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Department of Laboratory Medicine
Fredericton and Upper River Valley Area

Laboratory User Manual

Version 56.0

June 2001
(Revised 2003, Revised March 2008, Revised December 2009, Revised May 2010, Revised July 2010, Revised September 2010, Revised December 2010, Revised January 2011, Revised March 2011, Revised July 2011, Revised May 2012, Revised January 2013, Revised March 21, 2013, Revised July 2014, Revised February 2015, Revised June 2015, Revised November 2015, Revised January 2016, Revised May 2016, Revised August 2016, Revised November 2016, Revised March 2017, Revised June 2017, Revised December 2017, Revised April 2018, August 2018, December 2018, March 2019, May 2019, July 2019, October 2019, December 2019, February 2020, April 2020, June 2020, September 2020, October 2020, December 2020, February 2021, April 2021, July 2021, October 2021, January 2022, May 2022, August 2022, November 2022, March 2023, July 2023, October 2023, March 2024, April 2024, August 2024, December 2024, March 2025, May 2025, June 2025, November 2025, April 2026, October 2026)
Summary of changes listed on the last page(s) of manual

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Section 1: General Laboratory Information

Senior Staff and Telephone Numbers

REGIONAL MEDICAL DIRECTOR
Dr Kristin Popiel…….. 452-5254

FREDERICTON & UPPER RIVER VALLEY AREA ADMINISTRATIVE DIRECTOR
Paula Campbell…… 452-5483
FAX…….. 443-2618

STAFF PATHOLOGISTS
Dr Sen Yan……. 447-4446
Dr Alexandra Pettit…… 452-5474
Dr Salim Shawesh…… 452-5460
Dr Yu Shi……. 452-5461
Dr Ron Francis…… 452-5979
Dr Thomas Shi…… 452-5911

CLINICAL CHEMISTRY
Dr Yu Chen, Medical Biochemist……. 452-5443
Martin McNally, Manager……. 452-5197
Urinalysis Laboratory…… 452-5441
General Inquiries…… 452-5435
FAX……. 452-5422

CYTOGENETICS Resource Technologist……. 452-5490

CYTOLOGY
Jan Graham, Manager…… 452-5488
General Inquiries…… 452-5467

FLOW CYTOMETRY
Appointments……. 452-5007

HAEMATOLOGY
Jeralyn Mallaley, Manager…… 452-5449
General Inquiries…… 452-5451
FAX…… 452-5417

ANATOMICAL PATHOLOGY
Julie Landers, Manager…… 452-5476
Laboratory…… 452-5478
General Inquiries (Reports)…… 452-5485
FAX……. 443-2168

LABORATORY INFORMATION SERVICES
James Whitman, LIS Coordinator…… 452-5480

MICROBIOLOGY
Dr. Kristin Popiel, Medical Microbiologist…… 452-5254
Kirk MacDonald, Manager…… 452-5464
General Inquiries…… 452-5465
Fax…… 452-5889

MORGUE…… 452-5495

POINT OF CARE TESTING (POC)
Wanda Black (POC Coordinator) …… 443-2106

QUALITY, SAFETY and PROCESS MANAGEMENT
Meagan Christie, QSPM Coordinator…… 447-4323

SPECIMEN COLLECTION, PHLEBOTOMY
Rachel Fullarton, Manager…… 452-5381
General Inquiries…… 452-5262

TRANSFUSION MEDICINE
Lauren Graham, Manager…… 452-5453
General Inquiries…… 452-5454
FAX…… 443-2111

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Laboratory & Specimen Collection Hours

Dr. Everett Chalmers Regional Hospital (DECRH) Laboratory			
Transfusion Medicine, Hematology & Clinical Chemistry	Monday - Friday	0800 - 1600	Full Service
	Monday - Friday	1600 - 0800	STAT Service
	Weekends & Holidays	24 hours	STAT Service
Specimen Collection Phlebotomy – Inpatients	Monday - Friday	0600 - 1430	Full Service
	Monday - Friday	1430 - 1800	STAT Service
	Weekends & Holidays	0600 – 1430 With only one employee during the hours of 0600-0630 And 1330-1430	STAT Service
Specimen Collection Phlebotomy – Outpatients	Monday - Friday	0700 - 1600	Full Service
Cytogenetics Resource Technologist	Monday - Friday	0800 - 1600	Full Service
Cytology	Monday - Friday	0700 - 1600	Full Service
Flow Cytometry	Monday - Friday	0800 - 1600	Full Service
Anatomical Pathology	Monday – Friday	0630 – 1630	Full Service
	Monday – Friday	1630 - 0630	Pathologist On – Call
	Weekends	24 hrs	Pathologist On – Call
Laboratory Information Services (LIS)	Monday - Friday	0800 - 1600	Full Service
Microbiology	Monday - Friday	0800 - 1600	Full Service
	Monday - Friday	1600 - 2000	Reduced/Emergency Service
	Monday - Friday	2000 - 0800	Technologist on-call
	Weekends & Holidays	0800 - 1600	Reduced/Emergency Service
	Weekends & Holidays	1600 - 0800	Technologist on-call
Morgue	Monday - Friday	0800 -1600	Full Service
	Saturdays & Holiday Mondays	0800 - 1200	Pathologist on-call
Satellite Site Facility Laboratories			
Upper River Valley Hospital (URVH) - Waterville	Monday - Friday	0630 - 1600	Full Service
	Monday - Friday	1600 - 0800	STAT Service
	Weekends & Holidays	24 hours	STAT Service
	Monday - Friday	0630 - 1530	Specimen collection
	Monday - Friday	0630 - 1600	Specimen drop-off
Oromocto Public Hospital (OPH) - Oromocto	Monday - Friday	0700 - 1500	Full Service
	Monday - Friday	1500 - 1800	STAT Service (Inpatients + ER)
	Monday - Friday	1800 - 0700	Technologist on-call
	Weekends & Holidays	0700 – 1900	STAT Service (Inpatients + ER)
	Weekends & Holidays	1900 - 0700	Technologist on-call
Hotel Dieu St. Joseph (HDSJ/HDP) – Perth Andover	Monday - Friday	0700 -1530	Full Service
	Monday - Friday	1530 - 2300	STAT Service (Inpatients + ER)
	Monday – Friday	2300 - 0700	Technologist on-call
	Weekends	0700 -1500	STAT Service/Technologist on call after 1500 (Inpatients + ER)

