

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

**SPECIMEN COLLECTION MANUAL FOR PHYSICIANS AND INSTITUTIONS
OUTSIDE OF THE UNIVERSITY OF IOWA**

Background

The purpose of the collection manual is to provide specimen collection information to areas outside of the University of Iowa Hospitals and Clinics. This manual is found on the Ophthalmology Department's Website at: <http://www.medicine.uiowa.edu/eye/>. Click on "Patient Care", click on "Labs and Screening, click on Ophthalmic Pathology", scroll down to the manual for Outside of the University of Iowa.

The F.C. Blodi Eye Pathology Laboratory at the University of Iowa specializes in the processing and interpretation of ophthalmic pathology specimens. The laboratory is one of the oldest and largest of its type in North America. Recognizing that many surgical pathology laboratories may lack expertise in some specialized areas of ophthalmic histotechnique, the F.C. Blodi Eye Pathology Laboratory provides services to process and interpret wet tissue samples, which are sent for referral, as well as serve as a source of slide consultation to pathologists throughout the world.

The laboratory director is certified both in Ocular Pathology as well as Ophthalmology. In addition to assisting the pathologist with the interpretation of ophthalmic samples, this laboratory is also able to provide information to ophthalmic surgeons which can guide the management of their patients.

The F.C. Blodi Eye Pathology Laboratory is thoroughly integrated with other specialty laboratories in the Department of Pathology at the University of Iowa. Frequently, material seen in the Eye Pathology Laboratory will also be seen by other consultants.

The F.C. Blodi Eye Pathology Laboratory has earned its accreditation through several regulatory bodies: College of American Pathologists (CAP), Joint Commission on Accreditation of Hospitals (JCAH), Occupational Safety and Health Administration (OSHA) and the Clinical Laboratory Improvement Amendments of 1988 (CMS).

Services Offered

1. The Eye Pathology Laboratory is available to process and/or interpret the following types of ophthalmic specimens:
 - a. Autopsy eyes for forensic examinations (especially cases of suspected child abuse)
 - b. Ciliary body resections (also known as iridocyclectomy specimens)
 - c. Conjunctival biopsies
 - d. Corneal biopsies (small diagnostic resections of corneal tissue)

- e. Corneal buttons
 - f. Corneal epithelial scrapings (most commonly used to rapidly identify Acanthamoeba)
 - g. Cytology (anterior chamber paracentesis, vitrectomy, corneal scrapings)
 - h. Enucleation (whole eyes)
 - i. Eviscerations (internal contents of eyes)
 - j. Exenterations (eyes, orbital contents)
 - k. Eyelid biopsies
 - l. Foreign body analysis
 - m. Lens (from cataract surgery)
 - n. Intraocular lenses
 - o. Iris biopsies
 - p. Lacrimal system (gland or sac)
 - q. Muscle (extraocular muscle biopsies)
 - r. Optic nerve
 - s. Optic nerve meninges
 - t. Orbital tissue
 - u. Temporal artery
 - v. Trabeculectomy specimens
 - w. Slide consultations
2. A completed Ocular Pathology Consultation Request form should be submitted with specimens.
 - a. Blank forms can be printed from our website:
<http://www.medicine.uiowa.edu/eye/path-lab>
 3. Once a specimen or slide consultation reaches our laboratory, you will be informed by FAX that the laboratory has received the specimen or slides on your patient.
 4. If you **do not** have access to a FAX machine we will notify you by phone or by mail, **only** if the case will be delayed due to special studies necessary for diagnosis.
 5. We strive for a 48 hour turnaround time for most ophthalmic specimens (ie: trabeculectomy, corneal biopsy, corneal epithelial scrapings, corneal button, eyelid biopsies, etc.), **UNLESS** special studies are necessary for diagnosis.
 - a. Turnaround time for enucleation specimens is within 5 working days after the receipt of the material.
 - b. Turnaround time for exenterations is within 8-9 working days after the receipt of the material.

Value Added Services

The following services are provided to referring laboratories at no additional charge:

1. Telephone Consultations with Referring Pathologists and Ophthalmologists:

- a. Our laboratory can assist referring pathologists in advising surgeons about the best technique to achieve an accurate diagnosis.
- b. We will never contact a surgeon without the permission of the pathologist, but we are willing to spend considerable amounts of time with ophthalmologists discussing the clinical implications of their patient's diagnoses.

Billing Considerations

1. The patient's insurance is billed unless otherwise requested. The Eye Pathology Laboratory sends a questionnaire, asking the patient for insurance information.
 - a. If the patient is covered by insurance or Medicare, these agencies are then billed directly.
 - b. The University of Iowa Hospitals and Clinics does accept assignment.
2. This arrangement eliminates almost all billing paperwork for referring laboratories.
3. If you wish, we can arrange for the referring laboratory to be billed directly.

