

**SPECIMEN COLLECTION  
MANUAL FOR UNIVERSITY  
OF IOWA PHYSICIAN,  
SURGEONS AND STAFF.**

# Table of Contents

<b>Specimen Collection Manual for In-House Cases.....</b>	<b>4</b>
<b>General Information on Collection and Handling of Specimens.....</b>	<b>4</b>
Laboratory Hours:.....	4
<i>Routine pick-up:</i> .....	4
<i>Exceptions to routine pick-up time:</i> .....	4
Handling, Labeling and Transportation of Specimens and Ophthalmic Pathology Consultation Request Forms.....	5
<i>Attending surgeon responsibilities:</i> .....	5
<i>Operating room and ophthalmology nursing staff responsibilities:</i> .....	6
Ophthalmic pathology laboratory responsibilities:.....	11
<b>Rejection and Exemption of specimens.....</b>	<b>13</b>
Incomplete or Missing Patient or Specimen Information.....	13
Sending information to the Ophthalmic Pathology Laboratory.....	14
Giving Patient Information to Physicians.....	14
Copies of Final Reports.....	14
<b>Special Procedure Specimen Collection.....</b>	<b>16</b>
CJD / Creutzfeldt-Jakob Disease.....	16
Corneal Epithelial Scraping for Acanthamoeba.....	16
Electron Microscopy.....	17
Fine Needle Aspirations.....	18
Frozen Sections on Ophthalmic Tissue.....	20
Direct Immunofluorescence:.....	20
Metabolic Diseases (i.e. gout, cystinosis, storage disease):.....	21
Temporal Artery Biopsies:.....	21
Vitreous Tap:.....	24
<b>Routine Specimen Collection by Specimen Type:.....</b>	<b>26</b>
Autopsy eye:.....	26
Ciliary Body (Iridocyclectomy specimen):.....	26
Conjunctiva:.....	26
Corneal Biopsy:.....	27
Corneal Buttons (tissue from transplant procedures):.....	27
Descemet Membrane:.....	28

Enucleation (Eyeball/Globe):.....	28
Evisceration: .....	29
Exenteration (Eye and orbital contents): .....	29
Eyelid/skin: .....	29
Foreign Body:.....	30
Intraocular Lens Implants and Other Ocular Devices:.....	30
Iris: .....	30
Lacrimal System (lacrimal gland or sac): .....	30
Muscle: .....	31
Optic Nerve:.....	31
Optic Nerve Sheath .....	31
Orbital Biopsy (Routine, not for suspected lymphoid lesion): .....	31
Orbital Lymphoid Lesion:.....	32
Pediatric Orbital Tumor:.....	32
Pterygium: .....	33
Trabecular Meshwork: .....	33
<b>Physician Notification: .....</b>	<b>33</b>
<b>References:.....</b>	<b>34</b>

**DEPARTMENT OF OPHTHALMOLOGY  
UNIVERSITY OF IOWA HOSPITALS AND CLINICS  
OPHTHALMIC PATHOLOGY LABORATORY**

**Specimen Collection Manual for In-House Cases.**

The purpose of this collection manual is to provide specimen collection information to the Ophthalmology Department Nursing Station, Ambulatory Surgery Center, General OR, Iowa River Landing Clinic, Frozen Section Room and any other areas providing patient specimens to the F. C. Blodi Eye Pathology Laboratory, room 233, Medical Research Center building (MRC). This manual is found on the Ophthalmology Department's website at: <http://www.medicine.uiowa.edu/eye/>. Follow the path by clicking as follows: Patient Care → Labs and Screening → Ophthalmic Pathology. Notifications of annual review and updates are sent by e-mail to all Ophthalmology staff, the Main OR, Ambulatory Surgical Center (ASC), Children's Hospital OR, Frozen Section Room, and Iowa River Landing clinic.

Specimen collection begins with the removal of a fluid or a piece of tissue from a patient during a surgical procedure. If the procedure requires stat/rush or special attention, (i.e.: Acanthamoeba scraping, temporal artery biopsy, etc.) the F.C. Blodi Eye Pathology Laboratory should be contacted in advance of the procedure as the Eye Pathology Laboratory must prepare equipment and materials for these particular procedures prior to receiving the specimen. Dr. Syed (pager 2438) needs to be informed in advance for all fine needle aspiration procedures.

**General Information on Collection and Handling of Specimens.**

***Laboratory Hours:***

**Routine pick-up:**

- a. The Ophthalmic Pathology Laboratory Hours are Monday-Friday, 8:00 AM - 5:00 PM excluding UIHC holidays.
- b. Ophthalmic Pathology has one routine specimen pick-up time between 2:30 and 3 PM Monday – Friday excluding UIHC holidays.

**Exceptions to routine pick-up time:**

- a. **Temporal artery biopsies.**
- b. **Fine Needle Aspirations.**
- c. **Corneal Epithelial Scrapings.**

## ***Handling, Labeling and Transportation of Specimens and Ophthalmic Pathology Consultation Request Forms.***

Attending surgeon responsibilities:

**a. Special procedure specimen collection**

- i. Prior to surgery, refer to the [Special Procedure Specimen Collection](#) section regarding handling instructions for the following procedures and specimen types:
  - a) Tissue from CJD/Creutzfeldt-Jakob disease patients
  - b) Acanthamoeba scraping
  - c) Electron microscopy
  - d) Fine needle aspirations
  - e) Frozen sections
  - f) Flow cytometry
  - g) Metabolic diseases (i.e.: gout, cystinosis, storage disease)
  - h) Temporal artery biopsy
  - i) Vitreous aspirates

**b. Routine Specimen Collection by Specimen Type**

- i. Prior to surgery, refer to the [Routine Specimen Collection by Specimen Type](#) for handling instructions concerning specimens not mentioned in the Special Procedure Specimen Collection.

**c. University of Iowa Hospitals and Clinics By-laws**

- i. All tissues surgically removed from a patient pertaining to the eye must be sent to the F.C. Blodi Eye Pathology Laboratory by virtue of the by-laws of the University of Iowa Hospitals and Clinics. Any exceptions must be approved by the Laboratory Director and the Chair of the Dept. of Ophthalmology and Visual Sciences in advance of the procedure.

