and amylase testing.

Sexual assault kit processing flow chart

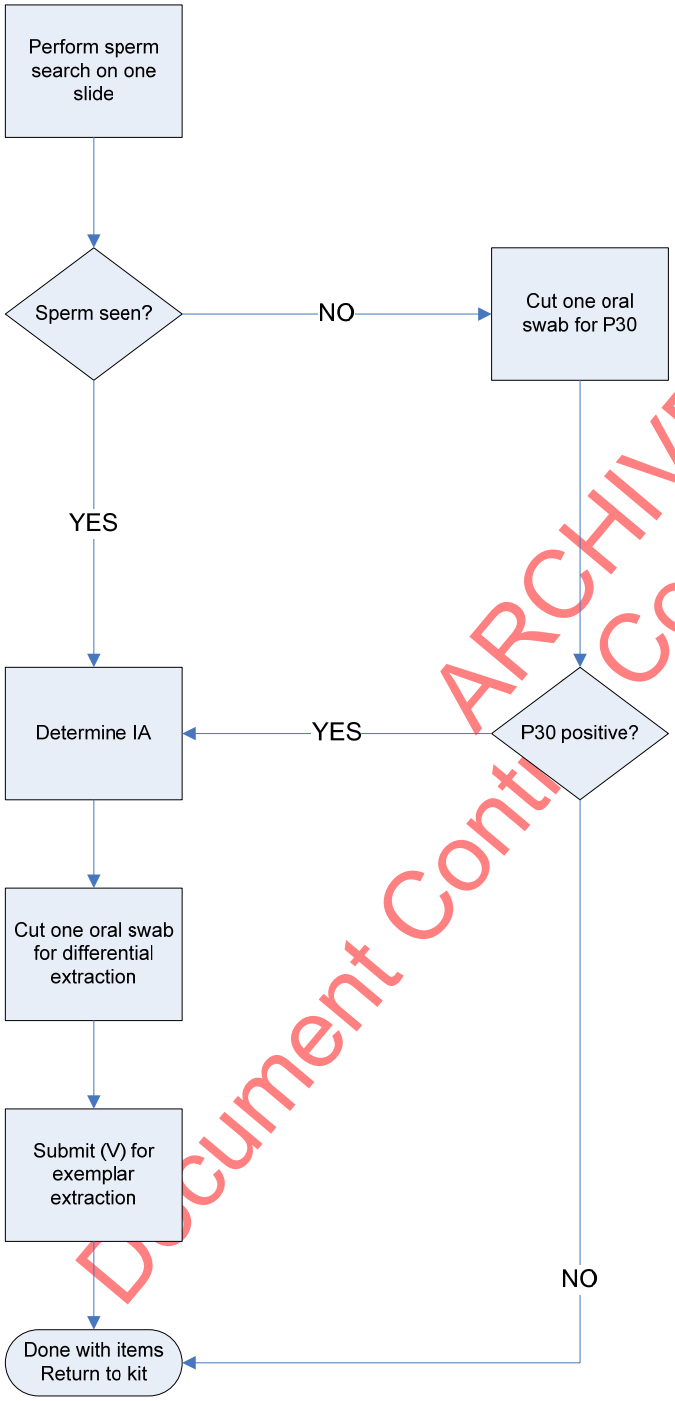
Anal Swabs:



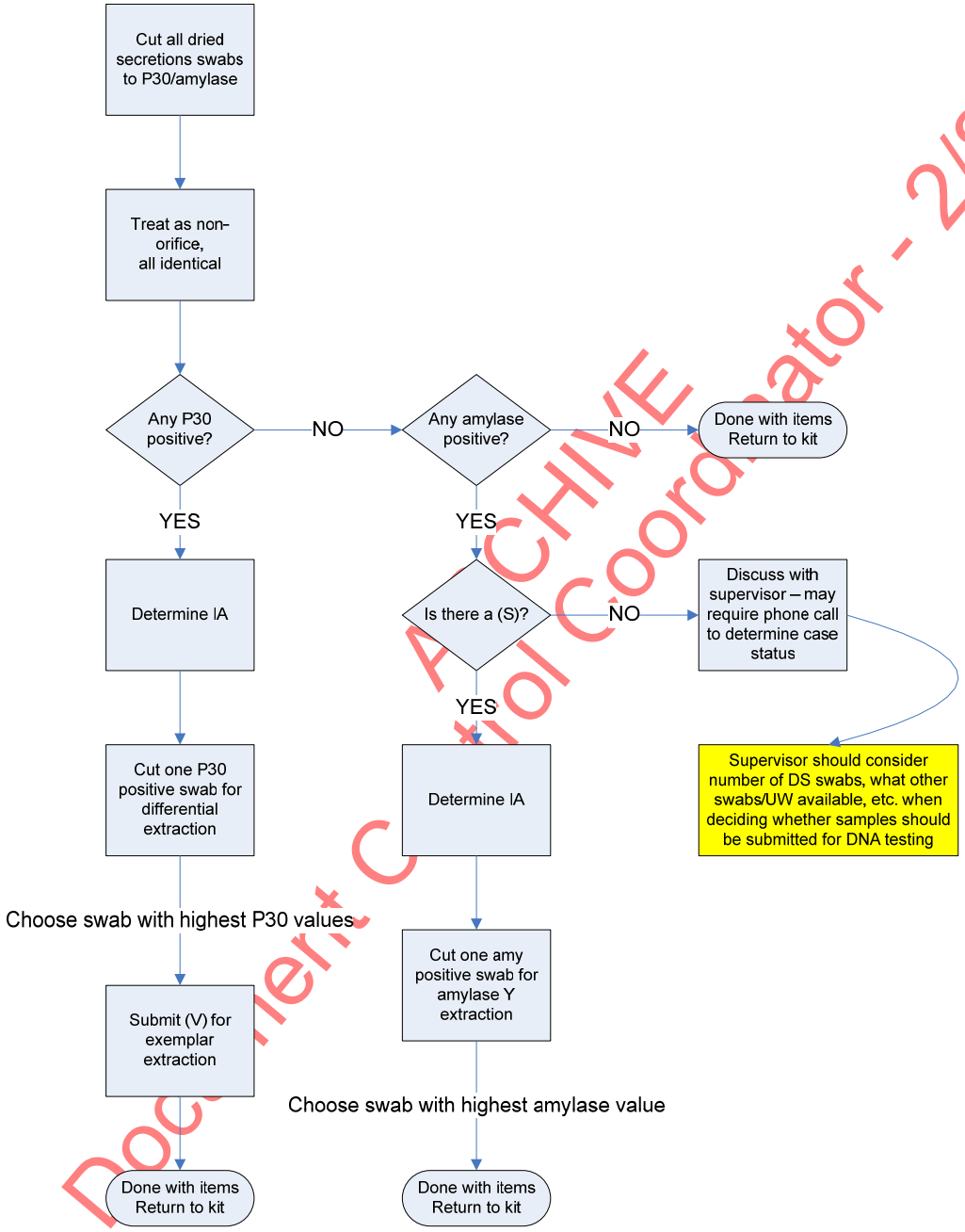
Vaginal Swabs:



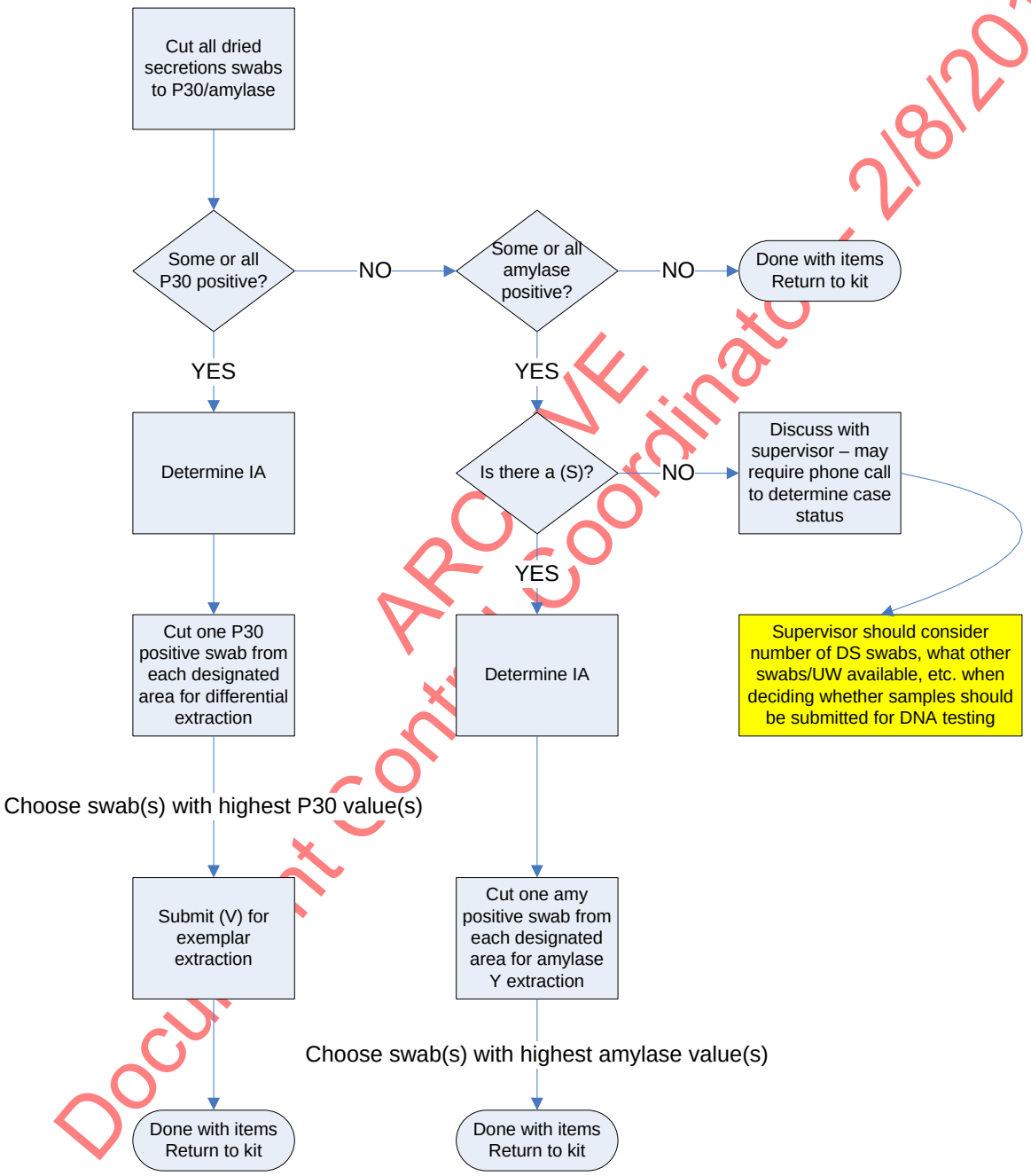
Oral Swabs:



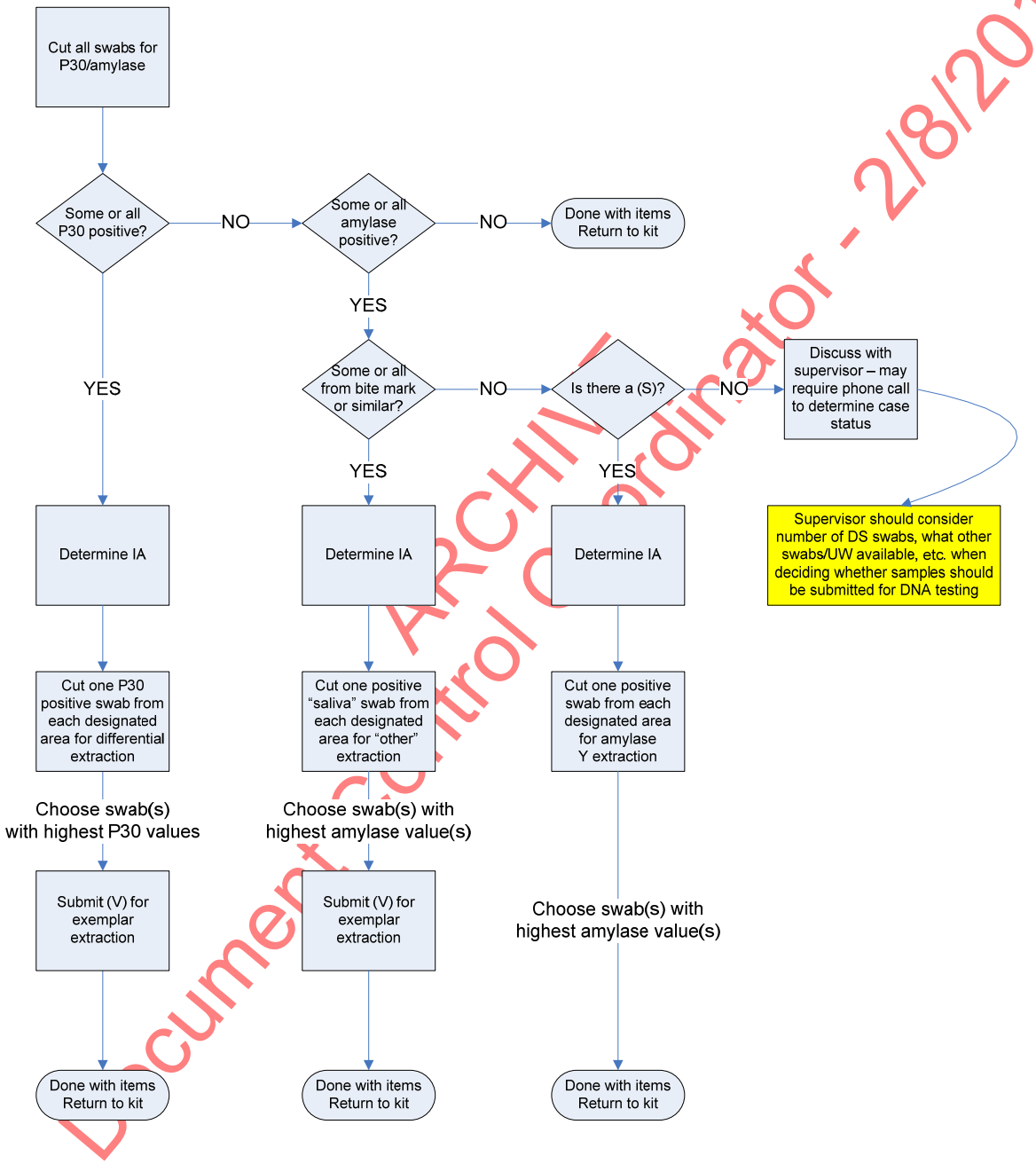
Dried Secretion Swabs (unlabeled):



