Evidence Examination		
Status:Published		Document ID: 988
DATE EFFECTIVE 08/15/2017	APPROVED BY Quality Assurance Manager	PAGE 1 OF 56

Evidence Examination

1 Guiding Principles and Scope

1.1 Specific methods to examine evidence varies by case type. Guidelines for the examination of the common types of evidence are presented in this procedure. If an analyst encounters any type of evidence not presented in this procedure, a supervisor shall be consulted for further guidance.

2 Note taking – general guidelines

2.1 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. If the use of paper is required for notes, use a permanent medium such as ink—never pencil. Hard copy notes or sketches must be scanned for association to the case record in LIMS (as applicable).

2.1.1 Note taking starts with a description of the evidence packaging, including:

2.1.1.1 Type of package – paper bag, manila envelope, zip-loc bag, etc.

2.1.1.2 Condition of package – wet, bloody, etc.

2.1.1.3 Type of seal – stapled, taped, unsealed.

2.1.1.4 Identifying marks – a brief description of labels, tags, handwritten notations, etc.

2.1.2 Each package **must** be labeled by the analyst with the evidence item identifier (see Evidence Control procedure for the numbering scheme), date, and his/her handwritten initials. Finding the marks in court is easier if the analyst always chooses the same location to put his or her marks.

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

2.2.1 Discrepancies between the voucher, laboratory request form, and the items in the package must be clearly documented and a deviation must be completed within the LIMS as necessary. This includes, but is not limited to, items that were submitted, but were not included on the voucher. These items may also need to 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.

2.2.2 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. When complete, scan this worksheet to a .pdf format and attach to the case record within the LIMS.

2.2.3 The LIMS has specific worksheets for the documentation of different types of items (for example: cigarette butts, fingernails, general items, etc).

2.2.4 Digital 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. When the photograph is printed, the analyst must mark the photograph to highlight stains, damage, etc., and add the appropriate item or sample identifier, the analyst's initials and date to the photograph. When complete, scan photographs to a .pdf format and attach to the case record within the LIMS. The original printout may be retained in the case file (if a hard copy exists) or discarded.

2.2.5 Each item of evidence **must** be marked by the analyst with the case number, voucher number, item number, date, and handwritten initials. Marking may be done by affixing a tag with the information or by writing directly on the item.

2.3 If corrections are made on hard copy examination documentation, a strike-through must be drawn through the error; and initialed and dated by the person making the changes. Additional notations, including interlineations, made on the examination documentation must also be initialed and dated. Never obliterate, including using "white-out," any notes or entry in a worksheet.

2.3.1 If an error is found on the data recorded within in the LIMS, the corrections shall be made in LIMS by the original Examining Analyst. If an analyst other than the original Examining Analyst makes changes to the LIMS data, a note must be made on the LIMS examination page (or a suitable substitution, such as a memorandum placed in the case file) indicating what was changed, the person who made the change, and on what date. Regardless of who makes the changes, all changes are tracked within the LIMS, including the date, time, and name of the user making the changes.

2.4 Each sample/stain that will be tested **must** be given a unique identifying number, clearly shown in the notes. See the "Evidence Control" procedure for the sample identification scheme. 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.

2.5 For most tests, the LIMS will generate a functional report documenting the test and the results. It is the responsibility of the IA/RA to ensure that the appropriate reports are printed and inserted into the hard copy the case file.

3 Preparing for evidence examination

3.1 Before examining evidence, certain preparations should be made:

3.1.1 Review the Schedule of Analysis for analyses to be performed on the item(s) in the case. Review all the information provided in the case record. This includes the Communication Log, vouchers, requests for laboratory examination, any previous laboratory reports, and police reports. If further information or clarification is needed, obtain it before beginning analyses.

3.1.2 Plan your approach to the case. Certain items may have greater potential informational value than others, or may need to be analyzed first as an investigative aid.

3.1.3 Ensure that you are wearing the proper Personal Protective Equipment.

3.1.4 Prepare the work area. The bench must be clean and free of clutter. The LIMS cart should be sufficiently charged if on battery power. Both the bench and the LIMS cart mouse, keyboard, and cart handle should be wiped down with 10% bleach followed by 70% ethanol. The work area should then 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), between different vouchers in a case, or whenever necessary. Gloves should be changed as frequently as bench paper is changed, or whenever necessary.

3.1.5 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.

4 Evidence examination – general guidelines

4.1 The examination of objects will be described in a general sense, covering a broad range of topics applicable to most items of evidence. **NOTE: No two cases may be open for examination by the same analyst at the same time.**

4.2 **NOTE:** All cutting utensils, tweezers, etc. must be cleaned before and after each use. The recommended cleaning method is 10% bleach, and/or distilled water, and then 70% ethanol. Gloves should be changed between each item, and as needed. Lab coat should be changed after scraping an item.

4.3 Record the Evidence Packaging as the initial documentation of each item.

4.3.1 Individual evidence packages that all relate to one case may be packaged in a mesh bag for convenience. This mesh bag should not be examined or counted as a packaging material. No documents, labels, or notes should be attached or written on the mesh bag. For the individual evidence packages, verify that outer packaging corresponds to lab request/voucher. Open the packaging. Avoid breaking existing seals when possible.

4.4 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.

4.5 Examine one item at a time.

4.5.1 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.

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

4.5.3 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 fume hood with the fan running. If mold is present, consult a supervisor to determine if further testing is suitable.

4.5.4 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. IR light source may be utilized to help find stains on dark colored materials as well.

4.5.5 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.

4.5.6 Remove any easily visible surface debris such as hairs, fibers, wood fragments, etc. and return to the original package within a sealed coin envelope with appropriate markings indicating case number, voucher number, item number, date and initials. The location on the item of all trace evidence removed should be documented by diagram, photography, or described in the notes.

4.5.7 Perform the appropriate screening tests, such as Kastle-Meyer, Acid Phosphatase, or Zygem lysis. The lot numbers of all reagents and control testing results **must** be documented prior to use to ensure that the reagent isn't an expired lot within the LIMS.

4.5.8 All positive biological stains (KM positive, amylase positive and/or PSA positive) **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.

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

4.5.8.2 Document whether or not the biological stains exhibit directionality, if applicable.

4.5.9 Cut, scrape, and/or swab the stain from the evidence item at the time of examination for the purpose of further testing.

4.5.9.1 When swabbing an area, the number of swabs collected **must** be recorded. Swabbing should only be done when cutting a stain is not practical or recommended.

4.6 When the examination of an item or voucher is complete (body fluid identification complete and appropriate samples/cuttings submitted for DNA testing), seal the packaging with a permanent seal. The original packaging must be sealed at all entry points. All seals must be individually initialed and dated across the tape edge. **Barcodes and other agency identifiers on the outer packaging should not be covered or sealed over if possible.**

4.6.1 If multiple items of evidence are separately packaged for a single case, these items may be collected and stored in a mesh bag. This mesh bag is used only for the sake of convenience in grouping related evidence, and should not be tagged, labeled, or have any documentation attached to the mesh bag itself. Transfer the evidence to the Evidence Unit or secure storage location for storage.

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

4.8 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.

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

4.9.1 For possible bloodstains that have tested positive with a presumptive test for blood, a portion of the stain or swab may be submitted for DNA extraction, depending on the case type.

4.9.2 Zygem lysis as triage for sexual assault cases: The primary means of processing sexual assault evidence is by screening for the presence of male DNA. Sperm searches and serology screening tests such as KM, AP, PSA, and amylase are not routinely used.

4.9.2.1 For sexual assault cases with male assailants and female complainants, one of each swab type, and all dried secretion swabs, are submitted for Zygem lysis. Potential biological stains, including those that fluoresce, have reddish-brown or yellow-white coloration on additional sexual assault evidence must also be documented and a portion cut for Zygem lysis.

4.9.2.2 To prepare samples for Zygem lysis procedure, label a 0.2ml tube with a tube label and add one of the following:

4.9.2.2.1 Swabs: cut ¼ of the swab and place in the 0.2ml tube

4.9.2.2.2 Clothing and/or fabric stains: cut a 5x5mm section of fabric and place in the labeled 0.2ml tube

4.9.2.3 Submit the samples to a Zygem Y test batch.

4.9.3 Serology testing in sexual assault cases.

4.9.3.1 For possible semen stains that have tested positive with a presumptive test for semen, a portion of the stain or swab may be submitted immediately for PSA testing.

4.9.3.2 For sexual assault kit swabs with accompanying smears, a portion of the swab may be submitted directly for DNA extraction if sperm are found on the smears. If no sperm are seen on the smear, PSA testing may be performed on the swab.

4.9.3.3 For sexual assault kit swabs without accompanying smears, a portion of the swab may be submitted for PSA testing.

4.9.3.4 For possible saliva samples, a portion of the stain or swab may be submitted for amylase testing.

4.9.3.5 If a sample is positive for PSA or amylase, a portion of the stain or swab may be submitted for DNA extraction, as necessary.

4.9.4 To prepare samples for DNA extraction, label extraction tubes with the sample identifier and add one of the following:

4.9.4.1 Blood – portion of bloodstain or swab about 3mm square, enough scrapings to give a light straw colored extract, or 3uL whole blood

4.9.4.2 Semen – portion of semen stain about 5mm square, one third of a swab, or 3uL of whole semen

4.9.4.3 Amylase – portion of stain about 5mm square or one third of a swab.

4.9.4.4 Scrapings (of clothing items)

4.9.4.5 Swab(s) of touched items

4.9.5 Be mindful of the amount of scrapings and/or SDS swabs being placed in extraction tubes. Excessive amounts of substrate may hinder the extraction process.

4.9.6 Create the sample and schedule the appropriate extraction procedure for the sample (exemplars, bloodstains, semen stains, touched items, other evidence, or one-step). Scheduling a sample for an incorrect extraction process 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.

4.9.7 All extraction tubes should be transferred to an extraction refrigerator.

4.10 When handling each sample:

4.10.1 Use a clean cutting surface for each sample, such as a lint-free wipe.

4.10.2 Use clean scissors for cutting each sample.

4.10.3 Use lint-free wipes or clean tube openers to open sample tubes and blood tubes.

4.11 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 (or for touched items), 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.

4.12 During the normal course of examination in a limited access laboratory, evidence need not be sealed when left unattended for a short period of time (such as when the analyst takes a lunch break). However, measures must be taken to prevent the unattended evidence from coming into accidental contact with other items of evidence or personnel. For example, swabs and small clothing items should be returned to its containers, and larger items (such as bed sheets on an

examination hanger) should be moved to areas of the laboratory where accidental contact by other personnel will be limited.

4.12.1 Direct any questions regarding what prevention measures should be taken to a supervisor prior to leaving the evidence unattended.

4.12.2 Evidence in the process of examination may not be left unattended overnight without first consulting with a supervisor. Without prior approval from a supervisor, all evidence must be properly sealed and returned to a secure storage location at the end of the day.

4.12.3 Under certain circumstances, the supervisor may allow evidence in the process of examination to be left unattended overnight. However, this practice is to be limited based on the necessity, and the risk of accidental contact with other items of evidence or personnel must be minimized (see Paragraph 16, above). For example, a supervisor may approve evidence to be left unattended overnight if an item of evidence is found to be wet when opened and must be air dried or dried in a hood with the fan running. However, the supervisor must ensure that all risks of accidental contact with other items of evidence or personnel are minimized.

5 Evidence examination – weapons

5.1 Weapons are frequently submitted for bloodstain or tissue examinations and/or for the recovery of DNA from skin cells, depending on the case scenario. Weapons can consist of knives, guns, bottles, baseball bats, and numerous other items.

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

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

5.4 Complete the General Packaging Worksheet as the initial documentation of each item.

5.5 Complete the General Item Examination Worksheet for each item.

5.5.1 Describe the general condition of the item, such as presence of rust or fingerprint powder. Certain weapons should be tethered within their evidence packaging. If not, a deviation should be logged.

5.5.2 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. Photograph the weapon if any serology positive stains are found or if the item is being sampled for skin cells.

5.5.3 As necessary, examine under a magnifier, high intensity oblique light, infrared light, 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 descriptions, diagrams, and/or photography.

5.5.4 Look carefully for directional spatters of blood on weapons. Discuss any directional stains with a supervisor before performing any analyses.

5.5.5 Knives, sheaths, or other weapons may be dismantled as necessary for further examination. Always photograph or diagram the intact items before dismantling.

5.5.6 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.

5.5.7 If the area being examined for blood appears clean, consider utilizing the sensitivity of the KM test, which is more sensitive than the human eye. Perform a global swab(s) of the area and KM test a small cutting. If the swab is KM negative, retain the remainder of the swab in a coin envelope. If the swab is KM positive, consider consuming the swab for extraction.

5.5.8 Make every effort to avoid positive serology stains when sampling the handle of a weapon. Unless there is an indication that the suspect was bleeding, this technique will assist in isolating the desired DNA profile. In cases where the "handle" of the weapon is unknown (e.g., crowbar), treat each end separately as if it could have been the handle.

5.5.9 After examining a knife or other sharp object, package it in a safe manner (fastened and/or wrapped within the original packaging) for return to the Evidence Unit.

6 Evidence examination – clothing

6.1 Follow the Note taking – general guidelines and Evidence examination – general guidelines when examining any item of clothing.

6.2 Record the Evidence Packaging Worksheet as the initial documentation of each item.

6.3 Complete the Clothing Description or General Item Examination Worksheet for each separate clothing item.

6.3.1 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.

