St. Michael's
Inspired Care. Inspiring Science.

Department of Laboratory Medicine General Instructions

Table of Contents

HOURS OF OPERATION

Biochemistry, Haematology, and Transfusion Medicine: 24/7
Microbiology: 24/7

- Stat service after hours On call technologist — paged through locating (x5431)

Pathology: Weekdays 08:30-16:00

Blood Lab Collection Centers

St. Michael's Hospital (2nd Floor Cardinal Carter) Hours: Monday to Friday, 7:45 AM – 4:30 PM

61 Queen Street East (Ground floor) Hours: Monday to Friday, 7:30 AM - 4:30 PM

St. Lawrence Health Centre (Ground floor) Hours: Monday to Friday, 8:30 AM. – 12:30 PM
140 The Esplanade

Health Centre at 95 Homewood (Ground floor) → Hours: Monday to Friday, 8:30 AM – 4:30 PM
95 Homewood Blvd

Sumac Creek Health Centre (3rd Floor) → Monday to Friday, 9:00 AM – 5:00 PM
73 Regent Park Blvd.

The Blood Labs are closed on statutory holidays, the second Monday in June and Remembrance Day. This is harmonized with other Unity Health sites as of 2022.

CONTACT INFORMATION

(416) 864-6060 + EXTENSIONS LISTED BELOW;

Department	EXT	Department	EXT

Chief Medical Director of Laboratories	5972	**Core Lab**	5082
Administrative Director of Laboratories	5835	**Biochemistry**	2481/2482
Manager of Biochemistry, Haematology and Transfusion Medicine	2946	**Toxicology**	2458
Manager of Microbiology Pathology	2369	**Special Chemistry**	2455 (7:00 – 15:45)
Head of Division of Biochemistry	2226	**Haematology**	5073
Head of Division of Microbiology	2946	**Transfusi0on Medicine**	5084
Head of Division of Haematology	6499	**Autologous Apheresis**	5614
Head of Division of Pathology	5858	**Microbiology**	5381
Head of the Division of Transfusion Medicine	5184	**Pathology**	5851

PHLEBOTOMY PAGERS

The phlebotomy team is available 24 hours, 7 days a week. Please page the appropriate pager according to location;

NAME	NEW ROGERS PAGER #	CAP CODE	PAGER ID
PHLEBOTOMY CARDINAL CARTER PAGER (CODE BLUE)	416-235-8037	E1009302	2553
PHLEBOTOMY DONNELY PAGER	416-235-7846	E1005346	2552
PHLEBOTOMY BOND PAGER	416-235-7847	E1005347	2380

PHLEBOTOMY EMERGENCY PAGER	416-235-7848	E1005348	3239

PRIORITY SYSTEM

Priority 1: Stat (Super Stat)

This request is for life-threatening situations and should only be used as such in scenarios e.g. traumas, cardiac arrests, massive bleed, and patients requiring urgent care. Samples should be delivered to the core lab in a RED STAT bag. Refer to Specimen Manual for turn-around times.

Samples should NOT be sent "STAT" because orders were missed or for timed specimens. A timed specimen should be drawn at the requested time.

Priority 2: Routine

This order is for patients that are stable and are having their blood work monitored. This is for in-patient as well as out-patient.

POSTIVIE PATIENT IDENTIFICATION

Identification of the patient is crucial. The phlebotomist must ensure that the blood specimen is being drawn from the individual designated on the request form.

Patient Who is Conscious

The sequence of steps for a patient who is conscious is to:

1. Ask outpatients to give their first and last name, and date of birth.
2. Compare this information with the information on the requisition form.
3. Ask inpatients for their first and last name, and date of birth and compare this information with the information on the request form or blood collection list and the information and J# on the patient's identification bracelet. The patient must be wearing the ID bracelet in order for the blood specimens to be drawn. **Do not draw the blood specimen if the patient is not wearing a proper ID bracelet.**
4. Report any discrepancy, however minor to the nursing station and have a new ID bracelet prepared before the blood specimen is drawn.

Patient Who Is Unconscious, Too Young or Does Not Speak the Language of the Phlebotomist

In any of these circumstances, the phlebotomist must follow these steps:

1. Ask the nurse, or the accompanying guardian to identify the patient by name, address and birth date.
2. Compare this data with the information on the request form.
3. For inpatients, also check the patient's ID bracelet and compare the information to the information on the blood collection labels. The patient must be wearing the ID bracelet for the blood specimens to be drawn. **Do not draw the blood specimen if the patient is not wearing a proper ID bracelet.**
4. Report any discrepancy, however minor, to the nursing station and have a new ID bracelet and/or requisition prepared before the blood specimen is drawn.
5. If unable to communicate with the patient due to language barrier, contact Interpretation Service at ext. 46167 for assistance.