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Clinical Laboratory Services

ROUTINE SERVICES

- Routine services are managed according to the schedule of tests as set forth in this manual with test results being reported as soon as possible. In some cases, batching of tests is necessary for the most efficient use of resources. Most tests ordered as routine are performed the same day if received by the laboratory before 1500 hours or as otherwise specified in this manual.

- *Point of Care Testing* falls under the direction and supervision of the laboratory, as mandated by *Standards for Hospitals in New Brunswick, Section 7*. For information pertaining to POC testing please contact the coordinator at 443-2106.

WEEKEND AND HOLIDAY SERVICES

- The number of working staff is reduced on Saturdays, Sundays, and holidays. Test requests should be limited to those tests on the "Clinical Emergency Test List" (See list on page 10 of this manual)

EMERGENCY SERVICES

- Emergency services are available on a 24-hour basis, seven days a week.

- An emergency or "STAT" test is one whose results will immediately determine or influence a therapeutic decision. When a test is ordered as an emergency during regular working hours, the routine work is immediately deferred in favor of the emergency test. It is, therefore, necessary to exercise a great deal of discrimination before the test is labeled as an emergency in order to avoid unnecessary disruption of routine work and possible increased costs.

- **Specimens that require emergency testing must be accompanied by a requisition/order on which the words "Emergency or STAT" are clearly indicated.** The properly labeled specimen and requisition must be delivered immediately to the laboratory and given to a technologist in the appropriate section.

- Only those tests on the Emergency Test List are considered clinical emergency tests. Physicians must consult with the head of the appropriate department when requesting tests as emergencies that are not found on this list.

- Contact information of technologists and pathologists on standby duty will be provided on a weekly basis to Admitting, Operating Room, Administrative Officers and Switchboard as well as all laboratory departments.

- **Urgent tests requiring more prompt processing than the usual routine service format, but on which an immediate report is not required should be marked "ASAP".** Such tests are given priority over routine procedures but are not ordinarily drawn and processed immediately. The time of completion depends upon the number of tests so ordered.

REFERRAL SERVICES

- Certain tests are referred to external reference laboratories when it is not practical to perform such tests on site. The turnaround time of these test results depends on the organization of

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the laboratory to which the test is sent. Tests referred are so indicated in “Section 7: Laboratory Tests – Alphabetical List”.

AUTOPSY SERVICES

- Regular hours of operation are Monday to Friday, 0800 to 1600 hours. Morgue staff are on-call Saturdays and holiday Mondays, 0800 to 1200 hours. During regular hours, they are responsible for receiving decedents from Coroners and funeral homes as well as releasing bodies to funeral homes. The Administrative Officer/security staff are responsible for these duties outside of regular hours. All staff must ensure decedents are correctly identified (identification tag attached to the body, identification tag on outside of body bag, and identification on personal belongings), placed in a body bag of appropriate size and information shall be recorded in the Morgue Register, located in the admitting department.
- The DECRH laboratory provides autopsy services for hospitals in the Fredericton Area, as well as for the Department of Justice. Autopsies are performed on the same day providing the deceased and the consent form arrive by 1200 hours on Monday through Friday, and by 1000 hours on Saturdays and holiday Mondays.
- Autopsies are not performed on Sundays and single-day holidays occurring midweek, unless direct arrangements have been made between the coroner/attending physician and the pathologist.
- The pathologist on call must be contacted before the deceased is referred from hospitals outside the city of Fredericton. A consent form signed by the appropriate next of kin, or an appropriate coroner form, must accompany the deceased.

PRIVATE AUTOPSIES

- Autopsies may be performed at the family’s request after consultation with the pathologist. The cost will be the family’s responsibility.
- The fee for this service is $1,500 and is to be paid at the business office before the autopsy begins. On Saturdays, when payment may be impossible, the laboratory will inform the accounting department who will bill the family the first of the next week.
- The report will be withheld until payment is confirmed.

Please refer to Deceased Patients section for more details pertaining to autopsies.

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Clinical Emergency Test List
Fredericton & Upper River Valley Area Laboratories

ONLY the tests listed below are done on a "STAT" basis. The presumptive clinical diagnosis must be stated on all "STAT" (Emergency) test orders. If physicians have requests for tests **not** on this list, they must first consult with the appropriate laboratory section.

