



06.02.01

Minimally Invasive Tissue Sampling (MITS) Procedure Standard Operating Procedure (SOP)

Version 2.0
October 2019

Version History

Version #	Implemented By	Revision Date	Approved By	Approval Date	Language	Reason
1.0	ISGlobal	19-SEPT-2016	CHAMPS Program Office	19-SEPT-2016	English	Initial Version
2.0	ISGlobal	01-OCT-2019	CHAMPS Program Office		English	Revised stillbirth and placental specimens

Approval Signatures

Approved By: _____ Date: _____
Author

Print Name and Title

Approved By: _____ Date: _____
Associate Director

Print Name and Title

Contents

Version History	2
Approval Signatures	2
1.0 Purpose	4
2.0 Scope	4
3.0 Roles and Responsibilities	4
4.0 Related Documents	4
5.0 Abbreviations, Acronyms, and Terminology	5
6.0 Overall Process Flow Map	6
7.0 Equipment/Materials	6
8.0 MITS Procedures	7
9.0 Placenta Evaluation (for stillbirths)	17
9.0 Safety	19
10.0 References	19
11.0 Appendix	19
Appendix A: Specimen Collection Kit Components	20
Appendix B: Retired Specimen Collection	22
Appendix C: Anthropometry: A Checklist: Measuring Length of Children in the Post-Mortem Setting	23
Appendix D: Cryovial and Formalin Jar Designations	25
Appendix E: Job-Aid for Using the Supplied Labels	26
Appendix F: Disposition of Body Form CRF 06.01.04	33
Appendix G: MITS Specimen Collection Form CRF 06.02.01	35

1.0 Purpose

The purpose of this Standard Operating Procedure (SOP) is to describe the procedures for specimen collection during the CHAMPS minimally invasive tissue sampling (MITS) procedure


2.0 Scope

This document is relevant to all tissue and non-tissue specimens collected from bodies of children >age 28 days and ≤ 59 months, bodies of neonates (28 days of age and under) and bodies of stillbirths (babies born with no signs of life at or after 28 weeks).

3.0 Roles and Responsibilities

Role	Responsibilities
MITS specialist/pathologist (Specialist)	Executes and ensures specimens are collected and assures compliance with the procedure
MITS assistant technician (Assistant)	Handles appropriate supplies for each collection step, assists with labeling each specimen container, and aids in maintaining aseptic techniques throughout the procedure. Performs action of Recorder, Observer and MITS body washer if they are not present
<i>Optional:</i> MITS recorder technician (Recorder)	Reads out loud each step during the procedure and enters data into the form
<i>Optional:</i> MITS Observer	Follows procedures as directed for complying with the biosafety guidelines to prevent personal exposure to potentially infectious agents or biohazards. While a MITS Observer is not mandatory for the MITS procedure, a site may determine to include this role according to its specific needs.
<i>Optional:</i> MITS body washer (Assistant or member of the community)	Performs cleaning of the body once the MITS procedure is complete, to ensure the body is free of external blood, needles or any instrument used during the MITS collection, so the body can be released for burial. While a MITS body washer is not mandatory for the MITS procedure, a site may determine to include this role according to its specific needs.

4.0 Related Documents








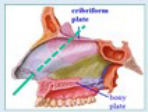


Title	Document	Document Control Number
Transport of Body		CRF_06.01.03
MITS Specimen Collection Form		CRF_06.02.01
Specimen Accessioning and Distribution		SOP_07.00.01
Biosafety Guidance for MITS Specimen Collection		UG_06.02.07
Sampling and Definitions of Placental Lesions: Amsterdam Placental Workshop Group Consensus Statement. 2016. Khong, TY <i>et al.</i> <i>Arch Pathol Lab Med.</i> 140:698-713.	 Sampling and Definitions of Placenta	N/A

5.0 Abbreviations, Acronyms, and Terminology

Abbreviations, Acronyms & Terms	Definitions
CEN	Central – Central Pathology Laboratory (CPL)
CHAMPS	Child Health and Mortality Prevention Surveillance
cm	Centimeters
CNS	Central Nervous System
CPL	Central Pathology Laboratory (the Infectious Diseases Pathology Branch, National Center for Emerging and Zoonotic Infectious Diseases, Centers for Disease Control and Prevention)
CRF	Case Requisition Form
CSF	Cerebrospinal Fluid
DNA	Deoxyribonucleic acid
EDTA	Ethylenediaminetetraacetic acid
G	Gauge
Kg	Kilograms
LOC	Local - for site pathology lab
MIT	Minimally Invasive Tissue Sampling
MUAC	Mid-Upper Arm Circumference
NP	Nasopharyngeal
PARENCH	Parenchyma, PARENCH acronym is found on the cassettes
PCR	Polymerase chain reaction
Photo card	A label containing the CHAMPS ID information for the case
PL	Placenta, PL acronym is found on the cassettes
PPE	Personal protective equipment
ppi	Pixels per inch
TAC	TaqMan Array Cards – multiplex PCR assays

6.0 Overall Process Flow Map

The graphic below gives an illustrated summary of the MITS specimen collection process starting from verifying the identity of the body through specimen collection.

<p>1. Prepare the body and verify the identity</p> <p>2. Anthropometric measurements: Weight, body length, MUAC, head circumference, lower leg length and foot length.</p> <p>3. Inspect and palpate the body: malformations, tumors, skin lesions. Palpate the abdomen and cervical, supraclavicular, axillar or inguinal nodes</p> <p>4. Photos: Front, back, side, nails, and any lesions (if present). Include label.</p> <p>5. Clean and sterilize the body (areas to be punctured): water, alcohol 5 minutes, iodine solution 5 minutes</p>				
<p>6. Cerebrospinal fluid: Middle line below the occipital bone between the squama and the atlas bone</p> 	<p>7. Blood: Supraclavicular punctures, mid-way between the sternal notch and acromio-clavicular joint)</p> 	<p>8. Stool: Insert the brush 3 to 4 cm into the rectum and rotate</p> 		
<p>9. Nasopharyngeal secretion (not in stillbirths): Insert swab into the nostril and rotate it several times</p> 	<p>10. Liver and abdominal samples (cryovials and formalin jars #1 and #2). Puncture in the mid-axillary line, one of the three last intercostal spaces.</p> <p style="text-align: center;">BARD NEEDLE n° 1</p> 			
<p>11. Right thorax for microbiology (cryovials #3 and #4). Upper right mid-axillary thoracic region</p>	<p>12. Left thorax for microbiology (cryovials #5 and #6). Upper right mid-axillary thorax region</p>	<p>13. Right and left thorax for DNA extraction and PCR (cryovial #14)</p>	<p>14. Right thorax for histology (formalin jars, #3 and #4)</p>	<p>15. Left thorax for histology (formalin jars, #5 and #6)</p> 
<p>16. Brain (occipital and fontanelle) for microbiology (cryovial #7 and #8)</p>	<p>17. Brain (transnasal) for microbiology (cryovial #9 and #10)</p> 	<p style="text-align: center;">BIOMOL NEEDLE</p>	<p>18. Brain (occipital and fontanelle) for histology (formalin jars #7 and #8)</p>	<p>19. Brain (transnasal) for histology (formalin jars #9 and #10)</p> 
ONLY IN STILLBIRTHS, IF AVAILABLE				
<p>20. Placenta and membranes for microbiology, (cryovials #11 and #12)</p> 	<p>21. Placenta and membranes for histology, (formalin jars #11 and #12)</p>	<p>22. Bone marrow sample for histology, (formalin jar #13)</p> 	<p>23. End of the procedure:</p> <ul style="list-style-type: none"> Complete the collection form Non-used tools to backup box All used material and non-used jars and labels to bio-waste bin Send all jars and vials to the lab 	

Note: Placenta and membranes are collected in cryovials (#11 and #12) but are not longer collected in formalin jars (#11 and #12). Please see section 9 (Placenta Evaluation) below for further details. Bone marrows samples are no long collected for CHAMPS cases.

7.0 Equipment/Materials

Item	Item ID	Description
MITS Specimen Collection Kit with Specimen Kit ID#		See Appendix A for all components. All containers and jars are labeled with the CHAMPS number. Tools are not labeled.
MITS Specimen Collection Form		Data initially entered on paper or electronically in RedCap project 3.1
MITS Backup Box		The backup box contains the same components of the MITS Specimen Collection Kit, including extra vials and assorted tools/instruments in case of instrument failure. The backup box does not contain extra cassettes and labels
Additional materials not included in the MITS Specimen Kit or MITS Backup Box		
Disposable Gloves		
Disposable Laboratory Coat		
Safety Goggles		
Gauze rolls 36' x 100 yards		
Camera		To be used for pre-procedure pictures (high resolution, > 300 ppi preferred)

Body Weight Scale		Scale should be calibrated in grams Scale for stillbirths and neonates (1-5 Kg) Scale for children (5-25 Kg)
Tweezers		
Reagents		Reagents that are not included in the MITS Boxes: Alcohol 70%. Conservation at room temperature. Long stability Iodine solution. Conservation at room temperature. Long stability Blood culture bottle. Conservation at room temperature. Limited stability

8.0 MITS Procedures

8.1 Preparation of the body for the procedure and verification of the identity

- The specialist and assistant should be aware if some aspect(s) of the procedure was/were not consented to by the family or next of kin
- The assistant picks up the body from the morgue, checks his/her name and surname
- The assistant takes the body to the MITS room and places it on the table in a supine position
- The specialist checks once again the name and surname of the body

8.2 Preparation of the MITS specimen collection kit and forms

- The assistant prepares the MITS Specimen Collection Kit (see **Appendix A** for all kit components) for the procedure
- The assistant completes the MITS Specimen Collection Form with, CHAMPS ID number, specimen kit ID number, time body was received, date body was received and the general information section
- The specialist and the assistant get dressed with the appropriate personal protective equipment (PPE) to perform the MITS procedure

8.3 Perform anthropometric measurements

Anthropometric measurements should be performed by two trained individuals, one will serve as measurer and other as assistant.

Note: For additional information on anthropometric measurements, see **Appendix B Anthropometry: A Checklist: Measuring Length of Children in the Post-Mortem Setting**

- The specialist first palpitates the feet for bilateral pitting edema. Moderate thumb pressure should be applied to the dorsal surface of both feet; the impression of the thumb will remain for some time when edema is present. The assistant records and describes any signs of edema and body location in the MITS Specimen Collection Form (see **Appendix G**) under *Gross Findings* in the free text field.
- Next, the specialist places the body on the weight scale to measure the weight, and assistant records the weight in kilograms in the MITS Specimen Collection Form.



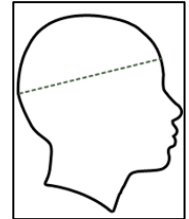
Note: Different scales may be used: 1) for stillbirths and neonates (measure in grams, convert to kilograms and the assistant records in the MITS Specimen Collection Form) and 2) for children (measure in kilograms and the assistant records in the MITS Specimen Collection Form). The body should be weighed alone, but in some cases, an adult holding the body may be necessary. In these cases, the scale's tare function should be utilized.