**d. Exceptions to Tissue Submittal**

- i. The following list of tissue types have been declared exempt from pathologic examination and need not be sent to the F.C. Blodi Eye Pathology Laboratory.
  - a) Crystalline Lens (solid or aspirate) – Cataract extractions
  - b) Vitreous – Routine
  - c) Iris – Routine iridectomy
  - d) Trabecular Meshwork – Routine Trabeculectomy

- e) Skin rhytids from routine blepharoplasty
  - ii. It is at the surgeon's discretion to determine whether pathologic examination of exempt tissues will aid in patient management/diagnoses. The surgeon may elect to submit exempt tissue to the F.C. Blodi Eye Pathology Laboratory as needed.
  - iii. When these tissues are not submitted to the F.C. Blodi Eye Pathology Laboratory, they are discarded by the surgical areas per their specimen disposal protocol.
- e. **Questions or Concerns**
- i. Any questions concerning the handling of Ophthalmic specimens should be directed to the Ophthalmic Pathologist or the Ophthalmic Pathology Supervisor (319-335-7672), prior to performing the surgery.
- f. **Ophthalmic and Adnexal Malignancies**
- i. When a patient is referred to UIHC with a diagnosis of ophthalmic or ophthalmic adnexal malignancy made on a biopsy done elsewhere, the slides and copy of the report from the original biopsy should be obtained from the outside institution and referred to the Eye Pathology Laboratory for review prior to proceeding with any further therapy. **This is UIHC policy and is considered the standard of care.** The lab's yellow consultation form should be filled out and sent to the lab by the UIHC physician. The mailing address and phone number of the lab are available at the top of the yellow request form.

Operating room and ophthalmology nursing staff responsibilities:

- a. **Special procedure specimen collection**
- i. Refer to the each of the following under the [Special Procedure Specimen Collection](#) for specific handling instructions:
  - ii. CJD/Cruetefeldt-Jakob Disease
  - iii. Acanthamoeba scraping
  - iv. Electron microscopy
  - v. Fine needle aspirations
  - vi. Frozen sections
  - vii. Flow cytometry
  - viii. Metabolic diseases (i.e.: gout, cystinosis, storage disease)
  - ix. Temporal artery biopsy
  - x. Vitreous aspirates

**b. Routine Specimen Collection by Specimen Type**

- i. Specimens that do not fall under the Special Procedure Specimen Collection portion of this manual should be considered "routine" and should be handled in the following manner (Refer to: [Routine Specimen Collection by Specimen Type](#) for specific handling instructions):
  - a) Materials needed prior to beginning the surgery:
    - i) A leak-proof specimen container with the correct type and amount of fixative, please refer to each specimen type under the **Routine Specimen Collection by Specimen Type** portion of this manual for specific fixation instructions.
    - ii) If formalin is used as the fixative, a formalin warning label must be placed on the specimen container.
    - iii) An Eye Pathology Consultation Request form as indicated for providing diagrams, indicating surgical margins, etc.
  - ii. Immediately after the "routine" tissue specimen has been removed from the patient do the following:
    - a) Place the tissue into the container with the proper fixative.
    - b) Make sure the tissue is completely covered by the fixative.
      - i) **DO NOT** wrap the tissue in gauze or other types of toweling as they will absorb the fixative and parts of the tissue may not be covered by the fixative causing the tissue to decompose.
    - c) The amount of fixative in the container will vary with the size of the specimen; however, the fixative should be a minimum of ten times the volume of the specimen being fixed.
      - i) Example 1: If the specimen is a trabeculectomy, corneal biopsy, corneal button, small skin biopsy, conjunctival biopsy, etc. there should be at least **25-30 ml** of fixative in the container.
      - ii) Example 2: If the specimen is an eyeball (enucleation) there should be at least **100 ml** of fixative in the container.
      - iii) Example 3: If the specimen is an exenteration (eye, eyelids and surrounding tissue) the container used should be large enough so that the fixative will **completely** cover the entire specimen.
    - d) Place the lid on the container properly and tightly to avoid a fixative spill.
      - i) If the fixative is formalin, glutaraldehyde or 100% alcohol and a spill occurs, refer to the respective Safety Data Sheet (SDS).

**\*\*\* NOTE \*\*\***

Surgical areas provide specimen containers.

**c. Identification and labeling of specimen containers**

- i. Identify and label all ophthalmology specimen containers with the following information:
  - a) **Two unique patient identifiers (name and medical record number or date of birth).**
  - b) **Source and location of the specimen: (i.e.: corneal button, left eye) depending on service specimen is from.**
  - c) **Formalin warning label (For formalin fixative).**
  - d) **Date of procedure/specimen obtained.**
- ii. Make sure that a well-constructed container with a secure lid is used.
- iii. Specimen containers must be labeled with the above information at the time of the procedure and before the container leaves the procedure room.

**d. Order for Eye Pathology Examination**

- i. All specimens sent to the Eye Pathology laboratory must have an order placed for “**Eye Pathology Exam**” in EPIC clinic encounter or in EPIC OpTime.

## Clinic order:

EYE PATHOLOGY EXAM Accept Cancel Link Order Remove

P

Priority:  Routine

Frequency:  Once

Starting:  Today Tomorrow At:  ⌚

First Occurrence: **Today 1000**

Scheduled Times: [Hide Schedule](#)

7/7/17 1000

Process Inst: Complete the yellow Eye Pathology Consultation form. Please use diagram and add any additional clinical information to sheet/diagram.

All specimens sent to the Eye Pathology Laboratory should arrive in some type of fixative (e.g. formalin, Saccomanno cytology fixative). Specimens submitted in saline will not be accepted.

Please contact the Eye Pathology Laboratory with questions at 5-7609. For urgent questions, please use pager 2438 or 3414.

Reflex testing options I understand and agree that reflex testing may occur per established procedures (see link below).

I do not wish for reflex testing to occur and I will contact the Laboratory Director to discuss the specifics of this order.

Attending Physician

Specify current known or suspected infectious disease.

If a specimen was sent to another laboratory, choose the appropriate response?

Call preliminary results to:

Select a specimen source for each container. Enter the Specimen Description in Comments.

Reference Links: [1. Lab Handbook](#) [2. Reflex Testing in the Department of Pathology](#)

Comments:

## OpTime Order:

Eye Pathology - Eye Pathology

Type: Eye Pathology Eye Pathology

Tests: Add ✓ EYE PATHOLOGY EXAM

Authorized by: Merryman, Abbey S, MD Merryman, Abbey S, MD

Collected by: Merryman, Abbey S, MD Merryman, Abbey S, MD

Specimen ID: 3

Collected at: 1000 7/7/2017 Now

Marked as Sent: Now

Description:

Frozen? Yes No

Diagnosis codes: Add

Laterality: Right Left Bilateral

Tissue: Fixed in Formalin Immunopathology Touch Prep

Accept Cancel

- ii. A yellow Eye Pathology Consultation form can also be submitted at the surgeon's discretion. This is the only way that diagrams can be submitted to the laboratory for the purposes of conveying information about specimen orientation.
- iii. Epic downtime procedure involves filling out the yellow consult form as the primary order. A lab initiated order will be placed when Epic is once again functional.

**Note:** Whenever possible use the UIHC EPIC patient ID label for the following information. If the label is not available, the following information must be handwritten on the Ophthalmic Pathology Consultation Request form.