Procedure for Identifying Unidentified Emergency Patients

The patient must be positively identified when the blood specimen is collected. The unidentified emergency patient should be given a temporary but clear designated ID number until positive identification can be made.

In all cases, the name and hospital number of the emergency identification must be attached to the patient's body either by ID bracelet or some similar device.

No specimens will be drawn for Transfusion Services without a proper ID bracelet on the patient.

Procedure for Mentally Incompetent Patients who refuse to wear an ID Bracelet

The following procedure has been developed at St. Michael's Hospital for this situation:

The nurse must bring the patient chart and the patient's ID bracelet to the patient's side. The phlebotomist will check the ID bracelet information with the request form or the blood collection list. The nurse must sign her name on the request form or blood collection list indicating that she has given the positive ID of the patient. She must also make a note in the patient's chart that the patient was not wearing the ID bracelet indicating that she has made positive ID of the patient. On return to the Laboratory, a comment will be placed on the patient chart indicating that the patient refused to wear the ID bracelet and was identified by nursing personnel.

PROCEDURE FOR INCOMPLETE/INCORRECT INFORMATION

Procedure for Incorrect Information

If the patient's information does not match the information provided on the requisition/blood collection list/patient labels, **do not** take the sample.

1. **In-patient;** report the discrepancy to the nursing staff and verify the accuracy of the collection list/labels. A new ID bracelet or new order may be required prior to sample collection. Blood will not be drawn until positive patient identification is confirmed.

2. **Out-patient,** if the patient's information does not match the information on the requisition, the patient will need to be sent back to the ordering doctor for a new requisition. (The laboratory will keep the incorrect requisition)

Procedure for Incomplete Information on Requisitions

A patient's requisition for lab work should have, at minimum, 3 unique identifiers. These might include the patient's First and Last Name, Date of Birth, J#, Health Card #, or Address. If the requisition lacks 2 of these, the requisition cannot be accepted, and the patient will need to be sent back to the doctor.

BLOOD COLLECTION BY VENIPUNCTURE

Below instructions are for person collecting the specimen:

Approaching the patient

- Avoid startling the patient unnecessarily, to prevent changes in test results
- Introduce themselves to the patient
- Inform the patient that you are from the laboratory
- Inform the patient that the doctor has requested a blood sample(s)
- Briefly explain the procedure to the patient

Maintaining Patient Privacy During Phlebotomy Procedures

Creating a private environment for patients during phlebotomy procedures is essential to ensure patient privacy and promote a sense of safety and trust.

- Before starting the procedure, make sure the curtain is fully closed to create a private space for the patient.
- Ensure that the patient's personal information is not visible to others during the procedure.

Patient identification

- Ask outpatients to give full name, and date of birth. Ask inpatients the same information, but also check their patient ID bracelet for the same information and their hospital J#. **Do not draw the blood specimen if the in-patient is not wearing a proper ID bracelet.** For in-patients, scan the patient identification bracelet using positive patient Identification device (PPID) and print the labels.
- Compare this information with the information on the requisition or sample labels and verify the information before labeling the samples. See SOP document # 49089.
- Compare information on doctor's order with the information on the requisitions/labels, ensuring all data are correct.
- If patient is mentally incompetent, too young or does not speak the language of the Phlebotomist, a relative or friend must identify the patient by name, address and date of birth. Compare data with information on requisition.
- Verify patient diet restrictions; some tests require that the patient be fasting or that certain foods not be eaten prior to having the blood drawn.

Consent

The patient must give their consent to the procedure prior to the phlebotomist drawing the blood. This may be implied consent (patient extending their arm for the phlebotomist) or expressed consent (patient affirming consent either verbally or in writing). The patient is allowed to withdraw consent at any time during the process. In that case, report the patient's objections to the nursing station or physician. If the patient is not of legal age or competent to give consent, consent can be obtained from the accompanying legal guardian.

Proper Protective Equipment (PPE)

Gloves should be worn during the procedure to protect both the patient and the collector. If patient is in isolation, follow specific isolation instructions based on patient's medical profile.