- Using the wooden length board placed on a flat surface, the specialist and assistant measure the body length and basic anthropometric data including mid-upper arm circumference, head circumference, leg and foot lengths. See below for instructions and **Appendix C**.
 - Length:** The specialist and assistant place the body on its back on the wooden length board with head at base and legs extended. Using the moveable foot piece, the specialist firmly places it against the child's heels and calls out the measurement. The assistant records the measurement to nearest 0.1 centimeters (cm).

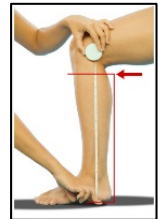
- ii. **Mid-Upper Arm Circumference (MUAC):** With the body lying back, the specialist locates the acromial process on the left shoulder by palpating firmly with the pads of the index and middle finger and also locates the olecranon process at the elbow. At the midpoint between these two points, the tape measure is placed perpendicular to the long axis and the arm circumference measurement is recorded.



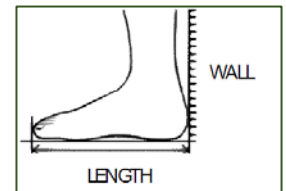
- iii. **Head circumference:** With the body lying back, the specialist places the tape measure tape around the child's head so that the tape lies across the frontal bones of the skull, slightly above the eyebrows, perpendicular to the long axis of the face, above the ears, and over the occipital prominence at the back of the head.



- iv. **Lower leg length:** With the body lying back, the specialist measures the right leg from the medial malleolus to the medial condyle of the tibia.



- v. **Foot length:** With the body lying back, the specialist measures the distance from the heel to the longest toe of the right foot parallel to the long axis of the foot.



- d. The assistant writes all the measurements to the nearest 0.1 cm in the MITS Specimen Collection Form.

8.4 Perform body inspection

- The specialist performs an inspection of the external genitals.
- The assistant records the sex of the body in the corresponding section of the MITS Specimen Collection Form.
- The specialist performs a detailed external inspection of the whole body looking for visible congenital physical anomalies or malformations, evidence of trauma, external tumors, skin rashes and lesions, or changes of the color of the skin (e.g. depigmentation, areas of darkness).

8.4 Perform body inspection (Specifically for stillbirths)

- In stillbirths, the specialist determines whether the body is fresh or macerated (skin and soft-tissue changes such as skin discoloration or darkening, redness, peeling and breakdown), and in case of maceration, evaluates the grade (see table below).

Grade of Maceration	Features
0	"Parboiled" reddened skin
I (1)	Skin slippage and peeling
II (2)	<ul style="list-style-type: none"> Extensive skin peeling Red serous effusions in chest and abdomen due to hemoglobin staining
III (3)	<ul style="list-style-type: none"> Liver yellow-brown Turbid effusion May be mummified

- The assistant records the data on maceration in the corresponding section of the MITS Specimen Collection Form.

Note: If maceration is recorded as level III (3), fetal tissue does not need to be taken. If fetal tissue is not taken, the assistant will need to provide a reason (i.e. 'level III maceration' of stillbirth) in each section in the MITS Collection Form (i.e. Blood,

CSF, Liver and Abdominal Organs, Left and Right Thorax, CNS, etc). If fetal tissue is not obtained, the focus should be on the placenta, if available.

8.5 Perform body palpation

- a. The specialist performs a detailed palpation of the abdomen in order to detect hepatomegaly, and other visceromegalies or abdominal masses.
- b. The specialist performs a detailed palpation of the superficial lymph node areas (anterior and posterior cervical, supraclavicular, axillary and inguinal areas).
- c. The assistant completes the required information on body inspection in the corresponding section of the MITS Specimen Collection Form.

8.6 Photography

- a. The assistant photographs the body. The body is placed on a non-patterned light or dark blue background alongside the barcoded photo card with scale provided in the MITS Specimen Collection Kit. The following high resolution (≥ 300 ppi) photographs should be taken (if possible):
 - i. Front (full frontal—entire body, including face/head to feet)
 - ii. Back (entire body)
 - iii. Sides
 - iv. Nails (fingers)
 - v. Any other distinctive external lesions (if present)
- b. In stillbirths or neonates with placenta available, the assistant takes three photos, including the photo card before placing placenta in formalin (See Section 9.0 Placenta Evaluation (for stillbirths) for a more detailed description of required pictures)
 - i. Maternal surface of placenta
 - ii. Fetal surface of placenta
 - iii. Cord
- c. The assistant briefly checks the quality of the photos for clarity and completeness in case they need to be retaken and completes the required information on photography in the corresponding section of the MITS Specimen Collection Form.

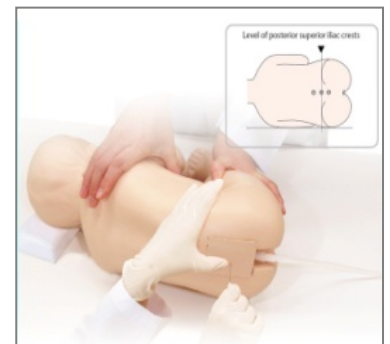
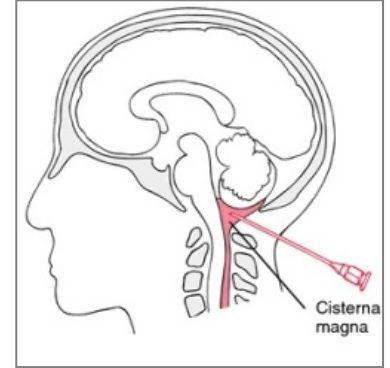
Note: Analysis of the photographs for birth defects will be performed as described in *The Birth Defects Surveillance Atlas of Selected Congenital Anomalies* (http://www.who.int/nutrition/publications/birthdefects_manual/en/).

8.7 Cleaning and sterilization of the body

- a. The specialist palpates the head to determine whether the fontanelles (anterior and posterior) are opened.
- b. The specialist cleans with water the areas of the body to be punctured (nuchal area, thorax, upper abdomen, iliac crests, anterior and posterior fontanelle if opened at palpation and urethral opening in males and females).
- c. The specialist dries the above-mentioned areas with gauze.
- d. The specialist cleans with abundant iodine solution the areas of the body to be punctured. The cleaning should be made with circular movements from the center to the periphery. The iodine solution should be allowed to act for at least 5 minutes.
- e. The specialist cleans with abundant alcohol the areas of the body to be punctured. The cleaning should be made with circular movements from the center to the periphery. The alcohol should be allowed to act for at least 5 minutes.

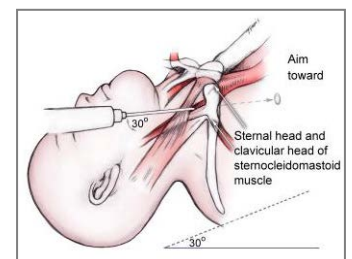
8.8 Cerebrospinal fluid collection

- The specialist rotates and maintains the head in a lateral position, while the body is in a supine position.
- The assistant prepares a new and sterile 18 G spinal puncture needle, a 20 mL syringe and a 10 mL empty sterile vial for the cerebrospinal fluid (CSF) included in the MITS Specimen Collection Kit.
- The specialist opens the 18 G spinal puncture needle.
- The specialist stabilizes the 18 G spinal needle in the middle line below the occipital bone between the squama and the atlas bone. Advance it through the skin. Insert the needle leaning it towards the orbital cavities. The angle with the skin of the back should be approximately 75°. Advance the needle slowly but smoothly. Occasionally, a characteristic “pop” is felt when the needle penetrates the dura. Otherwise, the guide should be withdrawn after approximately 1 cm and observed for fluid return. If no fluid is obtained, replace the guide, advance or withdraw the needle a few millimeters, and recheck for fluid return. Continue this process until drops of fluid are successfully obtained.
- The assistant opens and prepares a 20 mL new sterile syringe.
- The specialist attaches the syringe to the needle and draws off the CSF.
- The assistant opens the 10 mL sterile vial and the specialist transfers it from the syringe to the vial.
- In the case that no or very little CSF is obtained following this procedure, the specialist performs a lumbar puncture, inserting the same spinal needle between the lumbar vertebrae L3/L4 or L4/L5 (located at the level of the pelvic crest).
- The body must be in the lateral recumbent position.
- The specialist stabilizes the needle with the index fingers, and advance it through the skin while using the thumbs. Orient the bevel parallel to the longitudinal fibers of the dura, to increase the chances that the needle will separate the fibers rather than cut them; in the lateral recumbent position, the bevel should face up, and in the sitting position, it should face to one side or the other.
- The specialist inserts the needle at a slightly cephalic angle, directing it toward the umbilicus. Advance the needle slowly but smoothly. Occasionally, a characteristic “pop” is felt when the needle penetrates the dura. Otherwise, the stylet should be withdrawn after approximately 2-3 cm and observed for fluid return. If no fluid is returned, replace the stylet, advance or withdraw the needle a few millimeters, and recheck for fluid return. Continue this process until fluid is successfully returned.
- The assistant completes the required information on CSF in the body fluid section of the MITS Specimen Collection Form.



8.9 Blood sample collection

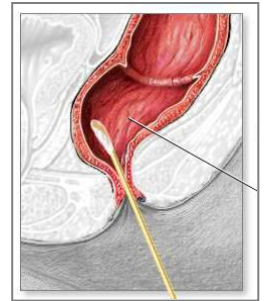
- The assistant prepares a new and sterile 18 G spinal puncture needle, a 20 mL syringe, the ethylenediaminetetraacetic acid (EDTA)-containing vacutainer, the pediatric blood culture bottle, and the filter paper from the MITS Specimen Collection Kit.
- The assistant opens the container of the 20 mL syringe and the 18 G spinal puncture needle and gives them to the specialist.
- The guide of the needle should be withdrawn before the puncture.
- The specialist locates the midpoint of the clavicle (mid-way between the sternal notch and acromioclavicular joint) and inserts the needle 1 cm lateral and superior or inferior to the clavicle.
- For supraclavicular approach, use an angle of 30° above the clavicle and aim inferior, attempting to first aim for the clavicle. Once the clavicle is passed, connect the syringe and pull the plunger to make negative pressure.
- Maintaining the negative pressure with the plunger, continue advancing the needle in a plane almost parallel to the skin, approximately 2-3 cm. Change the angle of penetration of the needle until venous blood is freely aspirated into the syringe.
- In case no blood is obtained with this supraclavicular approach, use an infra-clavicular puncture aiming to reach the subclavian vein behind the clavicle.