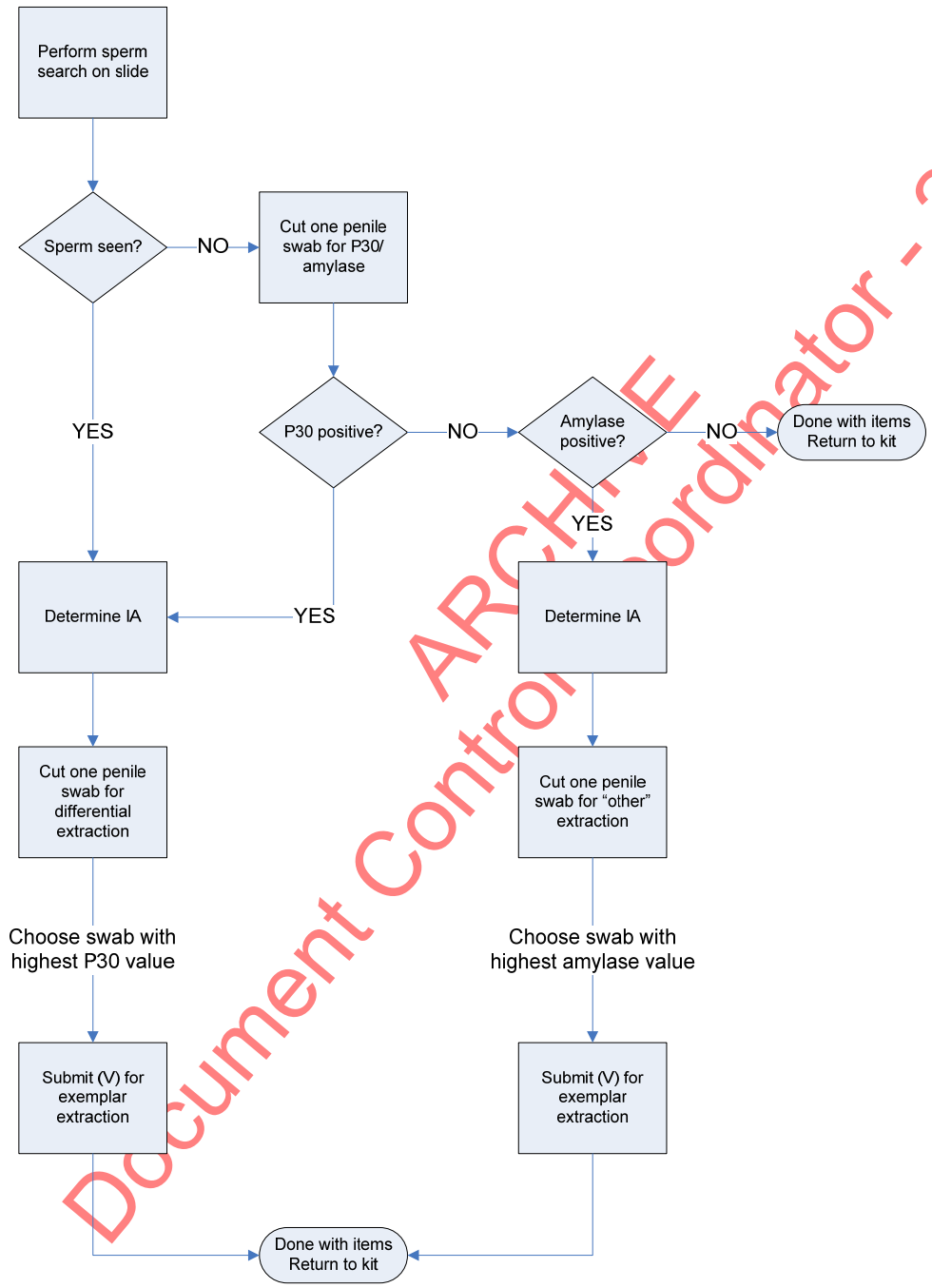
Dried Secretion Swabs – Labeled as orifice**:**



Dried Secretion Swabs – Labeled as non-orifice:



Penile Swabs:



H. Evidence examination – non post-mortem exemplars

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

An exemplar must have documentation stating that it is in fact from the person named. A "true exemplar," such as a blood sample or an oral swab, will include paperwork from the MLI who obtained the sample, paperwork from the NYPD (including a voucher and sometimes a signed consent form), or paperwork from the DAO. An item such as a bottle that the suspect was seen handling, is treated as a "pseudo-exemplar," and will include a voucher.

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: "(s) HS Cig Butt." 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, etc., document the same way 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: "(s) MR Gum" or "(s) EL bottle." 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 possible that further testing may be required in the future if a CODIS match is involved.

   For blood samples, retain the stain card 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.

I. Evidence examination – condom

Condoms are often submitted to the Forensic Biology laboratory for examination. Follow the general guidelines for note taking 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.

