

Document History:

Title:	Shipping Muscle and Nerve Biopsies to HSC Neuropathology Lab	Site(s):	Shared Health Diagnostic Services ALL MGRS, HSC, SBH, WL, GGH, VGH CGH, MHC, SOGH
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Approved by: <i>(approval on file)</i>	Dr. G. Fischer	Date:	11-SEP-2025
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Details of Recent Revision

- 2.1 and 7.5 Added fax # to send clinical history

1.0 PURPOSE

- 1.1 To describe the procedure for shipping skeletal muscle biopsies or sural nerve biopsies, from outside the Health Sciences Centre to the HSC Neuropathology laboratory (MS435U) for processing.

2.0 RESPONSIBILITY

- 2.1 It is the responsibility of the sending party to provide the clinical information including history and physical information, relevant laboratory results and summary of electrophysiology studies (if available) with the specimen. Procedures used to process the biopsy may vary depending on age and possible diagnosis. Send clinical history etc. to Fax # 204-787-4942 ATTN: Neuropathology Lab
- 2.2 Clinical Information includes:
- 2.2.1. Patients PHIN number and Date of Birth.
 - 2.2.2. Site of biopsy.
 - 2.2.3. Reason for biopsy.
 - 2.2.4. Letter from referring physician (neurologist, geneticist, physiatrist, or rheumatologist).
 - 2.2.5. Drug therapy.
 - 2.2.6. Previous biopsy information.
 - 2.2.7. All physicians desiring copy of report (full name and specific mailing address).
- 2.3 The case needs to be registered at originating hospital (if within the LIS system) and will be receipted at HSC. SBH use DelReg registration request code SRGP to be receipted in CoPath.

3.0 POLICY

- 3.1 The institution staff will ship the specimen directly to the Health Sciences Centre Neuropathology Laboratory, by cab only. Specimens need to be received within 1 hour if they are sent from within the city of Winnipeg and within 12 hours if they originate outside the city and a muscle kit is used. A muscle kit is not needed if shipping within Winnipeg.
- 3.2 All muscle and nerve biopsies will be scheduled in advance by phone (204) 787-4615. Staff sending the specimens will follow-up with a phone call once the patient has arrived and again when the specimen has been sent.

4.0 SAFETY

- 4.1 Follow general laboratory safety guidelines for handling fresh biological tissue.
- 4.2 Ensure proper personal protective equipment is worn when handling fresh biological tissue.

5.0 MATERIAL AND EQUIPMENT

- 5.1 Telpha pads.
- 5.2 EM grade Glutaraldehyde vial from Neuropathology Lab, HSC (only if outside Winnipeg city limits).
- 5.3 Normal Buffered Saline on moistened (not soaked) non-adhering material.
- 5.4 Closed container to prevent drying.
- 5.5 Frozen gel pack.
- 5.6 Container for shipping.

6.0 SET UP (Westman Lab Pathology)

- 6.1 The O.R. booking clerk will call to inform the lab of the date and time of a muscle biopsy. If possible, ensure that the procedure is booked in the morning.
- 6.2 Obtain the patient's name.
- 6.3 Ensure that there is a muscle biopsy kit on hand.
- 6.4 Write the information on the calendar in the gross room.
- 6.5 Inform the Charge and/or Senior.
- 6.6 Review specimen collection if necessary.
- 6.7 Send any paperwork (patient information and history) to the O.R. for the physician to complete.
- 6.8 The day before the procedure is scheduled:
 - 6.8.1. Call the O.R. to confirm that the procedure is still booked.
 - 6.8.2. Ask the O.R. to inform the lab 15 minutes prior to the procedure.
 - 6.8.3. Call the taxi to inform them that there will be a parcel to be transported to HSC the next day.
 - 6.8.4. Ensure that all supplies are in the kit and that the freezer pack supplied with the kit is put in the freezer.
 - 6.8.5. Inform HSC neuropathology department about the specimen.

7.0 PROCEDURE FOR NOTIFICATION

- 7.1 Phone (204) 787-4615 ahead of time, to alert the Neuropathology Lab when a biopsy procedure is to be performed.
- 7.2 Phone the day of the procedure to inform the lab that the procedure is going ahead/or cancelled, and again when the specimen is shipped, including the estimated time of arrival.
- 7.3 Transportation arrangements for the specimen to be sent to the Health Science Centre, Pathology Department are to be made by the referring institution. Send all biopsies to arrive between 8 am and 3 pm, Monday to Friday. For institutions outside of Winnipeg: phone the Neuropathology Lab and a Muscle Biopsy Transportation Kit will be provided for you.
- 7.4 Ship all biopsies immediately, marking the container STAT.