*** Spinal Fluids:** after hours, contact the laboratory prior to obtaining specimen

Please Note: Tests not performed on site are referred to DECRH

Clinical Chemistry	• Ammonia • Amylase (Pancreatic) • Beta HCG (Quantitative) • Bilirubin • Blood Gases • Calcium • Cardiac Enzymes/Troponin T • CO (Carbon Monoxide) • CO_2 Content (Bicarbonate) • Creatinine • Electrolytes (Na, K, Cl) • General Surgery Profile (GSP) includes Glucose, Creatinine, Albumin, Alkaline Phosphatase, ALT, Total Bilirubin, Na, K, Cl • Glucose • Ketones (beta hydroxybutyrate, BHB) • Lactic Acid • Osmolality • Pro BNP • Toxicology/Drug Overdose • * Spinal Fluid (CSF) • Urea • Urinalysis • Urine βHCG (Qualitative)
Microbiology	• CSF: Gram stain and culture *After hours: Please contact the on-call technologist through switchboard prior to sample collection
	• Tissue/body fluids: Gram stain and culture • OR Specimens: Gram stain and culture *After hours: Please contact the on-call technologist through switchboard **if the ordering provider requires processing immediately.**
Haematology	• Activated Partial Thromboplastin Time (APTT) • Prothrombin Time (PT)/ INR • CBC with 5-part Differential • D-Dimer Test • Fibrinogen • Monotest • Sedimentation Rate (for patients with presumptive diagnosis of temporal arteritis *only*) • Spinal Fluid (CSF) • Malaria (symptomatic patient)
Transfusion Medicine	• Crossmatch & preparation of blood products • Group & Screen • Direct Antiglobulin Test • Transfusion Reaction Investigation • Rh Immune Globulin Workup (Antenatal for loss/termination, invasive procedure, traumatic event. Not for 28 week prophylaxis) • Cord Blood Workup as required for - investigation of suspected hemolytic disease of the newborn

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	- RhIg eligibility (dayshift only) on Rh Negative mothers • Kleihauer-Betke Test: - as required for RhIg dosing (dayshift only) - when requested for loss/termination, invasive procedure, traumatic event, suspect FMH

Patient/Client Identification of Laboratory Specimens

All laboratory requisitions and associated specimens must be properly labelled and identified to ensure patient safety and quality laboratory services. Failure to correctly identify patients, specimens, ordering providers and test requests can lead to harmful incidents, such as inappropriate treatment, testing errors and privacy breaches. Recurring/Standing orders are good for one-year from the requisition date. Standing orders are not applicable for the dispensing of blood products in Transfusion Medicine. Orders should be on a case-by-case basis.

Requisitions must be legible and include:

1. The **first and last name** of the **Ordering Provider** with ordering privileges, which include:
   - Physicians with a valid licence in any of the Atlantic Provinces:
     - College of Physicians and Surgeons of New Brunswick
     - College of Physicians and Surgeons of Nova Scotia
     - College of Physicians and Surgeons of Prince Edward Island
     - College of Physicians and Surgeons of Newfoundland and Labrador
   - Nurse Practitioners whom have been approved by Horizon's Chief Nursing Officer and are listed on the Horizon Nurse Practitioner - Contact List.
   - Pharmacists that have been approved by the Regional Health Authority and are active in Meditech
   - Midwives employed by Horizon Health Network
   - Dentists with special licenses as approved by the Medical Staff Office
   - NB Health Link
   - eVisitNB

2. **Sufficient information to identify the patient,** which must include **all** of the following:
   - First and last name - abbreviations and/or nicknames are not acceptable; middle names are encouraged when patients have common names
   - Date of birth
   - Sex
   - At least one of the following **unique** Identifier's:
     - NB Medicare or other provincial health card
       NOTE: Pictures or photocopies of Medicare Cards are not acceptable as per NB Medicare policy YourNewBrunswickMedicareCard. Exceptions are given to Nursing or Special Care Home residents
     - Medical Record, Permanent Patient/Client Record Number, or Chart Number (patient hospital identification number unique to the facility or area, such as PPRN)
     - RCMP or Military number
     - Correctional Institute identification number
     - Interim Federal Health Program Number (IFHP)
     - US Health Insurance

   NOTE: Passport number, immigration or refugee number and drivers' licenses are only accepted if no other numbers or identification exists for the patient/client. If patient presents with no identification, the Patient Identification Confirmation Form **LAB-1237-**

18-F00004 Patient Identification Confirmation Form must be complete, as per the **Regional Phlebotomy Manual**

3. Legibly written/denoted examination(s) requested
4. Specimen type (blood, urine, etc.)
5. The date and time the specimen was collected

Requisitions that accompany a specimen must also include:

6. Legible identification of who collected the specimen
7. Clinical information relevant to the testing, as required (i.e. medication)
   NOTE: Speciality requisitions may require/request additional relevant clinical information
8. Anatomic site of origin (as required)
9. Patient location (i.e. ER, Sexual Health)

Specimens that accompany a requisition must include:

1. Each specimen shall be labelled at the time and point of collection and in the presence of the patient.
2. Each firmly attached label shall contain:
   - the patient's first and last name (or unique code number in the case of anonymous testing);
   - one unique numerical identifier (e.g., the admission/identification or accession number);
   - the date of collection;
   - the time of collection;
   - anatomic site of origin (if/as indicated on the requisition);
   - the identity of the person who collected the specimen;

NOTE: For microsamples where the specimen tube is too small for the above information, an appropriate labelling system may be defined by the laboratory

IMPORTANT: Requisitions that do not contain the required minimum information will **not** be processed and specimens will **not** be retained for future testing. Refer to local area policy for specimen rejection processes, including the process for irretrievable specimens

All oral requests for additional requests will be documented on the Meditech requisition, including the date, time and the name of the person making the oral request. All oral requests on Out Patients require confirmation, either by a written requisition or a FAX copy of a requisition.