- a) 2 unique patient identifiers (name and medical record number or date of birth).
- b) Patient's hospital location (Main OR, Ambulatory surgery, etc.).
- c) Date of procedure.
- d) Name of the **primary staff physician** responsible for the patient.
- e) Specimen(s) source/laterality.
- f) Clinical diagnosis and/or ICD-10 code.
- g) Clinical history.
- h) Any special instructions or communications to the laboratory (i.e.: rush or stat cases, instructions to understand margins, etc.).

- i) Indicate whether any tissue from the case was also sent to another laboratory (i.e. Flow Cytometry, Immunopathology, Microbiology, Cytogenetics)
    - iv. Place the container into a biohazard bag for transportation to avoid fixative leakage during transportation.
      - a) The requisition should be placed in the side pocket of the biohazard bag.
      - b) The CSN or HSC labels are placed in the side pocket of the bio-hazard bag.
  - d. **Delivering specimens and ophthalmic pathology consultation request forms**

- i. If the specimens are from the operating rooms, deliver all specimens with their associated forms and/or labels to the Surgical Pathology gross room.
        - ii. If the specimen is removed in the Ophthalmology minor room at the Eye Nursing Station, the specimen should be placed in the ophthalmic pathology specimen box found in Room #11123J/Dirty Utility Room.
        - iii. If the specimen is removed at the Iowa River Landing clinic, the specimen should be sent to the laboratory at IRL where it will be recorded on an Epic Beaker packing list and transported to the Surgical Pathology gross room on the Pathology Dept's courier schedule.

### ***Ophthalmic pathology laboratory responsibilities:***

#### **a. Routine Specimen Pick-up**

- i. Routine specimens are picked up from the Surgical Pathology gross area and Room #11123J in the Ophthalmology Department by the Ophthalmic Pathology personnel between 2:30-3:00 PM, Monday-Friday.
        - ii. Ophthalmic pathology personnel will bring all specimens back to the laboratory in a carrier labeled as Biohazard. Specimen containers are placed into a slotted box to keep the containers upright.

#### **b. Accessioning of Specimens**

- i. Specimens will be accessioned (given an ophthalmic pathology identification number).
          - a) During accessioning the ophthalmic pathology personnel will check the ophthalmic pathology consultation request form and/or Epic order and specimen container for pertinent patient information.

- ii. If any pertinent patient information is missing from either the specimen container or the ophthalmic pathology consultation request form, a physician from the surgical team will be contacted to obtain or clarify this information (see Rejection and Exemption of Specimens below for further instructions).
- c. **Grossing of Specimens**
  - i. Specimens will be grossed by the pathologist, pathology fellow or by the technician under the supervision of the pathologist.
- d. **Processing, Embedding, Cutting and Staining of Specimens**
  - i. Specimens will be processed, embedded, cut and stained then given to the pathologist for diagnosis.

## Rejection and Exemption of specimens.

### *Incomplete or Missing Patient or Specimen Information.*

- a. Incomplete or conflicting information in the Epic order, the Ophthalmic Pathology Consult Request form, or the specimen container **may result in a delay in accessioning and/or processing of the tissue.** Correct information must be obtained from a physician member of the surgical team.
  - i. ***A diagnosis cannot be rendered until any required missing information is received from the primary staff physician (College of American Pathologists (CAP) regulations).***
  - ii. All requests for consultation must be done by an Epic order for an Eye Pathology Exam. Verbal or phone orders are not accepted.
- b. Problems are documented by adding a case flag in Epic Beaker and writing the case flag/problem in red ink on the case paperwork.
- c. The ophthalmic pathology lab informs the staff physician and head nurse of the respective area of problems. Monthly e-mail Problem QA notices will be sent out to involved staff.
  - i. The following information is documented in the Specimen Rejection Notebook for each problems case:
    - a) Date the problem occurred
    - b) Staff doctor's name
    - c) Nursing unit involved
    - d) Patient name
    - e) Patient medical record number
    - f) Patient accession number
    - g) Description of the problem
    - h) How specimen may be affected
    - i) Explanation of how future problems may be avoided
    - j) Problem resolution
- d. A copy of each notice is kept in the Specimen Rejection/Problem notebook.
- e. Specimen rejections are also a part of Ophthalmic Pathology's Quality Management Program.

### ***Sending information to the Ophthalmic Pathology Laboratory.***

- a.** Due to possible miscommunication and laboratory regulations ***patient information cannot be received over the phone unless the communication is physician to physician.*** Otherwise, information must be received in written form from a physician on the surgical team regarding specimen/patient in question.
  - i.** The ordering physician must provide the ophthalmic pathology laboratory with the pertinent patient information in the one of the following ways, the same day it is requested:
    - a)** E-mail: amy-knock@uiowa.edu
    - b)** Fax: (319) 335-7193
    - c)** Placing an Epic order for “Eye Pathology Exam” if not already done.
    - d)** Physically coming to the laboratory (233 MRC) and filling out a requisition form.
  - ii.** Any e-mail or fax received is stapled to the original patient order/paperwork.
  - iii.** If the information is not received from the physician after two attempts, the Clerk IV and the Eye Pathologist will be made aware of the situation.
    - a)** The Clerk IV or the Eye Pathologist will contact the attending physician to inform them of the problems again and will let them know a diagnosis cannot be rendered until the information is received for our records.

### ***Giving Patient Information to Physicians***

- a.** Clerks, laboratory supervisor, technicians and students ***cannot give patient information over the phone*** to a physician; only the pathologist can give this information to the physician.
  - i.** If a conversation occurs between the surgeon and the pathologist regarding the specimen, it will be documented with date and time in the Comments section of the final patient report for permanent record.
- b.** If you wish to know the status of a case, you may phone the ophthalmic pathology laboratory (319-335-7672) or check in Epic – Chart Review under “AP” tab.

### ***Copies of Final Reports***

- a.** A hard copy of the final report is available in the F.C. Blodi Eye Pathology laboratory. Printed copies can also be obtained from Epic on the AP tab in Chart Review of the electronic medical record by accessing the link for the printable version of the report.

- b.** When pathology reports are verified electronically in Epic Beaker, they are automatically available in Chart Review, AP tab in the Epic system as Anatomic Pathology Results. A “Resulted Test” notice is sent to the Epic in-box of the submitting physician. Ophthalmic pathology reports remain on the Epic system indefinitely as part of the electronic patient record.