6.3.2 Spread out the item of clothing, looking carefully at the front, back, and inside for any possible evidentiary material.

6.3.3 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).

6.3.4 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.

6.3.5 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.

6.3.6 Carefully examine any pockets, inside and out. The preferred method is to gently pat the outside of the pocket to determine if there are any contents. Tweezers may be used to turn pockets inside out. **Caution is advised when placing the hand in a pocket. An unexpected sharp object could cause serious injury.** If any items (ex. money, a paper clip, drug paraphernalia) are discovered in the pockets of the evidence, or in the packaging with the submitted evidence in general, document the presence of the item(s) in your examination notes, fill out an Evidence Discrepancy/Deficiency Form, and return the item(s) along with the evidence to the Evidence Unit.

6.3.6.1 **Note:** If something of an **illegal nature** (such as drugs or their associated paraphernalia) is discovered to be present with the submitted evidence, you must inform the Customer Liaison AND the Evidence Unit that you found such items in with the submitted evidence. They will in turn alert the NYPD.

6.3.7 Carefully examine the waistband, lining, cuff area, and collar area. This may require turning an item inside out.

6.3.8 Shoes have many crevices, which could retain material of evidentiary value and therefore should be examined carefully. 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.

6.3.8.1 Shoes may be dismantled as necessary for further examination. Always photograph or diagram the intact items before dismantling.

6.3.9 Document stains by diagrams, description, 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.

7 Evidence examination – clothing (for skin cells)

7.1 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. Follow Note taking – general guidelines and Evidence examination – general guidelines when examining any item of clothing.

7.2 Complete the General Packaging Worksheet as the initial documentation of each item.

7.3 Complete the Clothing Description or General Item Examination Worksheet for each separate clothing item.

7.4 Follow steps in the Evidence examination – clothing (section 6), then continue below.

7.5 Perform Scrapings procedure as follows:

7.5.1 **IMPORTANT:** Do not perform this procedure near an air conditioning unit. In addition to a new lab coat and new gloves, the analyst should wear a mask/face shield and hair guard. For this technique, you must put on gloves in the following manner; latex gloves, cut-resistant gloves, then latex gloves as the final layer.

7.5.2 Make sure bench-top is covered with paper. Take another piece of bench paper and fold the edges on each of the four sides up to form a 1/2 to 3/4 inch high rim. Tape or staple 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.

7.5.3 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 possible and appropriate. **If the item also contains biological stains, it is important not to include these areas when scraping.**

7.5.3.1 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.

7.5.4 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.

7.5.5 The scrapings should be divided into two parts; one part goes to extraction. The remaining part is placed into an extraction tube and then packaged within an individual envelope, labeled, and returned to the original packaging.

8 Evidence examination – touched clothing (for skin cells)

8.1 Clothing items that are scheduled to be examined for DNA left behind by an assailant after a physical struggle should be processed using either a swabbing or scraping method, as required based on the material being examined Follow the Note taking – general guidelines and Evidence examination – general guidelines when examining any item of clothing.

8.2 Complete the General Packaging Worksheet as the initial documentation of each item.

8.3 Complete the Clothing Description or General Item Examination Worksheet for each separate clothing item.

8.4 Follow steps in the Evidence examination – clothing (section 6), then continue below.

8.5 Perform Scrapings/Swabbing procedure as follows:

8.5.1 **IMPORTANT:** Do not perform this procedure near an air conditioning unit. In addition to a new lab coat and new gloves, the analyst should wear a mask/face shield and hair guard. For this technique, you must put on gloves in the following manner; latex gloves, cut-resistant gloves, then latex gloves as the final layer.

8.5.2 Make sure the bench-top is covered with paper. Take another piece of bench paper 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.

8.5.3 Determine the substrate of the item of clothing being examined.

8.5.4 Based on the material, choose the best method to examine the item. Refer to the table below:

Recommended method to use for various materials	
Scraping	**Swabbing**
Cotton & Cotton mixture	Spandex
Polyester	Polyester
Wool	Rayon

8.5.5 For swabbing, swab the entire area using irradiated SDS swabs prepared by the Quality Assurance team moistened with 0.01% SDS. Combine the swabs inside one extraction tube.

8.5.6 For material requiring scraping, scrape the entire area with a sterile blade and place the scrapings inside an extraction tube. Make sure to scrape the entire surface the assailant was purported to have had contact with. **If the item also contains biological stains, it is important not to include these areas when scraping or swabbing.**

8.5.7 After scraping the item, you may wipe the blade with an irradiated SDS swab to recover as much skin cell evidence as possible. Place the swab inside the same tube as the scrapings. Both the scrapings and the SDS swab will be extracted together as one sample

9 Evidence examination – sexual assault kits

9.1 Follow the Note taking – general guidelines and Evidence examination – general guidelines when examining any sexual assault kit. Follow the Evidence examination – clothing (section 6) when examining any clothing items packaged in a sexual assault kit.

9.2 Complete the Evidence Packaging Worksheet as the initial documentation of each item.

9.3 Complete the Sexual Offense Evidence Collection Kit Inventory Worksheet

9.3.1 Ensure that the name of the victim corresponds to the name listed on the paperwork in the case file.

9.3.2 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., 1.1, 1.2, 1.3.1-1.3.2 for swab and smear pairs).

9.3.3 **PM kits (all items packaged together):** Inventory kit. Label used envelopes with an item number (see above) and the FB number (label as 1.1, 1.2, etc), 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. All envelopes and any paperwork associated with the PM kit will be retained in the kit box. For PM SAKs use the Sexual Offense Evidence Collection Kit Inventory Worksheet.

9.3.4 **PM swabs (items packaged separately):** Complete the Packaging and Swab Examination Worksheet. These swabs should already have item numbers. Refer to the LIMS Evidence Manual.

9.3.5 **Vouchered kits:** Inventory kit. Label used envelopes with an item number (see above) and 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.

9.4 Testing of **underwear or small clothing items** contained within kit:

9.4.1 If **underwear or related items** (e.g., pantiliner) are in the kit, complete the Clothing Description or General Item Examination Worksheet. If stains are observed, underwear can be documented using the diagrams that are available or by a quick sketch. Photography is not generally needed.

9.4.2 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.

9.4.2.1 If a whitish, yellowish, or fluorescing stain is observed on the underwear, document the stain with a stain number, diagram and description, and cut the stain for Zygem lysis.

9.4.2.2 If a pink to reddish-brown stain is observed on the underwear, document the stain with a stain number, diagram and description, and cut the stain for Zygem lysis. KM testing is not necessary.

9.4.3 At this point, be sure that any stains submitted for Zygem lysis are designated a stain number and are diagrammed.

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

9.5 Testing of **gauze** within the kit:

9.5.1 Examination of gauze is similar to underwear whereby possible biological stains will be submitted to Zygem lysis. Note the location from which the gauze was collected. If the location from which the gauze was taken is known, **this information must be included** on the SAK inventory.

9.6 The **trace evidence envelope** is used by hospital personnel to col**lect trace evidence from the vict**im's body and/or the clothing. The victim disrobes over examination paper, and the examination paper is collected.

9.6.1 Since trace evidence examinations are not performed in the Department of Forensic Biology, there is generally no need to examine the contents. However, if the envelope appears to contain something other than trace evidence, or markings on the envelope indicate that something other than trace evidence is present, the envelope should be

opened to confirm the contents and examination should proceed if needed. If the contents of the envelope are found to be the examination paper, no further examination is needed.

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

9.7.1 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.

9.8 The **dried secretions swabs** are used to collect possible biological fluids from areas other than the body cavities.

9.8.1 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 (1.4.1, 1.4.2). If the swabs are pink to reddish-brown in color, note the color of the swabs, however KM testing is not necessary.

9.8.2 Make a cutting from each of the swabs present for the Zygem lysis procedure. As every case is different, please consult with a supervisor if there is something in the case description that suggests further testing is required.

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

9.9.1 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. If fingernail examination has been approved, refer to Section O of this manual.

9.10 If a **liquid blood exemplar** is present, consult with a supervisor to make a bloodstain card. Fill out a blank stain card (FB number, victim's name, date, and initials), insert into a Kapak envelope and seal it. The FB number should be written on the Kapak and the analyst's initials and date of examination should be written across the seal. This may be used as an exemplar if no buccal specimen is present within the kit.

9.11 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 and seal it. The FB number should be written on the Kapak and the analyst's initials and date of examination should be written across the seal.

9.12 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.

9.12.1 If a buccal specimen is present, the analyst should place the swab(s) in a coin envelope labeled with the FB number, voucher number, item number, victim name, analyst's initials, and date of examination. The coin envelope should be placed in a Kapak envelope and heat sealed. The FB number should be written on the Kapak and the analyst's initials and date of examination should be written across the seal. The buccal should be transferred to a storage location.

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

9.13.1 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.

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

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

9.15 The "**body cavity" swabs (oral, perianal, anal, vulvar, vaginal/penile, and cervical)** are used to collect possible biological fluids from those areas; the smears may be used for a sperm search.

9.15.1 Visually check the swabs for the presence of biological fluids. If the swabs are pink to reddish-brown in color, note the color of the swabs, however KM testing is not necessary.

9.15.2 Refer to the Sexual Assault kit processing flow chart for guidance.

9.15.3 In general, slides will not be stained to look for sperm and one of each swab type will be cut for Zygem lysis. If needed, slides may be stained.

9.15.4 Return all swabs and smears to their respective envelopes.

9.16 **Questionnaires, forms, and body diagram sheets** are intended for the use of the medical personnel. Any such paperwork found in the kit that is filled-out with handwritten information should be copied for retention with the case record—as a physical copy in the case file and a .pdf attachment in LIMS (as applicable); leave all originals in the kit. If present, these filled-out documents are considered administrative records and must be labeled with the Forensic Biology case number. No item number designation is needed if present.

9.17 **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.

9.18 After kit examination is complete, the kit is now ready to be closed. After the kit is closed, the kit should be placed in a secure location.

10 Closing of kits:

10.1 The kit is ready to be closed once the quant results from the Zygem lysis procedure have been reviewed.

10.2 If there is additional evidence, a supervisor will determine whether or not the evidence needs to be signed in and examined.

10.3 If the kit is negative for male DNA, and there is no other evidence to examine, the case is finished and should be submitted to Quality Assurance for reanalysis consideration only if underwear or other small items are present. If no underwear or small items are present, the case is ready to be written up.

10.4 If male DNA positive swabs or stains were found, be mindful that the primary goal in the majority of cases (especially stranger cases) is to develop a database eligible profile. This may be achieved by a single sample in a single assailant case.

10.4.1 Zygem lysates may be amplified directly if the samples are primarily male and meet the minimum DNA concentration for amplification or have at least a 1:4 Male to Female ratio and are at least 70pg/ul (thereby having the potential to amplify between 525 and 750pg of DNA). If these thresholds are not met, the samples within a case may be triaged and recut for extraction. See below for guidelines on the cutting of samples for extraction.

10.5 For single assailant cases, no more than two samples will routinely proceed to amplification.

10.5.1 **Body swabs** (dried secretions, oral, perianal, anal, vulvar, vaginal/penile, cervical)

10.5.1.1 Following Zygem lysis, evaluate the concentrations of autosomal and male DNA as well as the M:F ratio to see if samples can go direct to amp.

10.5.1.2 If no Male positive samples were sent direct to amp, select two swabs with the highest concentration of male DNA for recut for the appropriate extraction (refer to the Sexual Assault kit processing flow chart for triage instructions). Cases may be triaged differently depending upon the number of alleged assailants.

10.5.1.3 If no swabs were Male positive, evaluate the results of the underwear (if applicable), otherwise proceed with closing the kit. Refer to the Sexual Assault kit processing flow chart for guidance.

10.5.1.4 In the absence of serology testing, all penile swabs will be cut for differential extraction.

10.5.2 **Underwear** or small items

10.5.2.1 If applicable, following Zygem lysis, evaluate the concentrations of autosomal and male DNA as well as the M:F ratio to see if the stain samples can go direct to amp.

10.5.2.2 If no Male positive swabs or stains were sent direct to amp, select stains with the highest concentration of male DNA for recut for the appropriate extraction. For multiple alleged assailants, it may be necessary to send multiple stains. Consult a supervisor.