NOTE: It is imperative when sending biopsies that they are received as soon as possible. The absolute maximum delay for in-city specimens is 1 hour, provided the sample is kept wrapped in saline moistened (not soaked) non-adhering material, orientation well marked (for needle biopsies), placed in a closed container to prevent drying, and kept cool with a frozen gel pack. Do not place directly on ice or dry ice because freezing must be prevented.

- 7.5 Required patient clinical information must accompany all specimens. The procedures used in processing the biopsies vary depending on the age and possible diagnosis. A detailed patient history should accompany the specimen. Send clinical history etc. to Fax # 204-787-4942 ATTN: Neuropathology Lab. See "Sample Information" listed in 2.2.
- 7.6 SENDING SITE (may be site specific): proceed to the O.R. at the designated time taking the three specimen containers and the necessary supplies from the kit.
 - 7.6.1. Use the patient label stickers provided by the O.R. to label all three specimen containers and the patient information sheet.
 - 7.6.2. Ensure that the patient information sheet has been fully completed by the physician.
 - 7.6.3. Orientate the tissue as per HSC procedure.
 - 7.6.4. As per O.R. request, do not remove cap until you reach the front desk or the O.R.

- 7.7 WL – Photocopy the requisition or patient information sheet. Attach Delphic sticker and give to the pathology secretaries for entry into the computer system. Give photocopies to Clerk III to file.
- 7.8 Complete any specimen preparation and orientation in the grossing room and pack it into the kit for shipping. Attach labels: Do Not Freeze, This End Up and destination labels and tape closed.
- 7.9 Call HSC Neuropathology department to inform them what time the parcel has left and what time they should expect it.
- 7.10 WL – Inform Administrative Secretary that a specimen was sent via taxi and include the date (for billing purposes).

8.0 **PROCEDURE FOR OBTAINING MUSCLE BIOPSY**

Note: The case needs to be registered at originating hospital (if within the LIS system) and will be receipted at HSC. SBH use DelReg registration request code SRGP to be receipted in CoPath.

- 8.1 **Open biopsies** should consist of 3 pieces of muscle tissue, one for each of the following procedures: enzyme studies, electron microscopy and routine histology. Each piece should measure approximately 1.0 (to 1.5) x 0.5 x 0.3 cm, held in muscle clamps or pinned onto a flat surface i.e. Styrofoam, wax etc. (to prevent contraction).
 - **In city limits:** Wrap all three specimens in gauze pads moistened with neutral buffered saline, place in an airtight container for transportation. Must arrive within the hour.
 - **Outside city limits:** Request a Muscle Biopsy Transportation Kit to be sent to you.

Specimen 1. Place the largest, best piece of the three onto the piece of wax and pin, then wrap in moistened gauze and place in the airtight container for transportation.

Specimen 2. Place the smallest piece onto the piece of wood strip supplied, insert this into the vial containing the glutaraldehyde fixative, put the cork in the top and then the lid on and place into the airtight container for transportation.

Specimen 3. The last piece can be taken out of the clamps (if used) after 20 minutes and placed into the container of neutral buffered formalin supplied and place into the airtight container for transportation.

Note: If within the CoPath system, register the specimen in Delreg before shipping. The specimen will be receipted in the pathology LIS at HSC.

8.2 **Muscle needle biopsies (Riverview Health Centre Only)**

- 8.2.1. Needle biopsies require 3 pieces of muscle tissue. Sample should be laid out on a Telfa pad with orientation clearly marked, wrapped with saline moistened material and placed in a sealed container. The specimen should be kept cool either with ice or a freezer pack but must not freeze.
- 8.2.2. Send immediately by cab STAT.

9.0 **PROCEDURE FOR OBTAINING NERVE BIOPSY**

- 9.1 Nerve Biopsies: Ideally the biopsy should consist of 1 piece of nerve tissue 3 to 4 cm long. Do not stretch, bend, compress or freeze the nerve specimen. It is preferable that a surgeon experienced in nerve biopsies does this procedure. Many biopsies have been wasted because the nerve tissue was mishandled at the time of removal.

- 9.2 If transporting from outside the city limits, requiring over 1 hour, contact the Neuropathology Lab at HSC and request a Transportation kit.
- 9.2.1. **Specimen #1:** A piece of approximately 0.75 cm should be cut from the end of the biopsy, avoiding compression, and placed into a vial containing E.M.-grade glutaraldehyde fixative.
- 9.2.2. **Specimen #2:** The remaining portion should be wrapped in Telfa pad and/or gauze lightly moistened with normal buffered saline and placed into an airtight container for transportation.