Fee Schedule

1. It is difficult for us to publish a fixed fee schedule that would cover every contingency in ophthalmic pathology.
2. Frequently, the number of blocks and types of special stains required on an ophthalmic specimen cannot be anticipated until the specimen is "grossed."
3. We do not perform "routine batteries of special stains" on ocular specimens, to keep the cost to the patient as low as possible.
4. We do encourage referring laboratories to contact us about individual cases so that we may estimate charges based upon a particular specimen and diagnosis.

GENERAL INFORMATION ON COLLECTION AND HANDLING OF SPECIMENS

1. LABORATORY HOURS:

- a. The Ocular Pathology Laboratory Hours are Monday-Friday, 7:30 am-5:00 PM.

2. QUESTIONS OR CONCERNS:

- a. If you have any questions or concerns about your patient or their specimen please contact us by phone (319-335-7095), fax (319-335-7193), or e-mail:

Pathologists: Dr. Nasreen A. Syed
nasreen-syed@uiowa.edu

Dr. Patricia Kirby
patricia-kirby@uiowa.edu

Laboratory Supervisor: Christy Ballard (MLT)
christy-ballard@uiowa.edu

Clerk: Peggy Harris
peggy-harris@uiowa.edu

Note: Please see **Special Procedure Specimen Collection** for instructions on how to handle the following special procedure specimens: consultation on medical legal cases, corneal scraping for Acanthamoeba, electron microscopy, fine needle aspiration, immunohistochemistry, a metabolic disease (i.e.: gout, cystinosis, storage disease), slide and block consultations, temporal artery biopsy or vitreous.

Prior to performing the surgery, any questions concerning the handling of special procedure specimens or routine specimens should be directed to the Ocular Pathology Pathologist, Ocular Pathology Fellow or the Ocular Pathology Supervisor (F.C. Blodi Eye Pathology Laboratory (319-335-7095).

Note: Please see **Routine Specimen Collection by Specimen Type** for specimens not mentioned in the Special Procedure Specimen Collection.

3. FILLING OUT THE INFORMATION ON THE OCULAR PATHOLOGY CONSULTATION REQUEST FORM:

- a. Ocular Pathology Consultation Request forms are available through the F.C. Blodi Eye Pathology Laboratory or if you prefer you may write the patient and referring information on your own requisition.
 - i. All requests for consultation must be done by the Ocular Pathology Consultation Request Form. Verbal or phone orders are not accepted.

- b.** The F.C. Blodi Eye Pathology laboratory must have the following information on the requisition **prior to processing** the specimen (College of American Pathologist regulation).
 - i.** Material submitted (wet tissue, slides or blocks)
 - ii.** Type and location of the tissue submitted: (i.e: Corneal button, left eye)
 - iii.** Clinical history, data and operative findings
 - iv.** Clinical diagnosis
 - v.** Date of surgery
 - vi.** Patient's complete name
 - vii.** Patient's address
 - viii.** Sex of patient
 - ix.** Date of birth or age of patient
 - x.** Name of referring physician and institution

Note: **If there is more than one referring physician, institution and/or pathologist**, please indicate this on the requisition so that we may send copies of the final report to the correct individuals and/or institutions.

- xi.** Address of each referring physician, institution or pathologist
- xii.** Provide a HIPAA compliant (secure from the public) fax number to send report to when final
- xiii.** Any special instructions or communications to the laboratory (ie: rush or stat cases, instructions to understand margins, etc.)

4. SPECIMEN PACKAGING

- a.** 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)** Physician's name
 - c)** Type and location of the specimen: (i.e.: corneal button, left eye)
 - d)** Formalin warning label
 - 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.

- b.** Specimens being transported for “investigational purposes” are fully regulated by IATA (International Air Transport Association) and the DOT (Department of Transportation).
 - i)** Diagnostic specimens that are not suspected to contain a highly pathogenic organism are shipped as “Exempt Patient Specimens” or “Exempt Animal Specimen” providing:
 - a)** the specimen has been placed in a fixative
 - b)** the fixative is 10% Neutral Buffered Formalin
 - ii)** The Diagnostic Specimen must be packed in a triple packaging system.
 - a)** The primary receptacle must be packed in a way, that under normal conditions of transport, they can not break, be punctured, or leak their contents into the secondary package. This receptacle can not exceed a volumetric capacity of more than 500 ml.
 - i)** Lids should be reinforced with tape.
 - ii)** The primary receptacle must be labeled with a formalin warning sticker.
 - b)** Absorbent material must be placed between the primary receptacle and the secondary packaging. If more than one receptacle is placed into a single secondary package, wrap each receptacle with absorbent material. The absorbent material must be of sufficient quantity to absorb the entire contents of the primary receptacle(s).
 - c)** The secondary package must be leak proof and labeled with a biohazard sticker.
 - d)** The secondary package(s) need to be secured in the outer package with suitable cushioning materials such that any leakage of the contents will not impair the protective properties of the cushioning material.
 - e)** The patient’s paperwork and an itemized list of contents must be enclosed outside of the secondary package and within the outer package.
 - f)** For shipments by aircraft, the primary receptacle or the secondary packaging must be capable of withstanding, without leaking, an internal pressure differential of not less than 95 k Pa(95 bar, 14 psi).
 - g)** The outer package must be marked with:
 - i)** Exempt Human Specimen
 - h)** The outer package may not exceed 4L (1 gallon) capacity.
 - i)** The outer package must be at least 4 inches in smallest dimension.