## **Special Procedure Specimen Collection.**

### ***CJD / Creutzfeldt-Jakob Disease.***

**Under no circumstances should tissue from a known or suspected CJD patient, as well as those at high risk of a prion disease, be sent to the F. C. Blodi Eye Pathology Laboratory.**

### ***Corneal Epithelial Scraping for Acanthamoeba.***

#### **a. Special instructions:**

- i.** For **STAT** results, scrapings should be done between the hours of 7:30 am and 3:00 PM. If they are done before or after these hours' technicians may not be available to complete the procedure.
  - a)** STAT scrapings need to be delivered to the Eye Pathology Laboratory by Eye Clinic staff.
- ii. Routine** scrapings will be picked up at the nurses' station by lab personnel between 2:30 and 3:00 PM.
- iii.** Make sure the following materials are in the room prior to performing the scraping:
  - a)** Spatula for scraping the cornea
  - b)** Sterile container (centrifuge tube, specimen container)
  - c)** Wash bottle containing Saccomanno fixative
  - d)** UIHC patient ID label for the specimen container

#### **b. Procedure**

- i.** Have an open labeled sterile container (centrifuge tube, specimen container) available prior to scraping the patient.
- ii.** Using a spatula scrape the patient as usual.
- iii.** Immediately after scraping the cornea, using wash bottle containing Saccomanno fixative, wash cells and tissue off spatula and into the sterile container.
- iv.** Make sure not to use more than 0.5 ml of Saccomanno to wash the cells off the spatula.
- v.** Take tip of spatula and swirl in the Saccomanno to assure that all of the cells have been removed from the spatula.
- vi.** Place the lid on the container tightly
- v.** Place an "Eye Pathology Exam" Epic order and collect the specimen

- a) The yellow paper consult request form may be used to include any info unable to be entered electronically in the Epic order.
  - b) This paper order should be placed in the outside pouch of the bio-hazard bag along with the CSN or HSC stickers.
- c. Saccomanno Fluid**
- i. Saccomanno fluid will be provided by the Ophthalmic Pathology Lab (5-7672) when:
  - ii. The supply in the Cornea Clinic has been depleted.
  - iii. The Saccomanno Fluid has expired.
  - iv. An updated copy of the Safety Data Sheet (SDS) for Saccomanno fluid will be provided by the Ophthalmic Pathology Lab (5-7672).
- ci. Lab Instructions**
- i. Clinic copies of lab instructions for Corneal Epithelial Scraping will be provided by the Ophthalmic Pathology Lab (5-7672).

### ***Electron Microscopy.***

- a. Fixative:** Glutaraldehyde
- b. Special instructions:**
  - i. Prior to surgery contact the ophthalmic pathologist to determine if Electron Microscopy is necessary for the patients care or if another test would be more informative.
  - ii. If Electron Microscopy is to be performed on the tissue the following materials should be obtained prior to surgery:
    - a)** A container of Glutaraldehyde which can be obtained by contacting the Electron Microscopy laboratory at 319-335-8142 or 319-335-8143.
      - i) The lab is located in the lower level of the EMRB building (room 81 EMRB)
      - ii) The bottle of Glutaraldehyde must be labeled with the UIHC patient label sticker and percentage of Glutaraldehyde in the bottle.
    - b)** A container of 10% Neutral Buffered Formalin
      - i) The specimen container must be labeled with the UIHC EPIC patient label ID label
      - ii) Place an Epic order +/- yellow form

- iii. After removal of the tissue from the patient place half of the tissue into appropriately labeled containers of Glutaraldehyde and 10% Neutral Buffered Formalin.
- iv. An order must be placed in Epic for an Eye Pathology Exam +/- a yellow Eye Pathology consult request form.
  - a) When filling out the order or form make sure to indicate that one specimen is in 10% neutral buffered formalin and that the other is in Glutaraldehyde: (i.e.: A. corneal biopsy, left eye in 10% neutral buffered formalin, B. corneal biopsy, left eye in Glutaraldehyde, for EM studies).
- v. Send both specimens to the Ophthalmic Pathology Laboratory as the ophthalmic pathologist will have to request the test for Electron Microscopy after the routine slides have been reviewed.
  - a) The Electron Microscopy specimen will be refrigerated by the ophthalmic pathology laboratory until it is sent to the Electron Microscopy facility for study.
 

NOTE: If the EM specimen is not in the frozen section room by 2:30 PM it will not be picked up by the Ophthalmic Pathology Laboratory that day, and it is the responsibility of the staff physician to assure the specimen is refrigerated until our next specimen pick-up or the laboratory is contacted and special arrangements are made to pick up the specimen.

### ***Fine Needle Aspirations.***

- a. **Arrangements:** Special arrangements must be made **at least one day prior to this procedure being performed** with the pathologist **to assure that the pathologist and a technician are available** to process the specimen. If this is an emergency, please try to give the laboratory at least one hours' notice prior to the removal of the specimen.
  - i. At this time arrangements should be made with the ophthalmic pathologist.
  - ii. Fine needle aspirations must be performed no later than 2:30 p.m., **Monday-Friday**, for same day diagnosis, **unless** prior special arrangements have been made with the pathologist.
- b. **Fixation:** This specimen requires immediate fixation.
- c. **Special Instructions:** The following materials should be in the surgical suite prior to beginning this procedure.
  - i. An FNA kit from the Eye Clinic nurse's station.
  - ii. Small gauge needle (no smaller than 25 gauge).
  - iii. Syringe

- iv. The following three steps must be followed exactly as written in order to meet JCAHO, OSHA and CAP regulations.
    - a) The physician will remove the specimen using the small gauge needle and syringe and retain the specimen in the syringe.
    - b) After the removal of the specimen the physician will carefully draw an equal amount of Saccomanno fixative into the syringe.
    - c) The physician will then dispense the fixed specimen into the empty 50 ml cylindrical tube by discharging the fixative through the needle into the tube and then place lid on tube tightly to prevent leakage.
    - d) Gently agitate the specimen with the Saccomanno fluid for complete fixation.
    - e) Place the tube into the Biohazard bag.
  - v. An order for Eye Pathology Exam must be placed in Epic and the specimen must be collected in Epic if done in the clinic area. If an Eye Pathology form is also completed, it should be done so prior to the removal of the specimen to decrease the delay in getting the specimen to the laboratory.
    - a) Label the 50 ml cylindrical tube with the UIHC Epic patient ID label with 2 unique patient identifiers (name and MRN or DOB).
  - vi. The specimen will be delivered to the laboratory for immediate processing.
  - vii. Once in the laboratory, the specimen will be accessioned, grossed and processed within 24 working hours.
  - viii. The finished slides will be given to the pathologist for an urgent interpretation.
  - ix. The pathologist will inform the staff physician as soon as a diagnosis has been rendered.
- Note:** If the Pathologist is unavailable, the slides will be prepared by a technician and read by the pathologist upon her return.