All patient identifying information on the healthcare card, requisition and/or wrist band must match

The words “Emergency or STAT” must be clearly indicated on the requisition for an emergency or STAT test

Division-specific Requisitions

- **Anatomical Pathology** requisitions also require:
  - Type of tissue
  - Source of tissue
  - Patient’s clinical history
  - Initials of the person completing the requisition
  - Operative findings
  - **Requisitions MUST be signed by the ordering physician**
- **Microbiology** requisitions also require:

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- Source of specimen
- Initials of the person completing the requisition
- Currently used antibiotics
- Clinical data pertinent to appropriate processing of specimen

- **Transfusion Medicine** requisitions/requests also require:
  - The phlebotomist's full signature and initials/collector ID must be on the requisition along with date and time.
  - Transfusion Medicine orders: All comments, directions and blood product requirements on the ordering requisition, including but not limited to the following must be entered under "Comments": Irradiated, FAX requests, specimens to be sent to another area for testing (i.e. SJRH Pre-admit etc.)
- **Cytology** requisitions also require:

  NOTE: Regional Form HHN-1530 is required for cervical screening. Any samples submitted accompanied by other Cytology requisitions will automatically be performed as HPV tests to align with NBCN Cervical Screening Guidelines 2026.
  - **Cytology Gynecological** requisitions (HPV and Pap Tests):
    - Date of patient's last menstrual period (LMP) or menstrual status
    - Specimen site
    - Initials of the person completing the requisition
    - Pertinent history, treatment and clinical findings (suspicious-looking cervix, palpable mass, etc.)
  - **Cytology Non-Gynecological** requisitions (sputum, FNA's, fluids, etc.):
    - Pertinent patient history (previous Ca, x-ray findings, treatment, etc.)
    - Initials of the person completing the requisition
    - Specimen site
    - Clinical findings (haemoptysis, current cystoscopic impression, etc.)
- **Cytogenetics** requisitions:
  - Specific requisitions are available upon request from the Cytogenetic Resource Technologist @ 452-5490

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Verbal Requests

Verbal requests for additional laboratory tests/blood products must be properly documented as per **HHN-CL-GC013** **Verbal and Telephone Orders** policy. This document provides guidance and instruction for the procedure used in managing and documenting verbal requests for additional laboratory tests/blood products.

Verbal requests must be immediately followed by a paper or electronic requisition for both in-patients and out-patients. An Ordering Provider or their designate shall either:

- Forward a completed paper requisition to the Laboratory, or:
- Enter the additional test(s) into Meditech via Order Entry (OE) as an Add-On Test (AOT) NOTE: for TM add-on tests and/or blood products the mnemonic to use in OE is "BBKAOT"

Order Entry Add-On Test process

1. Upon a verbal request, Lab will instruct the Nursing Unit to order <AOT> in the LAB module under the appropriate patient account and enter all required Add-On Tests (BBKAOT in the BBK module for TM tests/blood products)

2. The "Test to be Added" line is free text, allowing multiple tests/blood products to be requested at once

3. Once the AOT/BBKAOT request is filed in OE, a requisition will print to the appropriate printer:
   - DECRH Chemistry Lab - R3DCLASRL1
   - DECRH TM Lab - TS84.5
   - HDSJ - TSP05.5
   - OPH - Z.LAB1A
   - URVH - ULAB1C

4. The AOT request will be immediately forwarded to an MLA/MLT in the appropriate division for follow-up. NOTE: The BBKAOT request will print in the DECRH TM Lab/site specific printer as listed above

5. The MLA/MLT receiving the request shall confirm the presence of an adequate and acceptable specimen

6. If an adequate/acceptable specimen is available, the MLA/MLT shall enter the additional test(s) in Meditech using the Edit Requisition routine and prints a new barcode label if necessary. The canned text **<AOT>** "[ ] was added to this requisition via Add-On Test request received from [ ] by [user] on [ ] @ [ ]" must be entered in the Requisition "Comments" screen at this time

7. If an adequate/acceptable specimen is **not** available (NSQ, too old, improper collection tube, etc.), the MLT shall enter an order "**AOTREJ**" on the appropriate patient requisition and then result the test with **"COMMENT"** (the COMMENT result can also be chosen by using F9) and complete the result canned text that will pop up - "Unable to comply with the request to "add-on" the following test(s): []. Reason: []. Called to []. @by [user] at []. @ AOT Order # []" and

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direct the Ordering Provider/Nursing Unit to submit an electronic or paper request for a new specimen

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AOT Reference Diagram

If at least one test from within a coloured box has previously been ordered, then any remaining tests listed in the same-coloured box can be run using the previously collected specimen.

* Restrictions due to sample volume, time since initial draw, sample integrity may still apply.

CBC
Retic
HA1C

PT/INR
APTT
D-Dimer
Fibrinogen

ESR

Acetaminophen
Benxodiazepine
Digoxin
Dilantin/Phenytoin
Keppra/Levetiracetam
Mono Test
Osmolality
Phenobarbital
Salicylate
Tox Screen

Arterial Blood Gas
Lactic Acid (Lactate) Blood Gas

Venous Blood Gas
Lactic Acid (Lactate) Blood Gas

Carbon Monoxide

Lactic Acid (Lactate) Venous

Ammonia

Urine Culture
Chlamydia/Gonorrhoeae Urine

Urinalysis
Urine BHCG (Qualitative)
Urine Osmolality
Urine Microalbumin

Abdominal Profile
Albumin
Alkaline Phosphatase
ALT
Amylase
BHCG (Quantitative)
Beta Hydroxybutyrate (BHB)
CO2
Bilirubin Total
Calcium
CEA
CHEM 9
CK (Creatine Kinase)

Creatinine
CRP
Electrolytes (Na, K, Cl)
ER Profile (ERP)
Ferritin
Folate *Fasting*
FSH
Glucose
GSP
HITACHI-12 Profile
Iron studies
LDH
LH

Lipid Profile *Fasting*
Non-Fasting Lipid Profile
Liver Profile
Magnesium
Phosphate
ProBNP
Progesterone
Prolactin
Protein Total
PSA
Rheumatoid Factor

Testosterone
Cardiac Enzyme/ Troponin
TSH
Urea
Uric Acid
Vitamin B12
Vitamin D

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Specimen Labeling

Specimen Collector shall Label all specimens at the patient's side, using computer generated labels, identification tags from paper requisitions or manually write on the specimen tubes.