- h. Fill the syringe with as much blood as possible. In stillbirths and neonates, the amount of blood collected may be very minimal.
- i. The assistant takes the pediatric blood culture bottle.
- j. The specialist inoculates 5 mL (or half of the collected blood) in the pediatric blood culture bottle. If less than 5 ml collected, please indicate the volume used to inoculate the culture bottle.
- k. The assistant takes the EDTA-containing vacutainer.
- l. The assistant takes the filter paper and ensures that the card is labelled properly
- m. The specialist deposits four large drops of blood onto the labeled filter paper.
- n. The specialist inoculates the remaining of the collected blood) into the EDTA-containing vacutainer.
- o. In the case that no or very little blood is obtained following this procedure, perform a heart puncture, using the same needle, aiming to obtain an adequate sample.
- p. In this case, puncture the thoracic region left central, fifth intercostal space (palpate the ribs to identify the intercostal spaces) in a parasternal location using the same needle and syringe. The needle should penetrate 5-6 cm in a sagittal direction. Aspirate and move the needle until blood is obtained
- q. The assistant completes the required information on blood in the body fluid section of the MITS Specimen Collection Form
- r. In some cases (many stillbirths, some neonates, and a few children) the amount of blood that can be collected is very small. In these cases, this small amount should be prioritized as follows:
 - i. Culture (1.5 ml)
 - ii. EDTA vacutainer (0.5 ml)
 - iii. Filter paper

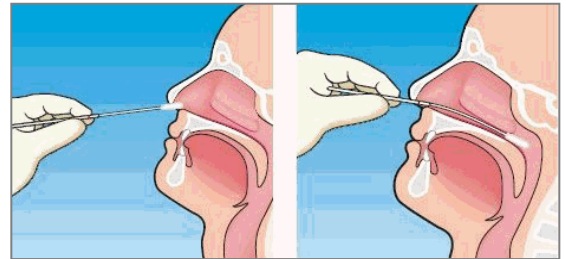
8.10 Stool sample collection

- a. The assistant takes the cervical brush and a 10 mL sterile vial from the MITS Specimen Collection Kit.
- b. The assistant labels the sterile vial with the appropriate label
- c. The assistant opens the vial.
- d. The specialist inserts the cervical brush 3-4 cm into the rectum and gently rotates.
- e. The specialist removes the cervical brush.
- f. The specialist places the cervical brush into the vial and breaks off the top portion of the stick and discards it.
- g. The assistant completes the required information on the rectal/stool sample in the body fluid section of the MITS Specimen Collection Form.



8.11 Nasopharyngeal (NP) swab for sample collection (not to be done in stillbirths)

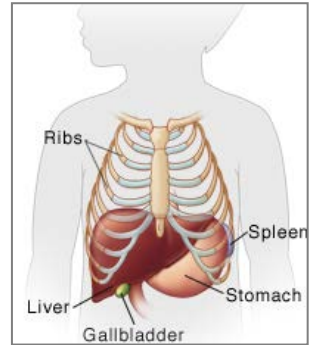
- a. The assistant takes the Nasopharyngeal Swab™ Screw Cap container 12 X 80 mm with 1 ml ViCUM from the MITS Specimen Collection Kit.
- b. The assistant labels the container with the appropriate label.
- c. The assistant opens the Nasopharyngeal Swab™ Screw Cap container.
- d. The specialist tilts the body head back 70° and inserts swab into the nostril (until resistance is met at turbinates).
- e. The swab should reach a depth equal to distance from nostrils to outer opening of the ear.
- f. Leave swab in place for several seconds to absorb secretions.
- g. Slowly remove swab while rotating it.
- h. Swab both nostrils with same swab.
- i. The specialist places the swab into the previously identified container deep enough that the medium covers the cotton tips. The specialist breaks off the top portion of the stick and discards it.
- j. The assistant completes the required information on nasopharyngeal sample in the body fluid section of the MITS Specimen Collection Form.



8.12 Liver and abdominal MITS

Note: When using the same biopsy needle to collect cryovial (microbiology) and formalin (histology) specimens, collect all cryovial (microbiology) specimens first before collecting formalin (histology) specimens, in case culturing is required. For a full list of tissue specimens collected during MITS, see **Appendix D**.

- a. The assistant takes the biopsy needle, Bard Monopty 16 G, 100 mm from the MITS Specimen Collection Kit.
- b. The assistant takes the cryovials #1 and #2 and the formalin jars #1 and #2 from the MITS Specimen Collection Kit.
- c. The specialist rotates the handle of the needle until it is ready for the biopsy (arrow in the top slot).
- d. The specialist performs a puncture with the needle in the mid-axillary line, in one of the three last intercostal spaces. The needle should be oriented 30° in a cranial and 15° in a posterior direction. The needle should penetrate 2-5 cm depending on the age of the patient.
- e. The specialist engages the biopsy needle by pressing with the thumb the button at the back end of the handle.
- f. The specialist removes the needle.
- g. The specialist opens the needle to obtain the sample by rotating the handle in a clockwise direction.
- h. The specialist checks that a correct tissue cylinder has been obtained (the cylinder should be about 20 x 1 mm and show a brownish color).
- i. Put the sample in cryovial #1.
- j. At least 2 samples from different areas should be put in the cryovial.
- k. Repeat the same procedure (steps c to g) for cryovial #2. Use the same entry point used for the first puncture, in order to reduce the marks in the body. Change the direction of the needle in order to sample different parts of the liver.
- l. At least 2 samples from different areas should be put in the cryovial.
- m. Repeat the puncture, using the same entry point but changing the direction of the needle, to obtain 6 biopsies of the liver. Put them in formalin jar #1.
- n. Repeat the procedure (steps c, e, f, and g) using two different approaches in the abdomen, one postero-lateral right and the other postero-lateral left, aiming to obtain kidney, spleen and other abdominal organs. Put them in formalin jar #1. At least 2 samples should be obtained.

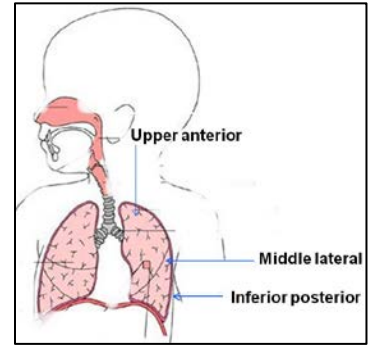


Note: For formalin jars #1 and #2, each jar should contain 6 cores of the liver, and ideally 1 core of kidney, 1 core of spleen and 1 core of other abdominal organs.

- o. Repeat the procedure (steps c, e, f, g, k, and l) and put the samples in the formalin jar #2. Use the same entry points used in the previous punctures. At least 6 samples from the liver and 2 from other abdominal organs should be obtained.
- p. The assistant completes the required information on liver in the liver tissue section of the MITS Specimen Collection Form.
- q. **In the case liquid leakage is observed through the puncture points, indicating that ascites fluid may be present, the assistant will take a 20 mL syringe, an 18 G spinal needle and a 10 mL sterile vial from the MITS backup box.**
- r. The assistant identifies the 10 mL sterile vial with one of the extra labels.
- s. The specialist withdraws the guide of the needle and connects the syringe.
- t. The specialist uses the same entry point to make a new puncture to collect ~10 mL of ascites fluid via the syringe.
- u. The assistant opens the 10 mL sterile vial, and the specialist transfers the ascites fluid from the syringe to the vial.
- v. The assistant completes the required information in the MITS Specimen Collection Form.

8.13 Right thorax MITS for microbiology

- a. The assistant takes and prepares the second, new, automatic Monopty 16 G biopsy needle from the MITS Specimen Collection Kit.
- b. The assistant takes the cryovials #3 and #4, from the MITS Specimen Collection Kit.
- c. The specialist rotates the handle of the needle until it is ready for the biopsy (arrow in the top slot).
- d. The specialist performs the puncture with the automatic needle in the mid-axillary line, thoracic upper region, to obtain a lung sample from the upper lobe. The needle should be oriented towards the head. The needle should penetrate as much as possible, and the movement of penetration should be quick. After reaching the limit, the needle should be retracted 2-3 cm.
- e. The specialist engages the biopsy needle by pressing with the thumb the button at the back end of the handle.
- f. The specialist removes the needle from the chest.
- g. The specialist opens the needle to obtain the sample by rotating the handle in a clockwise direction.
- h. The specialist checks that the tissue cylinder is from the correct organ (the cylinder should be about 20 x 1 mm and show a pink or reddish color and soft consistency). If there is no sample or the sample has not an adequate appearance (yellow color indicates fatty tissue, brown color and increased consistency may indicate liver tissue), the puncture should be repeated using the same needle until an adequate sample is obtained.
- i. Put the first tissue sample in the cryovial #3.
- j. Repeat the procedure (steps c-h) for middle and lower right lung lobes. Use the same entry point used for the first puncture, modifying the direction of the needle (no angle for the middle lobe, 15° caudal for the lower lobe). Put the sample in the cryovial #3. Make sure that a sample from each lobe is included in the container.
- k. Repeat the punctures in the right thoracic region (upper, middle and lower lobes) using the same needle and following the same procedure.
- l. Put the samples in cryovial #4.
- m. The assistant completes the required information on the cryovial sample from the right thorax puncture in the lung section of the MITS Specimen Collection Form.
- n. The punctures of the lung can also be obtained using a posterior approach (back of the body, below the inferior angle of the scapula). For this approach, the assistant should help the specialist to turn the body in a lateral or prone position. In this case, the biopsy needle should also be directed to the upper, middle and lower lobes.



8.14 Right and left thorax MITS for DNA extraction and PCR

- a. The assistant takes the cryovial #14 containing lysis buffer from the MITS Specimen Collection Kit.
- b. The specialist uses the same needle used for the previous microbiology punctures, the same entry points and follows the same procedure, the specialist repeats the sequence of punctures in the right and left thoracic region.
- c. The specialist puts all the samples obtained (from the right and left lungs) in cryovial #14.
- d. The assistant completes the required information on the cryovial #14 sample from the left and right thorax punctures in the lung section of the MITS Specimen Collection Form.

8.15 Left thorax MITS for microbiology

- a. The assistant takes the cryovials #5 and #6 from the MITS Specimen Collection Kit.
- b. The specialist repeats the sequence of punctures of the right thoracic region in the left thoracic region using the same needle and following the same procedure.
- c. Place the collected samples in cryovials #5 and #6. If there is no sample or the sample has inadequate appearance (yellow color indicates fatty tissue, brown color and increased consistency may indicate heart tissue), the puncture should be repeated using the same needle until an adequate sample is obtained.
- d. Make sure samples are collected from each of the three left lung lobes and included in cryovials #5 and #6.
- e. The assistant completes the required information on the cryovial samples from the left thorax puncture in the lung section of the MITS Specimen Collection Form.
- f. The punctures of the lung are also obtainable using a posterior approach (back of the body, below the inferior angle of the scapula). For this approach, the assistant should help the technician to turn the body in a lateral or prone position. In this case, the biopsy needle should also be directed to the upper, middle and lower lobes.

8.16 Right thorax MITS for histology

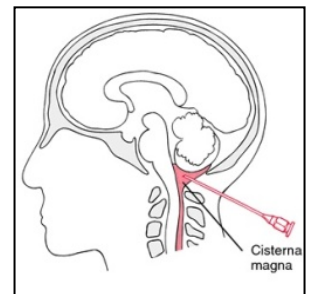
- The assistant takes the formalin jars #3 and #4 from the MITS Specimen Collection Kit.
- The specialist uses the same needle used for microbiology punctures and repeats the sequence of puncture approaches of the right thoracic region using the same entry points and following the same procedure and puts two samples of each area in the formalin jar #3 (a total of 6 samples from the lung).
- The specialist repeats the sequence of puncture approaches of the right thoracic region using the same needle and following the same procedure and puts two samples of each area in formalin jar #4.
- The assistant completes the required information on formalin jars #3 and #4 samples in the lung section of the MITS Specimen Collection Form.
- The punctures of the lung are also obtainable using a posterior approach (back of the body, below the inferior angle of the scapula). For this approach, the assistant should help the specialist to turn the body in a lateral or prone position. In this case, the biopsy needle should also be directed to the upper, middle and lower lobes.