10.5.3 **Buccal** specimen

10.5.3.1 If a buccal specimen (exemplar) is present, a cutting for extraction may be made depending on case results.

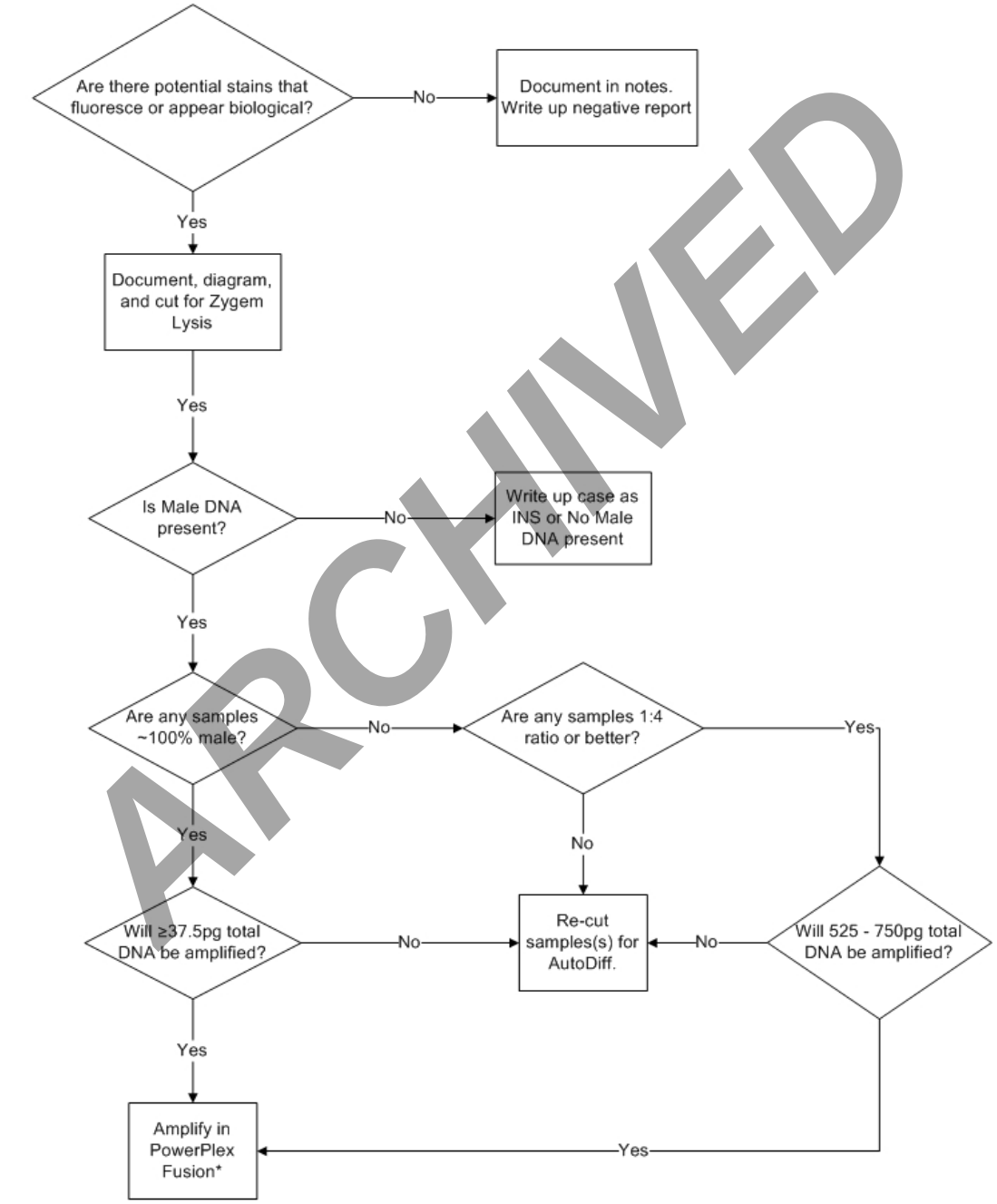
10.5.3.2 If no buccal specimen was present in the kit, retain Male negative body cavity swabs to be used as an exemplar. The oral swab is the preferable choice to be used as an exemplar in the absence of a true exemplar. If there are no Male negative body cavity swabs, it may be necessary at a later time for a supervisor to make a phone call to request one.

10.5.3.3 The exemplar should be placed in a secure storage location.

10.6 At the end of kit closing, each envelope within the kit should be sealed with evidence tape and returned to the kit. Seal the kit and return to a secure storage location.

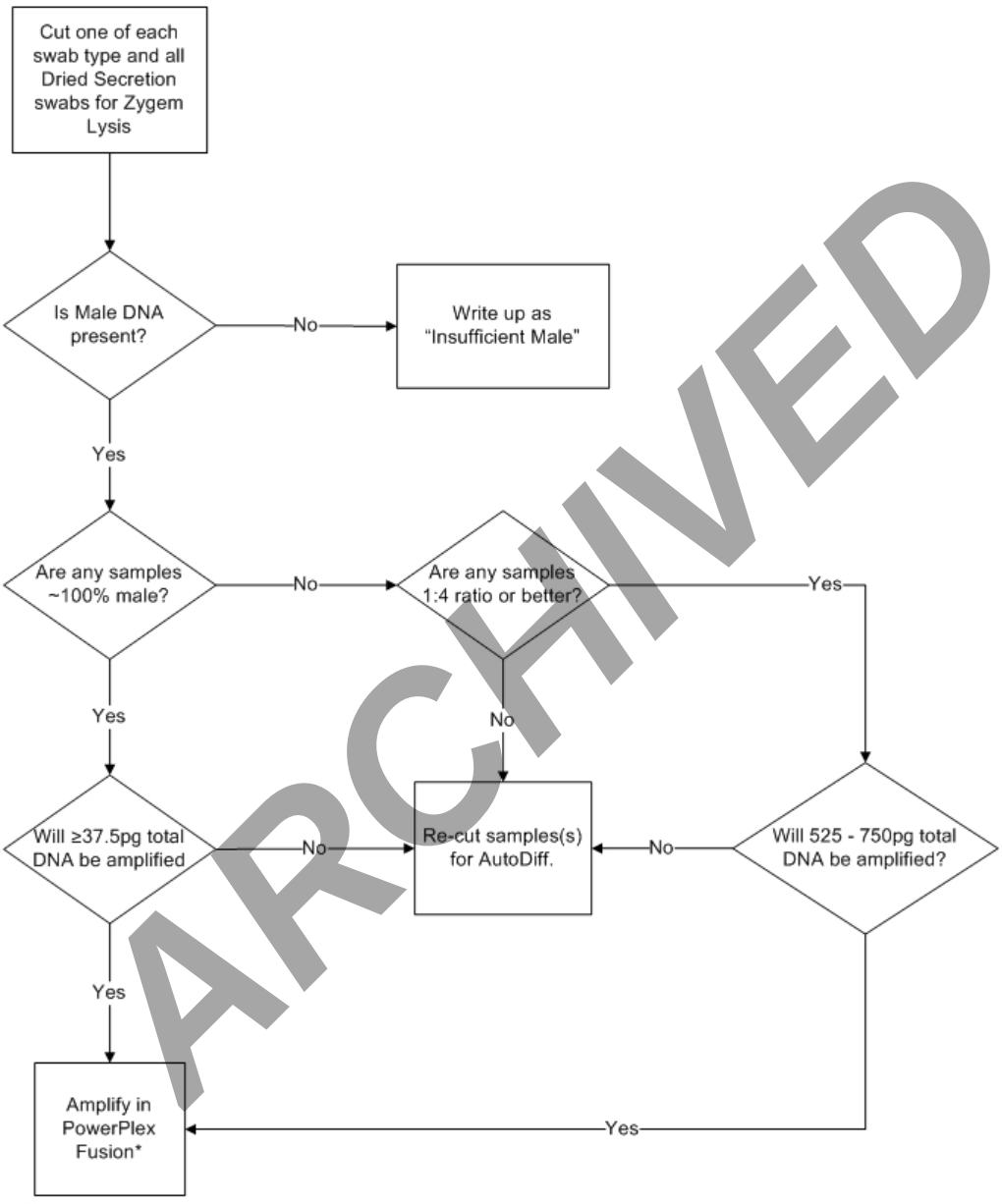
Sexual Assault kit processing flow charts with Zygem lysis

Sexual Assault item processing: Non-kit items



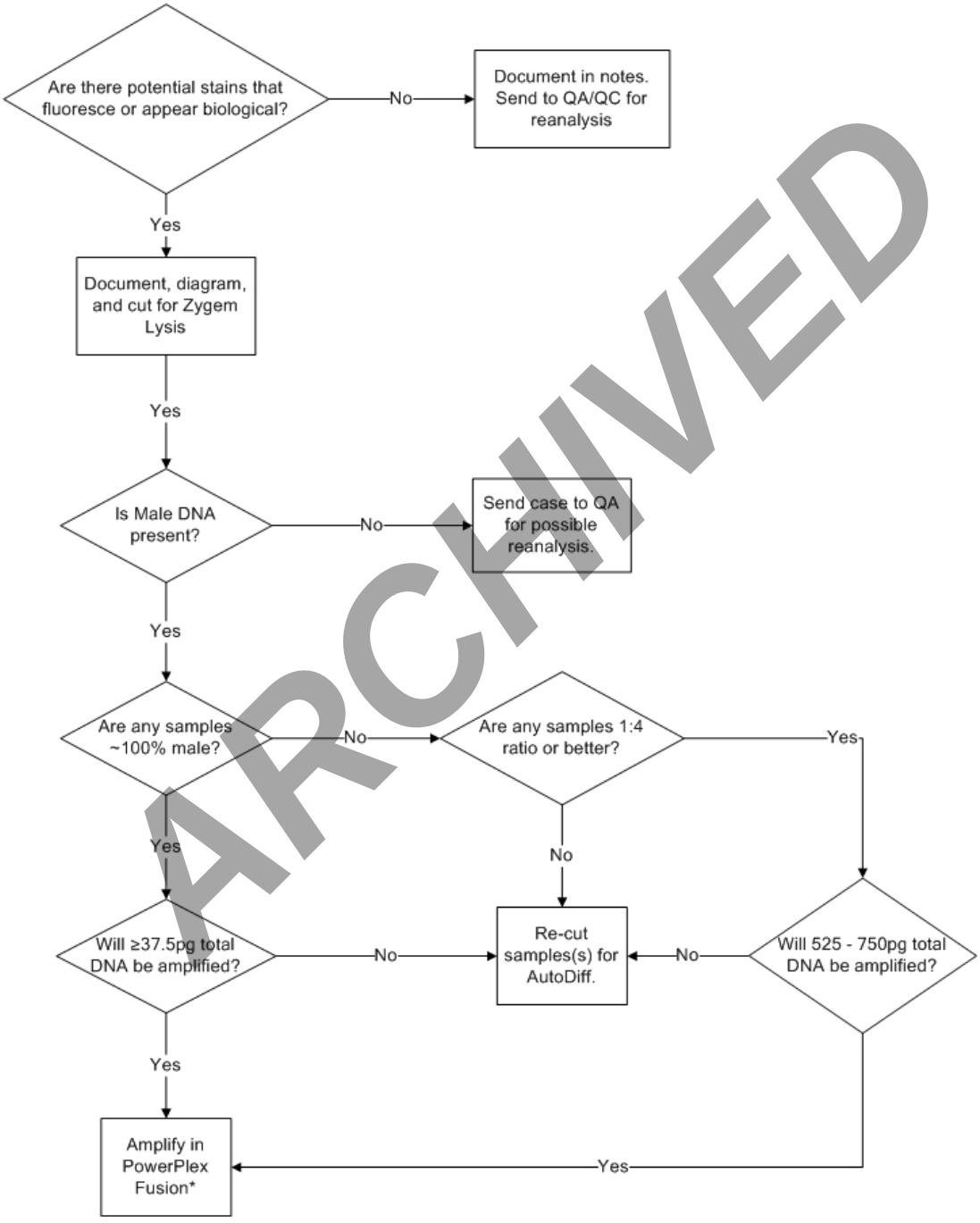
***For single assailant cases, no more than 2 samples should be routinely sent for amplification**

Sexual Assault item processing: swabs in kit



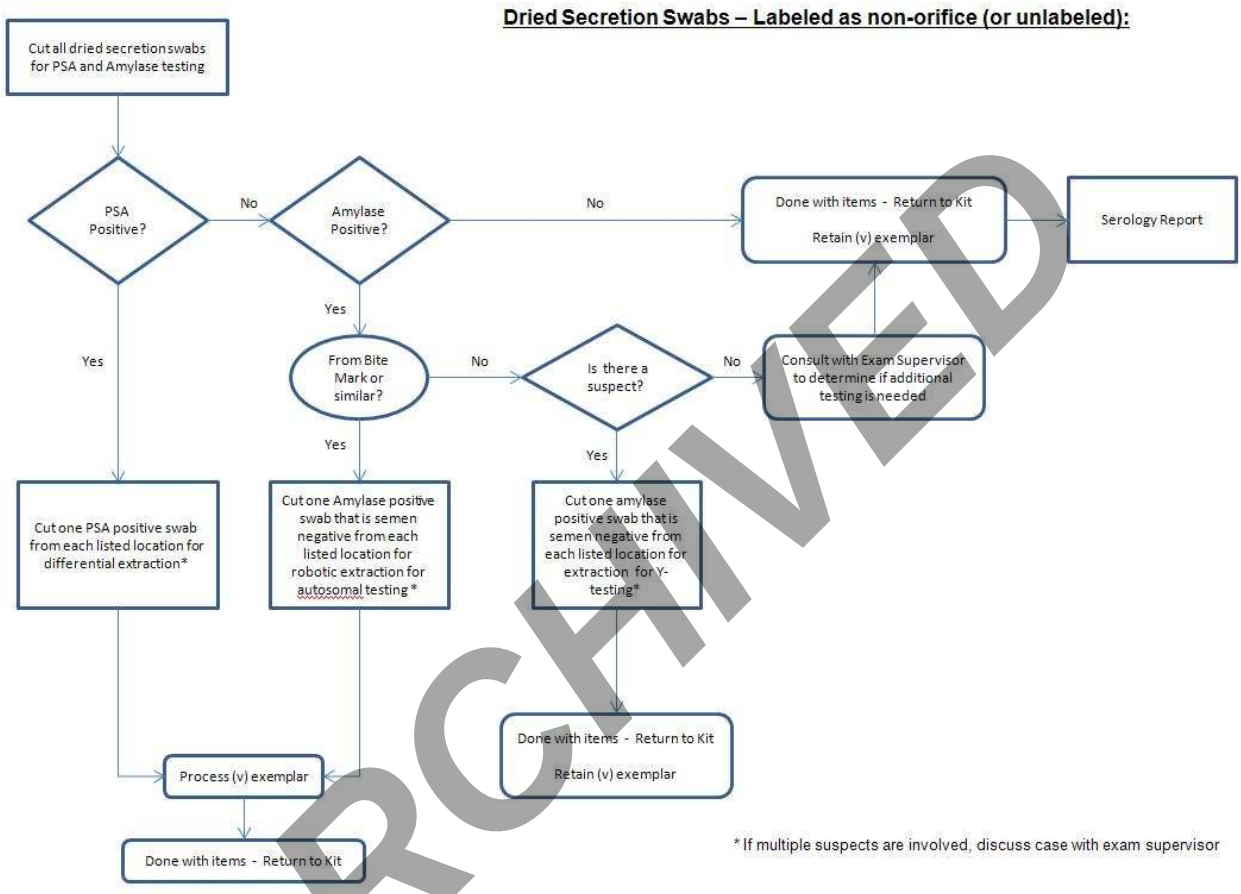
***For single assailant cases, no more than 2 samples should be routinely sent for amplification**