**d. FNA Biopsy Kits**

- i. FNA Biopsy Kits are located at the Ophthalmology Nurse's Station.
- ii. A kit should be obtained prior to the scheduled procedure.
- iii. Each kit contains:
  - a) Saccomanno fluid (fixative)
  - b) 50 ml cylindrical tube (specimen container)
  - c) Biohazard specimen bag
  - d) Ophthalmic Pathology Consultation Request Form
  - e) Clinic copy of instructions for FNA tap procedure

- iv. The FNA biopsy kits in the ophthalmology nurses' station are provided by the Ophthalmic Pathology Laboratory (5-7672) when:
  - a) The supply of kits has run out
  - b) The Saccomanno fluid has expired
- v. An updated copy of the **SDS** for the Saccomanno fluid will be provided by the Ophthalmic Pathology Laboratory (5-7672). The SDS is located in the FNA Biopsy Kit container.

### ***Frozen Sections on Ophthalmic Tissue.***

- a. **Arrangements:** For ALL ophthalmic cases, the ophthalmic pathologist should be paged (2438) directly from the operating room to notify her of the frozen tissue. She will then notify Surgical Pathology of whether or not she will personally be available to interpret the case. If not, Surgical Pathology in the frozen room will provide coverage. Surgeons are required to make prior arrangements with Dr. Syed to make sure she is available for cases that are ophthalmic pathology specific.
- b. **Fixation:** Fresh tissue (no fixative) placed on a saline soaked gauze pad and immediately sent to the frozen section room, 5804 JPP, to produce permanently stained and mounted slide/s from the frozen tissue.
- c. **Special Instructions:**
  - i. Place an Epic order for Eye Pathology Exam in Epic OpTime. An Eye Pathology yellow consult form is optional.
  - ii. After the frozen section consultation is completed, residual tissue is wrapped in lens paper and placed in a cassette.
  - iii. The F.C. Blodi Eye Pathology laboratory will pick up the residual tissue and/or slides on their routine (3:00 PM) run, as mentioned under the General Information on Collection and Handling of Specimens.
  - iv. The slides and residual tissue will be accessioned in the F.C. Blodi Eye Pathology Laboratory.
    - a) Surgical Pathology will use Eye Pathology's accession number.
  - v. All residual tissue is processed for paraffin section comparison.

### ***Direct Immunofluorescence:***

- a. **Arrangements:** If a physician feels there may be a need for direct immunofluorescence (DIFM) on a case (typically when trying to make a diagnosis of ocular cicatricial pemphigoid), they should submit fresh tissue from

the case and send it directly to the Immunopathology laboratory. Another portion of the tissue should be fixed in formalin and sent to the Eye Pathology lab.

- b. Fixation:** Fresh tissue on a saline-moistened gauze should be sent to the Immunopathology laboratory and tissue placed into 10% neutral buffered formalin should be sent routinely to the F.C. Blodi Eye Pathology laboratory for processing.
- c. Special Instructions:**
  - i.** Contact the Immunology laboratory (356-2688) prior to surgery for special instructions on how to handle the fresh tissue specimen properly.
  - ii.** If additional tissue is placed into 10% neutral buffered formalin, send it and the Ophthalmic Pathology Consultation form to the Frozen Section room for the routine 2:30 PM pick-up by the laboratory.
    - a)** Enter an order for Eye Pathology Exam in Epic. Make sure that the order indicates that tissue has also been sent to the Immunopathology laboratory (only one order is needed for both the fresh and the formalin-fixed tissue).
      - i)** A yellow Eye Pathology Consultation is optional.
    - b)** The formalin-fixed specimen will be picked up by the F.C. Blodi Eye Pathology laboratory on the usual 2:30-3:00 PM run, unless other arrangements have been made with the Ophthalmic Pathology laboratory.

### ***Metabolic Diseases (i.e. gout, cystinosis, storage disease):***

- a. Arrangements:** If the specimen is being obtained for the diagnosis of a suspected metabolic disease, contact the laboratory prior to removal of the specimen for special fixation instructions. Do not excise the specimen until the special instructions have been received or the disease process may not be detectable if the proper fixative was not used.
- b.** Each specimen is different and must be handled on a case by case basis. Contact the F.C. Blodi Eye Pathology laboratory for instructions (319) 335-7672.

### ***Temporal Artery Biopsies:***

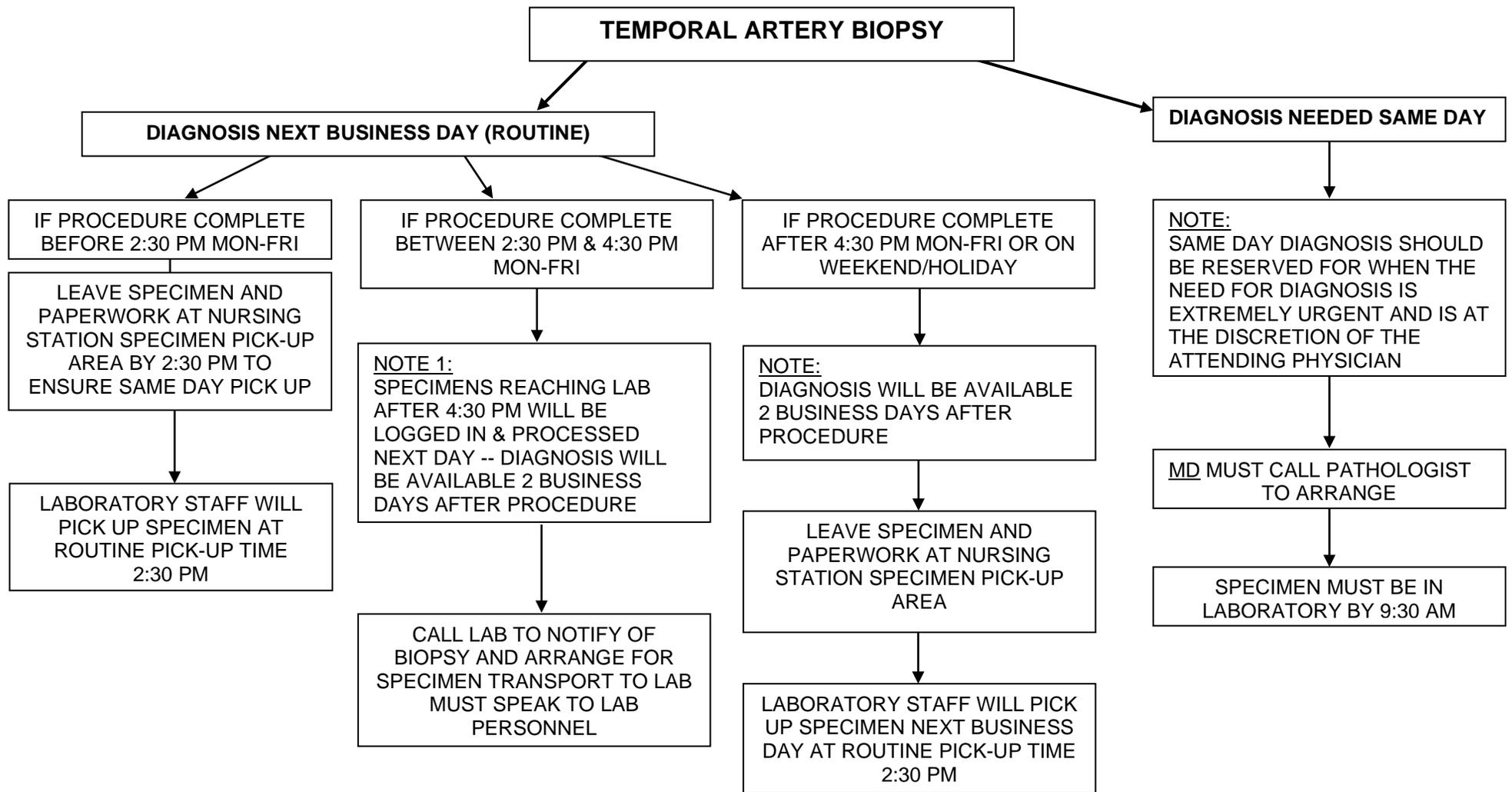
- a.** If a physician wants a same day diagnosis, they must call the lab themselves. Nursing is not responsible for telling the lab that there is a “stat” biopsy. The lab can only provide same day results if the specimen is received in the lab by 9:30 AM. Transportation of the specimen is to be arranged by the MD when the lab is notified.
- c.** The lab will continue to pick up specimens on their usual 2:30 PM run unless otherwise directed by Dr. Syed.
  - i.** If a TA biopsy is **received after 4:30 PM** it will be processed the following business day (e.g., biopsy arrives in lab Tuesday after 4:30 PM will be given to the ophthalmic pathologist for interpretation by 1:00 PM Thursday).