NOTES:

The preference is computer generated labels, but hand-written information on requisitions, labels and specimen containers is acceptable.

- All effort shall be made to ensure labels are available at the bedside during a trauma. Any variances to this process shall be documented.
- **Anatomic Pathology:**
  specimen container identification shall include:
  - the patient's full name, unique identifier, and the organ/tissue site
  - the date and time of collection as well as the identity of the person who collected it (initials are acceptable and may be added by someone other than the collector)
  - this includes bone marrow specimens.
- **Cytology specimens:**
  All glass slides must be labeled in HB pencil on the frosted end of the slide.
  All ThinPrep vials must be labeled with patient's full name and unique identifier, a patient demographic label placed on the vial is acceptable, ensuring label is placed on the container and not on the lid.
- **Microbiology specimens:**
  If more than one specimen is collected and a Meditech label is not used, the source must be written on each specimen.
  ***Do not place Meditech label over the blood culture bottle factory barcode**

Specimens which are mislabeled, unlabeled, or have insufficient identification will not be processed and a request will be made to recollect the specimen.

In cases involving an irreplaceable specimen testing will only proceed upon the authorization of the attending physician. A note of this authorization will appear on the lab report. **Permission to re-label specimens shall not be granted for Transfusion Medicine specimens**.

The Transfusion Medicine requisition must be used in verifying patient identification immediately prior to specimen collection at the patient's side. After collection the tubes are to be labeled and the requisition signed by the phlebotomist whilst still at the patient's side.

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Faxing Requests

Faxing of reports/results will follow HHN-IM-003 Confidential Information Sharing and be restricted to the following priority requests:

- STAT
- Urgent
- Medically necessary priority requests (situations where patients are awaiting immediate treatment)

All other requests for faxing will not be accommodated. All patient results are available in the local electronic Hospital Information System, provincial Electronic Health Record (EHR) and Area Medical Records Department

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Utilization Rules

Test	Utilization Rule	Notes
Anti-Mullerian Hormone	Order rule	If being ordered by Family Physician only, please verify order (predominantly ordered by OB/GYN or fertility specialists)
Apolipoprotein B	Frequency limitation	Limited to 6 weeks
AST (SGOT)	Order rule	AST not routinely performed
Bence Jones Protein	Frequency limitation	Limited to 6 weeks
BNP (proBNP)	Frequency limitation	BNP available every 6 weeks for outpatients and every 7 days for Emergency Department and inpatients
BUN (Urea)	Order rule	BUN not ordered in conjunction with creatinine unless from dialysis, specialist, or pre-op
CA 125	Frequency limitation	Limited to 12 weeks
CA19-9	Frequency limitation	Limited to 12 weeks
Calprotectin (fecal)	Frequency limitation	Limited to every 3 days
CEA (carcinoembryonic antigen)	Frequency limitation	Limited to 12 weeks
Chlamydia/GC PCR-female patients	Specimen limitation	If both a cervix and urine received, only the cervix will be performed
Clostridium difficile	Frequency limitation	Not performed if positive in the last 14 days
ESR (Erythrocyte Sedimentation Rate)	Order rule	ESR not ordered in conjunction with CRP unless from approved specialties of rheumatologists, ophthalmologists, and pediatricians
Ferritin	Frequency limitation	Limited to once every 4 weeks
Folate	Frequency limitation	Limited to yearly
Free PSA	Order rule and frequency limitation	Limited to 12 weeks and not performed on patients > 75 years old, unless post treatment
FT3	Order rule and frequency limitation	If ordered with TSH. Only TSH will be performed unless order is from Emergency Department or endocrinologist/specialist. Limited to once every 6 weeks.
FT4	Order rule and frequency limitation	If ordered with TSH. Only TSH will be performed unless order is from Emergency Department or endocrinologist/specialist. Limited to once every 6 weeks.
GGT	Order rule	GGT not routinely performed
HA1c (glycosylated hemoglobin)	Frequency limitation	Performed every 80 days
Immunofixation electrophoresis	Frequency limitation	Limited to 6 weeks
Iron Studies	Frequency limitation	Limited to once every 4 weeks
Lipid Profile	Frequency limitation	Limited to 6 weeks
Lipoprotein(a)	Frequency limitation	To be done only once in a lifetime Limited to 60 weeks by system

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Neurofilament Light Chain	Frequency Limitation	Limited to 3 months
Nonfasting lipid profile	Frequency limitation	Limited to 6 weeks
Phospho-Tau 217	Order rule and frequency limitation	Only ordered for patients > 50 years old Positive results not repeated Negative results not repeated within 10 years
Protein electrophoresis	Frequency limitation	Limited to 3 weeks
PSA	Order rule and frequency limitation	Limited to 4 weeks and not performed on patients > 75 years of age.
Sputum for C&S	Frequency limitation	Recommended- collection of 1 specimen
Sputum for TB	Frequency limitation	Recommended- collection of 3 specimens on 3 different days
Stool for C&S	Frequency limitation	1 specimen per day In-patients- not performed after 72 hours from admission
Stool for O&P	Frequency limitation	1 specimen per day In-patients- not performed after 72 hours from admission
TSH	Frequency limitation	Limited to 6 weeks
Urea Breath Test (UBT)	Order rule	UBT only ordered if ordered by gastroenterologist
Vitamin B12 (B12)	Frequency limitation	Limited to 12 weeks
Vitamin D (25OH VitD)	Frequency limitation	Limited to 12 weeks

Foreign Residents Agreement

HHN-SA-014 Consent to Treatment

Treatment in Canada of U.S. and other Foreign Residents

Healthcare practitioners may be called upon to provide care and services to patients who are not ordinarily a resident in Canada. If the patient were to bring a legal action against the healthcare practitioner and/or the hospital, there may be limitations on the legal assistance or protection available in connection with such actions. Therefore, healthcare practitioners and healthcare organizations attending foreign patients in Canada make efforts to ensure a HHN-0213 Foreign Residents Agreement form is completed and signed by the patient at the time of registration or admission. This form states that the patient agrees that any legal action commenced will be carried out in accordance with the laws of the Province of New Brunswick and Canada.