Sexual Assault item processing: Underwear within SAKs

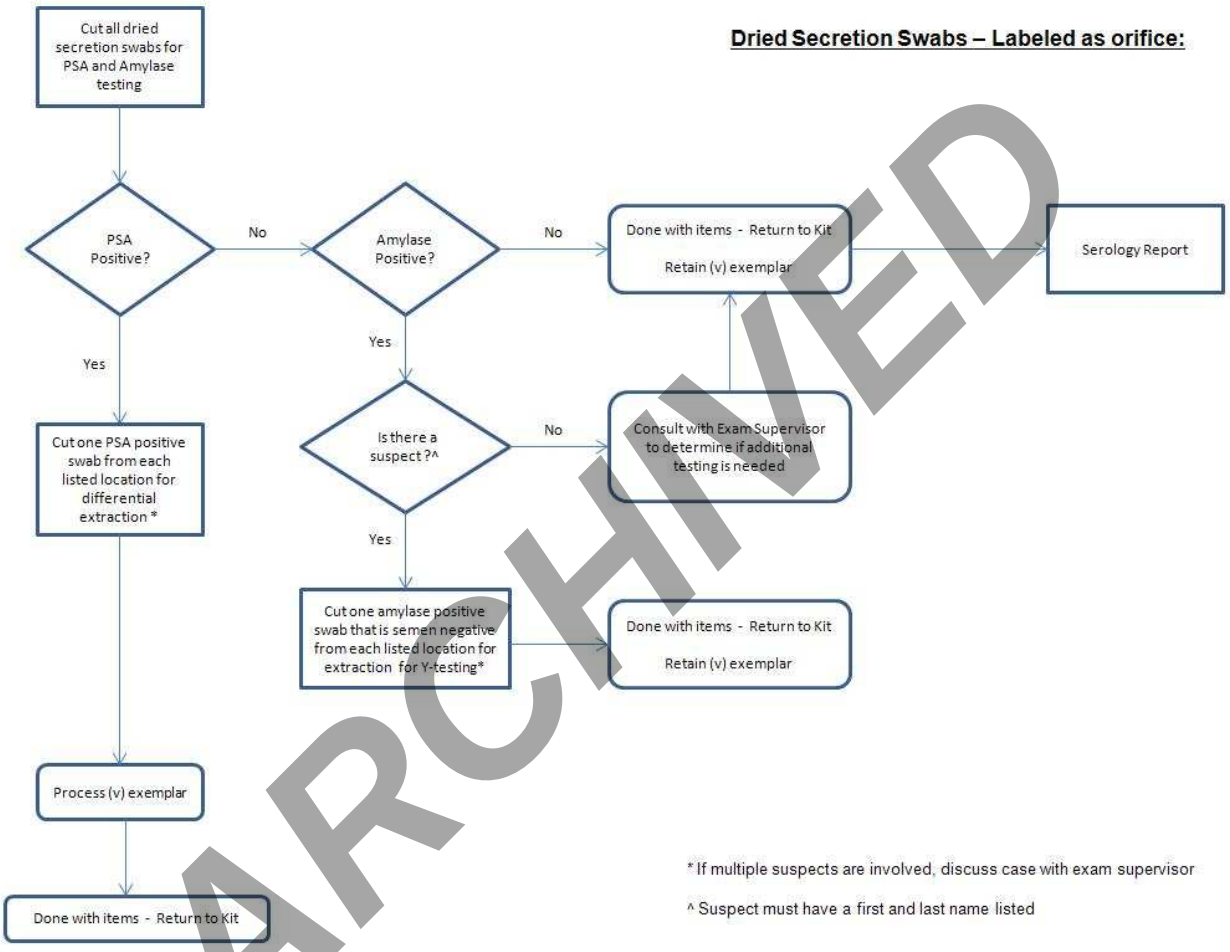


***For single assailant cases, no more than 2 samples should be routinely sent for amplification**

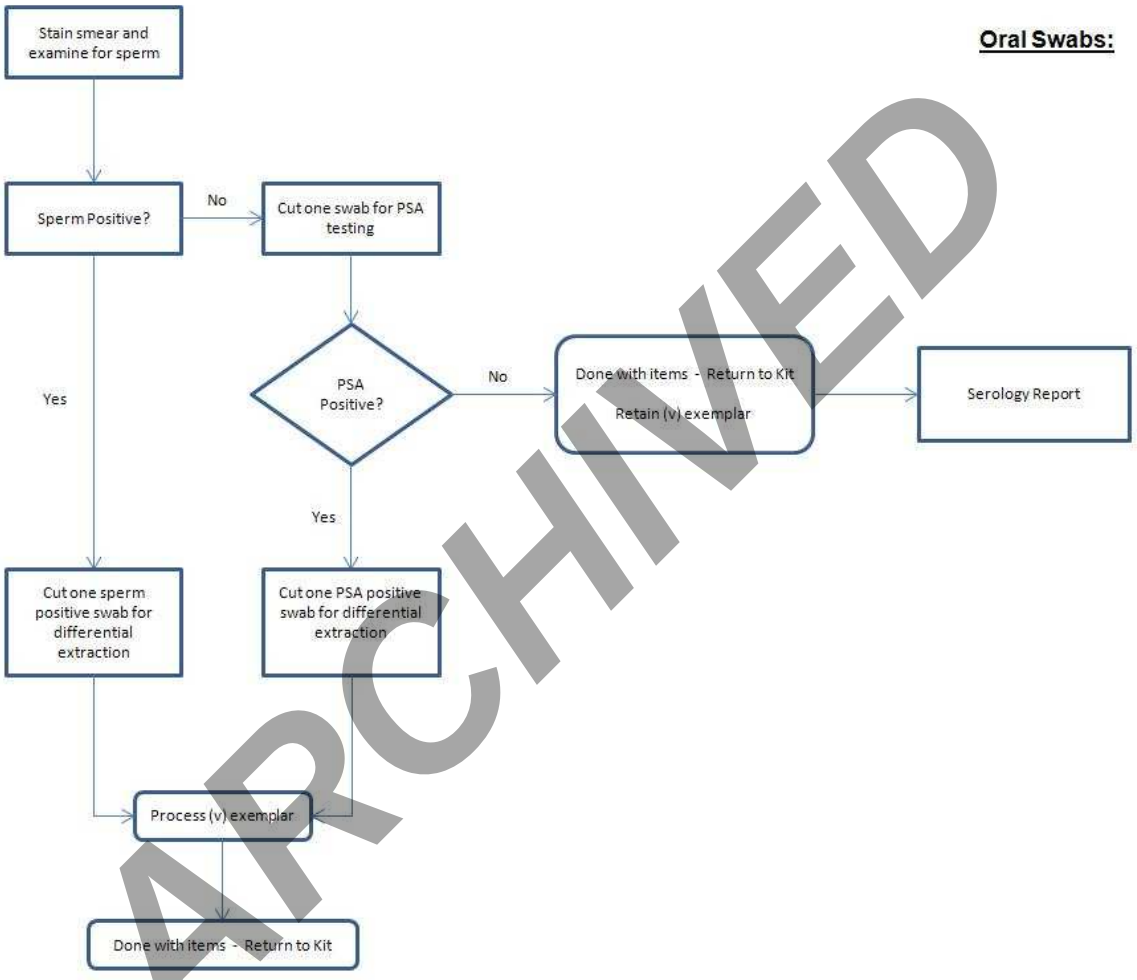
Sexual Assault Kit Processing Flow Chart with Serology Performed



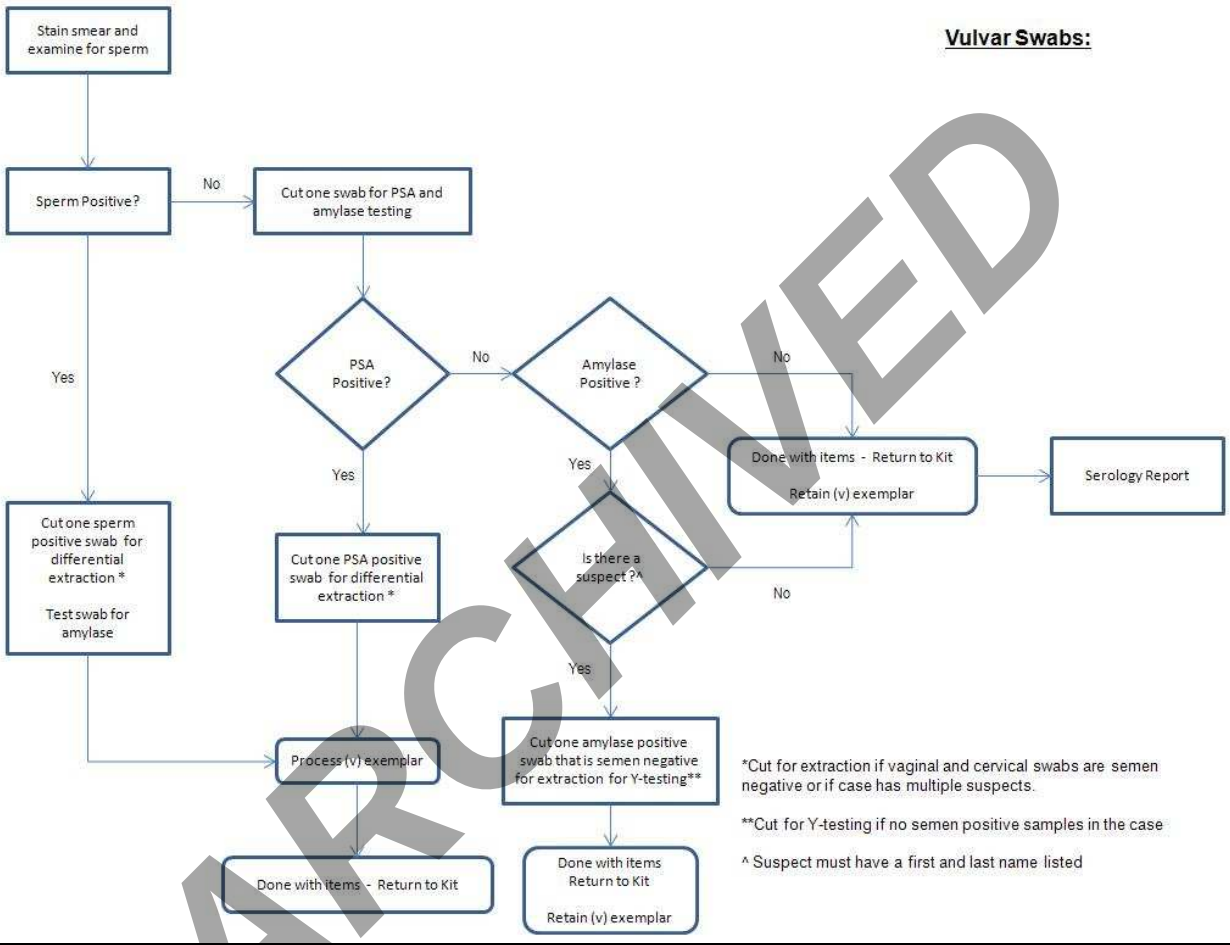
Sexual Assault Kit Processing Flow Chart with Serology Performed