J. Evidence Examination – Products of Conception

The term *product of conception (POC)* refers to either an ***embryo*** (up to the formation of organs in the first 8 weeks of gestation) or a ***fetus*** (up to approximately 30 millimeters and weighs approximately 4 grams).

The *placenta* is a temporary organ of pregnancy. Anatomically, placenta has two parts: ***decidua (D),*** genetically identical to the mother, and ***chorionic villi (CV)***, genetically identical to the ***POC***. Decidua appears as a compact tissue, while chorionic villi look more incoherent and loose. Morphological differentiation between D and CV can be made by observation:

- By naked eye (Figure 1A and 1B)
- Using stereo-microscopy (Figure 2A and 2B),
- Using light microscopy of formalin fixed, paraffin embedded, and stained tissue (Figure 3A and 3B).

POCs are often submitted to the OCME Department of Forensic Biology for examination. It is possible for tissues of POCs to lack uniformity, be of different gestational ages, or be differently preserved. Therefore, besides general guidelines for evidence examination, examination of POCs requires that some specific scenarios be taken into consideration.

Follow the general guidelines for note taking and evidence examination when examining POC. Use a Product of Conception (POC) Packaging and Exam Worksheet for initial documentation of each POC item.

1. Describe the general condition of the item *(full embryo/fetus, fragments, unrecognizable tissue parts, etc.)*.

2. Take one overview photograph of each item. Each photograph **must** have a ruler visible in the frame, either a plain straight ruler or an x, y axis ruler.

3. Weigh each item and document the tissue weight.

4. Determine if the POC is more or less than 24 weeks of gestational age (weight of ≥ 500g is considered > 24 weeks of gestational age).

5. Sampling of the item depends on the general condition of the item.

   a. If the POC is *morphologically well defined*, take a sample from it for DNA typing; the sample should be approximately 3x3x3 mm in size.

   b. If the POC is <24 weeks of gestational age and/or it is *not morphologically well defined***,** rinse it several times in dH_2O using Petri dish and observe it wet under MIDEO stereo microscope (following Protocol for Forensic Mitochondrial DNA Analysis, Section 4: MIDEO Macro/Microscopic Digital Imaging System, page 1-3).

      Referring to Figure 2a and 2b for guidance, take a chorionic villi sample for DNA typing; the sample should be approximately 3x3x3 mm in size. If an exemplar from the mother/victim is not available, take a decidua sample as well.

   c. If the POC is <24 weeks of gestational age, and/or it is *not morphologically well defined***,** and/or morphological differences between maternal and fetal part of placental tissue could not be established using MIDEO as in B above, take several samples from morphologically different regions and put them in *separate* embedding cassettes (Figure 4) for histological examination.

Figure 4
Tissue Embedding Cassette

Each sample should be approximately 10x10x5 mm in size. Close each cassette and label with a pencil. Submerge the cassettes in a prepared jar of formaldehyde. OR Submerge each cassette in a prepared jar of formaldehyde. Cassettes, formaldehyde, and jars will be pre-provided by Histology Department.

After collection of all pieces is done, submit them to Department of Histology for further paraffin embedding, cutting, slide mounting and staining procedure. If needed, ask for consultation with a pathologist. Once the samples have been evaluated, follow the section of the Laser Microdissection procedure from Forensic Biology Protocol for STR Analysis (In Section 2: DNA Extraction). Make sure that Chain of Custody form is signed.

d. If the POC is >24 weeks of gestational age, retain a sample for further testing. Inform OCME Identification Unit (212-447-2711) and keep the POC in the freezer, properly packed, until a permit for city burial is obtained by OCME Identification Unit. Return the empty packaging to the OCME Evidence Unit.

6. Submit samples for DNA extraction on an *Exemplar* worksheet, using the notation "D" for decidual tissue and "CV" for chorionic villi as appropriate.

7. Depending on the outcome of the DNA testing, the disposition of the POC varies:

Testing outcome	Procedure
No mother/victim exemplar, and DNA profile of the POC is **female**	- Retain the entire POC; - Return the empty packaging to the OCME EU
No mother/victim exemplar, and DNA profile of the POC is **male**	- Retain a sample of POC for further testing; - Dispose the remainder of POC in the red waste trash ***(If the POC is >24 weeks old, follow step 5d);*** - Return the empty packaging to the OCME EU
No mother/victim exemplar and DNA profile of the POC is a **mixture**	- Repeat testing (See Step 5 above)
There is a mother/victim exemplar and DNA profile of the POC is foreign to the victim (mother), having expected allele sharing	- Retain a sample of POC for further testing; - Dispose the remainder of POC in the red waste trash ***(If the POC is >24 weeks old, follow step 5d);*** - Return the empty packaging to the OCME EU

Testing outcome	Procedure
There is a mother/victim exemplar and DNA profile of the POC is a deducible mixture	- Retain a sample of POC for further testing; - Dispose the remainder of POC in the red waste trash ***(If the POC is >24 weeks old, follow step 5d);*** - Return the empty packaging to the OCME EU
There is a mother/victim exemplar and DNA profile of the POC is an undeducible mixture	- Repeat testing, following Step 5a or 5b

8. For the return of empty packaging, each container in which POC have been submitted must be bleached using 10% bleach prior to return to the Evidence Unit.