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Submission of Coded Patient Samples

In special circumstances, specimens may be submitted using a code as the patient identifier. Standardization of the coding process is required to protect the anonymity of the patient, but at the same time to allow retrieval of information and comparison with previous results in the computer system.

Non-nominal Code Format:

A non-nominal patient sample has a coded patient name only decipherable to the ordering provider of the laboratory test

1. The first part of the code name shall be: **<ZZZZPhysician's Mnemonic>**
   e.g. **ZZZZSMITJO**
2. The second part of the code name shall be the code assigned by the physician. e.g. **ABC**
   NOTE: The first and second parts of the code are separated by a comma, no spaces. e.g. **ZZZZSMITJO,ABC**
3. Date of birth or age and sex of the patient are preferred, strictly for statistical reasons.

Anonymous Code Format for specimens collected anonymously by the Community Health Program and is intended for HIV testing only:

An anonymous patient sample has a coded patient name that does not identify the patient and is not decipherable to the ordering provider of the laboratory specimen.

1. The first part of the code name must be: <**ZZZZANONYYYY**>
   NOTE: YYYY is the calendar year
2. The second part of the code name is assigned by the Community Health Program. e.g. **A1**.
   NOTE: The first and second parts of the code are separated by a comma,no spaces.
   e.g. **ZZZZANON2018, A1**
3. Date of birth or age and sex of the patient are preferred, strictly for statistical reasons.

- To comply with Department of Health guidelines to prevent non-nominal and anonymous patients from appearing in the Provincial Electronic Health Record, the code mnemonic must be prefaced with **ZZZZ**
- If the specimen code does not match the required format, discuss any changes that are required with the ordering provider to ensure that they will be able to track the specimen. All changes must be documented on LAB-3-ADM-05-F00004 Authorization To Proceed With Testing form

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Specimen Collection

* **IMPORTANT:** When using a winged blood collection set for venipuncture and a coagulation (citrate) tube is the first specimen tube to be drawn, **a discard tube must be drawn first**. The discard tube must be used to fill the blood collection set tubing's "dead space" with blood. Since the plastic red tubes currently being used at Horizon contain a clot activator, the only suitable discard tube is another coagulation tube, which does not need to be filled. This important step ensures maintenance of the proper blood-to-additive ratio of the blood specimen.

**Nursing staff who draw blood from an intravenous line for Laboratory testing must discard 2 times the dead -space volume and for coagulation examinations, 5 mL of blood or 6 times the dead-space volume.

<u>Under no circumstances</u> should the contents of two (2) or more vacutainer tubes be mixed together to make up a required volume. This causes erroneous test results with possible negative patient outcome.

NOTE: See specific collection instructions for each test in Section 8 of this manual.

Horizon

Order of Draw Table for Collection of Blood Samples

Order	Description	Mixing	Picture
1	Blood Cultures 1. Aerobic 2. Anaerobic 3. Pediatric	8 -10x	
2	Citrate tube - (**Blue**) *Must be completely filled – use discard tube when using a winged collection set	3 -4x	
3	Citrate tube – ESR (**Black**)	3 -4x	
4	Plain Serum Tubes (**Red**)	5x	
5	Serum tube with/without clot activator/gel (**Gold**)	5x	
6	Lithium Heparin with Gel, PST (**Green**) Heparin tube (**Green**) Barricor tube (**Green**)	8 -10x	
7	EDTA tube **Lavender** **Pink** **Royal Blue**	8 -10x	
8	Oxalate/Fluoride tube (**Gray**)	8 -10x	
9	ACD (light **yellow**)	3 -4x	
10	Blood Gas/Ionized Calcium 'Safe PICO' syringe	8 -10x	

Vacutainer tubes are Courtesy of © Becton, Dickinson and Company. Reprinted with permission.

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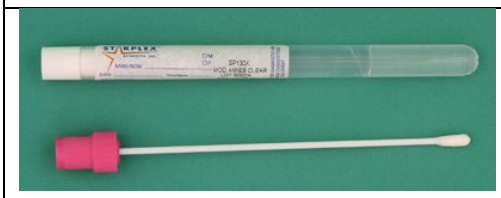
Specimen Collection Containers

Container	Name (s)	Mnemonic(s)
	Routine swab Culture swab Aimes Transport swab (may have blue or pink top) (obtain from stores)	Swab CULT-SWAB
	Chlamydia/GC PCR dual swab for cervix/urethra (extremely limited # obtain from Microbiology) Chlamydia/GC PCR swab for throat/rectal/eye (obtain from Microbiology)	CHLSWAB
	Viral Transport media UTM- Universal Transport Medium (obtain from laboratory)	VT
	Mycology container **No longer available – use sterile screw capped container**	MYC
	Sterile screw capped container (obtain from stores)	SCC UB80

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	Stool Culture Container Enteric Culture Media Cary Blair Transport container (obtain from stores)	STCUL
	Ova & Parasites Transport Media SAF Fixative (obtain from stores)	O&P
	Pinworm Paddle (obtain from stores)	PWP

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Guide to the collection of samples for microbiological diagnosis of wounds, abscesses, tissue/bone, and body fluids.