5. SHIPPING SPECIMENS:

- a. Please send specimens to the following address:

F.C. Blodi Eye Pathology Laboratory

c/o Dr. Nasreen Syed

Room 233 MRC

Iowa City, IA 52242-1182

- b. As a requirement of our laboratory accreditation by the College of American Pathologists, specimens need to be sent by a carrier that provides:
- i. Training to their personnel in regards to the handling of “Diagnostic Specimens”/Hazardous Substances.
 - ii. A tracking system to ensure that all specimens submitted to the F.C. Blodi Eye Pathology Laboratory have been received.
- c. The following services provide the above requirements:
- i. Express Air Mail
 - a) Provides same day service
 - b) www.Fedex.com 1-800-463-3339
 - ii. UPS
 - a) For routine specimens
 - b) www.ups.com 1-800-742-5877
 - iv. U.S. Mail
 - a) For routine specimens
 - b) Must send by “Delivery Confirmation” for tracking purposes
 - c) www.usps.com
- d. If you have any questions on how to send your specimen, please contact the F.C. Blodi Eye Pathology Laboratory at 319-335-7095. We will be happy to assist you.

REJECTION AND EXEMPTION OF SPECIMENS

1. In order to assist our personnel in processing your specimen or consultation as quickly as possible, please make sure to include all of the requested patient information.
2. Specimens received without proper patient information **cannot be processed until the information is received from the primary care physician**, College of American Pathologists (CAP) and Joint Commission on Accreditation of Hospitals (JCAH) regulations.
 - a. If there is incomplete or missing information, our secretarial staff will contact your facility in order to obtain the information necessary to process your specimen as soon as possible.

Note: Secretaries, laboratory supervisor, technicians, and students **cannot give patient diagnosis information over the phone**; only the Ocular pathologist can give this information to a referring physician or pathologist. If information is given over the phone by the pathologist, the conversation will be documented in the final patient report for permanent record.

SPECIAL PROCEDURE SPECIMEN COLLECTION

The F.C. Blodi Eye Pathology Laboratory should be contacted (319) 335-7095 prior to performing surgery, if any of the following **special procedures** will be needed on the case; consultation on medical legal cases, corneal scraping for Acanthamoeba, electron microscopy, fine needle aspiration, immunohistochemistry, or if the case is a metabolic disease (i.e.: gout, cystinosis, storage disease), slide and block consultations, temporal artery biopsy or vitreous. These cases will need special handling.

1. CONSULTATION ON MEDICAL LEGAL CASES

- a. Arrangements:** The F.C. Blodi Eye Pathology Laboratory ocular pathologist or supervisor/manager **must be** contacted (319-335-7095) prior sending this type of specimen to the laboratory to assure proper handling of the case.
- b. Fixation:** This will be determined by the type of specimen being sent to the laboratory. Please refer to the area in this manual that covers information concerning the type of specimen you are dealing with before determining fixation. If you have a question concerning the type of fixative necessary contact the F.C. Blodi Eye Pathology supervisor or technicians for specific instructions.
- c. Special Instructions:**
 - i.** Please either refer to the area in this manual dealing with the type of specimen you are handling or call the laboratory for instructions on how to handle your case.
 - ii.** Follow the procedures listed under General Information on Collection and Handling of Specimens for proper packaging and labeling of the specimen, how to properly fill out the Ocular Pathology Consultation Request forms, and shipping information.