Figure 1a: CV by naked eye

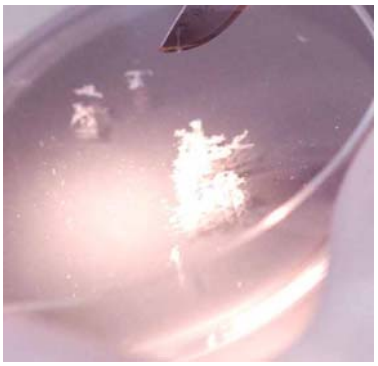


Figure 1B: CV by naked eye - detail

Figure 2a:
Stereo-microscopic (MIDEO) image of Decidua

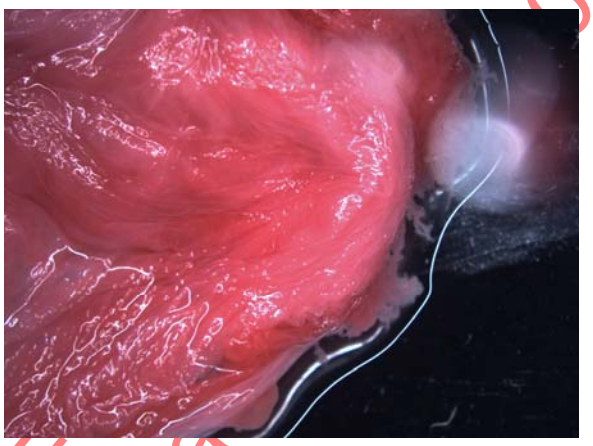


Figure 2b:
Stereo-microscopic (MIDEO) image of chorionic villi

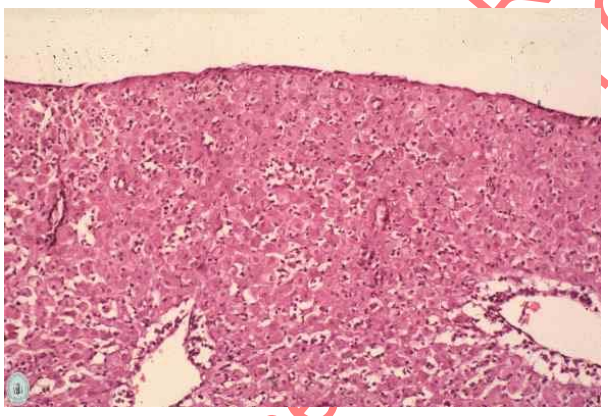


Figure 3a:
Microscopic image of formalin fixed, paraffin embedded and routinely stained decidua

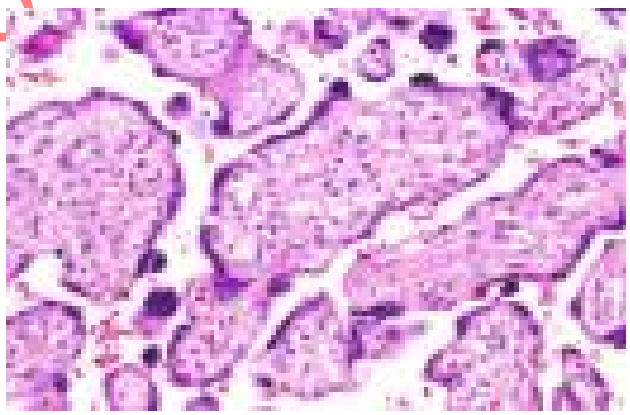


Figure 3b:
Microscopic image of formalin fixed, paraffin embedded and routinely stained chorionic villi

K. Evidence Examination – Pseudo-Exemplars

It is the policy of the Department of Forensic Biology to accept and test "pseudo-exemplars" to aid in criminal investigations. There are various reasons to obtain a possible perpetrator's profile from a pseudo-exemplar as opposed to testing a buccal- or blood-sample. It is our expectation that NYPD investigators will submit items with a reasonable probability of finding a single-source DNA profile from the suspect. The item must have been abandoned; common examples include a cigarette butt tossed in the street or a coffee cup left behind after questioning. It is not acceptable to test items taken directly from a suspect (e.g. handcuffs for the DNA of the person that these were last used on) or items of evidence collected from an unrelated incident (e.g., bloody clothes from a suspect who was a victim of an assault).

In most cases only one or two items are submitted for an individual. However, testing will be done on all items. Independent of the detection of a match, the ensuing single source result scenarios are resolved as follows:

NO MIXTURES PRESENT			
Scenario		**Comparison and Reporting**	**LINKAGE Y/N**
1	Items generate one DNA profile	Compare the DNA profile to LINKAGE and directly to any case(s) specifically indicated. Issue report clearly stating that DNA profile was obtained from a pseudo-exemplar. Request oral swab in report.	Yes Use the suspect's name. Enter "P" instead of "S" in the "S/E field." This is changed to "S" after a true exemplar has been tested and the results are the same.
2	Items generate two or more different DNA profiles	Compare all DNA profiles to LINKAGE and directly to any case(s) specifically indicated. Issue report clearly stating that the DNA profiles were obtained from pseudo-exemplars and the types were not consistent with each other. Request oral swab in report.	No Because of the uncertainty these DNA profiles will not be entered into LINKAGE.

NO MIXTURES PRESENT			
Scenario		**Comparison and Reporting**	**LINKAGE Y/N**
3	Not all tested samples yielded a result; one or more of the samples are negative.	Depending on the results of the samples yielding a result, follow Scenario 1 or 2 above. Request oral swab in report.	Follow Scenario 1 or 2 above.
4	None of the samples yielded a result; all samples are negative.	Issue a negative report. Request oral swab in report	N/A

The detection of a mixed DNA profile in a pseudo-exemplar clearly raises concerns about the validity of any comparisons. Depending on the situation, a careful comparison can still serve as the basis for a court order. Independent of the detection of a match, mixture result scenarios are resolved as follows:

MIXTURES PRESENT			
Scenario		**Comparison and Reporting**	**LINKAGE Y/N**
A	At least one item is a single source profile, the others are mixtures.	For the single-source profiles, follow Scenario 1 or 2 in the previous table, depending on how many single-source DNA profile(s) were obtained. For the mixed profiles, there are two options; depending on the situation either: - Report the mixtures as “not suitable for comparison”. - Report the mixtures as in Scenario B below. Request oral swab in report.	Follow Scenario 1 or 2 above for the single-source DNA profile(s).
B	None of the items are single source, only mixtures were	Follow the guidelines in the STR manual for complex results.	No Because of the uncertainty

MIXTURES PRESENT			
	Scenario	**Comparison and Reporting**	**LINKAGE Y/N**
	detected.	If a major component can be unambiguously determined in at least 6 loci, compare the DNA profile to LINKAGE and directly to any case(s) specifically indicated. If a major component can not be unambiguously determined, report the mixtures as "not suitable for comparison." Request oral swab in report.	these DNA profiles will not be entered into LINKAGE.

When reporting results on pseudo-exemplars it should be clear from the report that the result was not from a buccal- or blood-sample. Depending on the results obtained, there may need to be additional statements about mixtures. In all pseudo-exemplar reports, a request for a true exemplar (oral swab) must be made. See the template report for the wording to address these situations.

L. Evidence examination – Touched Items

1. Items that are scheduled to be examined for High Sensitivity or Property Crime Testing are typically touched items or items with low expected yields of DNA. These items should be swabbed or scraped according to the protocols described below. Because the methods used by the High Sensitivity team are inherently more sensitive than traditional techniques it is necessary to adhere to all recommended evidence handling guidelines with regards to prevention of contamination including the following:
   a. Examine items in the dedicated lab space. For cases that are assigned directly to the High Sensitivity team, evidence is examined in the Special Evidence Exam Room separated from the main evidence exam room. This ensures that samples from touched items are separated from items with blood or other physiological fluids on them.
   b. In order to keep the process as clean as possible, personal preparation guidelines are strictly enforced.