NON-STERILE (superficial sites)

- **DO NOT** swab areas of visible fibrin (sterile) or necrosis (polymicrobial), as they are not representative of underlying causative pathogen(s).
- **CLEAN** area to be sampled with **normal saline** prior to swab inoculation.
- Use swab with **Amies** transport medium (see picture)**.**
- **DO NOT** send a swab from a normally sterile site or in lieu of an aspirate; the optimal sample is tissue and/or aspirate (see below).

NORMALLY STERILE SITES

These specimens are collected from normally sterile sites by aseptic technique. They will be worked up for both aerobic and anaerobic bacteria. If fungal, mycobacterial, or other investigations are required, please clearly indicate the request.
For specimens sampled after debridement of non-sterile tissue (eg. diabetic/vascular foot infection), please refer to dedicated section below.

Matrix	**Container for collection/transport** (each specimen requires a unique number and separate container)		**Order #**	**T °**	**Optimal time to inoculation** *(Max time)*
Sterile body fluids	**Sterile container** without transport media		Orange cap sterile container: #7031900	15-25 °C (never refrigerate)	**≤1 hr** *(max :24 hr)*
	Sterile syringe with **sterile cap** *(samples with <u>needles</u> will <u>not</u> be accepted nor processed)*		Sterile cap: #6066360		

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	Blood culture bottle : ○ ≥2.5 mL in <u>each</u> bottle <u>AND</u> ○ ≥2.5 mL in sterile container without transport media (for Gram stain and agar culture)	 **and** 	○ Aerobic (FA/green) : #7013912 ○ Anaerobic (FN/orange): #0018284 ○ Sterile container: #7031900		
Operative specimens or others collected by aseptic technique	**Abscess**: ○ Aspirate <u>AND</u> ○ Tissue from abscess capsule **Prosthetic joint debridement**: ○ Synovial fluid <u>AND</u> ○ 5 tissue samples each collected with a different sterile instrument **Others including tissue and prosthetic material**: ○ Tissue sample (*<u>must fit inside pictured containers – large segments of body parts will not be accepted</u>*) ○ Prosthetic material (graft, screws, pace wire, catheter tip, etc.)	Sterile container without transport media **and/or** Sterile syringe with sterile cap *(samples with <u>needles</u> will <u>not</u> be accepted)* 	Orange cap sterile container: #7031900 **<u>Preferred:</u>** **Blue cap sterile supplied OR specimen container: #0177661** Sterile cap: #6066360	2-25 °C	**≤ 24 hr** *(max :24 hr)*

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	ONLY if tissue/aspirate not possible ○ **Swab with Amies transport medium**		Swab with Amies gel: #7031912	2-25 °C	**24 hr** *(max :24 hr)*
Tissue samples from non-sterile sites **post-debridement** (diabetic / vascular wounds and osteomyelitis)	○ **Sterile container** without transport media *-superficial contaminated and/or necrotic tissue must be debrided* ***-tissue sample is taken from the healthy margin using a clean sterile instrument***		Sterile container: #7031900	2-25 °C	**24 hr** *(max :24 hr)*

updated October 2026

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Transportation of Specimens

All specimens must be delivered to the laboratory as soon as possible after collection and in accordance with instructions described in Section 8.0 of this manual. To provide for the safety of the various people and/or businesses delivering specimens to our laboratory, and to protect our own staff receiving them, all specimen packaging and transport must follow current Transportation of Dangerous Goods Regulations. All specimens must remain in the outer container until received by the laboratory staff.

The Transportation of Dangerous Goods (TDG) Act is a federal law created for the protection of humans, animals, property and the environment. Included under this law is the packaging and shipment of **diagnostic**, **laboratory specimens** such as blood, urine, etc. either across the country or a few blocks up the street. **All diagnostic patient specimens including those collected in clinics, doctors' offices, etc., must be packaged and transported in accordance with this law**. As the receiving laboratory we have a responsibility to accept only properly packaged samples and to inform individuals who do not comply with the **TDG Act and Regulations**.

The following information has been abstracted from the TDG Regulations and is provided as a guide to assist you in complying with this law.

Materials required:

Leak-Proof Primary Receptacles	• This is the actual specimen container – blood tube, urine container, swab • **Always make sure the container lid/cap is properly and tightly closed** • This container **must not leak**
Leak-Proof Secondary Packaging	• Must be **leak-proof** • Zipper-sealed plastic bag or heat-sealed bag is acceptable • Place around the primary container(s) • Multiple, non-fragile primary containers may be placed together in a single secondary packaging, so long as appropriate absorbent material is used (see below)
Absorbent Material	• Used to absorb fluids if a primary container should accidentally break • Suggested materials: paper towels, absorbent pad (orderable through purchasing) • Ensure a sufficient quantity of absorbent material is used in order to absorb the entire volume of the primary receptacle(s), should leakage occur • Place inside the secondary packaging
Outer Packaging	• A **rigid** container, with at least one surface having minimum dimensions of 4x4 inches, such as an insulated box • A "cooler" is ideal for transporting routine diagnostic specimens • A soft-sided outer container (e.g. lunch bag/Styrofoam/grocery bag) **is not** acceptable • The cover must be secured • Must display both complete delivery and return addresses
Cushioning (only as required)	• Used to separate **fragile** primary receptacles (glass tubes) • Fragile primary receptacles **must not touch** one another • Large blood collection centers may use a test tube rack to separate blood tubes and newspaper to separate large urine specimens
Packing Instructions	**1. Wear protective gloves when handling all patient specimens** 2. Ensure all caps/lids are tight and secure 3. Sort specimens by laboratory departments (Haematology, Microbiology, Chemistry, etc.) 4. Place specimens into leak-proof packaging (e.g. Ziploc or heat-seal bag) with sufficient absorbent material