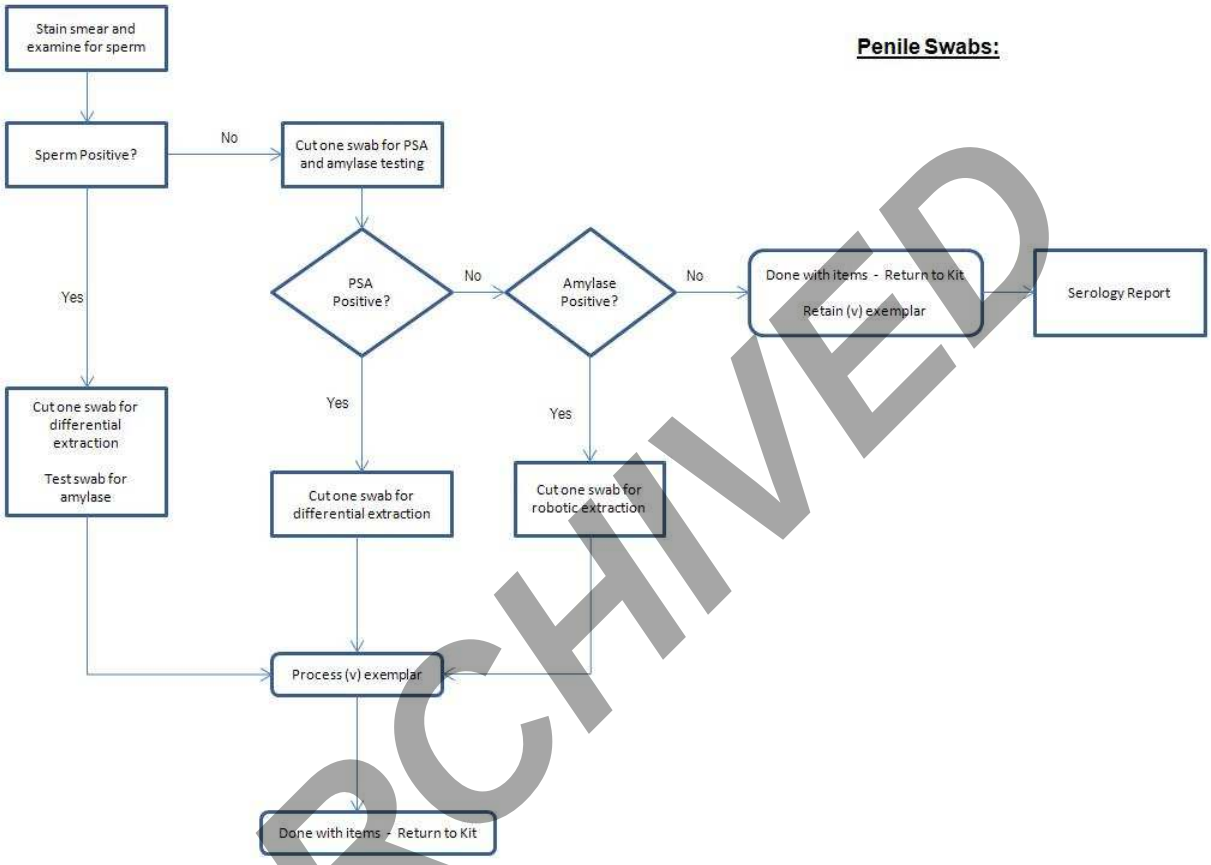
Sexual Assault Kit Processing Flow Chart with Serology Performed



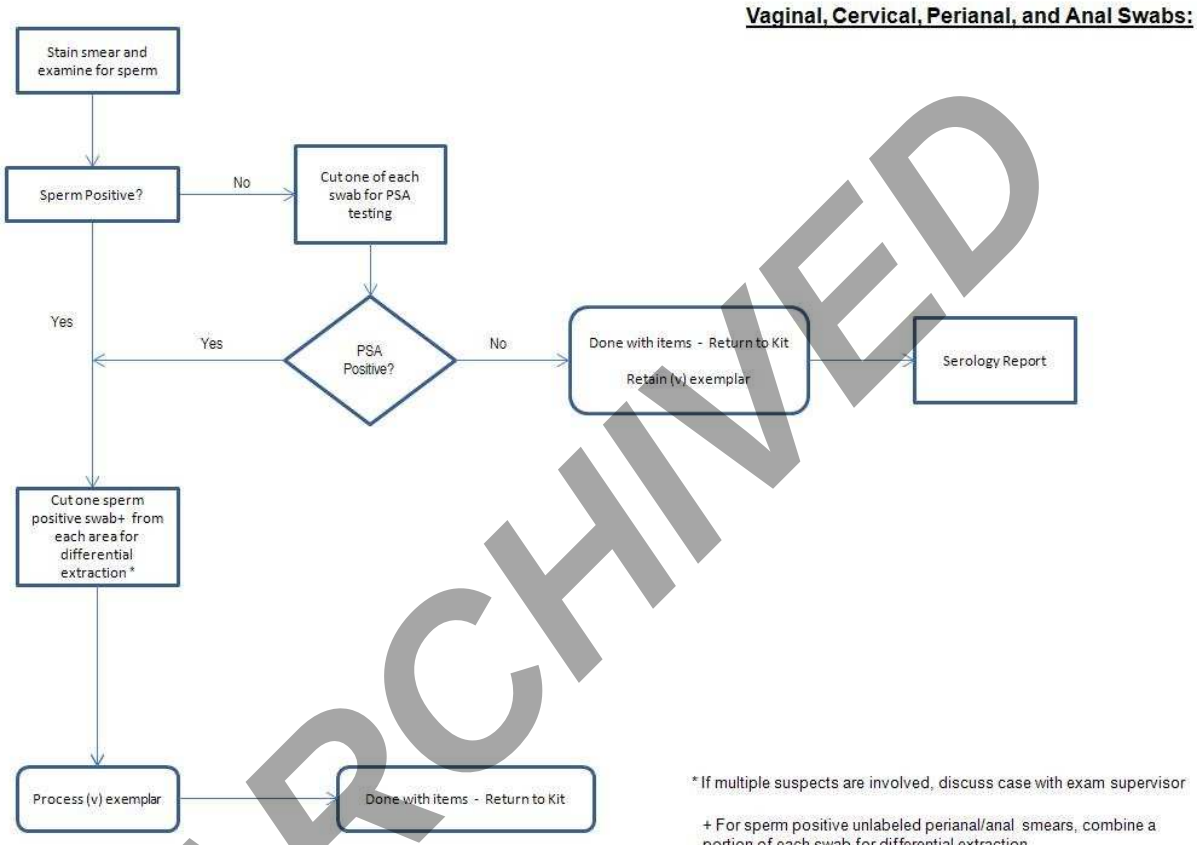
Sexual Assault Kit Processing Flow Chart with Serology Performed



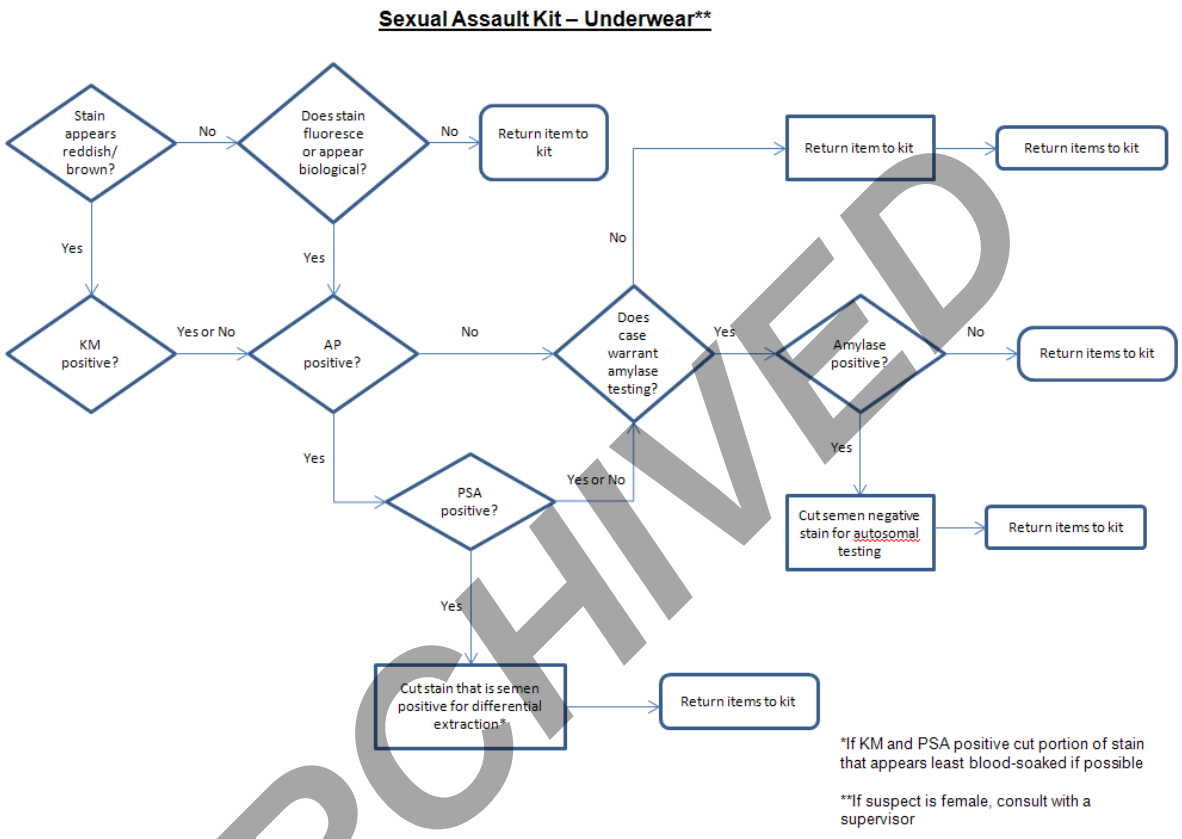
Sexual Assault Kit Processing Flow Chart with Serology Performed



Sexual Assault Kit Processing Flow Chart with Serology Performed



Sexual Assault Kit Processing Flow Chart with Serology Performed



11 Evidence examination – male suspect kits

11.1 Note: In general, for male suspect kits all potential biological stains and swabs will be cut for the appropriate DNA extraction.

11.2 Although testing procedures are similar to sexual assault kit examination, the goal is to try to find victim DNA when examining any suspect kit. This should be kept in mind during examination of all items within the suspect kit.

11.3 In addition to this manual, follow the Note taking – general guidelines and Evidence examination – general guidelines and the Evidence examination – clothing (section 6) when examining any clothing items.

11.4 Use an Evidence Packaging Worksheet for initial documentation of each suspect kit.

11.5 Use the Suspect Evidence Collection Kit Inventory for further documentation.

11.5.1 Note the name of the suspect and information about when and where the kit was collected. Ensure that the name of the suspect corresponds to the name listed on the paperwork in the case file.

11.5.2 **Inventory kit**: The LIMS will assign an item number to each used envelope. Affix a LIMS packaging label to each envelope. The analyst must mark all envelopes with their initials and date of examination.

11.5.2.1 As prompted by the Suspect 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).

11.5.3 If a buccal specimen or other exemplar sample is contained within the kit, contact a supervisor immediately to create a suspect file. Suspect file creation is only necessary if an exemplar sample is present.

11.6 Suspect file creation:

11.6.1.1 A supervisor is responsible for creating the suspect file. The supervisor must:

11.6.1.2 Create a LIMS record and Schedule of Analysis

11.6.1.3 Include the following paperwork in the file upon completion of kit examination:

- 61 form (NYPD complaint report)

- original request for laboratory examination forms
- evidence voucher
- evidence packaging worksheet
- completed kit inventory worksheet

11.7 After creation of a suspect file, the buccal swab is cut and duplicate cut for extraction in accordance with laboratory guidelines.

11.8 **Underwear or related items** contained within kit:

11.8.1 underwear or related items are in the kit, examine them using the Clothing Description Worksheet.

11.8.2 Visually check underwear for any biological stains. Then observe the underwear using an alternate light source. If any fluorescing areas are observed, circle for further testing.

11.8.2.1 If a potentially biological or fluorescing stain is observed on the underwear, document the stain with a diagram and stain number and cut for automated differential extraction.

11.8.2.2 If a pink to reddish-brown stain is observed on the underwear, document the stain with a diagram and stain number and cut for automated differential extraction. KM testing is not necessary.

11.8.3 **Remember that the goal is to try to find victim DNA.** Therefore, non-fluorescing stains may need to be tested further. Refer to the **Suspect kit processing flow charts** for guidance. Stain location and the case scenario will determine what stains need further testing. As every case is different, consult with a supervisor as needed.

11.8.4 At this point, be sure that any stains submitted to extraction are documented, diagrammed, and designated a stain number/letter.

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

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

11.9.1 If a debris envelope was used, note the location from which the debris was collected, or note that the location was not given. Trace evidence examinations are not performed in the Department of Forensic Biology.

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

11.10.1 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 itemized.

11.10.2 Visually check the swabs for the presence of possible biological fluids. If the swabs are pink to reddish-brown in color, note the color of the swabs, however KM testing is not necessary.

11.10.3 Depending on the case narrative, make a cutting from each of the swabs present for the appropriate DNA extraction.

11.10.4 As every case is different, please consult with a supervisor if there is something in the case description that suggests further testing is required.

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

11.11.1 Trace evidence examinations are not performed in the Department of Forensic Biology. However, requests are occasionally made to examine the fingernail scrapings; discuss with a supervisor before starting any examinations of fingernail evidence. If fingernail examination has been approved, refer to Section O of this manual.

11.12 The **chest hair combings** are used to collect possible trace evidence from the chest hair of the suspect.

11.12.1 Trace evidence examinations are not performed in the Department of Forensic Biology.

11.13 The **oral swabs** are used to collect possible biological fluids from that area; the smears are used for a sperm search in cases with a male victim.

11.13.1 Refer to the **Suspect kit processing flow charts** for guidance.

11.13.2 For male victims:

11.13.3 Visually check the swabs for the presence of biological fluids. If the swabs are pink to reddish-brown in color, note the color of the swabs, however KM testing is not necessary.

11.13.3.1 Make a cutting of the swabs for automated differential extraction.

11.13.4 For female victims:

11.13.4.1 In most cases, oral swabs and smears should not be tested. As every case is different, please consult with a supervisor if there is something in the case description that suggests further testing is required.

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

11.14.1 Trace evidence examinations are not performed in the Department of Forensic Biology. However, requests are occasionally made to use the pulled head hair for exemplar DNA testing.