Position of the Patient for the Procedure

Proper positioning of the patient is vital to a successful completion of the venipuncture procedure. All efforts should be made to ensure that the patient is comfortable. Patients should not stand as the possibility of fainting may occur. A reclined posture is preferred; however, sitting in an upright position with the patient's arm firmly supported by an armrest or a pillow is also acceptable. The patient's arm should be slated on the armrest with the arm forming a straight line from the shoulder to the wrist; the elbow should not be bent. The manner in which the patient is positioned should also be a comfortable one for the phlebotomist. If collection chairs with safety features are not available, specimens should be collected with the patient in a recumbent position.

Unpackaged supplies

All equipment and supplies should be prepared before any contact is made with the patient. Once supplies are opened,

they should remain in or on the wrapper until just before use. In doing so, this will ensure against contamination of supplies intended for patient care. Expiry dates will be checked of the supply prior to use.

Apply the tourniquet

Apply the tourniquet firmly, 7.5 cm to 10.0 cm (3 to 4”) above antecubital fossa. Radial pulse must be palpable. Do not restrict the blood flow. Precaution, restricted blood flow is characterized by a bluish-tinge like appearance to the skin and may result in hemolysis, as well as bruising to site. Do not leave the tourniquet longer than necessary (one minute if possible). If the patient has a skin problem, the tourniquet should be applied over the patient’s gown/clothing or a piece of gauze or paper tissue should be used so the skin is not pinched.

Selection of Venipuncture Site

A patient’s life may depend on vein patency. It is important to select the vein site carefully because the veins provide an avenue of entry for transfusion, infusion, and therapeutic agents. Ask the patient if there is a preference to which arm should be used. (asking this question can avoid a redraw) If there are no special considerations do a complete examination of both arms to determine which one is best for the procedure. The vein of choice is in the Median Cubital Fossa, or the foremost centralized vein of the middle portion of the arm. However, this vein may not be accessible in some patient’s. The collector should choose the site based on the following criteria: size, depth and direction of the vein. The veins become more prominent and easier to enter if the patient forms a fist. There must not be vigorous hand exercise “pumping”. Any detection of a pulse in the chosen site area is a warning that an artery is close by or the chosen vessel is in fact an artery. This should be avoided by the Phlebotomist unless otherwise trained. With the index finger, palpate the arm with an up and down motion. Select the vein that is the most firm (not necessarily the closest one to the surface of the body). If, during the procedure, an artery puncture is suspected, direct forceful pressure must be applied to the puncture site for a minimum of five minutes upon removal of the needle or until active bleeding has ceased. The nursing staff and physician are to be notified immediately thereafter.

Cleanse site

Cleanse the site with 70% alcohol wipe in a circular motion form the centre to the periphery. Allow the site to dry, or you may want to dry the site with gauze before the venipuncture is started. The alcohol can create a burning sensation when the needle is introduced. Cleanse an area approximately 7.5 cm or (3”) in diameter pressing firmly upon the site. Do not touch area after the site has been cleaned. Should you have to touch site again clean the end of the gloved finger with alcohol.

Introduction of needle

- Ask the patient to make a fist (this action brings the vein as close to the surface of the skin as possible)

- Ensure that the patient's arm or other venipuncture site is in a downward position to prevent reflux (backflow)
- Placing your finger about 2.5 cm (1 inch) below the site, retract the skin downward fixing the vein in place.
- Insert the needle under the skin with the bevel (opening) up and positioned at a 30° angle. Be sure that the vein entry is complete. Do not push the holder as it could go through the vein resulting in blood leaking out the blood vessel into the surrounding tissue. IF this should occur pull back slightly, this will establish blood flow.

Introduction of Vacutainer Tubes

While holding the holder (barrel) in a firm grip gently push the tube until the needle penetrates the top of the rubber stopper diaphragm. Ensure all tubes are filled adequately.

Removal of needle

Make sure the patient's hand is open in order to reduce the amount of venous pressure. Slowly and gently remove needle from the patient's arm, ensuring there is no tube still in barrel, thus still having suction to the vein. Be prepared to immediately put gauze in place to cover the site. Check site for stasis, then place tape over the gauze. Ensure that the arm remains straight and the patient applies and maintains firm pressure on the site until bleeding has ceased. Inform the patient to leave the tape on for at least 15 minutes. If bleeding persists longer than 5 minutes a nurse should be alerted so that the attending physician can be notified of the problem.

Disposal

Needles must be placed in a puncture resistant disposable biohazard container immediately after use. Ensure the needle is contained by the safety shield and disposed of in a Sharpsmart puncture resistant container. Needles should never be re-sheathed, bent, broken or cut. Sharp containers are required to be sealed properly for Environmental Services to collect and dispose of according to established protocol. Sharp containers shall not be filled past the fill line. Needles, vacutainer holder (barrels), lancets, are only for single use. Refer to the safety manual for further information.