2. CORNEAL SCRAPING FOR ACANTHAMOEBA

- a. Arrangements:** Follow the special instruction listed below, if you have any questions please contact the F.C. Blodi Eye Pathology Laboratory (319-335-7095) prior to beginning this procedure.
- b.** Make sure the following materials are in the room prior to performing the scraping:
 - i.** If you are using the **Saccomanno or cytology fixative**:
 - a)** Spatula for scraping the cornea
 - b)** Sterile container (centrifuge tube, specimen container)

- c) Wash bottle containing Saccomanno fixative
 - d) Ocular Pathology Consultation Request form with the proper basic patient information, clinical data, and specimen location (ie: corneal scraping right eye) written on the form.
- ii. If you are using the **10% Neutral buffered formalin method:**
- a) Spatula for scraping the cornea
 - b) Slides with one end frosted
 - c) Coplin jar with 10% neutral buffered formalin
 - d) Paper toweling
- c. The following procedural instructions based on the materials available to your institution are:
- i. If you have **Saccomanno or cytology fixative** available use these instructions (this is the preferred method):
- a) Have an open sterile container (centrifuge tube, specimen container) available prior to scraping the patient.
 - b) Using a spatula scrape the patient as usual.
 - c) Immediately after scraping the patient, using wash bottle containing fixative, wash cells and tissue off spatula and into the sterile container.
 - d) Make sure not to use more than 0.5 ml of fixative to wash the cells off the spatula.
 - e) Past experience has shown when more than 0.5 ml of fixative is used, the lab produces 12 cytopsin slides. There is usually a sparse cell count per slide. When using 0.5 ml Saccomanno, the lab produces 6 slides with a better cell representation per slide.
 - f) Take tip of spatula and swirl in the Saccomanno to assure that all of the cells have been removed from the spatula.
 - g) Place the lid on the container tightly
 - h) Label the specimen container with the patient's name and date of birth
- ii. If you are using **10% Neutral Buffered Formalin:**
- a) Scrape the cornea, immediately smear the scrapings on the clear portion of a clean glass slide. The specimen should be smeared so that the frosted end is facing up.
 - b) Immediately immerse the slide containing the specimen in the coplin jar containing 10% Neutral Buffered Formalin.
 - c) Allow the slides to sit in the 10% Neutral Buffered Formalin fixative for 15-20 minutes.

Note: DO NOT leave the slides in the formalin more than 15-20 minutes or the tissue may fall off the slides.

- d) Remove the slides from the fixative.
- e) Place the slides on a paper towel to air dry.

Note: Make sure the side of the slide containing the specimen is right side up or the scraping may be wiped off.

- f) After **completely** air dried, place the slides into a slide mailer (can be provided by the F.C. Blodi Eye Pathology laboratory).
- g) Fill out the Ocular Pathology Consultation Request form **completely**.

3. ELECTRON MICROSCOPY

- a. **Arrangements:** Prior to surgery contact the F.C. Blodi Eye Pathology Laboratory (319-335-7095) and ask to speak with the ocular pathologist to determine if Electron Microscopy is necessary for the patients care or if another test would be more informative.
- b. **Fixative:** 2.5% Glutaraldehyde and 10% Neutral Buffered Formalin
- c. **Special instructions:**
 - i. Prior to surgery obtain the following:
 - a) 50 ml specimen container of 2.5% Glutaraldehyde.
 - i) Label the specimen container with the patient's name, date of birth, physician's name, specimen type (ie: cornea, left eye) and percentage of Glutaraldehyde in the bottle.
 - b) A specimen container with the correct amount of 10% neutral buffered formalin in it.
 - i) 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.
 - ii) A formalin warning label on the specimen container.
 - iii) Label with the patient's name, surgeon's name and type and location of the specimen (ie: cornea, left eye) on the specimen container.
 - c) An Ocular Pathology Consultation Request form.
 - ii. Immediately after removing the tissue from the patient, place half of the tissue into the 2.5% Glutaraldehyde and the other half of the tissue into the 10% Neutral Buffered Formalin.
 - a) Fill out the Ocular Pathology Consultation Request form completely, using the instructions found under General Information on Collection and Handling of Specimens.
 - i) When filling out the request form make sure to indicate that one specimen is in 2.5% Glutaraldehyde and that the other is in 10% neutral buffered formalin

(i.e.: A. corneal biopsy, left eye in 2.5% Glutaraldehyde for EM studies, B. corneal biopsy, left eye in 10% neutral buffered formalin).

- b) If possible, the specimen in 2.5% Glutaraldehyde should be refrigerated until the specimen is shipped to the F.C. Blodi Eye Pathology Laboratory. The 10% neutral buffered formalin specimen can stay at room temperature or can be refrigerated.
- c) Both specimens and requisition should be shipped via overnight mail to the F.C. Blodi Eye Pathology Laboratory, **unless** the specimen is removed on Friday.
 - i) If the specimen is removed on Friday, refrigerate the specimen until Monday.
 - ii) On Monday morning ship the both the Glutaraldehyde, 10% neutral buffered formalin specimens and Consultation Requisition form via overnight mail to the laboratory.
- d) Send specimens to the address mentioned under General Information on Collection and Handling of Specimens.