2. Documentation

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

b. Use worksheets appropriately.
   i. Use the Crime Scene Swab Worksheet for all swabs taken by the NYPD. Be sure the note all information pertaining to the location where the swab was collected.
   ii. For items being re-examined for High Sensitivity testing, use the LCN re-examination worksheet.

c. Follow the evidence exam guidelines for proper documentation of all items and samples taken. For further clarification see below.
   i. Note the general appearance of the item. For example, note the color, the dimensions, and whether the item appeared to be dirty or possibly treated with latent print developers such as fingerprint powders or cyano-acrylate (fuming) etc.
   ii. Note the specific area being swabbed and/or any stains observed. Include the dimensions of the stain or area.
      a. If an area is reddish brown, KM test the area if appropriate. For a very small area, consult your supervisor. You may only want to take a very small thread of the item for KM testing.
      b. If the item does not appear to warrant KM testing since it has no reddish brown stains, state “no reddish brown staining was observed.”

d. Determine the areas of the item to be swabbed separately if necessary. Describe the sample assignment in detail in the notes. Examples follow:
   i. For duct tape used to bind a victim, at least three swabs may be taken depending upon the circumstances of the case and the item. These swabs include the ends of the non- sticky side of the tape, the ends of the sticky side of the tape as well as the middle of the non-sticky side of the tape.
   ii. Similarly, a bat may be divided into the following three sections: the top or where the bat came into contact with the victim, the middle or barrel of the bat which may have the victim’s and/or the handler’s DNA, and the handle of the bat.
   iii. Each of the sections will be initially treated as separate samples.

3. Swabbing a touched item using the LCN swab

a. Obtain as many irradiated LCN Swabs and aliquots of the 0.01% SDS swabbing solution as may be necessary for the item currently being examined.

b. When handling evidence for High Sensitivity, gown in lab coat, double gloves and face mask as described in the personal preparation section.

c. Do not open the swab tube until you are ready to swab the item.

d. Clean a set of tweezers with 10% bleach, dH2O and 70% ETOH.

e. With a cap opener or kim wipe, open the tube and remove the swab with tweezers.

f. Dip a portion of the swab into the swabbing solution (0.01% SDS). Do not saturate, rather moisten, the swab.

g. Swab the target area by folding or balling the swab up with the tweezers.

h. Thoroughly swab the target area with gentle pressure making sure to leave as little of the swabbing solution behind as possible. As a general rule, approximately 6 square inches may be effectively swabbed with one LCN swab. This is dependent on the condition and type of evidence being examined. Multiple swabs may be used for a single area, as necessary. Only submit as many swabs in a single microcentrifuge tubes as may be effectively covered by digestion buffer at the extraction stage. Document the use of multiple swabs and note the area which was swabbed.

i. Place the swab back into the swab tube.

j. When swabbing more than one item from a case use a fresh tube of swabbing solution for each item.

k. Change gloves between items when swabbing different pieces of evidence.

4. Cutting swabs submitted by another party

a. If evidence is a swab previously taken, cut the entire swab and place in an irradiated 1.5mL extraction tube.

b. Cut the exterior layer of cotton or surface of the swab that appears to have come in contact with the evidence. Cut in circular pattern, essentially lifting that top layer off the stick with the scissors. Take care not to cut the wooden stick.

5. Repackage the evidence as described previously.

6. For samples submitted for High Sensitivity Testing, coordinate the examination and submission of a swabbed item with the High Sensitivity extraction supervisor.

4. 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 case file. 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 case file (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.

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.

   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 2ng 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 Quantitation 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 Quantitation results for your case. The following information should be checked:

   a. Does the extraction negative contain DNA?

   b. Do the neat and 1/10 dilution results correlate with each other?

   c. Is the DNA concentration too high?

   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 Quantitation.

   If re-quantitation is needed due to any of the aforementioned reasons, this is generally taken care of automatically by the Quantitation rotation. Ensure that the extract tracking form has been signed.

If Microcon is needed, this must be performed by the analyst. The auto-aliquot of extraction sets do not wait for Microcon samples. Therefore, these samples should be aliquotted for amplification by the analyst.

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

D. DNA typing and case evaluation

1. Once acceptable Quantitation 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 (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 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 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; 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 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.

This example assumes that LINKAGE is arranged, from left to right, using Cofiler and Profiler Plus loci order. To scan LINKAGE visually for your profile, 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 the LINKAGE database 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 alleles in each loci). 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.

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.

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, choose one stain from suspect's clothes and one 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 unless the Profiler Plus DNA profile is needed for mixture interpretation.

    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.

    b. Does it appear that there are multiple semen donors? If so, amplification in Y-STR's may be needed.

    c. 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 a CODIS/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. Search the CODIS/LINKAGE profile(s) against Lab Types and initial, date the CODIS form.

10. Fill out a DNA Productivity Sheet.

11. Do a review of the file to ensure that all the necessary paperwork is present and is organized in a logical format.

12. Finalize the report. Before submitting it to a supervisor for review, make sure the report is logical, consistent, accurate, and complete.

E. Sample Scheduling and Submission for LCN DNA Testing and Case Transfer

Low Copy Number (LCN) DNA Testing is an additional type of testing that is available for samples from all case types. Candidate samples for this testing are touched objects which likely consist of only skin or epithelial cells, and samples that were found to contain biological fluid but did not yield results with High Copy Number (HCN) DNA Testing techniques.

Touched objects often yield potential LCN DNA samples and as such should be not be scheduled for initial HCN DNA testing. When all other HCN DNA testing has been completed, the Interpreting Analyst and/or supervisor should evaluate the case for potential LCN DNA testing.

Detecting DNA on a touched object simply indicates contact and the lack of a DNA profile is inconclusive. Therefore, the relevance of generating a DNA profile(s) on an item should be carefully considered prior to testing. For most cases, if probative profiles are produced with HCN DNA testing, additional LCN DNA testing is not warranted. Even if there are no probative profiles in a case, before initiating LCN DNA testing, if there is a suspect, the ADA assigned to a case should be consulted. If there is no suspect, and no or insufficient probative profiles, LCN DNA testing may be attempted.