Procurement of Specimens by Venipuncture (Arm Site with an IV Running)

Avoid all draws to the same arm into which IV fluids are infusing;

If unavoidable, draw below an IV infusion after arranging for the IV to be shut off for at least two minutes, take a discard tube and document that the specimen was obtained from an arm with infusing fluids.

Central Line Blood Draws

Please refer to St. Michael's Policy and Procedure on the Intranet under Policy and Procedures. Central Venous Catheters (http://smhinet/Intranet/index.asp)

Anticoagulants and Preservatives

To ensure accurate test results, all tubes containing an anticoagulant or preservative must be allowed to fill completely. If the vacuum tube is not filling properly, and you are certain that you have entered the vein properly, substitute another tube. If the specimen cannot be properly collected, select another site and using new, sterile collection equipment, collect the specimen.

For new patients or patient with unknown ABO group a second draw must be completed before blood product can be issued

ORDER OF DRAW

Order of Draw	Tube Colour	Invert	Additive	Comment & Common Tests
1.	Blood Culture Collection Bottle (40.0ml) Aerobic (blue cap), Anaerobic (red cap) Pediatric (yellow cap)	Mix Gently	Bacterial growth medium and activated charcoal	When a culture is ordered along with any other blood work, the blood cultures MUST be drawn first.
2.	Yellow (SPS)	8 to 10 times	Sodium Polyanethol Sulfonate (SPS)	Used to collect whole blood samples for blood culture AFB specimens.
3.	Light Blue (Blue top Tube) (4.5 ml /2.7ml)	3 to 4 times	3.2 % Sodium citrate	Used mainly in coagulation studies. • (PT/INR)
4.	Plain Red **Glass** (10.0 ml)	None	None	Used for serum tests, that CANNOT be collected in SST tubes or plastic.
5.	Gold (SST) Plastic (5.0 ml)	5 times	Gel separator and clot	The gel forms a barrier between the clot and the

			activator	serum
6.	Red Plastic (6.0 ml)	8 to 10 times	Clot activator	Used for serum tests, that CANNOT be collected in SST tubes
7.	Dark Green (6.0 ml)	8 to 10 times	Lithium Heparin	• Venous Lactate
8.	Light Green **Glass** (10 ml)	8 to 10 times	Sodium Heparin	• Cytogenetic tests
9.	Royal Blue(with purple band) (6.0 ml)	8 to 10 times	K2-EDTA	This tube is required for collection of trace elements. • Chromium, Cobalt, Mercury
10.	Lavender/Purple (4.0 ml)	8 to 10 times	K2-EDTA	CBC, ESR, HbA1C, FK506(Tacrolimus) Flow Cytometry
11.	Pink (6.0 ml)	8 to 10 times	K2-EDTA	Used for Transfusion Medicine, • Group & Screen, Direct Anti-globulin Test (DAT)
12.	Grey (6.0 ml)	8 to 10 times	Contains Sodium fluoride and Potassium oxalate anticoagulant.	Used for glucose testing.

ORDER OF DRAW- MICROCOLLECTION

Finger or Heel puncture for capillary blood collection;

1. EDTA (lavender)
2. Other additive tube
3. Serum tubes

The order of draw is based on that EDTA tubes be drawn first to insure good quality specimen

LABELLING SPECIMENS

The patient and the patient's specimen must be positively identified at the time of collection by the person collecting specimen. Specimens must be labelled in the presence of the patient and contain at least the following information:

- The patient's first and last name
- An identification number (Hospital J# or Date of Birth)
- Location (unit)
- The date and collection time (as required, e.g. therapeutic drug monitoring)
- The identification of the person collecting the specimen

When electronically generated, machine-readable labels are not in use, the identity of the person who collected the specimen, as well as the above information, must be written on each specimen at the time of collection.

The laboratory has the right to refuse improperly labeled specimens where identification is unclear.