4. FINE NEEDLE ASPIRATIONS

- a. **Arrangements:** No special arrangements are necessary.
- b. **Fixation:** This specimen requires a special fixative, Saccomanno fluid, or cytology fixative.
- c. **Special instructions:**
 - i. The following materials should be in the surgical suite prior to beginning this procedure.
 - a) Small gauge needle.
 - i) Retain the cap of the needle.
 - b) Syringe.
 - c) An empty sterile specimen container.
 - i) Label the specimen container with the patient's name and date of birth, surgeon's name, type and location of the specimen (ie: cornea, left eye).
 - d) 10 ml of Saccomanno fixative.
 - e) Ocular Pathology Consultation Request form.
 - ii. The specimen should be removed from the patient and retained in the syringe.
 - a) A notation should be made on the Ocular Pathology Consultation Request form as to the amount, color and consistency of the fluid removed from the patient (ie: 0.2 cc of red-tan colored viscous fluid was removed from the (right or left) eye).
 - iii. The physician should carefully place the needle into the Saccomanno fixative and draw up an equal amount of Saccomanno fixative into the syringe. The remaining Saccomanno fixative should be discarded.

- iv. Next the physician should:
 - a) Carefully squirt the specimen into the sterile container and immediately place the lid on the container.
 - b) Once the entire contents of the syringe have been dispensed into the sterile container, dispose of the syringe needle intact into a bio-hazard sharps container.
- v. Seal the lid of the container with parafilm or paraffin wax.
- vi. Fill out the Ocular Pathology Consultation Request form completely.
- vii. Send the specimen and Ocular Pathology Consultation Request form via overnight mail to the address mentioned under General Information on Collection and Handling of Specimens.

5. IMMUNOHISTOCHEMISTRY

- a. **Arrangements:** The F.C. Blodi Eye Pathology Laboratory must be contacted (319-335-7095) prior to this procedure being performed to determine if the case needs the immunohistochemical techniques to diagnose the case.
- b. **Fixation:** Special arrangements must be made with the F.C. Blodi Eye Pathology pathologist prior to the surgery being performed.
- c. **Special Instructions:**
 - i. Prior to beginning the surgery the following should be in the surgical room:
 - a) A specimen container with the correct amount of 10% neutral buffered formalin in it.
 - i) A formalin warning sticker on the specimen container.
 - ii) A label on the specimen container with the patient's name, date of birth, surgeon's name, and type and location of the specimen (ie: cornea, left eye).
 - iii) All patient and referring physician, pathologist or institutions information filled out on the Ocular Pathology Consultation Request form.
 - ii. Immediately after the specimen has been removed from the patient, place the tissue into the specimen container, make sure the tissue is completely covered with the fixative .
 - iii. Place the lid on the container properly and tightly to avoid a spill. Follow the procedures listed under General Information on Collection and Handling of Specimens for proper packaging and labeling of the specimen, how to properly fill out the Ocular Pathology Consultation Request forms and shipping information.

6. METABOLIC DISEASES (ie: **gout, cystinosis, storage disease**)

- a. **Arrangements:** If the specimen has a suspected metabolic disease, contact the F.C. Blodi Eye Pathology Laboratory, **PRIOR TO REMOVAL OF THE SPECIMEN** for special fixation instructions.
- b. Tissues must be collected in 100% ethanol.

- i. If tissues are collected in a fixative containing water, the crystals will dissolve.
- c. 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)-335-7095.
- d. Send the specimen and consultation request form to the address listed under General Information on Collection and Handling of Specimens.

7. SLIDE AND/ OR BLOCK CONSULTATIONS

- a. **Arrangements:** No special arrangements are necessary; however, it may be helpful to speak with the Ocular Pathologist prior to sending the slides to discuss any concerns you have regarding the case.
- b. **Fixation:** None.
- c. **Special Instructions:**
 - i. When sending a consultation (slides and/or blocks) to the laboratory we ask that you follow these instructions:
 - a) Label the slides with 2 patient identifiers: your hospital number, the patient's name, the date of birth.
 - b) Place the slides into a plastic slide mailer (holds 1-5 slides).
 - i) DO NOT use the cardboard or flat plastic mailers. When slides are received in flat mailers they can be damaged beyond repair.
 - c) If you have blocks to send, wrap them in some kind of tissue paper (Kleenex, paper towel) and secure it with tape.
 - d) Fill out the Ocular Pathology Consultation Request form completely.
 - ii. Follow the procedures under General Information on Collection and Handling of Specimens for how to properly fill out the Ocular Pathology Consultation Request forms and specimen sending information.