11.15 The **facial hair combings and pubic hair combings** are used to collect possible trace evidence from the facial hair and pubic hair of the suspect.

11.15.1 Trace evidence examinations are not performed in the Department of Forensic Biology.

11.16 The **penile and scrotal swabs** are used to collect possible biological fluids from those areas; the smears are used for a sperm search.

11.16.1 Visually check the swabs for the presence of biological fluids. If the swabs are pink to reddish-brown in color, note the color, however KM testing is not necessary.

11.16.2 Cut the swabs for automated differential extraction.

11.16.3 Refer to the **Suspect kit processing flow charts** for guidance.

11.17 The **anal swabs** are used to collect possible biological fluids from that area; the smears are used for a sperm search.

11.17.1 Refer to the **Suspect kit processing flow charts** for guidance.

11.17.2 For male victims:

11.17.2.1 Visually check the swabs for the presence of biological fluids. If the swabs are pink to reddish-brown in color, note the color, however KM testing is not necessary.

11.17.3 For female victims:

11.17.3.1 In most cases, anal swabs and smears should not be tested. As every case is different, please consult with a supervisor if there is something in the case description that suggests further testing is required.

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

11.19 The **questionnaire, body diagram sheets, and instruction sheets** are intended for the use of the medical personnel. If present, make a copy only of the questionnaire and body diagram sheets for retention with the case record—as a physical copy in the case file and a .pdf attachment in LIMS (as applicable); leave all originals in the kit. No item number is assigned if present. Label each page with the suspect file number, voucher number, analyst's initials, and date of examination.

11.20 Photographs are not supposed to be included in a kit. If present, make a note of it, alert a supervisor, and leave them in the kit. Label with FB number, date of examination, and analyst's initials. No item number is assigned if present.

12 Closing of Suspect kits

12.1 The following kit closing information is for both **female and male victims**. Use the pertinent information for each case.

12.2 **Underwear**

12.2.1 Cut all stains for differential extraction.

12.3 **Dried secretion swabs**

12.3.1 Cut all dried secretion swabs for differential extraction. Refer to the **Suspect kit processing flow charts** for guidance.

12.4 **Penile and scrotal** swabs

12.4.1 Cut one swab from each area for differential extraction. Refer to the **Suspect kit processing flow charts** for guidance.

12.5 **Oral and anal swabs**

12.5.1 Cut one swab from each area for differential extraction. Refer to the **Suspect kit processing flow charts** for guidance.

12.6 After cutting all pertinent items, return all swabs and smears to their respective envelopes.

12.6.1 Seal all kit envelopes with evidence tape and return to the kit.

12.6.2 Seal the kit and return to a secure storage location.

13 Evidence examination – female suspect kits

13.1 Note: In general, for female suspect kits all potential biological stains and swabs will be cut for the appropriate DNA extraction.

13.2 Although testing procedures are similar to sexual assault kit examination, **the goal is to try to find victim DNA when examining any suspect kit**. This should be kept in mind during examination of all items within the suspect kit.

13.3 In addition to this manual, follow the Note taking – general guidelines and Evidence examination – general guidelines and the Evidence examination – clothing (section 6) when examining any clothing items.

13.4 Use an Evidence Packaging Worksheet for initial documentation of each suspect kit.

13.5 Use the Suspect Evidence Collection Kit Inventory form for further documentation.

13.5.1 Note the name of the suspect and information about when and where the kit was collected. Ensure that the name of the suspect corresponds to the name listed on the paperwork in the case file.

13.5.2 **Inventory kit**: The LIMS will assign an item number to each used envelope. Affix a LIMS packaging label to each envelope. The analyst must mark all envelopes with their initials and date of examination.

13.5.2.1 As prompted by the Suspect 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).

13.5.3 If a buccal specimen or other exemplar sample is contained within the kit, contact a supervisor immediately to create a suspect file. Suspect file creation is only necessary if an exemplar sample is present.

13.6 **Suspect file creation**:

13.6.1 A supervisor is responsible for creating the suspect file. The supervisor must:

13.6.1.1 Create a LIMS record and Schedule of Analysis

13.6.1.2 Include the following paperwork in the file upon completion of kit examination:

- 61 form (NYPD complaint report)
- original request for laboratory examination forms
- evidence voucher
- evidence packaging worksheet
- completed kit inventory worksheet

13.7 After creation of a suspect file, the buccal swab is cut and duplicate cut for extraction in accordance with laboratory guidelines.

13.8 **Underwear or related items** contained within kit:

13.8.1 If underwear or related items are in the kit, examine them using the Clothing Description Worksheet. If stains are observed, underwear can be documented using the diagrams that are available or by a quick sketch. Photography is not generally needed.

13.8.2 For male victims:

13.8.2.1 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.

13.8.2.2 If a potentially biological or fluorescing stain is observed on the underwear, document, diagram and assign a stain number, and cut the stain for the appropriate extraction. If a pink to reddish-brown stain is observed on the underwear, document, diagram and assign a stain number, Cut the stain for the appropriate extraction.

13.8.2.3 At this point, be sure that any stains submitted to extraction are diagrammed and designated a stain number/letter.

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

13.8.3 For female victims:

13.8.3.1 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.

13.8.3.2 If a fluorescing stain is observed on the underwear, document the stain with a diagram and stain number, and cut the stain for the appropriate extraction.

13.8.3.3 If a pink to reddish-brown stain is observed on the underwear, document this in your notes and consult with a supervisor to see if further testing should be performed.

13.8.3.4 **Remember that the goal is to try to find victim DNA.** Stain location and the case scenario will determine what stains need further testing. Consult with a supervisor as needed.

13.8.3.5 At this point, be sure that any stains cut for extraction are diagrammed and designated a stain number/letter.

13.8.3.6 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.

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

13.9.1 If a debris envelope was used, note the location from which the debris was collected, or note that the location was not given. Trace evidence examinations are not performed in the Department of Forensic Biology.

13.10 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.

13.10.1 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 itemized.

13.10.2 Refer to the **Suspect kit processing flow charts** for guidance.

13.10.3 For male victims:

13.10.3.1 Visually check the swabs for the presence of biological fluids. If the swabs are pinkish to reddish-brown in color, note the color but KM testing is not necessary. Make a cutting from each of the swabs present for the appropriate extraction. As every case is different, please consult with a supervisor if there is something in the case description that suggests further testing is required.

13.10.4 For female victims:

13.10.4.1 Visually check the swabs for the presence of biological fluids. If the swabs are pinkish to reddish-brown in color, note the color, but KM testing is not necessary. Make a cutting from each of the swabs present for the appropriate extraction. As every case is different, please consult with a supervisor if there is something in the case description that suggests further testing is required.

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

13.11.1 Trace evidence examinations are not performed in the Department of Forensic Biology. However, requests are occasionally made to examine the fingernail scrapings; discuss

with a supervisor before starting any examinations of fingernail evidence. If fingernail examination has been approved, refer to theEvidence examination – Fingernail Scrapings (or Clippings) section of this manual.

13.12 The **chest hair combings** are used to collect possible trace evidence from the chest hair of the suspect.

13.12.1 Trace evidence examinations are not performed in the Department of Forensic Biology.

13.13 The **oral swabs** are used to collect possible biological fluids from that area; the smears are used for a sperm search.

13.13.1 Refer to the **Suspect kit processing flow charts** for guidance.

13.13.2 For male victims:

13.13.2.1 Visually check the swabs for the presence of biological fluids. If the swabs are pinkish to reddish-brown in color, note the color, but KM testing is not necessary.

13.13.2.2 Make a cutting of the swab for automated differential DNA extraction.

13.13.3 For female victims:

13.13.3.1 In most cases, oral swabs and smears should not be tested. As every case is different, please consult with a supervisor if there is something in the case description that suggests further testing is required.

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

13.14.1 Trace evidence examinations are not performed in the Department of Forensic Biology. 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.

13.15 The **facial hair combings and pubic hair combings** are used to collect possible trace evidence from the facial hair and pubic hair of the suspect.

13.15.1 Trace evidence examinations are not performed in the Department of Forensic Biology.

13.16 The **vaginal and cervical swabs** are used to collect possible biological fluids from those areas; the smears are used for a sperm search.

13.16.1 Visually check the swabs for the presence of biological fluids. If the swabs are pinkish to reddish-brown in color, note the color, but KM testing is not necessary.

13.16.2 Refer to the **Suspect kit processing flow charts** for guidance.

13.16.3 For male victims:

13.16.3.1 Make a cutting from each swab type for automated differential extraction.

13.16.4 For female victims:

13.16.4.1 In most cases, vaginal and cervical swabs and smears should not be tested. As every case is different, please consult with a supervisor if there is something in the case description that suggests further testing is required.

13.17 The **anal swabs** are used to collect possible biological fluids from those areas; the smears are used for a sperm search.

13.17.1 For male victims:

13.17.1.1 Visually check the swabs for the presence of biological fluids. If the swabs are pinkish to reddish-brown in color, note the color, however KM testing is not necessary.

13.17.1.2 Make a cutting of the swab for automated differential extraction.

13.17.2 For female victims:

13.17.2.1 In most cases, anal swabs and smears should not be tested. As every case is different, please consult with a supervisor if there is something in the case description that suggests further testing is required.

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

13.19 The **questionnaire, body diagram sheets, and instruction sheets** are intended for the use of the medical personnel. If present, make a copy only of the **questionnaire and body diagram sheets** for retention with the case record—as a physical copy in the case file and a .pdf attachment in LIMS (as applicable); leave all originals in the kit. No item number is assigned if present. Label each page with the suspect file number, voucher number, analyst's initials, and date of examination.

13.20 Photographs are not supposed to be included in a kit. If present, make a note of it, alert a supervisor, and leave them in the kit. Label with FB number, date of examination, and analyst's initials. No item number is assigned if present.

13.21 Refer to the **Suspect kit processing flow charts** for guidance.

13.22 **Underwear**

13.22.1 All stains should be sent to automated differential extraction.

13.23 **Dried secretion** swabs

13.23.1 Make a cutting from each swab for the appropriate extraction.

13.24 **Vaginal and cervical** swabs

13.24.1 Cut one of each swab type for automated differential extraction.

13.25 **Oral and anal** swabs

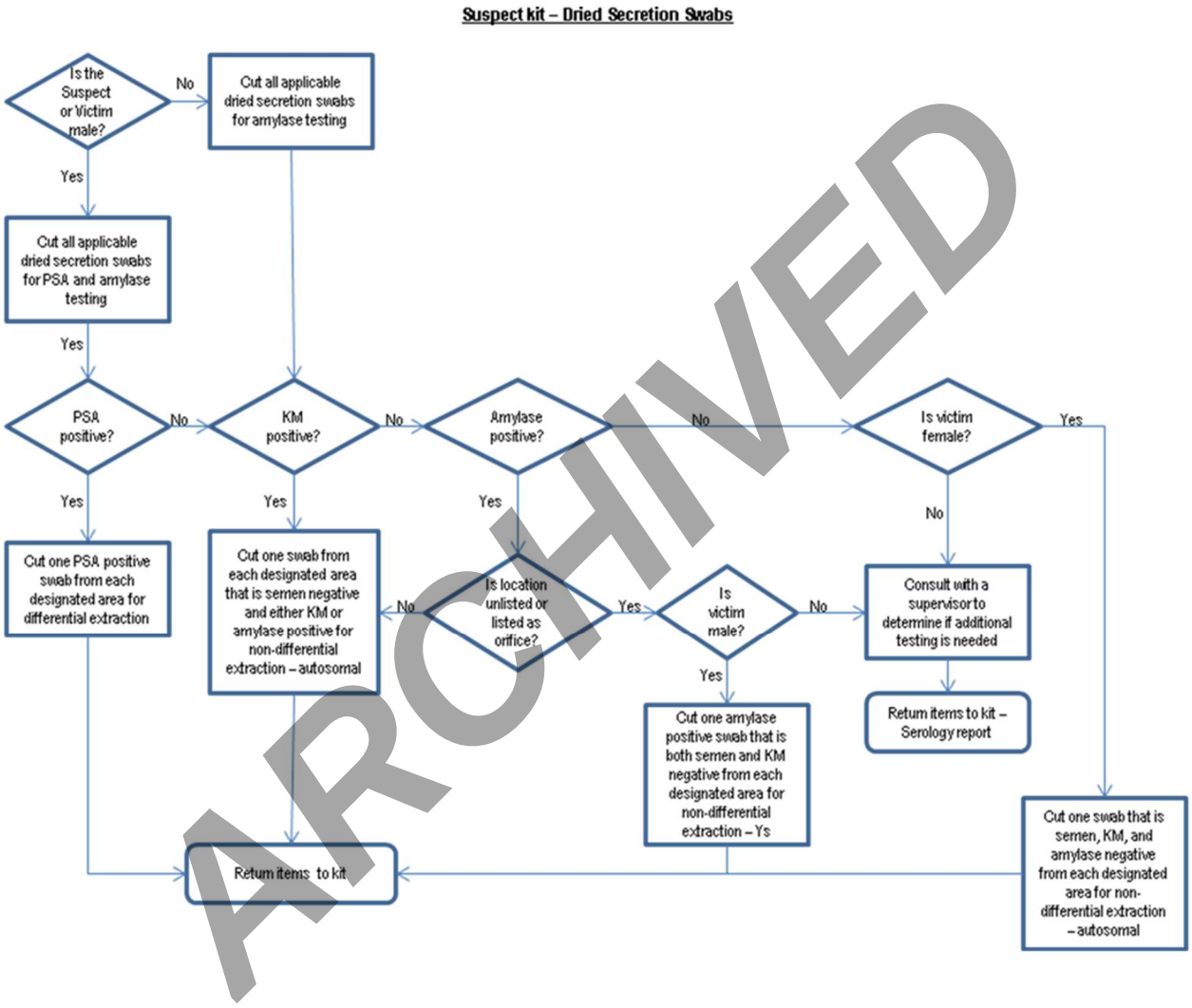
13.25.1 Cut one of each swab type for automated differential extraction.