8.17 Left thorax MITS for histology

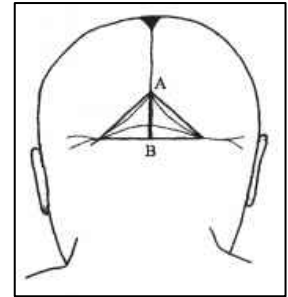
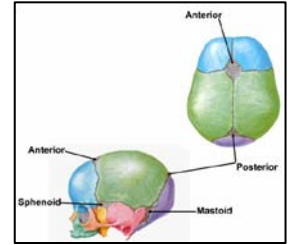
- The assistant takes the formalin jars #5 and #6 from the MITS Specimen Collection Kit.
- The specialist uses the same needle used for microbiology punctures, repeats the sequence of puncture approaches of the left thoracic region using the same entry points, following the same procedure, and puts two samples of each area in formalin jars #5 and #6. At least 6 samples from the lung/heart should be obtained).
- The assistant completes the required information on the formalin jar #5 and #6 samples in the lung section of the MITS Specimen Collection Form.
- In the case liquid leakage is observed though the puncture points, indicating that pleural effusion may be present, the assistant will take a 20 mL syringe, a 18 G spinal needle and a 10 mL sterile vial from the MITS backup box.
- The assistant identifies the 10 mL sterile vial with one of the extra labels.
- The specialist withdraws the guide of the needle and connects the syringe.
- A new puncture is performed using the same entry point that shows pleural effusion leakage.
- Fill the syringe with 10-20 mL of pleural effusion fluid.
- The assistant opens the 10 mL sterile vial, and the specialist transfers the pleural effusion from the syringe to the vial.
- The assistant completes the required information in the MITS Specimen Collection Form.
- The punctures of the lung are also obtainable using a posterior approach (back of the body, below the inferior angle of the scapula). For this approach, the assistant should help the technician to turn the body in a lateral or prone position. In this case, the biopsy needle should also be directed to the upper, middle and lower lobes.

8.18 MITS of the brain parenchyma, occipital and fontanelle approach for microbiology

- The assistant selects cryovials #7 and #8 from the MITS Specimen Collection Kit.
- The assistant takes the Biomol 16 G Menghini type semi-automatic device from the MITS Specimen Collection Kit.
- The specialist charges the needle pushing the plunger until the mechanism clicks into place. Check that the stylet protrudes from the needle.
- The specialist starts the occipital puncture, using an entry point 2 cm below the approach used for the CSF puncture (middle line 3-4 cm below the occipital bone). The specialist advances the needle through the skin, with a 30° angle with the skin of the back, advancing the needle slowly but smoothly.
- The needle should freely advance into the cranial cavity.
- The specialist presses the button near the syringe hub. The aspiration will occur with the automatic withdrawal of the syringe plunger.
- Advance the needle as much as possible into the brain.
- Withdraw the needle.

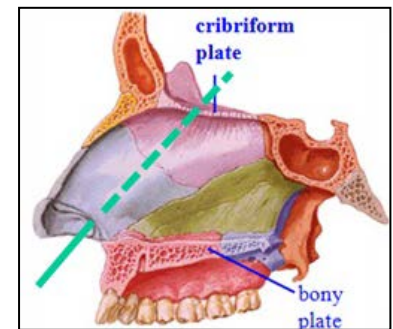


- i. The specialist puts the first two samples into cryovial #7 and two additional samples in cryovial #8 by pushing the plunger until the mechanism clicks into place.
- j. The specialist locates by palpation the anterior fontanelle. The anterior fontanelle remains opened for the first 12-18 months of life. In older infants and in children, the anterior fontanelle is already closed and cannot be punctured. The approximate location of the fontanelle is shown in the figure.
- k. Using the same needle that was used for the occipital puncture, the specialist obtains four new samples by puncturing the anterior fontanelle, and puts two in cryovial #7 and two in cryovial #8, respectively.
- l. The specialist locates by palpation the posterior fontanelle. The posterior fontanelle remains opened during the first 3-4 months of life. In older infants and in children, the posterior fontanelle is already closed and is unable to be punctured. The approximate location of the fontanelle is shown in the figure.
- m. Using the same needle, the specialist obtains four new samples by puncturing the posterior fontanelle, and puts two in cryovial #7 and two in cryovial #8, respectively.
- n. The assistant completes the required information in the central nervous system (CNS), occipital and fontanelle section of the MITS Specimen Collection Form.



8.19 MITS of the brain parenchyma (trans-nasal approach) for microbiology

- a. The assistant takes cryovials #9 and #10 from the MITS Specimen Collection Kit.
- b. The specialist uses the same needle used for the occipital and fontanelle samples to puncture through a trans-nasal approach.
- c. To reach the brain parenchyma, the cribriform plate has to be perforated. In older infants and children, this cribriform plate can be ossified and extremely resistant to needle penetration.
- d. In these cases (older infants and children), the assistant takes the puncture trephine from the MITS Specimen Collection Kit and opens the container containing the bone marrow biopsy needle.
- e. In these cases, the specialist inserts the internal guide in the biopsy needle.
- f. In these cases, the specialist introduces the biopsy needle with the internal guide in the nasal cavity with an angle of 45°, until reaching the roof of the nasal cavity (cribriform plate of the ethmoid bone).
- g. In these cases, the specialist applies a constant pressure as well as a rotation in both senses right and left and left and right with the aim of allowing the needle to penetrate through the bone, until the needle penetrates into the cranial cavity.
- h. In all ages, the specialist charges the needle, pushing the plunger until the mechanism clicks into place. Check that the stylet protrudes from the needle.
- i. In all ages, the specialist introduces the needle in the nasal cavity at an angle of 45. Upon reaching the roof of the nasal cavity, the specialist locates the hole created with the trephine.
- j. Once the specialist notices that the needle has penetrated into the cranial cavity, the specialist presses the button near the syringe hub. The aspiration will occur with the automatic withdrawal of the syringe plunger and advances the needle a few centimeters into the brain.
- k. The specialist withdraws the needle.
- l. The specialist puts the first two samples into cryovial #9 and two additional samples in cryovial #10 by pushing the plunger until the mechanism clicks into place.
- m. Push the plunger forward charging again the device.
- n. The assistant completes the required information in the CNS, trans-nasal section of the MITS Specimen Collection Form.



8.20 MITS of the brain parenchyma, occipital and fontanelle approach for histology

- a. The assistant selects formalin jars #7 and #8 from the MITS Specimen Collection Kit.
- b. The specialist repeats the procedure (steps c to l) from the previous section using the same needle and the same entry points.
- c. At least 6 samples should be obtained for each jar. Take care to use different penetrations in order to get parenchyma from different areas of the brain.
- d. The samples are put in formalin jars #7 and #8.

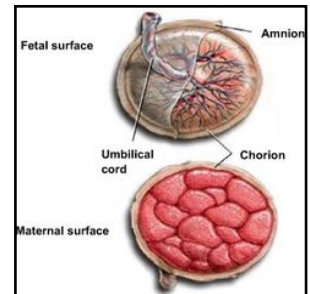
- e. The assistant completes the required information in the CNS, occipital and fontanelle section of the MITS Specimen Collection Form.

8.21 MITS of the brain parenchyma, trans-nasal approach for histology

- a. The assistant selects formalin jars #9 and #10 from the MITS Specimen Collection Kit.
- b. The specialist repeats the procedure (steps h to l) from the previous section using the same needle.
- c. At least 6 samples should be obtained for each jar. Take care to use different penetrations in order to get parenchyma from different areas of the brain via the trans-nasal approach.
- d. The samples are put in formalin jars #7 and #8.
- e. The assistant completes the required information in the CNS trans-nasal section of the MITS Specimen Collection Form.

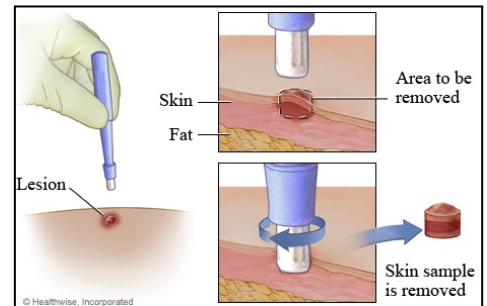
8.22 Sampling of the placenta, fetal membranes, and cord for microbiology (only in stillbirths, if available)

- a. The assistant takes cryovials #11 and #12 from the MITS Specimen Collection Kit.
- b. The specialist cuts with the scalpel blade four pieces of tissue 0.5 x 0.5 x 0.5 cms from the periphery of the placenta, including placental parenchyma and membranes.
- c. The specialist places two pieces in cryovial #11 and two in cryovial #12.
- d. The assistant completes the required information in the placenta and umbilical cord section of the MITS Specimen Collection Form.
- e. Put the whole placenta in a labeled container with formalin to be sent to the pathology lab for examination and sampling for histology.



8.23 Skin sampling if skin lesions are observed (extended protocol)

- a. In the case that skin lesions (papules, nodules, vesicles, macules) are observed, the specialist asks the assistant to take a skin biopsy punch and a formalin jar from the MITS backup box.
- b. The assistant sticks one of the extra labels from the MITS Specimen Collection Kit on the formalin jar.
- c. The specialist takes a punch biopsy of the border of the lesion by pushing and rotating the punch in the skin (see diagram). The sample should contain epidermis, dermis and subcutaneous fatty tissue.
- d. The sample is placed in the extra formalin jar.
- e. The assistant completes the required information on skin sample section of the MITS Specimen Collection Form.



8.27 End of the procedure and completion the MITS Specimen Collection Form

- a. The assistant or MITS body washer cleans the body once the MITS procedure is complete, to ensure the body is free of external blood, needles or any instrument used during the MITS collection, so the body can be released for burial.
- b. The assistant and the specialist make sure that all the containers and jars are properly labeled and closed.
- c. In the case of stillbirths, the assistant places the non-used bone marrow trephine in the MITS backup box plus any unopened, unlabeled, sterile tools/equipment
- d. The assistant and the specialist make sure that all non-used labels that are not indicated to go to the lab (see **Appendix D**) are also disposed of in the bio-waste container.
- e. The assistant and the specialist make sure that the used tools, as well as all non-used, labeled containers and jars (placental vials in infants and children, bone marrow vials in stillbirths and neonates, etc) are disposed of in a bio-waste container.

Note: MITS kit-labeled items are specific to one CHAMPS case and should not be reused under any circumstances for other CHAMPS cases.

- f. Once the MITS Specimen Collection Kit box is empty, the assistant and the specialist double check all the containers and jars and take all the cassettes and unused labels and reallocate them into the MITS Specimen Collection Kit.
- g. The MITS Specimen Collection Form is put into the MITS Specimen Collection Kit box.
- h. The MITS Specimen Collection Kit box containing all cryovials, containers, jars, cassettes, unused labels and the MITS Specimen Collection Form is sent to the local lab.
- i. The assistant describes in the MITS Specimen Collection Form, by indication of the specialist, any additional comments regarding the procedure.