**Note:** Be aware that times may vary somewhat depending on the workload, availability of the ophthalmic pathologist, and technician availability.

**d. Fixation:** 10% Neutral buffered formalin

**e. Special Instructions:**

- i.** Prior to beginning the surgery for a TA biopsy, the following should be in the surgical room:
  - a)** specimen container with the correct amount of 10% neutral buffered formalin
  - b)** a formalin warning sticker on the container
  - c)** UIHC EPIC patient ID label
- ii.** Immediately after the TA biopsy specimen has been removed from the patient, place the tissue in the container of 10% neutral buffered formalin, make sure the tissue is completely covered with formalin.
- iii.** The amount of formalin in the container will vary with the size of the specimen, however the fixative should be a minimum of ten times the volume of the specimen being fixed.
  - a)** The amount for TA biopsies should be at least **25-30 ml** of 10% neutral buffered formalin in the container.
- iv.** Place the lid on the container properly and tightly to avoid a formalin spill.
- v.** Place the container in a Biohazard bag and any labels and/or paperwork in the outer pocket of the bag.
- vi.** Place an order for Eye Pathology Exam in Epic or Epic OpTime. An Eye Pathology yellow consult form is optional.
- vii.** Follow the procedure under General Information on Collection and Handling of Specimens for proper labeling of the specimen.



BLODI EYE PATHOLOGY LABORATORY PHONE NUMBER: 5-7672  
 LAB CLERK -- AMY KNOCK      LAB SUPERVISOR – SAJAG BHATTARAI

PATHOLOGIST PAGERS:  
 SYED 2438

### ***Vitreous Tap:***

- a. Arrangements:** A vitreous tap is a concentrated aspirate of vitreous humor collected to diagnose malignancy or infection.
  - i. The Ophthalmic Pathology Lab should be notified at least one hour before the procedure, preferably the day before.
- b. Fixation:** The specimen must be fixed immediately.
- c. Vitreous Biopsy Kits**
  - i. Vitreous Biopsy Kits are located in the Ophthalmology Nurse's Station.
  - ii. A kit should be obtained prior to the scheduled procedure.
  - iii. Each kit contains:
    - a) Saccomanno fluid (fixative)
    - b) 50 ml cylindrical tube (specimen container)
    - c) Biohazard specimen bag
    - d) Epic "Eye Pathology Exam" order is mandatory, yellow consult request form is optional
    - e) Clinic copy of instructions for vitreous biopsy procedure
  - iv. The vitreous tap kits in the ophthalmology nurses' station are provided by the Ophthalmic Pathology Laboratory (5-7672) when:
    - a) The supply of kits has run out
    - b) The Saccomanno fluid has expired
  - v. An updated copy of the SDS for the Saccomanno fluid will be provided by the Ophthalmic Pathology Laboratory (5-7672). The SDS is located in the Vitreous Biopsy tray.
- d. Special Instructions:**
  - i. Prior to the beginning of surgery for a vitreous biopsy, the following should be in the surgical room:
    - a) A syringe
      - i) Vitreous fluid is tapped out of the vitrectomy tubing. There is no needle involved.
    - b) A Vitreous Biopsy Kit from the nurse's station
  - ii. Label the 50 ml cylindrical tube with the UIHC patient ID label.
  - iii. Aspirate an equal amount of Saccomanno fixative into the syringe and then dispense into the 50 ml tube.

- iv. Gently agitate the specimen and the Saccomanno fluid for complete fixation.
- v. Place an order for Eye Pathology Exam in Epic or Epic OpTime. If desired, an Eye Pathology yellow consult form can also be sent.
- vi. For stat processing, immediately deliver the specimen to the Ophthalmic Pathology Lab, room #233 Medical Research Center (in the College of Medicine just behind General Hospital).
  - (1) Vitreous biopsies must be in the Ophthalmic Pathology Laboratory by 3:00 p.m. for same day results.
- vii. For routine processing, the Ophthalmic Pathology Lab will pick up the specimen on the daily run at 2:30 p.m.

NOTE: Vitreous specimens should be kept at room temperature. They should NOT be refrigerated.

**\*\*\*\*NOTE\*\*\*\***

**Never refrigerate or place vitrectomy specimens on ice as cells degenerate faster.**

**viii. VITRECTOMY CASSETTE BAGS:**

- a) The vitrectomy cassette bag (dilute aspirate) should be labeled with a UIHC patient ID label and sent immediately to the Eye Pathology. Once received in the laboratory, the specimen will be immediately transferred into fixative to prevent degradation of cells.
- b) Place an order for Eye Pathology Exam in Epic or Epic OpTime. An Eye Pathology yellow consult form is optional.

## **Routine Specimen Collection by Specimen Type:**

### ***Autopsy eye:***

- a. Arrangements:** No special arrangements necessary.
- b. Fixation:** 10% neutral buffered formalin
- c. Special Instructions:**
  - i.** Immerse the specimen in a sufficient quantity of fixative so that the eye is covered completely by the fixative. Use at least an 80 cc container for each eye. Keep the right and left eyes separate by placing in separate containers. Make no holes or incisions in the globe(s) as this will complicate the diagnosis and may destroy pertinent diagnostic information.
  - ii.** Follow the instructions listed under General Information on Collection and Handling of Specimens.