13.26 After cutting all pertinent items, return all swabs and smears to their respective envelopes.

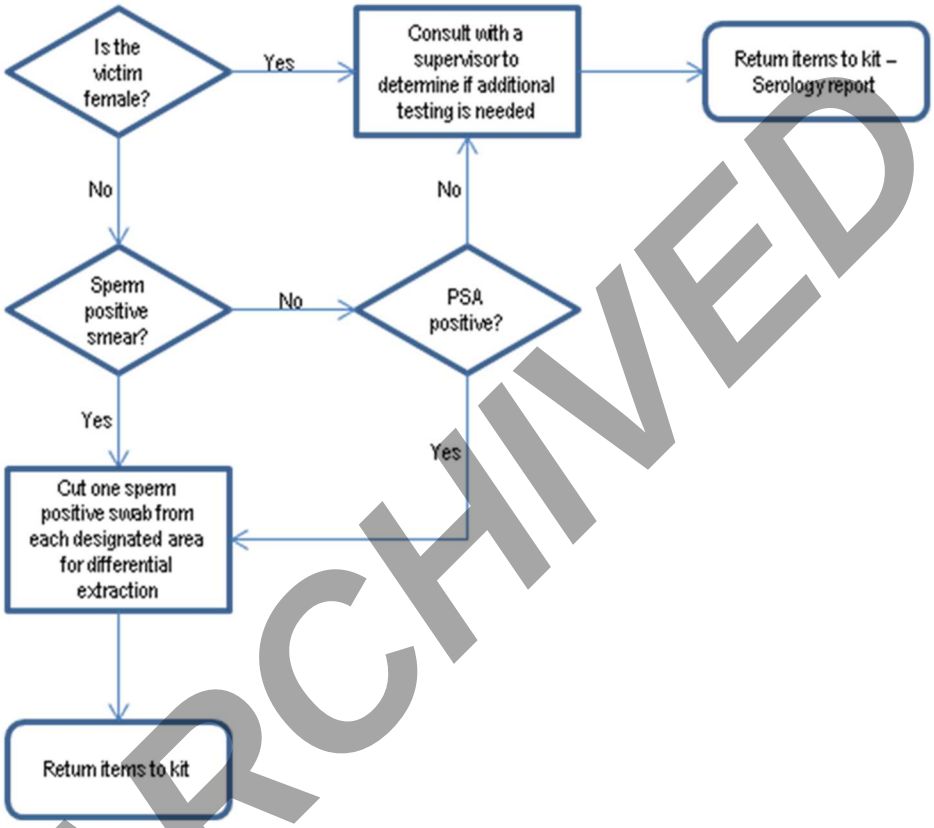
13.26.1 Seal all kit envelopes with evidence tape and return to the kit.

13.26.2 Seal the kit and return to a secure storage location.

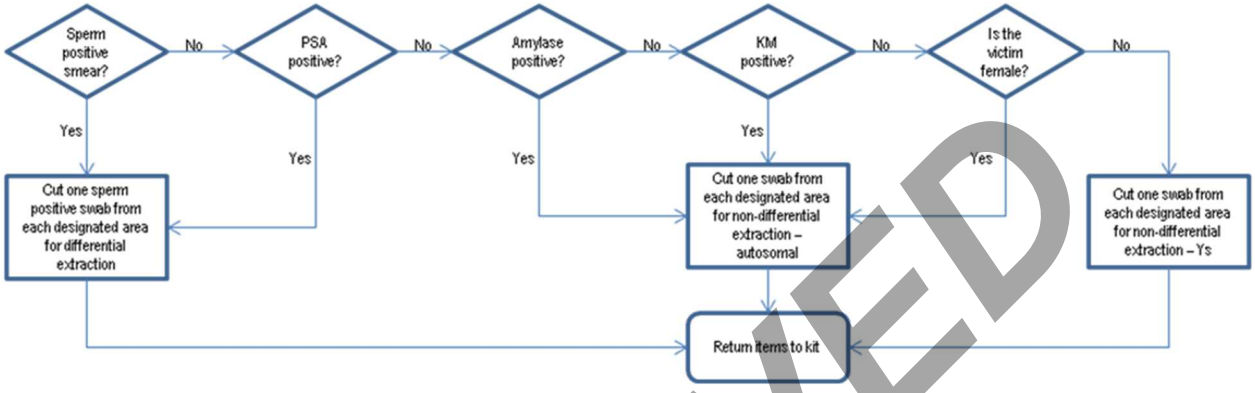
Suspect kit processing flow charts



Suspect Kit – Oral, Anal, Vaginal, and Cervical Swabs

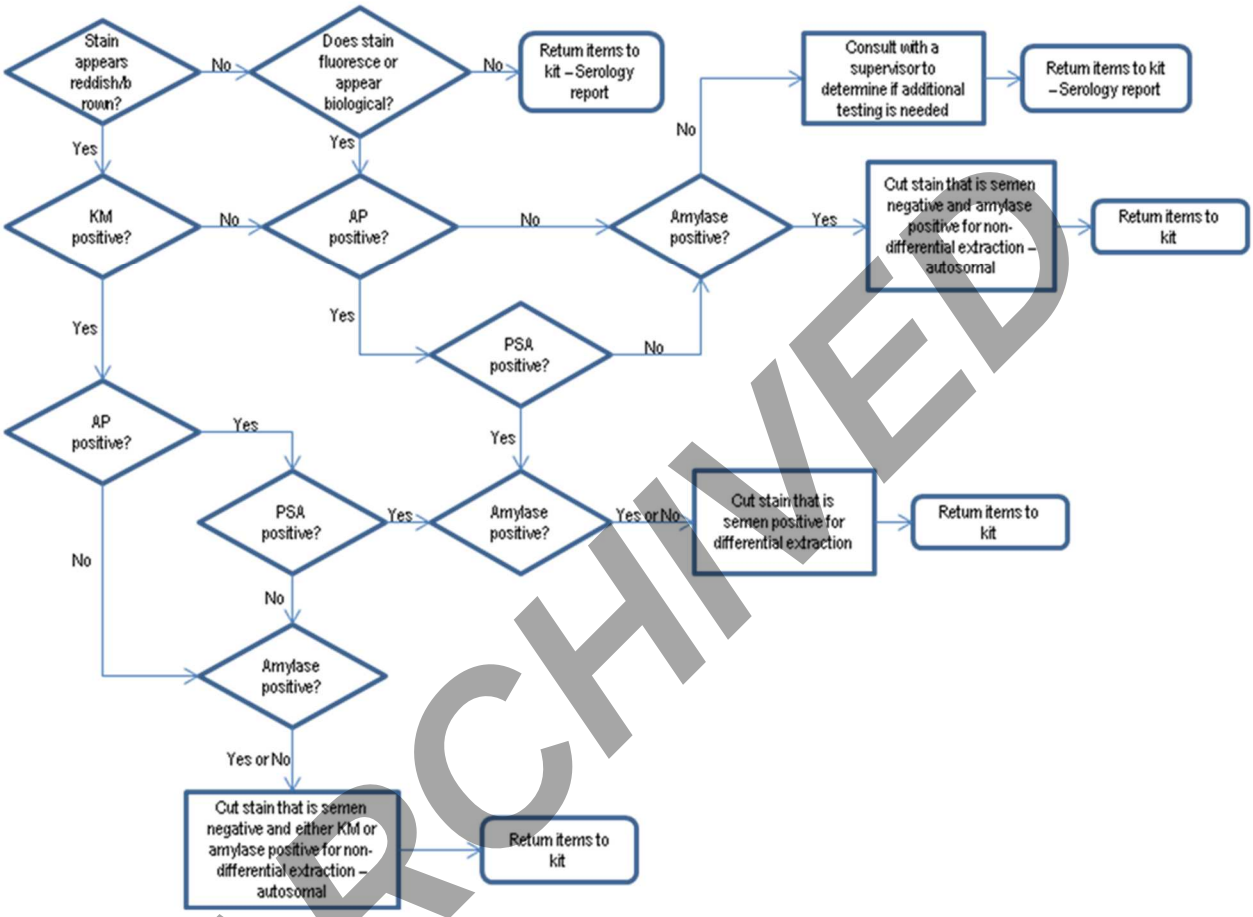


Suspect Kit – Penile and Scrotal Swabs

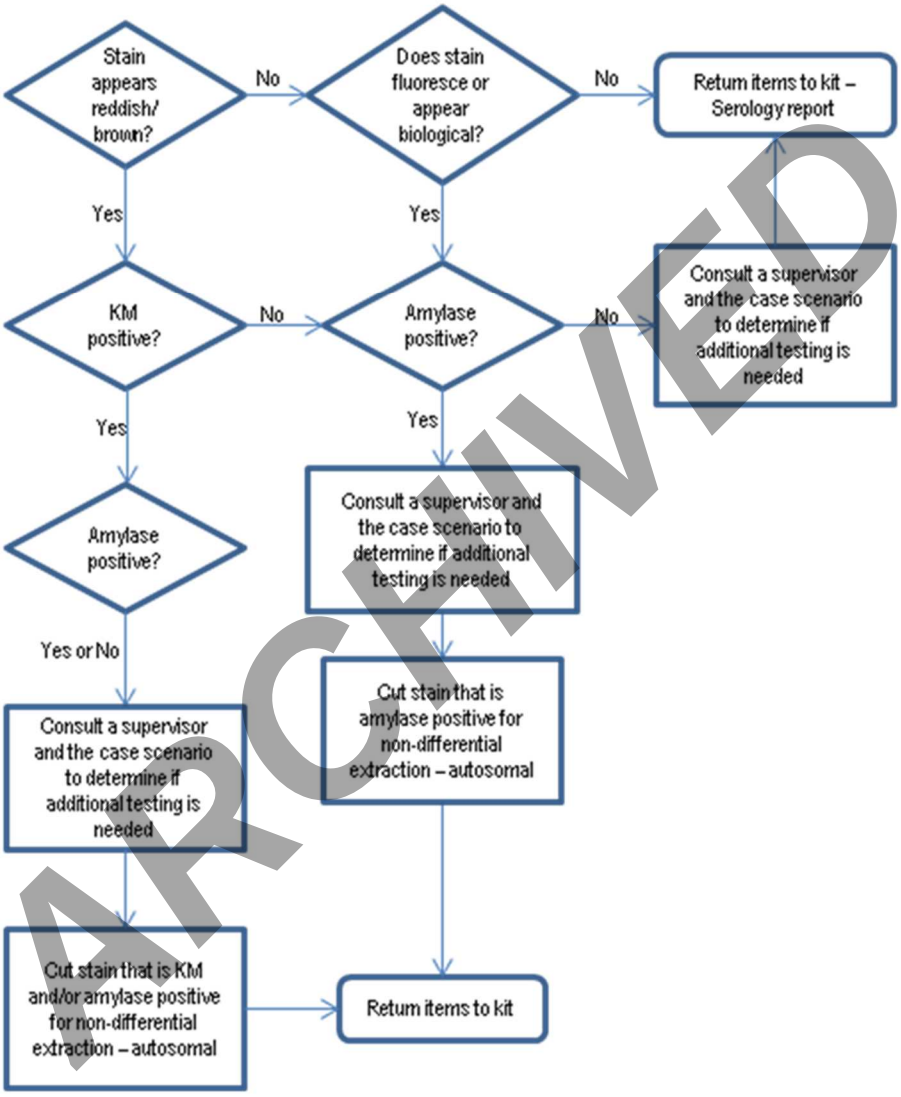


Evidence Examination		
Status:Published		Document ID: 988
DATE EFFECTIVE 08/15/2017	APPROVED BY Quality Assurance Manager	PAGE 43 OF 56

Suspect Kit – Underwear (Suspect and/or Victim is Male)



Suspect Kit – Underwear (Suspect and Victim are Female)



14 Evidence examination – non post-mortem exemplars

14.1 Follow the general Note taking – general guidelines and Evidence examination – general guidelines when examining any exemplar item.

14.2 **True exemplars**:

14.2.1 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.

14.2.2 Use the General Packaging Worksheet for initial documentation of each item.

14.2.2.1 For a blood sample, follow the bloodstain preparation section of the Serology Manual. Cut a portion of the dried bloodstain card for exemplar extraction, using the initials of the individual in the short sample name.

14.2.2.2 For an oral swab, document the sample using the General Packaging and Exemplar Examination Worksheets. Cut approximately ¼ of the swab for exemplar extraction, using the initials of the individual in the short sample name.

14.2.2.3 Retain the victim exemplars from sexual assault. Place the swab(s) in a coin envelope labeled with the FB number, voucher number, item number, victim name, analyst's initials, and date of examination. The coin envelope should be placed in a Kapak envelope and heat sealed. The FB number should be written on the Kapak and the analyst's initials and date of examination should be written across the seal. Place the exemplar in a secure storage location and return the empty packaging to the EU. For blood samples, retain the stain card and clean the empty tubes with 10% bleach and return them along with the packaging to the Evidence Unit.