8. TEMPORAL ARTERY BIOPSIES

- a. **Arrangements:** No special arrangements are necessary.
- b. **Fixation:** 10% Neutral buffered formalin
- c. **Special Instructions:**
 - i. Prior to beginning the surgery for a TA biopsy the following should be in the surgical room:
 - a) A specimen container with the correct amount of 10% neutral buffered formalin in it.
 - b) A formalin warning label on the specimen container.
 - c) Label with the patient's name, date of birth, surgeon's name and type and location of the specimen on the specimen container.

- d) An Ocular Pathology Consultation Request form.
 - ii. Immediately after the TA biopsy specimen has been removed from the patient, place the tissue into the container of 10% neutral buffered formalin, make sure the tissue is completely covered with the 10% neutral buffered formalin .
 - a) The amount for TA biopsies should be at least **25-30 ml** of 10% neutral buffered formalin in the container.
 - iii. Seal the lid with either parafilm or paraffin (see Collection and Handling of Specimens for proper packing of the specimen).
 - iv. Follow the procedures under General Information on Collection and Handling of Specimens for proper packing of the specimen, labeling of the specimen, how to properly fill out the Ocular Pathology Consultation Request forms and specimen sending information.
9. VITREOUS (Intraocular biopsy, fluid and tissue fragments from the eye)
- a. **Arrangements:** No special arrangements are necessary.
 - b. **Fixation:** Saccomanno or cytology fixative: an equal amount of fixative added to the specimen.
 - c. **Special Instructions:**
 - i. Prior to beginning the surgery for a vitrectomy the following should be in the surgical room:
 - a) An empty sterile specimen container.
 - b) Label the specimen container with the patient's name, date of birth, surgeon's name, type and location of the specimen.
 - c) An Ocular Pathology Consultation Request form.
 - ii. Immediately after the vitrectomy specimen has been removed from the patient, place it into the sterile specimen container.
 - a) Describe the amount, color of the fluid, if any particles are present and the color of the particles in the fluid, write this description on the Ocular Pathology Consultation Request form.
 - iii. After describing the patient's fluid, add an equal amount of Saccomanno or cytology fixative to the specimen (ie: if there is 100 ml of specimen add 100 ml of fixative).
 - iv. Place the lid securely on the specimen container.
 - v. Seal the lid with either parafilm or paraffin (see Collection and Handling of Specimens for proper packing of the specimen).
 - vi. Follow the procedure under General Information on Collection and Handling of Specimens for proper packing and labeling of the specimen, how to properly fill out the Ocular Pathology Consultation Request forms and specimen sending information.

ROUTINE SPECIMEN COLLECTION BY SPECIMEN TYPE

1. AUTOPSY EYE

- a. **Special Arrangements:** Contact the F.C. Blodi Eye Pathology Laboratory in advance of the removal of the eyes.
- 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.
 - ii. **DO NOT** wrap the tissue in gauze or other types of toweling as they will absorb the fixative and parts of the eye may not be covered by the fixative.
 - iii. Make no holes or incisions in the globe as this will complicate the diagnosis and may destroy pertinent diagnostic information.
 - iv. Follow the instructions listed under General Information for Routine Specimen Collection for proper packaging and labeling of routine specimens and how to fill out the Ocular Pathology request form.
 - v. Follow the procedure under General Information on Collection and Handling of Specimens for proper specimen sending information.

2. CILIARY BODY (iridocyclectomy specimen)

- a. **Special Arrangements:** No special arrangements necessary.
- b. **Fixation:** 10% neutral buffered formalin.
- c. **Special Instructions:**
 - i. Because this specimen is usually taken for tumor, a study of the resection margins is important. Please make a sketch on the Ocular 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.
 - ii. Follow the instructions listed under General Information for Routine Specimen Collection for proper packaging and labeling of routine specimens and how to fill out the Ocular Pathology request form.
 - iii. Follow the procedure under General Information on Collection and Handling of Specimens for proper specimen sending information.

3. CONJUNCTIVA

- a. **Special 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:
 - a) Spread the conjunctiva onto a flat, absorbent surface such as the paper wrapping for gloves or the file-card envelope for sutures. Some surgeons have used their business cards for this purpose. Another surface suggested for this purpose is filter paper.
 - b) Allow the conjunctival tissue to become adherent to the surface for approximately 20-30 seconds.
 - c) When the tissue is adherent to its support, float the supporting surface and tissue onto formalin with the tissue surface **facing up**. The absorbent material will soak up fixative and sink. 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.
 - e. Follow the instructions listed under General Information for Routine Specimen Collection for proper packaging and labeling of routine specimens and how to fill out the Ocular Pathology request form.
 - f. Follow the procedure under General Information on Collection and Handling of Specimens for proper specimen sending information.
4. CORNEAL BUTTONS (Special)
- a. **Special Arrangements:** Please contact the F.C. Blodi Eye Pathology laboratory (319-335-7095) **before** surgery when the anticipated diagnosis will require: (1) electron microscopy, (2) immunopathology, (3) the detection of crystalline substances, especially urate crystals.
 - b. **Fixation:** Dependent upon type of test required, typically 10% neutral buffered formalin.
 - 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, place the host material into tissue culture medium until the surgeon considers the circumstances of the operation "safe enough" to transfer the host tissue into the proper fixative.
 - ii. Follow the instructions listed under Special Procedure Specimen Collection for how to handle electron microscopy, immunopathology or detection of crystalline substances (urate crystals) specimens.
 - d. Follow the instructions listed under General Information for Routine Specimen Collection for proper packaging and labeling of routine specimens and how to fill out the Ocular Pathology request form.