1. Sample Triage

A sample may be designated for Low Copy Number DNA Testing upon initial acceptance or following testing with High Copy Number DNA testing which does not yield sufficient DNA or a robust profile. A supervisor must approve submission of a previously processed sample for LCN DNA testing. Since DNA extracts degrade with time, LCN DNA testing may commence prior to completion of standard testing and its review.

a. Samples that would potentially yield low amounts of DNA are typically objects that have been handled and do not contain biological fluid such as blood, semen, saliva, or even sweat. These samples may include but are not limited to:

1) Any touched object

a) Side of bottles, cans or containers (not mouths)

b) Business, credit, identification, metro, or phone cards

c) Keyboards or computer mice etc

d) Keys

e) Handles of various items such as brushes, combs etc

f) Jewelry

g) Letters or envelopes

h) Pens or markers

i) Pouches for cell phones, glasses, PDAs, MP3 players etc

j) Ropes, strings, tape, zipties, or objects used for binding or strangulating victims

k) Wallets, purses, or bags including garbage bags

l) Wrappers for condoms or candy etc

m) Weapons

i) Bat, broom, hand saw, ice pick handles

ii) Bombs

iii) Gun handles, triggers, magazines

iv) Knife handles

2) Finger or palm prints

3) Swabs that were previously taken from touched objects such as:

a) Counters or banisters (these may often yield mixtures and should be accepted as a last resort item)

b) Headboards

c) Portals such as window sills or door handles

d) Switches for lights etc

e) Steering wheels or handles of car doors

4) Swabs taken that by the latent print laboratory prior to fingerprint treatment unless it is specified that possible blood, semen, or saliva was recovered with the swab. (If the swab is KM positive upon examination for LCN testing, the sample should be sent to HCN DNA typing.)

b. There are some samples that may not easily be categorized either LCN or HCN; sample triage will depend upon the specifics of the case. Nevertheless, as a general guideline, consider samples that are handled to be LCN DNA samples whereas samples that could potentially contain saliva, sweat, blood or semen should be deemed HCN DNA samples. If HCN DNA samples do not yield DNA, they can be subsequently transferred for LCN DNA testing.

1) Some examples of samples that typically contain low but sufficient amounts of DNA for HCN DNA testing are:

a) Cell phones (particularly the mouth piece)

b) Clothing that will be scraped

c) Food items that have been partially consumed

d) Gloves

2) If an analyst is swabbing such an item, the High Sensitivity swab and swabbing procedure should be utilized.

c. If a case does not produce a probative DNA profile with HCN DNA testing, the following samples should be considered for submission to LCN DNA Testing pending approval of a supervisor:

1) Insufficient DNA for HCN PCR DNA typing, but

a) Amylase, P30, or KM positive (unless reason to believe animal DNA could be present)

b) Scrapings or swabs of any handled objects

2) Poor STR profile despite a sufficient quantitation value

3) Note that if HCN DNA testing indicates the presence of a mixture, at best LCN DNA testing can only generate the profile of the major component of the mixture. Minor components may be used for comparisons, but cannot be deduced unless the sample is an intimate sample.

2. Sample Scheduling

a. When a case is submitted for LCN DNA testing, all relevant logbooks and databases should be completed as with HCN DNA testing. If the case already has an entry in the database for HCN DNA testing, a second entry should be made for LCN DNA testing. In this instance, the date received is defined as the date the case was transferred. However, if the evidence is not stored in the Forensic Biology Department, the date received is defined as the day the evidence arrives.

b. LCN DNA cases have a 60 day target date.

c. If cases only contain LCN DNA samples, the case should be transferred directly to the LCN team for examination. A rack is situated in the evidence exam room for these files. These items are scheduled with an “S” for “LCN DNA testing”.

d. If other types of evidence are included in the case, the LCN DNA items(s) should be scheduled with the appropriate letter for "Do not schedule for examination until supervisor establishes case status."

1) After the HCN DNA testing has been completed, and no or insufficient probative profiles were produced, the Interpreting Analyst and/or supervisor may schedule the item for LCN DNA testing.

a) If there is a suspect, first contact the ADA assigned to determine whether LCN DNA testing is warranted.

b) If there is no suspect, consult the assigned ADA and/or detective.

2) LCN techniques to prevent contamination should be used when examining items for blood that could potentially be swabbed for LCN DNA testing. Swabs of the touched area should not be taken at the time of evidence exam for HCN items.

3. Case Files and Transfer

a. Two files will be generated when a sample is transferred following initial HCN DNA testing. The HCN DNA testing results will be located in file 1 of 2, and the second file will contain LCN DNA testing results.

b. If the HCN DNA testing has concluded and the report has been reviewed, forward the file to the LCN DNA team with a note or email of the sample(s) to be tested. This note will be included in the LCN DNA file as a case contact.

c. LCN DNA testing may begin prior to completion of technical review, upon supervisory approval. It is advantageous to perform LCN DNA testing promptly since small amounts of DNA likely degrade with time, and thus over time, the probability of a good result may decrease. See below for details pertaining to case transfer.

d. In the rare cases where LCN DNA testing must be conducted at the same time as LCN DNA testing, if the item scheduled for LCN DNA testing is on a voucher with other HCN DNA items, the item should be swabbed by the HCN DNA analyst according to the High Sensitivity swabbing techniques using the High Sensitivity swab, swab solution, and technique. The voucher and all relevant evidence exam paperwork remain in the HCN DNA testing file.

e. If the item(s) scheduled for LCN DNA testing are their own voucher, either the HCN or LCN DNA analyst may swab the item(s) using the High Sensitivity swab, swab solution and technique. The voucher, relevant chain of custody, and the evidence exam notes should be transferred to the LCN DNA testing file.

f. Transfer of a sample for LCN DNA testing for a case also undergoing HCN DNA testing or technical review involves the following:

1). A copy of the contact sheet to date and the 61 report should be forwarded to the LCN DNA team along with the sample name and date.

2). If the sample is on a separate voucher, as stated above, the voucher, chain of custody and evidence exam notes should be transferred to the LCN DNA file.

3). If the sample has already been extracted, the extract location, and the name and location of the relevant extraction or microcon negatives should be forwarded to the LCN DNA team. State "LCN DNA" in the DNA tracking sheet. The LCN DNA team will temporarily transfer the extract tube to the LCN DNA facility, where it will be stored in a cryobox labeled "transferred from HCN testing". A new tracking sheet will specify all aliquots for LCN testing and will be kept in the LCN DNA file. Upon completion of LCN DNA testing, the original extract tube will be returned to its original storage location.

4). When necessary, the LCN team may re-cut a sample whose chain of custody is in the HCN DNA file. The LCN team member will arrange with the HCN case analyst, if necessary, for temporary possession of the file in order to gain custody of the sample.

5). The HCN DNA analyst should notify the LCN team regarding the victim's profile if available. When necessary, the LCN DNA team may amplify the victim with Identifiler. The original analyst will be notified if this is necessary in order to determine the extract location and to complete the DNA tracking sheet.