- j. The assistant writes in the MITS Specimen Collection Form the time in which the procedure finished.
- k. The specialist and the assistant write their names in the MITS Specimen Collection Form and sign it.

Note: Review the Biosafety Guidance for MITS Specimen Collection for further instructions on how to clean the postmortem room and remove PPE after each procedure.

9.0 Placenta Evaluation (for stillbirths)

Note: Whole placenta should be fixed in formalin for 4-24 hours before tissue is sectioned, sampled and transferred to 70% ethanol.

9.1 Take photos of the placental surfaces, including the photo card in the setting

- a. The assistant or technician takes photographs of the maternal and fetal surfaces as well as cord (if available). The photographs should be taken at a resolution of 300 ppi or greater.

9.2 Describe the umbilical cord

- a. The specialist or pathologist measures (cm) the diameter of the cord. In the case of significant variations in diameter, provide the minimum and the maximum measurements (cm).
- b. Measure (cm) the length of the cord.
- c. The specialist or pathologist measures the cord insertion site in relation to the center/margin of the placenta, determined by measuring (cm) the distance between the insertion site and the nearest placental margin.
- d. The specialist or pathologist notes the presence of strictures.
- e. The specialist or pathologist records the appearance of the cord (hypocoiled or hypercoiled). Segmental or localized areas of hypercoiling are recorded, if present. Direction of coiling (handedness) is noted.

9.3 Describe the membranes

- a. The specialist or pathologist records the color/opacity and completeness of the membranes.
- b. The specialist or pathologist records, if possible, the shortest distance between the site of rupture to the placental edge.
- c. The specialist or pathologist records if the membranes are circumvallate or circummarginate and the percentage of the circumference involved (see Section 4 (Related Documents) for article regarding Sampling and Definitions of Placental Lesions).

9.4 Weight of the whole placenta

- a. The specialist or pathologist trims the extraplacental membranes and umbilical cord off the placenta and then weighs the placenta.
- b. The specialist or pathologist records the weight in the placenta section of the MITS Specimen Collection Form.
- c. The specialist or pathologist records whether the placenta was fresh or fixed when weighed.
- d. The specialist or pathologist records any prior sampling of the placental parenchyma (note that prior to the reception at the pathology laboratory, samples for microbiology of the placental parenchyma and membranes have been taken).
- e. The specialist or pathologist records any disruption of the basal plate (note that prior to the reception at the pathology lab, samples for microbiology of the placental parenchyma and membranes have been taken).

9.5 Measure the placental disk (three dimensions)

- a. The specialist or pathologist records the maximal linear dimension (length) (cm).
- b. The specialist or pathologist records the greatest dimension of the axis perpendicular to this linear measurement (width) (cm).
- c. The specialist or pathologist records the mural minimal and maximal thickness (cm).

9.6 Perform serial sections of the placenta

- a. Using a knife, the specialist or pathologist serial sections the disc from the fetal to the maternal surface at 2 cm interval and examines each slice for parenchymal lesions (e.g. infarcts).

9.7 Take photos of the placental sections, including the photo card in the setting

- a. The assistant or technician photographs all the placental sections on a clean surface.
- b. If placental lesions are identified extra photos are taken.

9.8 Describe any lesions identified

- a. The specialist or pathologist records any grossly identified lesions.
- b. The specialist or pathologist estimates the percentage of the total parenchymal volume affected by the lesions or measures the two maximal dimensions of each lesion.
- c. The specialist or pathologist records the number of lesions of the same gross appearance and states if it is focal or multifocal lesion.
- d. The specialist or pathologist records the location(s) of the lesions: central/paracentral or peripheral. Lesions that are microscopically different may appear similar upon gross examination.

9.9 Sampling of Cord, Membranes, and Placental Disk

- a. The assistant or technician takes a total of seven blue cassettes for the local laboratory and seven white cassettes for the CPL (see **Appendix D** Labeled Cassettes) from the MITS Specimen Collection Kit. The seven labeled blue and seven labeled white cassettes are for the following tissue samples:
 - i. A blue and white cassette for membrane samples, labeled MEMBRANE.
 - ii. A blue and white cassette for cord samples, labeled CORD.
 - iii. A blue and white cassette for placenta parenchyma samples, labeled PL PARENCH.
 - iv. A second blue and white cassette for placenta parenchyma samples, labeled PL PARENCH.
 - v. As necessary, up to three blue and white cassettes for any observed placenta lesions, labeled PL LESION EXTRA.
- b. In the blue and white cassette labeled MEMBRANE, the specialist or pathologist includes a roll of the extraplacental membranes obtained from the rupture edge to the placental margin, including part of the marginal parenchyma.
- c. The specialist or pathologist gently closes the cassettes.
- d. In the blue and white cassette labeled CORD, the specialist or pathologist includes 2 cross-sections of the umbilical cord, from the fetal end and approximately 5 cm from the placental insertion end.
- e. The specialist or pathologist gently closes the cassettes.
- f. In the two sets of blue and white cassettes labeled PL PARENCH, the specialist or pathologist sections two blocks worth of tissue, each containing a full-thickness section of normal-appearing placenta parenchyma. Full-thickness samples should be taken from within the central two-thirds of the disc and include one adjacent to the insertion site itself. If the transmural thickness is greater than the length of the cassette, the specialist or pathologist divides the gross slice and submits it in two cassettes: the upper third (chorionic plate and subjacent tissue) and lower third (basal aspect) of the parenchyma. A full-thickness sample is taken from close to the umbilical cord insertion site to document fetal vascular ectasia and fetal and/or maternal inflammatory response.
- g. The specialist or pathologist gently closes the cassettes
- h. If lesions are observed, in the extra three sets of blue and white cassettes labeled PL LESION EXTRA, the specialist or pathologist sections placental lesions with adjacent normal parenchyma, if possible.
- i. The assistant places the white cassettes in a labeled (CHAMPS ID) 70% ethanol jar for the local laboratory.
- j. The assistant places the blue cassettes in labeled (CHAMPS ID and CEN) 70% ethanol jar destined for the CPL

9.10 End of the procedure and completion of the placental collection form

- a. The assistant and the specialist or pathologist disposes of all used tools. Unused, labeled cassettes should be stored until the pathologist has determined that the placental slide are adequate for histological evaluation and no extra sampling is needed.
- b. The assistant and the specialist or pathologist save the slide labels.
- c. The assistant describes in the MITS Specimen Collection Form, by indication of the specialist or pathologist, any additional comments regarding the procedure.
- d. The specialist or pathologist and the assistant write their names in the MITS Specimen Collection Form and sign it.
- e. The remaining placenta can be discarded once the cassettes have been processed and the pathologist has made sure that the placental slides are adequate for histological evaluation and no extra sampling is needed.

9.0 Safety

Wear standard PPE (gloves, laboratory coat, respiratory and eye protection) and review the Biosafety Guidance for MITS Specimen Collection (UG 06.02.07) for additional safety information. Dispose of needles and all waste generated during procedure in appropriate container as per laboratory protocols.

10.0 References

Khong TY, Mooney EE, Ariel I, *et al.* 2016. Sampling and Definitions of Placental Lesions: Amsterdam Placental Workshop Group Consensus Statement. *Arch Pathol Lab Med.* 140(7):698-713.

11.0 Appendix

Appendix A: Specimen Collection Kit Components

Appendix B: Retired Specimen Collection: Bone Marrow

Appendix C: Anthropometry: A Checklist: Measuring Length of Children in the Post-Mortem Setting

Appendix D: Cryovial and Formalin Jar Designations

Appendix E: Job-Aid for Using the Supplied Labels





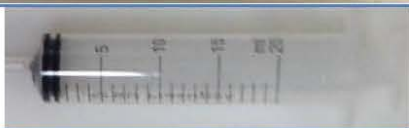





Appendix F: Disposition of Body CRF 06.01.04





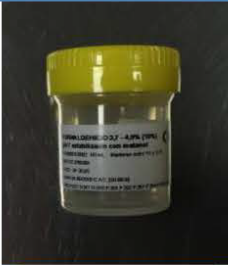

Appendix G: MITS Specimen Collection CRF 06.02.01

Appendix A: Specimen Collection Kit Components

The following two images show all components found in the MITS Specimen Collection Kit

MITS Specimen Collection Kit

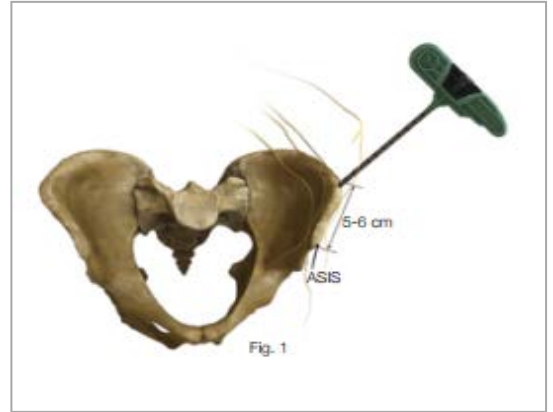
Material	Number
TOOLS	
Biopsy needle Bard Monopty 16G, 100 mm	
Biopsy needle Biomol 16G, 150 mm	
Bone marrow trephine Wacress	
Quincke spinal needles	
20 mL syringes	
Intramuscular needle	
Photo card	
JobAid (11 X 14 placemat)	
MUAC tape measure (45 cms)	
Scalpel blade 24	

JARS AND CONTAINERS	
Pediatric blood culture bottle	NOT INCLUDED
Whatman 903 filter paper	
EDTA vacutainer, 5 mL	
Sterile vial with no additive, 10 mL	
Cryogenic storage vials, 5mL containing 1 mL lysis buffer	
Nasopharyngeal swab with transport media	1
Rectal swab with transport media /Vicum	1
Specimen jars (prefilled 10% neutral-buffered formalin)	
Tissue cassettes	

Appendix B: Retired Specimen Collection

Bone marrow MITS, as needed (performed on infants and children, not on neonates or stillbirths)

- The assistant takes formalin jar #13 from the MITS Specimen Collection Kit.
- The assistant labels the formalin jar with the appropriate label.
- The assistant takes the bone marrow trephine.
- The specialist locates the anterior iliac crest. Laterality is indifferent.
- The specialist prepares the puncture trephine to be used.
- The specialist holds the shutter-guide inserted into the biopsy needle.
- The specialist holds the needle biopsy in one hand, and puts the index finger of the other hand on the skin to control the needle penetration.
- The specialist penetrates with the trephine the skin in the iliac crest and penetrates through the soft tissues to reach the bone.
- Once the trephine reaches the bone (notice the hard consistency) the specialist puts the trephine in an angle of approximately 15°. The specialist performs a constant pressure together with rotation right-left and left-right until the trephine is firmly inserted into the bone.
- The specialist advances the trephine 2-3 cm with a continuous pressure with right-left and left-right rotation. Movements other than rotation should be avoided at the penetration phase. To determine the depth of the biopsy needle, the shutter can be carefully re-inserted.
- Once the appropriate depth is reached, the specialist inserts the cutting device and performs two rotations clockwise and counter clockwise and gently moves the trephine laterally.
- Remove the trephine with biopsy. Gentle lateral movements should be made to facilitate the removal of the sample
- Once removed, check the quality of the bone marrow cylinder. The sample should have 2-3 cm, show a reddish color, hard consistency and spongy appearance.
- Place the sample in formalin jar #13.
- The assistant completes the required information in the bone marrow section of the MITS Specimen Collection Form.