Exceptions will be made for irretrievable specimens (Ex. CSF, Fluids, Cord samples)

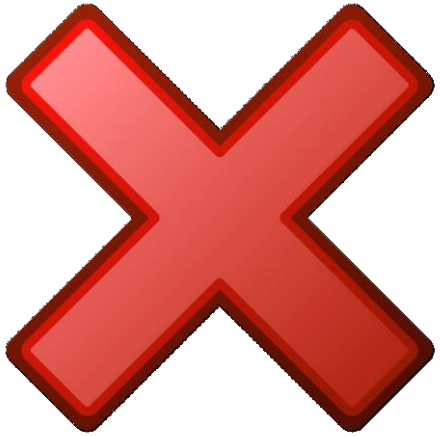
In these cases, the collector must go to the Core Lab to label and sign for the specimen. The core lab will have the collector sign a document stating that they, as the collector, take full responsibility for the specimen being processed. The collector confirms the identity of the patient and their collected specimen.

CORRECT WAY TO LABEL A SPECIMEN

- Labels are upright for blood collection tubes
- Labels are straight

- Labels are affixed to the container
- Labels are not ripped
- Labels are not scrunched up

INCORRECT WAY TO LABEL A SPECIMEN



- Labels are upside down
- Labels are pinched
- Labels are twisted
- Labels are scrunched
- Labels are over-lapping the cap/lid
- Labels contains only **HALF** of the patients information (Not Acceptable)

SPECIMEN COLLECTION GUIDELINES (WHAT DO I TAKE & HOW MUCH?)

All of the departments have their Specimen Collection Guidelines posted on the Intranet;
http://www.stmichaelshospital.com/programs/labs/tests/

Microbiology
http://callaway/web-assets/guides/lab/pathology-specimen-collection-manual.pdf
Pathology
http://callaway/web-assets/guides/lab/pathology-specimen-collection-manual.pdf

ADD ON TEST REQUESTS;

An add-on test can be performed if the newly requested test meets laboratory standards; this includes type of specimen, sample volume/ availability and time requirements. Add-on tests may be requested within 4 hours from the time the sample was drawn. A longer time frame may be entertained in special circumstances, such as when a patient has been discharged and an acceptable sample is still present in the lab. All requests must be documented in LIS.

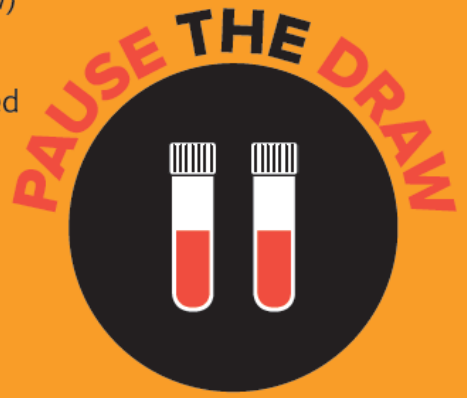
1. Out-Patient Process (Non- Admitted)
   If a physician would like to add-on a test, they must provide a hard-copy of a requisition to one of the Out-patient blood labs or Central Receiving. Once the request is received, Core Lab will determine whether or not the tests can be performed.

2. In-Patient Process (Admitted)/Emergency Department:
   For Emergency Department a paper requisition is not required since the implementation of Computerized Practitioner Order entry CPOE) in November 2016. The CPOE is linked to the Lab printer HIERARCOSPHINX in Core Lab and all add-on orders are directly printed by the printer. Staff is to monitor printouts, time stamp the printout and process the order.

ADD-ON LAB TEST POCKET GUIDE

How to add on tests to already drawn blood sample (ex: Alb,Trop, Mg).

- Ensure previous sample with appropriate tube colour is sent within specified time frame (see SMH Laboratory Test Catalogue http://www.stmichaelshospital.com/programs/labs/tests/)
- Complete Add-On Lab Tests care order in Soarian (see below)
- Request generates notification to the lab
- DO NOT call lab to confirm unless unsure if test can be added



In Soarian:

1. Type in "add on" in the search bar
2. Select Add-On Lab Tests order (appears first)
3. A new dialogue box will appear
4. Click and select the desired test
5. Click "Add to Order Session" to complete request.

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DO NOT ENTER a new order to add-on blood tests. Use Soarian's "Add-On Lab Tests" feature.

Add-On requests will NOT be processed if the sample has not been received in the lab.

Unsure of what color tube is required for your test?
Visit http://www.stmichaelshospital.com/programs/labs/tests/ to find the SMH Laboratory Test Catalogue.

Tube Abbreviation and Glossary

BLU = Blue Top	GLD = Gold Top	LAV = Lavender Top	PNK = Pink Top
RED = Red Top	MST = Gold Top	LVC = Lavender Top	PLA = Pink Top
PHL = Red Top	GRN = Green Top	CLV = Lavender Top	NVG = Navy Blue Top
	LGH = Green Top		

SPECIMEN REJECTION

Good laboratory practice dictates that the sample must be unequivocally associated with the test requisition. This means that the request or accession number assigned to the request must appear on the specimen label generated and affixed to the specimen container. The specimen container and the request must have the patient's first and last name and preferably the date of birth.