- e. Follow the procedure under General Information on Collection and Handling of Specimens for proper specimen sending information.

5. CORNEAL BUTTON (routine)

- a. **Special Arrangements:** No special arrangements are necessary.
- b. **Fixation:** 10% neutral buffered formalin.
- c. **Special Instructions:**
 - i. Follow the instructions listed under General Information for Routine Specimen Collection for proper handling and labeling of routine specimens and how to fill out the Ocular Pathology request form.
 - ii. Follow the procedure under General Information on Collection and Handling of Specimens for proper specimen sending information.

6. DESCEMET'S MEMBRANE

- 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** (beginning on page 1).

7. ENUCLEATION

- a. **Special Arrangements:** Contact the F.C. Blodi Eye Pathology laboratory (319-335-7095) in advance of the removal of the eye if special studies (such as electron microscopy) are to be performed on the tissue.
- 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.
 - ii. **DO NOT** wrap the tissue in gauze or other types of toweling as they will absorb the fixative and parts of the eye may not be covered by the fixative.
 - iii. Make no holes or incisions in the globe as this will complicate the diagnosis and may destroy pertinent diagnostic information.
 - iv. It is important that a complete clinical history accompany the specimen (ie: 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.
 - v. If an eye is removed for tumor, provide a copy of the fundus drawings so that the eye may be opened in an appropriate plane.

- vi. Follow the instructions listed under General Information for Routine Specimen Collection for proper packaging and labeling of routine specimens and how to fill out the Ocular Pathology request form.
- vii. Follow the procedure under General Information on Collection and Handling of Specimens for proper specimen sending information.

8. EVISCERATION

- a. **Special Arrangements:** No special arrangements are necessary.
- b. **Fixation:** 10% neutral buffered formalin.
- c. **Special Instructions:**
 - i. Follow the instructions listed under General Information for Routine Specimen Collection.

9. EXENTERATION:

- a. **Special Arrangements:** No special arrangement are necessary.
- b. **Fixation:** 10% neutral buffered formalin.
- c. **Special Instructions:**
 - i. Please be certain to have all aspects of this large specimen completely covered by fixative.
 - ii. **DO NOT** wrap the tissue in gauze or other types of toweling as they will absorb the fixative and parts of the eye may not be covered by the fixative.
 - iii. Make no holes or incisions in the globe as this will complicate the diagnosis and may destroy pertinent diagnostic information.
 - iv. It is important that a complete clinical history accompany the specimen (ie: 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).
 - v. If an eye is removed for tumor, provide a copy of the fundus drawings so that the eye may be opened in an appropriate plane.
 - vi. Follow the instructions listed under General Information for Routine Specimen Collection for proper packaging and labeling of routine specimens and how to fill out the Ocular Pathology request form.
 - vii. Follow the procedure under General Information on Collection and Handling of Specimens for proper specimen sending information.

10. EYELID:

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

- i. If the resection margins are important, please make a sketch on the Ocular Pathology Consultation Request form as to 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 for Routine Specimen Collection for proper packaging and labeling of routine specimens and how to fill out the Ocular Pathology request form.
- iii. Follow the procedure under General Information on Collection and Handling of Specimens for proper specimen sending information.

11. FOREIGN BODY

- a. **Special Arrangements:** Please contact the F.C. Blodi Eye Pathology Laboratory ((319)-335-7095) prior to the foreign body's removal for instructions on how to send the specimen to the laboratory.
- b. **Fixation:** None, sometimes received in microbiology broth.
- c. **Special Instructions:**
 - i. Special instructions will be provided on a case by case basis, please contact the F.C. Blodi Eye Pathology Laboratory ((319)-335-7095) for instructions.

12. INTRAOCULAR LENS

- a. **Special 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.
 - ii. Important for future medical-legal considerations.

13. IRIS

- a. **Special 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 for Routine Specimen Collection for proper packaging and labeling of routine specimens and how to fill out the Ocular Pathology request form.
 - iii. Follow the procedure under General Information on Collection and Handling of Specimens for proper specimen sending information.