14.3 **Pseudo-exemplars**:

14.3.1 It is the policy of the Department of Forensic Biology to accept and test "pseudo-exemplars". 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, a coffee cup left behind after questioning, or a bottle the suspect was seen handling. 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).

14.3.1.1 Use the General Packaging Worksheet for initial documentation of each item.

14.3.1.2 For a cigarette butt "pseudo-exemplar," document the sample using the Exemplar Examination Worksheet. Cut a piece of the filter and paper portion for **pseudo-exemplar extraction**.

14.3.1.3 If an item (such as cup or bottle) is submitted, use the Exemplar Examination Worksheet for documentation. Use a cotton-tipped swab moistened with distilled water to swab the surface of contact. Briefly allow the swab to dry and then cut a portion of the swab for **pseudo-exemplar extraction**. Amylase testing is not necessary for pseudo-exemplars.

14.3.1.4 For other items submitted as pseudo-exemplars, cut or swab the item as appropriate. It may be necessary to consult with a supervisor to determine the best approach.

14.3.1.5 Remember to designate samples taken from pseudo-exemplars using an appropriate LIMS suffix to indicate that it is not a true exemplar. For example: "_AM" for bottles and cups or "_CB" for cigarette butts. For short sample description, include the item type and initials of the person providing the pseudo exemplar. For example: "btlRB" for a bottle or "cigRB" for a cigarette butt.

15 Evidence examination – condom

15.1 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.

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

15.2.1 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.

15.2.2 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.

15.2.3 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.

15.2.4 Separately swab both the "inside" and "outside" of the condom, using no more than two swabs for each surface. Since it usually can't be conclusively determined which surface is which, use quotes to describe the "inside" and "outside."

15.2.5 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. Consult a supervisor if needed.

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

16 Evidence Examination – Products of Conception

16.1 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).

16.2 The *placenta* is a temporary organ of pregnancy. Anatomically, the 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:

16.2.1 By naked eye (Figure 1a and 1b)

16.2.2 Using stereo-microscopy (Figure 2a and 2b),

16.2.3 Using light microscopy of formalin fixed, paraffin embedded, and stained tissue (Figure 3a and 3b).

16.3 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.

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

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

16.4.2 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.

16.4.3 Weigh each item and document the tissue weight.

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

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

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

16.4.5.2 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 a stereo microscope.

16.4.5.3 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.

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

16.4.5.5 Submit samples for DNA extraction on an **Exemplar** test batch, using the notation "D" for decidual tissue and ACV@ for chorionic villi as appropriate.

16.4.5.6 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 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 **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
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

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

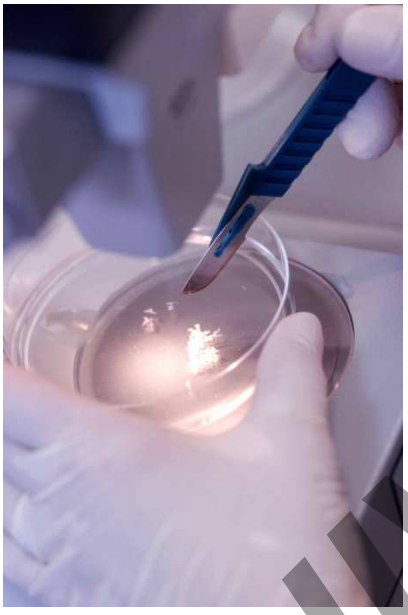


Figure 1a: CV by naked eye

Figure 1b: CV by naked eye - detail

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

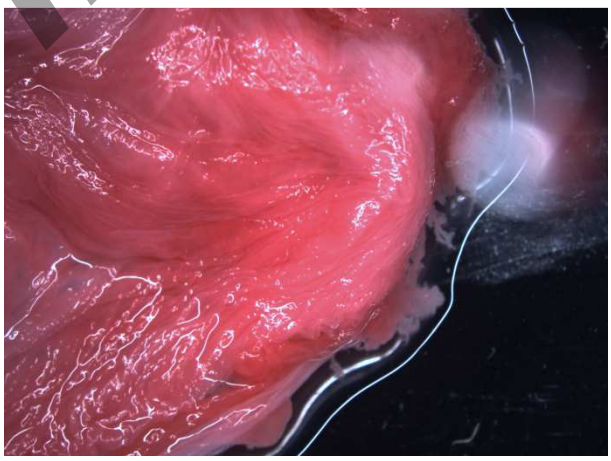


Figure 2b:
Stereo-microscopic (MIDEO) image of Decidua.

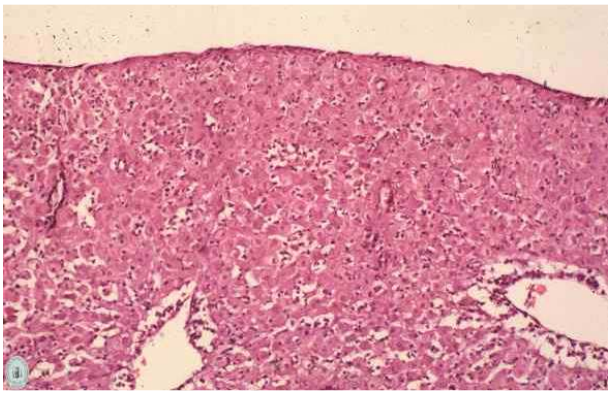


Figure 3a:
Microscopic image of formalin fixed, paraffin embedded and routinely stained decidua

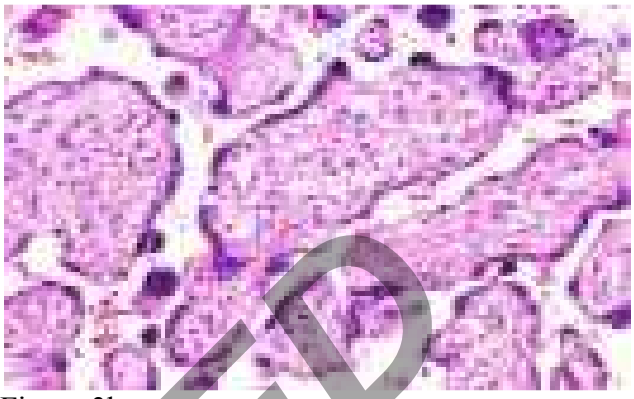


Figure 3b:
Microscopic image of formalin fixed, paraffin embedded and routinely stained chorionic villi

17 Evidence Examination – Touched Items

17.1 Held or touched items may be expected to yield low amounts of DNA. These items should be swabbed or scraped according to the protocols described below.

17.2 Documentation

17.2.1 Record the Evidence Packaging as the initial documentation of each item.

17.2.2 Follow the Note taking – general guidelines and Evidence examination – general guidelines for documentation of all items and samples taken. For further clarification see below.

17.2.2.1 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.

17.2.2.2 Note the specific area being swabbed and/or any stains observed. Include the dimensions of the stain or area.

17.2.2.3 If an area is reddish brown, KM test the area if appropriate. For a very small area, consult a supervisor.

17.2.3 Determine the areas of the item to be swabbed separately if necessary. Describe the sample assignment in detail in the notes. Examples follow:

17.2.3.1 For duct tape used to bind a victim, multiple samples may be taken depending upon the circumstances of the case and the item. These samples may 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.

17.2.3.2 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.

17.2.3.3 Each of the sections will be initially treated as separate samples.

17.3 Swabbing a touched item using SDS swabs

17.3.1 Obtain as many irradiated SDS swabs and aliquots of the 0.01% SDS swabbing solution as may be necessary for the item currently being examined. As a general rule, approximately 6 square inches may be effectively swabbed with one SDS swab. This is dependent on the condition and type of evidence being examined.

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

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

17.3.4 With a tube opener or lint-free wipe, open the tube and remove the swab with tweezers.

17.3.5 Dip a portion of the swab into the swabbing solution (0.01% SDS). Do not saturate, rather moisten, the swab. If too much SDS solution is used, DNA may be left behind on the item.

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

17.3.7 Thoroughly swab the target area with gentle pressure making sure to leave as little of the swabbing solution behind as possible.

17.3.7.1 **NOTE:** Multiple swabs may be used for a single area, as necessary. Document the use of multiple swabs and note the area which was swabbed. Only submit as many swabs in a single tube as may be effectively covered by digestion buffer (approximately 200µl) at the extraction stage. (The samples divided into separate extraction tubes may then be recombined into one extract in a microcon step.)

17.3.7.2 Should residual SDS be left on an item, use a dry SDS swab to collect it and include it in the extraction tube to be extracted along with the original swab(s).

17.3.7.3 Place the swab(s) into the extraction tube(s).

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

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

17.4 Cutting swabs submitted by another party

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

17.4.2 Cut the exterior layer of cotton or surface of the swab that appears to have come in contact with the evidence. Make a cutting of one third of the swab as normal. Then, starting from the area of the initial cut, peel the outer layer of the swab. Cut in circular pattern, essentially lifting that top layer off the stick with the scissors. Take care not to cut the wooden stick.

17.4.3 Repackage the evidence and return to a secure storage location.

18 Evidence examination – Fingernail Scrapings (or Clippings)

18.1 Fingernail scrapings or clippings would be examined upon the request of the NYPD or law office and approval by a supervisor. Generally, information that indicates a struggle between the victim and the suspect must be provided in order to approve this testing.

18.2 Use the Evidence Packaging Worksheet for initial documentation, where applicable. In many cases, this may have been completed during the original examination of the sexual assault kit or post-mortem kit.

18.3 **Note:** Fingernail scrapings and clippings are to be sub-itemized by how they were received. Most often, they are initially separated by the right hand (containing scrapings or clippings or both) and the left hand (containing scrapings or clippings or both). For example, if the fingernails are item 1.4, they should be sub-itemized as items 1.4.1 (right hand) and 1.4.2 (left hand). Individual scraping dowels and fingernails must then be sub-itemized again before examination.

18.3.1 For example, if the fingernail packaging from a sexual assault kit contains all possible scrapings and clippings, the items should be listed as:

1.4 fingernail scrapings/clippings (itemized below)
1.4.1 right hand fingernail scrapings/clippings (itemized below)
1.4.1.1 right hand fingernail scrapings
1.4.1.2 right hand fingernail clipping
1.4.1.3 right hand fingernail clipping
1.4.1.4 right hand fingernail clipping
1.4.1.5 right hand fingernail clipping
1.4.1.6 right hand fingernail clipping
1.4.2 left hand fingernail scrapings/clippings (itemized below)
1.4.1.1 left hand fingernail scrapings
1.4.1.2 left hand fingernail clipping
1.4.1.3 left hand fingernail clipping
1.4.1.4 left hand fingernail clipping
1.4.1.5 left hand fingernail clipping
1.4.1.6 left hand fingernail clipping

18.4 In cases where the right and left hands are packaged separately, one level of sub-itemization will suffice.

18.4.1 For example:

2 right hand fingernail scrapings/clippings (itemized below)
- 2.1 right hand fingernail scrapings
- 2.2 right hand fingernail clipping
- 2.3 right hand fingernail clipping
- 2.4 right hand fingernail clipping
- 2.5 right hand fingernail clipping
- 2.6 right hand fingernail clipping

3 right hand fingernail scrapings/clippings (itemized below)
- 3.1 right hand fingernail scrapings
- 3.2 right hand fingernail clipping
- 3.3 right hand fingernail clipping
- 3.4 right hand fingernail clipping
- 3.5 right hand fingernail clipping
- 3.6 right hand fingernail clipping

18.5 Fingernail scrapings

18.5.1 Complete a General Items Worksheet for the submitted fingernail scrapings. If packaged together, multiple scraping dowels can be examined at the same time (but sampled separately). If fingernail scrapings were received and previously documented in a sexual assault kit, you may need to edit the quantity and itemize the scraping dowels individually.

18.5.2 Cut a ~¼ inch piece from both ends of the individual dowel and place into one extraction tube (per dowel). Collect any debris that may have fallen off the dowel and place in an extraction tube.

18.5.3 Add the appropriate "_FN" suffix to all collected samples and submit for robotic extraction.

18.6 Fingernail clippings

18.6.1 Complete a Nail Examination Worksheet for each item. If packaged together, multiple fingernails can be examined at the same time (but sampled separately). If broken, pieces of fingernails should be treated as separate samples (there may be more than 10 samples).

18.6.2 Fingernails **must** be photographed since they will not be returned to their packaging. Fingernails can be grouped by hand for a photograph; photograph as described in the general guidelines of this manual.

18.6.3 Examine the fingernails under the stereoscope. Itemize any discovered skin or debris that can be separated from the fingernail as an additional sample.

18.6.4 KM test as needed. If a blood stain is suspected, collect the entire stain with a sterile swab moistened with water. Use a small piece of that swab for presumptive testing. If KM positive, consume the remainder of the collected sample for robotic extraction.

18.6.4.1 **Note:** With the exception of homicides, a KM positive sample is sufficient for the first round of testing. (For post-mortem samples, it is more likely that a KM positive is a result of the presence of victim, rather than foreign, blood.)

18.6.5 Cut longer fingernails in half; large samples may hinder the extraction process. Add the appropriate "_FN" suffix to all collected samples and submit for manual fingernail extraction.

18.6.6 **Note:** When submitting fingernails for extraction, the Evidence Item (fingernail) is "consumed". For sexual assault kits, the empty packaging can be returned to the kit. For retained post-mortem samples, create a package in the LIMS and note it as "created in lab". Add any remaining items to this package, print and affix the additional label. Post-mortem samples are to be retained in the appropriate post-mortem storage unit.