### ***Ciliary Body (Iridocyclectomy specimen):***

- a. Arrangements:** No special arrangements necessary
- b. Fixation:** 10% neutral buffered formalin
- c. Special Instructions:**
  - i.** Place the tissue on a piece of filter paper prior to placing it in formalin. Float the filter paper with the tissue side up into the formalin container after allowing the tissue to adsorb to the paper for 10-15 seconds.
  - ii.** Because this specimen is usually taken for tumor, a study of the resection margins is important. Please include a diagram on the Ophthalmic Pathology Consultation Request form of the location of the tumor in the eye so that the medial and temporal resection margins can be distinguished in the specimen.
  - iii.** Place the tissue on filter paper
  - iv.** Follow the instructions listed under General Information on Collection and Handling of Specimens.

### ***Conjunctiva:***

- a. Arrangements:** No special arrangements are necessary.
- b. Fixation:** 10% neutral buffered formalin
- c. Special Instructions:**
  - i.** Conjunctival tissue should be handled according to the following protocol to prevent curling of the tissue:
  - ii.** Spread the conjunctiva onto a flat, absorbent surface such as filter paper or the paper wrapping for gloves, the file-card envelope for sutures.

- iii. Allow the conjunctival tissue to become adherent to the paper for approximately 10-15 seconds.
  - iv. When the tissue is adherent to the paper, float the paper with the tissue into the formalin with the tissue surface facing up. The absorbent material will soak up fixative and sink to the bottom of the container. The specimen will be received in the pathology laboratory with its proper orientation preserved.
- d. It is important that an accurate clinical diagnosis accompany the specimen. For example, conjunctival biopsies to rule out sarcoid *are handled differently* by the grossing pathologist from biopsies for suspected neoplasms.
- i. Follow the instructions listed under [General Information on Collection and Handling of Specimens.](#)
  - ii. When a conjunctival biopsy is done to rule out **ocular cicatricial pemphigoid (OCP)**, half of the specimen should be sent fresh to the Immunopathology Lab and the other half in formalin to the Eye Pathology lab.
  - iii. Both specimens should be accessioned under an Eye Pathology accession number. The Immuno Lab should put their portion of the report in the Additional Procedures section of our report.
  - iv. Place an order for Eye Pathology Exam in Epic or Epic OpTime. Indicate in the electronic order that tissue has been sent to the Immunopathology lab. An Eye Pathology yellow consult form is optional.

### ***Corneal Biopsy:***

- a. **Arrangements:** Please contact the F.C. Blodi Eye Pathology laboratory (319-335-7672) before surgery when the anticipated diagnosis will require: (1) electron microscopy, (2) immunopathology, (3) the detection of crystalline substances, especially urate crystals.
- b. **Fixation:** 10% neutral buffered formalin, unless specimen is for electron microscopy, immunopathology, or the detection of crystalline substances, especially urate crystals in these cases contact the Ophthalmic Pathology Laboratory for fixation instructions.
- c. **Special Instructions:**
  - i. Send tissue separately to Microbiology for culture as needed, this needs a separate Epic order.
  - ii. Follow the instructions listed under General Information on Collection and Handling of Specimens.

### ***Corneal Buttons (tissue from transplant procedures):***

- a. **Arrangements:** Please contact the F.C. Blodi Eye Pathology laboratory (319-335-7672) **before** surgery when the anticipated diagnosis will require: (1) electron

microscopy, (2) immunopathology, (3) the detection of crystalline substances, especially urate crystals.

- b. Fixation:** 10% neutral buffered formalin, unless specimen was for electron microscopy, immunopathology, or the detection of crystalline substances, especially urate crystals in these cases contact the Ophthalmic Pathology Laboratory for fixation instructions.
- c. Special Instructions:**
  - i.** Corneal buttons should not be allowed to desiccate in the operating room before being placed into fixative. Because it may be important to wait until donor tissue is secured into place, put the host material into tissue culture medium until the surgeon considers the circumstances of the operation "safe enough" to permit host tissue fixation.
  - ii.** Follow the instructions listed under General Information on Collection and Handling of Specimens, unless the specimen is for electron microscopy, immunopathology or detection of crystalline substances (urate crystals).

### ***Descemet Membrane:***

- a. Arrangements:** No special arrangements are necessary.
- b. Fixation:** 10% neutral buffered formalin
- c. Special Instructions:**
  - i.** Descemet membrane is clear and translucent and can be difficult to visualize with the naked eye. Care should be taken to make sure that Descemet membrane does not remain attached to surgical instruments or on the surgical field before sealing the specimen container.
  - ii.** Follow the instructions listed under General Information on Collection and Handling of Specimens.

### ***Enucleation (Eyeball/Globe):***

- a. Arrangements:** Contact the F.C. Blodi Eye Pathology laboratory (319-335-7672) in advance of the removal of the eye if special studies (such as electron microscopy or immunopathology) are to be performed on the tissue.
- b. Fixation:** 10% neutral buffered formalin
- c. Special Instructions:**
  - i.** Immerse the specimen in sufficient quantity of fixative so that the eye is covered. Use at least an 80 cc specimen container. Make no holes or incisions into the globe.

- ii. It is important that a complete clinical history accompany the specimen (e.g., a list of any previous operations performed on the eye may alert the pathologist to the presence of an intraocular lens or a surgical wound).
- iii. If an eye is removed for tumor, provide a copy of the fundus drawing so that the eye may be sectioned in an appropriate plane.
- iv. Follow the instructions listed under General Information on Collection and Handling of Specimens.

***Evisceration:***

- a. **Arrangements:** No special arrangements are necessary
- b. **Fixation:** 10% neutral buffered formalin
- c. **Special Instructions:**
  - i. Follow the instructions listed under General Information on Collection and Handling of Specimens.

***Exenteration (Eye and orbital contents):***

- a. **Arrangements:** No special arrangements are necessary
- b. **Fixation:** 10% neutral buffered formalin
- c. **Special Instructions:**
  - i. Please be certain to have all portions of this large specimen completely covered by fixative. This requires a larger than average specimen container.
  - ii. Follow the instructions listed under General Information on Collection and Handling of Specimens.

***Eyelid/skin:***

- a. **Arrangements:** No special arrangements are necessary
- b. **Fixation:** 10% neutral buffered formalin
- c. **Special Instructions:**
  - i. If the resection margins are important, please submit an Ophthalmic Pathology Consultation yellow request form with a diagram indicating landmarks for orientation and the location of the tumor or area of interest in the eyelid so that the resection margins can be distinguished in the specimen.
  - ii. Follow the instructions listed under General Information on Collection and Handling of Specimens.