For the hospital patient population, the hospital number J# must be included. In a case where the specimen and the request cannot be unequivocally associated with the test requisition, in the interest of patient safety and for reason of legal liability the laboratory must reject the specimen and inform the requesting clinician.

a) **Mismatched Specimens:**
This is defined as specimens that are submitted with a requisition on which the identifying information does not exactly match that which appears on the specimen. In this instance the laboratory should attempt to clarify the discrepancy by contacting the physician or nursing unit. The date and time of the conversation should be recorded and a comment added to appear on the patient report that the identification has been clarified.

b) Labelled Specimens/No Requisition:
The laboratory will contact the unit or the physician to inform them that the labeled specimen was received without a requisition. A request to forward the requisition to the laboratory will be made and the testing will be processed when the requisition is received. If the specimen cannot wait for example blood gases, the test will be processed but not accepted into the LIS until the requisition is received. If the physician cannot be identified, the specimen will be rejected.

c) Unlabeled Specimens/No Requisition:
Unlabeled specimens submitted without an accompanying laboratory requisition will be rejected. No testing will be done and no report generated.is received.

d) Unlabeled Specimen/Requisition:
Unlabeled specimens received with a requisition will be rejected. The unit or physician will be contacted to inform them that no testing will be performed and to recollect if testing is required. The test request should be entered into the LIS with a comment indicating that no testing was performed because the specimen was unlabeled

e) Clinical Trial Specimens:
Clinical trial specimens may be submitted with a unique alpha or numeric identifier assigned by the research coordinator. The patient's date of birth should only be included if relevant for the study.

f) Difficult to Collect and Irretrievable Specimens:
Procedures for difficult or irretrievable samples are necessarily treated differently from those samples which may readily be recollected. These include:

- Blood gases
- Paediatric specimens
- Synovial fluids, Aspirates, Peritoneal fluids, Cyst fluids, CSF Specimens
- Kidney stones
- Intra-operative or procedural timed samples
- Catheterized specimen taken during cystoscopy

*For the above-noted specimens submitted unlabeled, an attempt will be made to clarify if the procedure was performed on the patient and a request made for either the physician or nurse to come to the laboratory to label and sign that they accept the responsibility of the specimen belonging to the patient. The physician or nurse must sign the "Compromised Specimen Log" located in Core Lab. Additionally, this information will be noted into the comment section of SCC Soft lab.

If two of the same type of specimen arrive both unlabeled, the specimens will be rejected. See online specimen collection manual for individual tests.

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TRANSPORTATION OF LABORATORY SPECIMENS

All laboratory blood, body fluids and tissue specimens are to be transported in a sealed secondary container. This is to reduce employee and patient exposure to potentially infectious blood and body fluids and to ensure hospital compliance with CDC and OSHA guidelines for specimen transportation.

Materials Equipment & Transport Mechanisms:

- Plastic biohazard zip lock bags with outside pocket
- Plastic bucket or container with lid
- Pneumatic tube system
- Hand delivered
- Plastic carriers
- Ice

Special tests

- Iced specimens are to be placed in a Styrofoam cup and then into a biohazard bag immediately after being drawn.
- Warmed specimens such as cold agglutinins and cryoglobulins are to be transported in warm water in a thermos or

Styrofoam cup (if a thermos isn't readily available) and transported to the lab immediately.

- Any non-retrievable specimen such as: amniotic, spinal, gastric, paracentesis peritoneal, pleural, synovia and, thoracentesis fluid must be **manually transported to the laboratory.**

Specimens NOT to be tubed through the Pneumatic Tube Systems:

- Trauma Specimens
- All types of fluids (CSF, Pleural, Peritoneal etc.)
- All Pathology Specimens
- Apnea Testing Samples
- Urine containers greater than 50 mL volume
- Meconium Drug Testing Samples
- Sharps
- Anything leaking or with the potential to leak.
- Anything weighing in excess of 2 kg (5 pounds)
- 24h urines
- Formalin or alcohol preserved specimens
- Food or drink items
- Contaminated supplies
- One-time draw specimens or "precious/irretrievable" specimens will be up to the person sending the specimen.
- Hematocrit glass capillary tubes
- Vacutainer tubes that have been opened