6). The LCN DNA team should be notified of any relevant suspect profiles. If the suspect does not match the HCN DNA samples, but matches the LCN DNA samples in Cofiler, the LCN DNA team will duplicate the suspect in Identifiler unless the suspect has already been duplicated in Profiler Plus. In this case, the LCN DNA team will write the suspect report.

4. Report Notations

In both reports, a reference to the other report should be made according to the following situations:

a. HCN DNA report: “Further analysis involving Low Copy Number DNA Testing will be performed. Results of this analysis will be provided in an additional report.” If the voucher pertaining to the LCN DNA sample is listed in the disposition of the HCN DNA report, the item name(s) and their voucher number(s) should be specified.

b. LCN DNA report:

1) If the HCN DNA report, was already issued state “This is an additional report. For previous results, evidence received, and disposition, see report dated….”

2) If the HCN DNA report was not yet issued, state “Further DNA analysis will be performed. Results of this analysis, evidence received, and disposition will be provided in an additional report.”

5. Communication

When a case is processed for LCN and HCN DNA testing simultaneously, analysts of both teams should communicate and share results. Moreover, when testing occurs subsequently, the LCN DNA analyst should relay results to the HCN DNA analyst.

5. REPORTS

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A. General guidelines

1. Reports bring together all of the analytical results and conclusions found in the case notes, in an easy to read 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:

   a. Case identifiers
   b. Description of evidence examined
   c. Description of the methodology
   d. Loci tested
   e. Results and/or conclusions
   f. An interpretive statement, either quantitative (statistics) or qualitative
   g. Date issued
   h. Disposition of evidence
   i. Signature and title of person 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.

   Serology or 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 tests used (Serology, DNA, suspect, kinship, etc.); make sure you use the correct template for the type of case you have.

5. The body of a report may 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.

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 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 (New York State Identification) number of an identified suspect in the top block of the report.

   In addition, serology reports may be issued prior to DNA reports so that investigators may be kept up-to-date.

2. If an evidence case is linked to another evidence case or pattern, *the link between the cases is described in the evidence report(s).* List all the previously linked 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 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, the information may be left out. List all the previously linked 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 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 the suspect's alleles are not listed in the report. If a suspect is 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 by a Criminalist IV or above 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 of the report 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.

C. Top block

Each report will be on the most current version of the department letterhead. 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 indicating the date the report was *written*
b. Name of deceased or victim
c. Case number

d. ME (Medical Examiner) 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

This information will allow the medical examiner, detective, or assistant district attorney who receives the report, to know where to file it.

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 THE READER OF THE REPORT NEED TO KNOW?"** Then write a short, clear summary answering those questions. The summary should give all 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 the DNA 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 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 copies 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. Remember that quotation marks means you are copying EXACTLY information as it is written elsewhere, including any misspellings or abbreviations:

   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 in a labeled envelope and returned with the shirt.

   b. Glass fragments were found on the sneakers. They were packaged separately in a labeled envelope 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 anal 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 received wet, moldy, and/or foul smelling, making it unsuitable for DNA analysis.

   c. The knife was not examined, pending fingerprint examinations.

10. Quantitiative (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.

    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.

E. Examinations

The examinations section contains a description of the methodology and the loci tested.

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.

It is a requirement that the explanatory statement is also used for all suspect reports, whether DNA typing data is included or not.

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 indicate that 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	"		pair of socks
PM 1	—	4/10/99	blood sample from victim
PM 2	—		vaginal swabs
PM 3	—		anal 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	"		two socks (not listed on voucher)

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)

G. Disposition

This section describes 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; such as an orifice swab negative for p30.
   - 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.
   - Items 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, shield # 2345 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 will be released to the Evidence Unit.

H. Signature block

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

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

   A DNA case requires a DNA 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 reporting analyst has signed the report and the report has had a technical review. An administrative review must be performed prior to the report being sent out.

6. CASE COMPLETION

A case is considered complete after all the analytical work is finished and has passed a technical review by a supervisor and/or an Assistant Director/Deputy Director (see the Forensic Biology Administrative Manual for review requirements).

A. Return Evidence

Bring the original voucher(s) to the Evidence Unit. The Evidence Unit will obtain the item(s), attach the voucher(s), and prepare the item(s) for "pending release to the Property Clerk" using their normal procedures. This process removes the items(s) from the cages and transfers them to barrels and/or boxes. With the exception of post-mortem items and exemplars, there should no longer be retained samples indicated on the chains of custody.

B. Page Numbering

Place page numbers at the bottom margin of the pages on the right-hand side of the file, starting with the bottom page in a file. The last page, the productivity worksheet, will have the highest number and be on the top.

Continue the page numbering if additional analyses are done after a report has been issued and/or if there is more than one file folder for a case. Do not start over with page one.

C. Report distribution

1. Deaths: Reports are supplied to the OCME Records Department. Optional: The reports may also be supplied to the District Attorney's Office (to the assigned ADA) and/or NYPD units (to the assigned Detective).

2. Sexual Assaults and Suspect files for Sexual Assaults: Reports are supplied to the Bureau Chief of the appropriate Sex Crimes Bureau and NYPD Special Victim's Liaison Unit.

3. Miscellaneous and all other Suspect files: Reports are supplied to the District Attorney's Office (to the assigned ADA) and/or NYPD units (to the assigned Detective).

Supervisors are 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 written request or subpoena.

D. Additional and Amended Reports

If an additional report in 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 all prior reports).

In instances where additional reports are generated, the analyst who worked on that portion of the case will sign the most recent report. 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.

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.*

E. Discovery requests

Formal or informal requests from any NYC District Attorney's offices for a photocopy of a case file can be handled by the Interpreting Analyst (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.

Written requests are required from defense attorneys and family members. There will be a charge for all written and discovery requests.

F. Testimony

When a case goes to grand jury or trial, the IA will be contacted to testify either by phone or subpoena. An informal request by phone should be directed to the IA's supervisor to gather details of the testimony. OCME counsel should be consulted if the request is via a subpoena. In either case, a pre-trial with the ADA or defense attorney is advisable to discuss or go over the line of questioning. The IA should pull the case and all cross-referenced cases and/or suspect files. It is always a good idea to bring a copy of your C.V. and a spell sheet to court.

If this is the IA's first testimony for the year or the IA is inexperienced, their supervisor should be present at the pre-trial and trial. In addition to answering questions and providing support, the supervisor is responsible for evaluating the IA's testimony at trial. Evaluation of the IA's testimony at grand jury is left to the ADA, since no observers are allowed into court for grand jury.