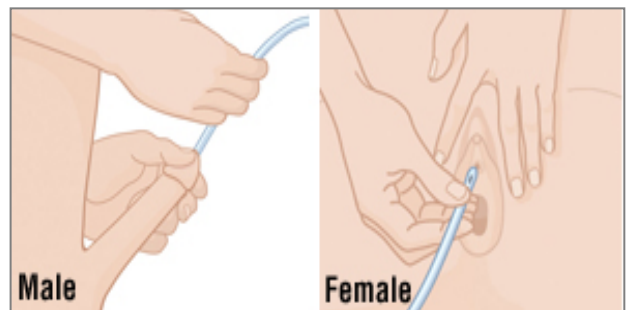


Hair sample collection (extended protocol)

- The assistant takes a cryovial, 5 mL with no additive from the MITS backup box.
- The assistant sticks one of the extra labels from the MITS Specimen Collection Kit on the cryovial.
- The specialist, using the tweezers, pulls five (5) hairs and puts them into the cryovial.
- The assistant specialist completes the required information on hair sample section of the MITS Specimen Collection Form.

Urine sample collection (extended protocol)

- The assistant takes the catheter 8FR and a 10 mL sterile vial with no additive from the MITS backup box.
- The assistant sticks one of the extra labels from the MITS Specimen Collection Kit on the sterile vial.
- The assistant opens the urinary sterile catheter 8FR.
- In males, the specialist holds the penis erect and inserts the bladder opening port of the catheter slowly into the urethra opening about 8-12 cm. Once the urine starts to flow, advance the catheter about 3 cm.
- In females, the specialist separates the labia major and still holding the labia apart, inserts the bladder opening port of the catheter slowly into the urethra opening about 3 cm. Once the urine starts to flow, advance the catheter about 3 cm.
- The assistant places the urinary drainage port of the catheter into the urine container.
- The specialist collects all the urine that flows from the sterile tube.
- The assistant completes the required information on urine in the body fluid section of the MITS Specimen Collection Form.



Appendix C: Anthropometry: A Checklist: Measuring Length of Children in the Post-Mortem Setting

The following images come from a 1-page checklist describing the importance of anthropometric data and how to collect measurements properly.

A CHECKLIST: MEASURING CHILD LENGTH IN THE POST-MORTEM SETTING

THE MEASURER SHOULD...

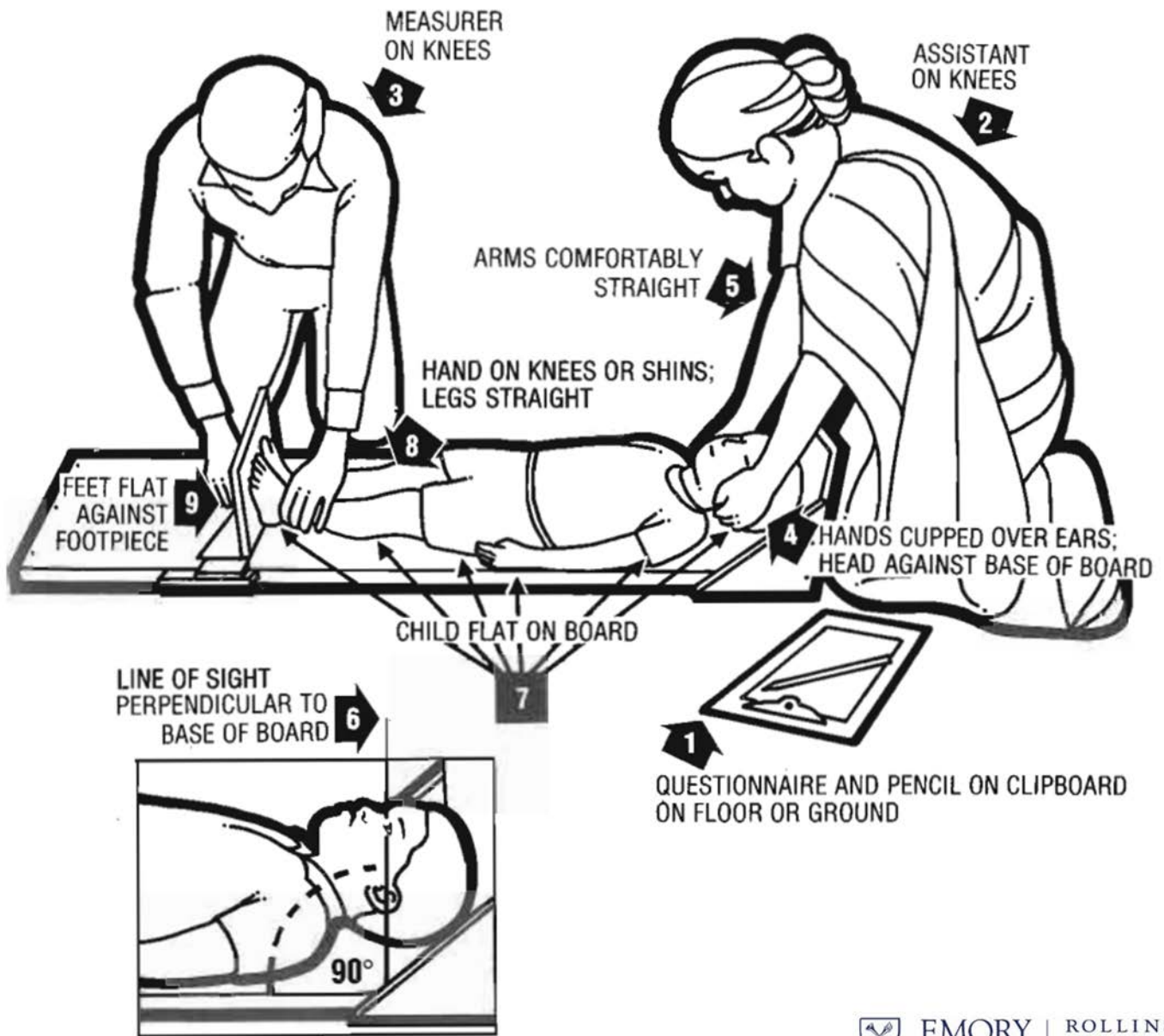
- Place the board on a flat, dry surface (e.g. table)
- Place the sliding foot piece at the end of the measuring board and check to see that it is sliding freely.
- Position yourself on the side of the board closest to the tape measure.
- Position the child's body so that the shoulders, back, and buttocks are flat along the center of the board.
- Hold the child securely at the waist while the Assistant positions the head.
- Place your hands on the child's knees or shins firmly, ensuring the legs are straight and together.
- Slide the foot piece forward until the child's feet are flat against the foot piece.
- Check the child's position:** head against the headpiece body and legs straight and flat in the center of the measuring board, heels and feet firmly against the foot piece.
- When the child's position is correct, read and call out the length measurement to the nearest 0.1 cm. Continue to call out the measurement until the measurement is recorded.

THE ASSISTANT SHOULD...

- Lay the child down on his/her back on the measuring board and stand directly behind the child's head.
- Cup your hands over the child's ears to ensure the head is stable and flat against the head piece.
- Record the measurement called out by the measurer.

BE SURE THE PARTICIPANT'S...

- Head is in the correct position- Frankfort Plane or perpendicular to the board.
- Chin is not tucked in against his/her chest or stretched too far back.



Appendix D: Cryovial and Formalin Jar Designations

Table 1: Outline of tissue specimens collected in cryovials

Frozen Tissue Specimen Details				
Container	Container Label	Tissue Specimen	Processing	Archived / Biorepository Specimen
Cryovial 1	C1 – LIVER	Liver and abdominal approach	None	Frozen Tube
Cryovial 2	C2 – LIVER	Liver and abdominal approach	None	Frozen Tube
Cryovial 3	C3 – R LUNG	Right thorax (total of 3 cores, 1 from each lobe)	None	Frozen Tube
Cryovial 4	C4 – R LUNG	Right thorax (total of 3 cores, 1 from each lobe)	None	Frozen Tube
Cryovial 14	C14 – LUNG for PCR	Right thorax (1 core) Left thorax (1 core)	Nucleic Acid Extraction & PCR	Nucleic Acid Remaining Tissue
Cryovial 5	C5 – L LUNG	Left thorax (total of 3 cores – 1 from each lobe)	None	Frozen Tube
Cryovial 6	C6 – L LUNG	Left thorax (total of 3 cores – 1 from each lobe)	None	Frozen Tube
Cryovial 7	C7 – CNS POST	Brain (Posterior and Fontanelle)	None	Frozen Tube
Cryovial 8	C8 – CNS POST	Brain (Posterior and Fontanelle)	None	Frozen Tube
Cryovial 9	C9 – CNS NASAL	Brain (Trans-nasal)	None	Frozen Tube
Cryovial 10	C10 – CNS NASAL	Brain (Trans-nasal)	None	Frozen Tube
Cryovial 11	C11 – PLAC	Placenta and Cord	None	Frozen Tube
Cryovial 12	C12 – PLAC	Placenta and Cord	None	Frozen Tube

In-Country

Central Biorepository

Note: Cryovial 14 follows Cryovial 4. Cryovial 14 collects cores from both the right and left thorax for GeneXpert and TAC Assay testing. Gray rows indicate the cryovials that stay “In-Country” and green rows indicate the cryovials that go to the “Central Biorepository”.

Table 2: Outline of tissue specimens collected and fixed in formalin

Fixed Tissue Specimen Details				
Container	Container Label	Tissue Specimen	Processing	Archived Specimen
Formalin Jar 1	J1 – LIVER	Liver and abdominal approach	Histopathology	Block and Slides
Formalin Jar 2	J2 – LIVER	Liver and abdominal approach	Histopathology & CPL Algorithm	Block and Slides
Formalin Jar 3	J3 – R LUNG	Right thorax (minimum total of 3 cores, 1 from each lobe)	Histopathology	Block and Slides
Formalin Jar 4	J4 – R LUNG	Right thorax (minimum total of 3 cores, 1 from each lobe)	Histopathology & CPL Algorithm	Block and Slides
Formalin Jar 5	J5 – L LUNG	Left thorax (minimum total of 3 cores – 1 from each lobe)	Histopathology	Block and Slides
Formalin Jar 6	J6 – L LUNG	Left thorax (minimum total of 3 cores – 1 from each lobe)	Histopathology & CPL Algorithm	Block and Slides
Formalin Jar 7	J7 – CNS POST	Brain (Posterior and Fontanelle)	Histopathology	Block and Slides
Formalin Jar 8	J8 – CNS POST	Brain (Posterior and Fontanelle)	Histopathology & CPL Algorithm	Block and Slides
Formalin Jar 9	J9 – CNS NASAL	Brain (Trans-nasal)	Histopathology	Block and Slides
Formalin Jar 10	J10 – CNS NASAL	Brain (Trans-nasal)	Histopathology & CPL Algorithm	Block and Slides