14. LACRIMAL SYSTEM (lacrimal gland or sac)

- a. **Special Arrangements:** If material is needed for immunopathology, please contact the F.C. Blodi Eye Pathology Laboratory ((319)-335-7095) for instructions prior to surgery.
- b. **Fixation:** 10% neutral buffered formalin, unless specimen is for immunopathology then contact the F.C. Blodi Eye Pathology laboratory for instructions on how to handle the tissue prior to surgery.
- c. **Special Instructions:**
 - i. If the specimen is **NOT** for immunopathology, follow the instructions listed under General Information for Routine Specimen Collection for proper packaging and labeling of routine specimens and how to fill out the Ocular Pathology request form.
 - ii. Follow the procedure under General Information on Collection and Handling of Specimens for proper specimen sending information.

15. MUSCLE

- a. **Special Arrangements:** No special arrangements are necessary.
- b. **Fixation:** 10% neutral buffered formalin.
- c. **Special Instructions:**
 - i. Follow the instructions listed under General Information for Routine Specimen Collection for proper packaging and labeling of routine specimens and how to fill out the Ocular Pathology request form.
 - ii. Follow the procedure under General Information on Collection and Handling of Specimens for proper specimen sending information.

16. OPTIC NERVE

- a. **Special Arrangements:** No special arrangements are necessary.
- b. **Fixation:** 10% neutral buffered formalin.
- c. **Special Instructions:**
 - i. Follow the instructions listed under General Information for Routine Specimen Collection for proper packaging and labeling of routine specimens and how to fill out the Ocular Pathology request form.
 - ii. Follow the procedure under General Information on Collection and Handling of Specimens for proper specimen sending information.

17. PTERYGIUM

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

- i. Follow the instructions listed under General Information for Routine Specimen Collection for proper packaging and labeling of routine specimens and how to fill out the Ocular Pathology request form.
- ii. Follow the procedure under General Information on Collection and Handling of Specimens for proper specimen sending information.

18. SKIN

- a. **Special Arrangements:** No special arrangements are necessary
- b. **Fixation:** 10% neutral buffered formalin
- c. **Special Instructions:**
 - i. Follow the instructions listed under General Information for Routine Specimen Collection for proper packaging and labeling of routine specimens and how to fill out the Ocular Pathology request form.
 - ii. Follow the procedure under General Information on Collection and Handling of Specimens for proper specimen sending information.

19. TRABECULAR MESHWORK

- a. **Special Arrangements:** No special arrangements are necessary
- b. **Fixation:** 10% neutral buffered formalin
- c. **Special Instructions:**
 - i. Follow the instructions listed under General Information for Routine Specimen Collection for proper packaging and labeling of routine specimens and how to fill out the Ocular Pathology request form.
 - ii. Follow the procedure under General Information on Collection and Handling of Specimens for proper specimen sending information.

PHYSICIAN NOTIFICATION

- 1. If the diagnosis of the patient's tissue is critical to the patient's treatment and requires immediate attention the ocular pathologist will contact the attending physician as soon as the diagnosis is complete.
 - a. The above information is noted in the "Comment" section of the final report along with the following information:
 - i. Date
 - ii. Time
 - iii. First and last name of person notified

2. Final reports are faxed back to the referring laboratory (if a fax machine is available at that facility).
3. Hard copies of each report are also sent by mail to the referring pathologist.

**STORAGE OF WET TISSUE,
OCULAR PATHOLOGY CONSULTATION REQUEST FORMS,
BLOCKS AND SLIDES**

1. If there is any remaining wet tissue from the case it is saved and retained indefinitely.
2. The original Ocular Pathology Consultation Request forms are retained for 5 years.
 - a. Ocular Pathology Consultation Request forms are scanned into Epic, so become part of the patient's permanent electronic medical record.
3. The slides and blocks created from the patient's specimen are retained indefinitely.
4. Consultation slides and/or blocks received from outside facilities are kept for 3 months after sign and then will be sent back to that facility unless an earlier return is requested by the referring physician or pathologist.
5. If we keep the consultation slides and blocks they will be marked with our accession number and filed with our other slides and blocks, which are retained indefinitely.

REFERENCES:

Sheehan, Dezna C. and Barbara B. Hrapchak: Theory and Practice of Histotechnology, 2nd Ed.; C.V. Mosby Co., St. Louis, MO; 1980.

Preece, Ann: A Manual for Histologic Technicians, 3rd Ed.; Little, Brown & Co., Inc.; Boston, MA; 1972.

Aldrich: Catalog and Handbook of Fine Chemicals; Aldrich Chemical Co., Inc.; Milwaukee, WI; 1986.

Safety Data Sheets.