10.0 TRANSPORTATION

- 10.1 Transportation: Place the containers on sufficient ice or frozen gel pack (NOT dry ice) to assure the biopsies arrive cool, **not frozen**. We request outside institutions transport the biopsy to us, in a fresh state, **within 1 hour if within Winnipeg city limits**. The specimens should be wrapped in saline moistened material and indirectly kept cool, then sent to HSC by cab. **For specimens obtained outside of Winnipeg, please arrange transportation well in advance so that they are received no more than 12 hours after the biopsy is taken (using our transportation kit, refer to 11.2 and 11.3). The small amounts of glutaraldehyde and formalin provided in the muscle bx kit do not qualify as Dangerous Goods provided there are 3 layers of leak proof containers (or leak proof plastic bags) and an appropriate amount of absorbent material is enclosed in the kit for transportation.**
- 10.2 Needle Biopsies should be shipped cool on saline moistened Telfa pad with orientation clearly marked.

11.0 SPECIAL HANDLING

- 11.1 Proper freezing of skeletal muscle biopsy for enzyme histochemistry interpretation is a necessity and has to be the first priority for processing of muscle biopsy specimens. Please **DO NOT ATTEMPT TO FREEZE THE MUSCLE YOURSELF**. Once frozen, slight warming during transportation can cause severe artifact.
- 11.2 If metabolic disease (e.g. mitochondrial disease) is suspected, it is requested that the patient be sent to the Health Science Centre for the muscle biopsy procedure, as it is imperative that the sample for metabolic studies be snap frozen within **15 minutes**, under specific conditions.
- 11.3 Enzymes are very labile; therefore, the shortest delay in transportation is preferred.

NOTE: Contraction, drying, and freezing artifacts cannot be undone by any laboratory procedure.

12.0 REFERENCES

- 12.1 Neuropathology Manual
- 12.2 Muscle Biopsy, A Practical Approach – 2nd edition, Dubowitz

Appendix 1 Surgical Pathology Specimen Referral Log

Procedure:

1. Sending facility will phone HSC laboratory at (204) 787-4615 to notify that a muscle/nerve specimen will be shipped to their site.
2. The sending facility will fax the log to HSC Pathology Lab prior to shipment.
3. Upon receipt of the specimen, HSC Pathology Lab will match and record receipt of specimens and fax the same sheet back to Sending facility to indicate that specimens were received.

To be completed by Sending Facility:

Facility Name: _____ **Phone Number:** _____ **Fax Number:** _____

Time specimen was taken: _____ **Time specimen was picked up by taxi/courier:** _____

Signature of Sender: _____

Immediately fax the completed form to HSC Pathology Lab

FAX: (204) 787-4942 **Phone:** (204) 787-4615

Shipment Date: _____ **Total Number of Specimens:** _____

Patient Name	PHIN #	Specimen Type	Number of Containers

Documentation of Receipt of Specimens: _____

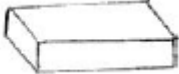
Number of Specimens Received: _____ **Signature of Receiver:** _____

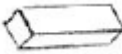
Return Faxing Date and Time: _____

Appendix 2 Muscle/Nerve Biopsy Collection – WL

1. Call Westman lab Pathology to set up an appointment and to ensure a biopsy kit is on site. One-month notice required.
2. Have all required information completed prior to procedure (see responsibility below).
3. Call Pathology Department @4477 ten minutes prior to procedure. Lab to meet OR staff at OR front desk, change into scrubs. Prepare muscle biopsy kit for procedure.
4. OR to provide lab with 3 patient label stickers for specimen containers.
5. It is the responsibility of the sending party to provide the clinical information including history and physical information, relevant laboratory results and summary of electrophysiology studies (if available) with the specimen. Procedures used to process the biopsy may vary depending on age and possible diagnosis.
6. Clinical Information includes:
 - 6.1. Patients PHIN number and Date of Birth
 - 6.2. Site of biopsy
 - 6.3. Reason for biopsy
 - 6.4. Letter from referring physician (neurologist, geneticist, physiatrist, or rheumatologist)
 - 6.5. Drug therapy
 - 6.6. Previous biopsy information
 - 6.7. All physicians desiring copy of report (full name)

MUSCLE SIZE REQUIREMENTS:

#1 and #3:  each 1.5 X 0.5 X 0.3 cm. Leave together in clamps then bisect after 20 minutes

#2:  1.0 X 0.3 X 0.2 cm (for wood)



TOTAL TISSUE SIZE