In-Country

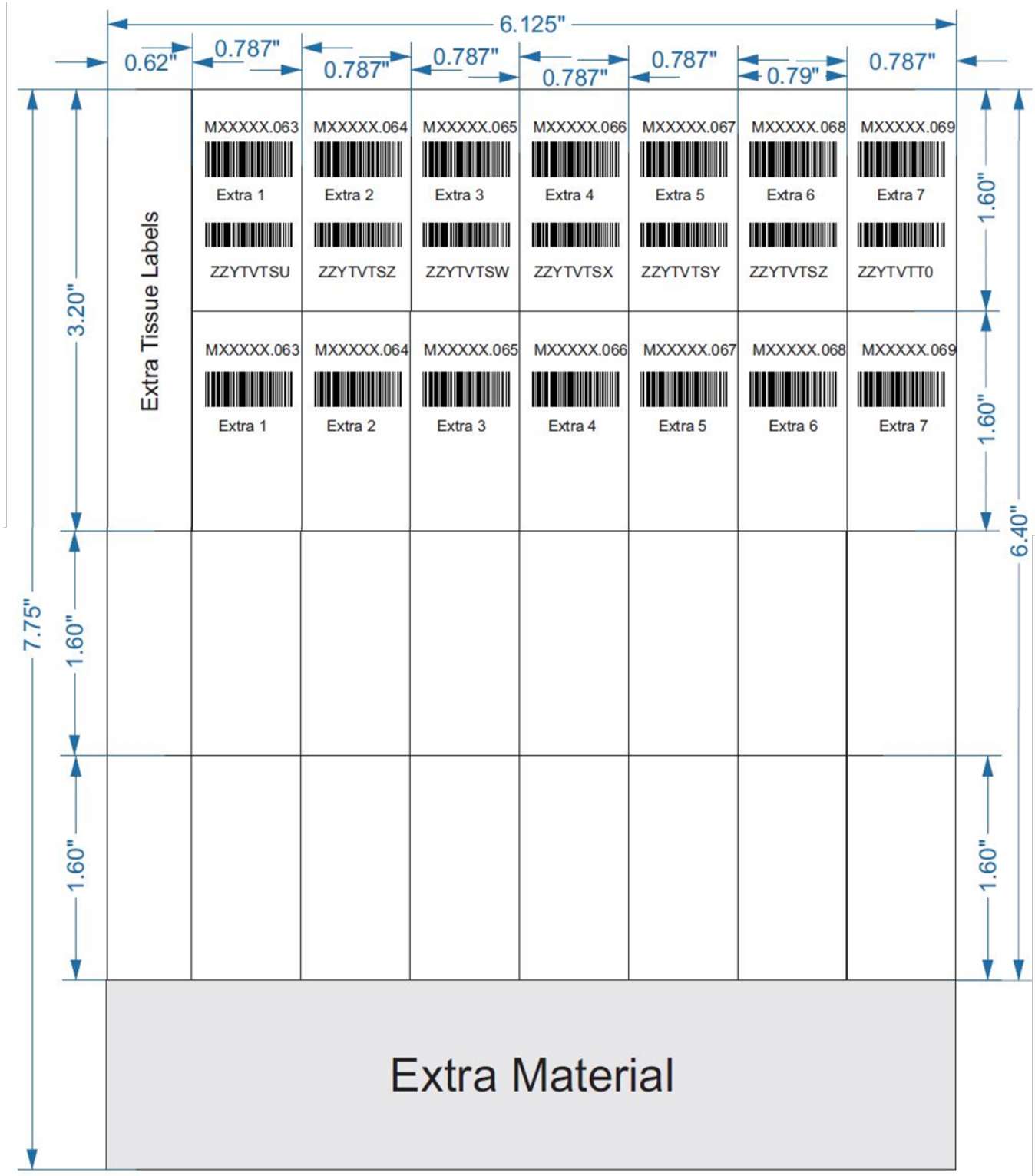
CPL

Note: Gray rows indicate the fixed tissues that stay “In-Country” and light blue rows indicate the fixed tissues that go to the “CPL”.





















































Appendix E: Job-Aid for Using the Supplied Labels

Job-Aid for Photo Cards, Labels, Extra Labels, Cassettes in MITS Specimen Collection Kit (see Sets B, C and D) + Job-Aids indicating which labels to keep after the MITS Procedure is complete.

Set B Labels: containing extra tissue labels (14x)





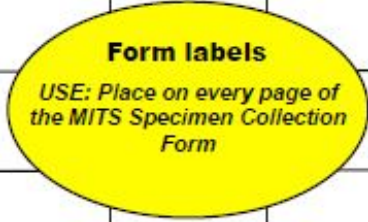


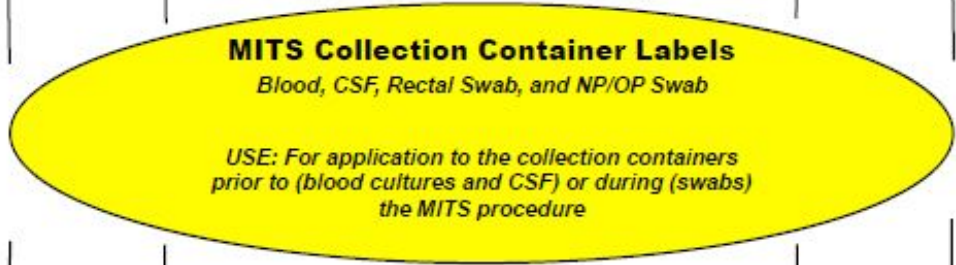


Set C Labels: containing labels for NP aliquot labels (3x), Rectal aliquot labels (3x), CSF aliquot labels (6x), EDTA Blood aliquot labels (7x), Right and Left Lung NA labels (9x), Lung NA label (1x), Extra labels (2x), MITS Collection container labels (Blood Culture, NP/OP, Rectal, CSF)

6.125"								
0.62"		0.787"						
NP/OP Aliquot Labels	MXXXXX.020  NP/OP  ZZYTVO25	MXXXXX.021  NP/OP  ZZYTVO26	MXXXXX.022  NP/OP NA 	Rectal Aliquot Labels	MXXXXX.024  RECTAL  ZZYTVO27	MXXXXX.025  RECTAL  ZZYTVO28	MXXXXX.026  RECTAL NA 	
	CSF Aliquot Labels	MXXXXX.013  CSF  ZZYTVO29	MXXXXX.014  CSF  ZZYTVO2A	MXXXXX.015  CSF  ZZYTVO2B	MXXXXX.016  CSF  ZZYTVO2C	MXXXXX.017  CSF  ZZYTVO2D	MXXXXX.018  CSF NA 	
		EDTA Blood Aliquot Labels	MXXXXX.005  BLOOD  ZZYTVO2E	MXXXXX.006  BLOOD  ZZYTVO2F	MXXXXX.007  BLOOD  ZZYTVO2G	MXXXXX.008  BLOOD  ZZYTVO2H	MXXXXX.009  BLOOD  ZZYTVO2I	MXXXXX.011  BLOOD QA  ZZYTVO2J
BLANK			Right and Left Lung NA Labels	MXXXXX.062  Form	MXXXXX.062  Form	MXXXXX.062  Form	MXXXXX.040  LUNG NA	BLANK
	MXXXXX.062  Form			MXXXXX.062  Form	MXXXXX.062  Form			
	Extra MXXXXX.070  Extra MXXXXX.070  Form	MXXXXX.062  Form		MXXXXX.062  Form	MXXXXX.062  Form			
MITS Collection Container Labels	MXXXXX.002  BLOOD CULTURE	MXXXXX.019  NP/OP	MXXXXX.023  RECTAL	MXXXXX.012  CSF				

Job Aid for Labels: Which Labels to Keep

Set C: Aliquot Labels

NP/OP Alliquot Labels	 <p>NP/OP Aliquots</p>		Rectal Alliquot Labels	 <p>Rectal Aliquots</p>	
CSF Alliquot Labels	 <p>CSF Aliquots</p>				
EDTA Blood Alliquot Labels	 <p>EDTA Blood Aliquots</p>				
Right and Left Lung Nucleic Acid Label	 <p>Form labels <i>USE: Place on every page of the MITS Specimen Collection Form</i></p>		 <p>Right and Left Lung NA</p>		
 <p>Blood Spot</p>	 <p>MITS Collection Container Labels <i>Blood, CSF, Rectal Swab, and NP/OP Swab</i></p> <p><i>USE: For application to the collection containers prior to (blood cultures and CSF) or during (swabs) the MITS procedure</i></p>				

Set D Labels: containing labels for TAC: Blood (2x), CSF (2x), Rectal (1x), Lung (1x), NP/OP (1x), Stool (1x), Serum (1x), Plasma (1x); Slide labels for various tissue specimens (25x)


















For the slide labels, CHAMPS PO only provides slide labels for the Local/Site Laboratory, which will be the specimens from the white cassettes. The slides labels provided include: the placenta set (7 cassettes), SLIDE 1 through SLIDE 8, and 2 sets of the following:

A – LIVER, B - R LUNG, C - L LUNG, D - CNS POST, and E - CNS NASAL



Job Aid for Labels: Which Labels to Keep

Set D: TAC and Slide Labels

	<p>TAC Labels <i>Blood and CSF in duplicate, Rectal, Lung, NP/OP, Stool, Serum, and Plasma</i> DO NOT USE THESE LABELS DURING MITS <i>These labels should accompany the noted specimens to the lab where TAC assays will be performed</i></p>				
					
	<p>Slide Labels <i>Liver, R. Lung, L. Lung, CNS Post, CNS Nasal, 8 Extra labels, 7 Placenta labels, and duplicates of the 5 first described</i> USE: Send with Tissue Samples to Histopathology Lab</p>				
					
					

Labeled Cassettes

The MITS Specimen Collection Kit contains a total of 24 cassettes (12 white and 12 blue)

White MXXXXX.041; A - LIVER;Local Lab

White MXXXXX.043; B - R LUNG;Local Lab

White MXXXXX.045; C - L LUNG;Local Lab

White MXXXXX.047; D - CNS POST;Local Lab

White MXXXXX.049; E - CNS NASAL;Local Lab

White MXXXXX.081; MEMBRANE;Local Lab

White MXXXXX.083; CORD;Local Lab

White MXXXXX.085; PL PARENCH;Local Lab (placenta parenchyma)

White MXXXXX.087; PL PARENCH;Local Lab (placenta parenchyma)

White MXXXXX.089; PL LESION EXTRA;Local Lab

White MXXXXX.091; PL LESION EXTRA;Local Lab

White MXXXXX.093; PL LESION EXTRA;Local Lab

Blue MXXXXX.042; A - LIVER;CPL

Blue MXXXXX.044; B - R LUNG;CPL

Blue MXXXXX.046; C - L LUNG;CPL

Blue MXXXXX.048; D - CNS POST;CPL

Blue MXXXXX.050; E - CNS NASAL;CPL

Blue MXXXXX.080; MEMBRANE;CPL

Blue MXXXXX.082; CORD;CPL

Blue MXXXXX.084; PL PARENCH;CPL

Blue MXXXXX.086; PL PARENCH;CPL

Blue MXXXXX.088; PL LESION EXTRA;CPL

Blue MXXXXX.090; PL LESION EXTRA;CPL

Blue MXXXXX.092; PL LESION EXTRA;CPL

The form must be completed to access the next forms, even when a body is unavailable.