### ***Foreign Body:***

- a. Arrangements:** The specimen may be sent to the Microbiology Lab for cultures and, then, after cultures are complete, the specimen is sent to the F.C. Blodi Eye Pathology laboratory for gross examination and is then archived.
- b. Fixation:** None, sometimes received in microbiology culture broth.
- c. Special Instructions:**
  - i.** These specimens are stored indefinitely as archival material and may be important for medicolegal reasons.

### ***Intraocular Lens Implants and Other Ocular Devices:***

- a. Arrangements:** No special arrangements are necessary.
- b. Fixation:** None
- c. Special Instructions:**
  - i.** Please provide the name of the manufacturer of the lens together with the model number or style of the lens when possible. These specimens are archived indefinitely in the laboratory and may be important for medicolegal reasons.

### ***Iris:***

- a. Arrangements:** If the iris is removed for a suspected tumor, please see instructions listed above under **ciliary body (iridocyclectomy)** specimens.
- b. Fixation:** 10% neutral buffered formalin
- c. Special Instructions:**
  - i.** There are no special instructions if the iris is removed at the time of glaucoma filtering procedures.
  - ii.** Follow the instructions listed under General Information on Collection and Handling of Specimens.

### ***Lacrimal System (lacrimal gland or sac):***

- a. Arrangements:** If material is sent for immunopathology or flow cytometry, please contact the F.C. Blodi Eye Pathology laboratory for instructions prior to surgery.
- b. Fixation:** 10% neutral buffered formalin, unless specimen is for flow cytometry. Tissue sent to the flow cytometry lab should be sent fresh (no fixative) on a saline moistened gauze in a separate container directly to the flow lab.
- c. Special Instructions:**

- i. Place an order for Eye Pathology Exam in Epic or Epic OpTime. Indicate in the electronic order that tissue has been sent to the Flow cytometry lab. If desired, an Eye Pathology yellow consult form can also be sent.
- ii. **A separate order must be placed for Flow Cytometry** in Epic or Epic OpTime.
- iii. If the tissue is for the F.C. Blodi Eye Pathology laboratory, follow the instructions listed under General Information on Collection and Handling of Specimens.

***Muscle:***

- a. **Arrangements:** No special arrangements are necessary
- b. **Fixation:** 10% neutral buffered formalin
- c. **Special Instructions:**
  - i. Specimens to be evaluated for degenerative neuromuscular disease should be sent to Surgical Pathology for evaluation following their protocol for muscle biopsies. An order should be placed for Surgical Pathology Exam in Epic or Epic OpTime.
  - ii. Follow the instructions listed under General Information on Collection and Handling of Specimens.

***Optic Nerve:***

- a. **Arrangements:** No special arrangements are necessary
- b. **Fixation:** 10% neutral buffered formalin
- c. **Special Instructions:**
  - i. Follow the instructions listed under General Information on Collection and Handling of Specimens.

***Optic Nerve Sheath***

- a. **Arrangements:** No special arrangements are necessary
- b. **Fixation:** 10% neutral buffered formalin
- c. **Special Instructions:**
  - i. Follow the instructions listed under General Information on Collection and Handling of Specimens.

***Orbital Biopsy (Routine, not for suspected lymphoid lesion):***

- a. **Arrangements:** No special arrangements are necessary
- b. **Fixation:** 10% neutral buffered formalin

**c. Special Instructions:**

- i. Follow the instructions listed under General Information on Collection and Handling of Specimens.

***Orbital Lymphoid Lesion:***

- a. **Arrangements:** Material should also be sent for Flow Cytometry if possible. Please contact the F.C. Blodi Eye Pathology laboratory for instructions prior to surgery.
- b. **Fixation:** 10% neutral buffered formalin for portion sent to Eye Pathology Lab. Tissue sent to the flow cytometry lab should be sent fresh (no fixative) on a saline moistened gauze in a separate container directly to the flow lab.
- c. **Special Instructions:**
  - i. At least 3 cubic mm of tissue is required for Flow cytometric analysis.
  - ii. Place an order for Eye Pathology Exam in Epic or Epic OpTime. Indicate in the electronic order that tissue has been sent to the Flow Cytometry lab. If desired, an Eye Pathology yellow consult form can also be sent.
  - ii. **A separate order must be placed for Flow Cytometry** in Epic or Epic OpTime.
  - iii. For tissue sent to the F.C. Blodi Eye Pathology laboratory, follow the instructions listed under General Information on Collection and Handling of Specimens.

***Pediatric Orbital Tumor:***

- a. **Arrangements:** Material will be needed for cytogenetics studies. Please contact the F.C. Blodi Eye Pathology laboratory for instructions prior to surgery.
- b. **Fixation:** 10% neutral buffered formalin for the F.C. Blodi Eye Pathology laboratory
  - i. Fresh tissue in tissue culture medium (RPMI) to be sent to the Cytogenetics Laboratory.
- c. **Special Instructions:**
  - i. Place an order for Eye Pathology Exam in Epic or Epic OpTime. Indicate in the electronic order that tissue has been sent to the Cytogenetics lab. An Eye Pathology yellow consult form is optional.
  - ii. **A separate order must be placed for Cytogenetics** in Epic or Epic OpTime.
  - iii. If the tissue is for the F.C. Blodi Eye Pathology laboratory, follow the instructions listed under General Information on Collection and Handling of Specimens.

***Pterygium:***

- a. **Special Arrangements:** No special arrangements are necessary
- b. **Fixation:** 10% neutral buffered formalin
- c. **Special Instructions:**
  - i. Follow the procedure under General Information on Collection and Handling of Specimens (beginning on page 1).

***Trabecular Meshwork:***

- a. **Arrangements:** No special arrangements are necessary
- b. **Fixation:** 10% neutral buffered formalin
- c. **Special Instructions:**
  - i. Follow the instructions listed under General Information on Collection and Handling of Specimens.

**Physician Notification:**

1. If the specimen diagnosis is critical to the patient's treatment and requires immediate attention, the pathologist will contact the attending physician as soon as the diagnosis is complete.
  - a. The above information is documented in the "Comment" section of the eye pathology report along with the following information:
    - i. Date
    - ii. Time
    - iii. First and last name of person notified
2. All reports are sent electronically to the attending physician's Epic in-box as a "Resulted Test" for in-house cases.
3. A hard copy is printed and retained indefinitely in the F.C. Blodi Eye Pathology Laboratory.

## **References:**

- a. Sheehan, Dezna C. and Barbara B. Hrapchak: Theory and Practice of Histotechnology, 2nd Ed.; C.V. Mosby Co., St. Louis, MO; 1980.
- b. Preece, Ann: A Manual for Histologic Technicians, 3rd Ed.; Little, Brown & Co., Inc.; Boston, MA; 1972.
- c. Aldrich: Catalog and Handbook of Fine Chemicals; Aldrich Chemical Co., Inc.; Milwaukee, WI; 1986.
- d. Safety Data Sheets