CHAMPS ID

Form Version

Given name(s) of deceased

(If available)

Surname of deceased

Deceased Body Return Details

Does the body need to be released for transport outside facility following MITS procedure to another entity (e.g. undertaker, family home)?

Yes No

Location where body should be delivered following MITS procedure

(If outside facility, please provide exact address or location name)

Notes (including any details regarding how the body should be returned):

Initial Release of Body from Family/Morgue/Hospital Ward

Date body released to CHAMPS team for MITS procedure

(DD/MM/YYYY)

Time of release of body

(24 hour)

Name of individual to whom the body was released

(Surname, Given Name(s))

Release and Transfer of Body Following MITS Specimen Collection

Time body taken (following MITS) for release to family or other designated entity as determined above

(24 hour)

Date delivered to family or designated entity

(DD/MM/YYYY)

Time body delivered to family or designated entity

(24 hour)

Name of individual delivering body to family or designated entity

(Surname, Given Name)

Signature of individual delivering body to family or designated entity

Name of individual who received the body

(Surname, Given Name)

Final Comments on Body Disposition Process

Comments on transport or return of body

(e.g. notable events, issues, concerns)

Any names provided are not uploaded to CHAMPS database

General Patient Information

Date of death

(DD/MM/YYYY)

Time body was received for specimen collection

(24 hour)

Date body was received for specimen collection

(DD/MM/YYYY)

Were there any circumstances that prevented the MITS from being performed?

Yes No

If yes, then explain circumstances

Answer "No" if any MITS procedure data are collected, such as photography. Answer "Yes" for cases consented for MITS, if MITS was not started and did not collect any data or specimens

MITS Procedure

Time MITS procedure initiated

(24 hour)

Date of MITS procedure

(DD/MM/YYYY)

CHAMPS KIT ID

Location MITS procedure performed

Please indicate which location the MITS procedure was performed, since sites have more than one designated MITS room or facility.

If other health facility, please specify

Measurements

Weight

(Kg)

Make sure weight is in kilograms (Kg) and measurements are in centimeters (cm)

Height or length

(cm)

Mid-upper right arm circumference (MUAC)

(cm)

Head circumference

(cm)

Right leg length

(cm)

Right foot length

(cm)

Physical Findings

Sex

- Male
 Female
 Indeterminate Sex
 unknown

If stillbirth:

- Fresh
 Macerated
 Not Applicable

If macerated, level of maceration

- Level 1 Level 2 Level 3

Distended abdomen

- Yes No No Exam
 Unknown

Trauma Evidence

Was there any evidence of trauma (bruises, lacerations, cuts/wounds/abrasions, burns, fractures, external bleeding)?

- Yes No Unknown

If Yes, please describe evidence and type of trauma

Describe any anomalies about the body

(Make sure to indicate type of trauma if describing more than one from examples above)

Gross Findings

Gross facial abnormalities

Yes No No Exam
 Unknown

Consider facial defects such as congenital defects

Umbilicus abnormal

Yes No No Exam
 Unknown

Other significant gross findings?

Yes No Unknown

If Yes, describe other significant gross finding(s)

Describe in detail any gross abnormalities, such as edema, and provide the location(s) of the abnormalities.

Palpation Findings

	Yes	No	No Exam	Unknown
Hepatomegaly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Enlarged lymph nodes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Location of lymph nodes (if enlarged)

Skin/Mucosal Findings

	Yes	No	No Exam	Unknown
Jaundice/icterus	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Petechiae	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rashes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other abnormalities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If other skin abnormalities, please describe:

Describe all skin abnormalities, (e.g. scars, ulcerations,

Describe location of other skin abnormality

Location of the jaundice or icterus:

Location of the petechiae

Location of the rash

Blood from one of following:

	Yes	No	No Exam	Unknown
Mouth	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ears	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nose	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rectum	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Must select "Yes, No, No Exam or Unknown" for each (mouth, ear, nose, and rectum). If the person entering data does not know if the exam was completed, select "Unknown"

MIT S Photography

	Yes	No	Unknown	Not Applicable
Front	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Back	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Side	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nails	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Placenta: Maternal side	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Placenta: Fetal side	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Placenta: Section	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Additional photos	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Placenta photographs for cases involving stillbirths and early neonates

If Yes, please specify

Explain why photograph(s) were not obtained

Is the face in full view in the frontal picture? Yes No

Describe the reason why photographs were not obtained, such as consent issues, technical difficulties, or other

Body Fluid Collection:

Must select Yes or No to the applicable questions below to indicate if sample was collected for each body fluid type

Cerebrospinal fluid (CSF) Yes No

Reason CSF not collected

Approximate volume collected (mL)

Gross appearance of the CSF

- Clear
- Turbid
- Purulent
- Hematic

Blood Culture Bottle: Whole blood Yes No

Reason Blood Culture Bottle not collected

Must select Yes or No for this question

EDTA Tube: Whole blood

Yes No

Must select Yes or No for this question

Reason EDTA Whole Blood not collected

Approximate volume of blood collected

(mL)

Gross appearance of blood

Blood
 Serum
 Hemolyzed

Location where blood was collected

Clavicular
 Intracardiac
 Other

If Other location, please specify

Blood Spots: Whole blood

Yes No

Must select Yes or No for this question

Reason Blood Spots not collected

Rectal swab

Yes No

Must select Yes or No for this question

Reason Rectal Swab not collected

NP/OP swab

Yes No

Must select Yes or No for this question

Reason NP/OP Swab not collected

Checklist for Tissue Collection

When using the same biopsy needle to collect cryovial (microbiology) and formalin (histology) specimens, collect all cryovial (microbiology) specimens first before collecting formalin (histology) specimens, in case culturing is required cultured

Liver and abdominal organs

	Yes	No
Cryovial 01 (2 cores)	<input type="radio"/>	<input type="radio"/>
Cryovial 02 (2 cores)	<input type="radio"/>	<input type="radio"/>
Formalin jar 1 (6+3 cores)	<input type="radio"/>	<input type="radio"/>
Formalin jar 2 (6+3 cores)	<input type="radio"/>	<input type="radio"/>

If any of the liver and abdominal specimens were not collected, specify which and why they were not collected

When using the same biopsy needle to collect cryovial (microbiology) and formalin (histology) specimens, collect all cryovial (microbiology) specimens first before collecting formalin (histology) specimens, in case culturing is required

Right thorax / Right lung

	Yes	No
Cryovial 03 (3 cores, 1 from each lobe or field)	<input type="radio"/>	<input type="radio"/>
Cryovial 04 (3 cores, 1 from each lobe or field)	<input type="radio"/>	<input type="radio"/>
Formalin jar 03 (6 cores, 2 from each lobe or field)	<input type="radio"/>	<input type="radio"/>
Formalin jar 04 (6 cores, 2 from each lobe or field)	<input type="radio"/>	<input type="radio"/>

If any of the right thorax or right lung specimens were not collected, specify which and why they were not collected

Right and left thorax / Right and left lung

	Yes	No
Cryovial 14 (for PCR) (6 cores total)	<input type="radio"/>	<input type="radio"/>

If the right and left thorax / right and left lung specimen was not collected, specify why it was not collected

Left thorax / Left lung

	Yes	No
Cryovial 05 (3 cores, 1 from each field)	<input type="radio"/>	<input type="radio"/>
Cryovial 06 (3 cores, 1 from each field)	<input type="radio"/>	<input type="radio"/>
Formalin jar 05 (6 cores per jar, 2 from each lobe or field)	<input type="radio"/>	<input type="radio"/>
Formalin jar 06 (6 cores per jar, 2 from each lobe or field)	<input type="radio"/>	<input type="radio"/>

If any of the left thorax or left lung specimens were not collected, specify which and why they were not collected

When using the same biopsy needle to collect cryovial (microbiology) and formalin (histology) specimens, collect all cryovial (microbiology) specimens first before collecting formalin (histology) specimens, in case culturing is required

Brain (Posterior and Fontanelle)

	Yes	No
Cryovial 07 (2 plus 2 cores)	<input type="radio"/>	<input type="radio"/>
Cryovial 08 (2 plus 2 cores)	<input type="radio"/>	<input type="radio"/>
Formalin jar 07 (6 cores)	<input type="radio"/>	<input type="radio"/>
Formalin jar 08 (6 cores)	<input type="radio"/>	<input type="radio"/>

If any of the brain, posterior and fontanelle, specimens were not collected, specify which and why they were not collected

Brain (Trans-nasal)

	Yes	No
Cryovial 09 (2 cores)	<input type="radio"/>	<input type="radio"/>
Cryovial 10 (2 cores)	<input type="radio"/>	<input type="radio"/>
Formalin jar 09 (6 cores)	<input type="radio"/>	<input type="radio"/>
Formalin jar 10 (6 cores)	<input type="radio"/>	<input type="radio"/>

If any of the brain, trans-nasal, specimens were not collected, specify which and why they were not collected

Bone marrow

	Yes	No
Formalin Jar 13 (1 core)	<input type="radio"/>	<input type="radio"/>

Flat Bone Long Bone Yes No

Name of Bone, from which Bone Marrow was extracted

If the bone marrow specimen was not collected, specify why it was not collected

Bone Marrow Aspirate Yes No

Reason bone marrow aspirate not collected

Approximate volume of bone marrow aspirate collected

_____ (ml)

Placenta and Cord

Collecting Whole Placenta or specimen jars?

- Specimen Jars
 Whole placenta

If using old protocol, select specimen jars. If using the new protocol, select whole placenta. Whole placenta should be fixed for 24 hours

	Yes	No
Cryovial 11 (2 pieces)	<input type="radio"/>	<input type="radio"/>
Cryovial 12 (2 pieces)	<input type="radio"/>	<input type="radio"/>
Formalin Jar 11 (6 pieces)	<input type="radio"/>	<input type="radio"/>
Formalin Jar 12 (6 pieces)	<input type="radio"/>	<input type="radio"/>
Whole Placenta in Formalin	<input type="radio"/>	<input type="radio"/>

If any of the placenta and cord specimens were not collected, specify which and why they were not collected.

Other Specimens Collected

Extra specimens collected?

- Yes
 No

Any gross findings, human and non-human, including insects, worms, ticks, etc

Extra Specimen 1

Other specimen type

Must select Body Fluid or Tissue Specimen

- Body Fluid Tissue Specimen

Other specimen description

A specimen description must be provided

(e.g. abscess, enlarged lymph node, skin, etc)

Purpose for collection

- Histology
 Culture
 Multiple testing methods
 Unspecified testing method
 Other

Unspecified testing method can be selected when test method is unknown

Other purpose

Other specimen ID (barcode number)

Must provide an ID for "other" specimen

Additional extra specimens collected?

- Yes
 No

Must select Yes or No for this question

For the section "Other Specimens Collected," up to four extra specimens can be collected and documented

Extended Protocol

Urine Yes No

Approximate volume collected

(mL)

Hair Yes No

Skin Yes No

Personnel performing MITS

Time MITS procedure completed

(24 hour)

Name of primary technician

Name/s of all assistant/s present for specimen collection

(Separate names with a semi-colon)

Time

(24 hour)

Date

(DD/MM/YYYY)

Comments on procedure (optional)