	5. Place any paper requisitions in a separate plastic bag on top of the sealed secondary container 6. If required, add additional cushioning between the secondary container and the outer container to stabilize the contents during transport. Newspaper, bubble wrap or paper towel may be used. 7. Close and secure the cover on the outer container (cooler)

- **Specimens known or highly suspected to contain an infectious substance** transported to any Fredericton Area facility must be packaged and transported with documentation in accordance with TDG Regulations by trained and certified staff [1]
- A detailed list of causative organisms is available from resource staff in the DECRH Regional Laboratory Microbiology Department.
- All specimens must be delivered to the laboratory within the required time period as set forth in Section 8 of this manual.
- **The requisition must not be wrapped around the specimen container as this tends to damage the requisition. This practice is also a potential safety hazard.**
- Requisitions must **NOT** be placed in the bag with the specimens.
- All slides must be sent in slide mailers.
- Specimens destined for different laboratory departments (Haematology, Microbiology, Chemistry, etc.) must be bagged separately.
- After regular working hours, spinal fluids and blood cultures must be immediately delivered directly to the technologist.

Instructions for packaging specimens according to temperature requirements

These packaging instructions do not take place of TDG Regulations but rather ensure that specimen integrity and proper temperature is maintained during transit.

The Transportation of Dangerous Goods (TDG) Act must be followed when packaging and transporting specimens. **All diagnostic patient specimens including those collected in clinics, doctors' offices, etc., must be packaged and transported in accordance with this law**. As the receiving laboratory we have a responsibility to accept only properly packaged samples and to inform individuals who do not comply with the **TDG Act and Regulations**.

Materials/Supplies

- Room temperature **gel packs** (stabilized for a minimum of 24 hrs. at room temperature)
  - Medium 8"x6" ID Technology item #0106801
  - large 10"x12" Cardinal Health item #0107348
- Frozen **ice packs** (stabilized for a minimum of 24 hrs. in freezer, -20°C or -40°C)
  - Small 5.7"x4.4" ID Technology item #7053474
  - Medium 8"x6" ID Technology item #0106801
  - Large 8"x8" ID Technology item #0106802
    (large ice packs are blue and come with a sleeve)
- Refrigerated **gel packs** (stabilized for a minimum of 24 hrs. in refrigerator)
  - large 10"x12" Cardinal Health item #0107348
- Insulating/cushioning material (packing paper, bubble wrap, newspaper, paper towel, gray absorbent material, etc.)
- Insulating material (gray absorbent material) for use with 48 qt/45L and 28qt/26L coolers
- Absorbent sheets – absorbent strip 6 100mL, ESBE Scientific, item # INK-4090SS45

[1] Transportation of Dangerous Goods Act and Regulations, Part 2

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NOTE: A minimum of two bags must be ordered per order)

- Heat sealed bags/zipper locked bags
- Dry ice
- Transport boxes for dry ice shipments or designated dry ice coolers
- Transport coolers
- Shipping labels
- Cardboard (~ 7.5 x 7.5 inches)

Quality Control

- Personnel responsible for unpacking specimens must notify appropriate manager if specimens arrive in an unacceptable condition (i.e. improper packing, outside acceptable temperature range, etc.)
- Specimens sent frozen are acceptable upon receipt if completely frozen. Dry ice (if used) must still be present in the shipping container. Ice packs (if used) must be, at least, in a partially frozen state upon receipt.
- Audits are performed on a regular basis to ensure TDG Regulations are followed and correct packing schemes are being used.

Procedure

- Determine the shipping requirements of the specimens being transported as per the Lab User Manual Test Table - Alphabetical List

  a. Specimens to be transported **FROZEN** click here
  b. Specimens to be transported **REFRIGERATED (1-10°C)** click here
  c. Specimens to be transported at **AMBIENT (16-25°C)** (room temperature) click here

a. Specimens to be transported FROZEN

Packing Situation	Work instructions
When using **DRY ICE**	1. Add sufficient Dry Ice based on the size of the shipping container 2. Container must allow for the escape of gases when Dry Ice begins to evaporate 3. Place frozen specimens(s) in a bag 4. Close/seal specimen bag and place in container 5. Fill any empty space around the specimens with cushioning material in order prevent shifting during transport 6. Paperwork must be separated from specimens and can be placed on top of cooler contents
When using **ICE PACKS**	**NOTE:** For use with 5 qt/5L. coolers only: 1. Place a layer of bubble wrap on bottom of cooler 2. Elasticize frozen specimens(s) between **two small frozen ice packs** 3. Place specimens(s) and ice packs in a bag 4. Close/seal bag and place in cooler 5. Add **two additional small frozen ice packs** around bag 6. Fill any empty space with bubble wrap 7. Layer of bubble wrap on top 8. Paperwork must be separated from specimens and can be placed on top of cooler contents

b. Specimens to be transported REFRIGERATED (1-10°C)

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Cooler size & Ice pack Temperature	Work instructions
48 qt / 45 L **Ice pack -20°C**	1. Place **two large frozen ice packs** on the bottom of the cooler 2. Add a double layer of insulation (gray material) over the ice packs 3. Place specimens in a bag(s) with the appropriate number of absorbent sheets for the volume of the specimens 4. Close/seal specimen bag(s) 5. Wrap bag(s) of specimens in bubble wrap to provide an extra layer of insulation, and place in cooler on top of the gray material **NOTE:** It is extremely important that specimens do not come in direct contact with the ice packs 6. Fill any empty space around the specimens with cushioning material to prevent shifting during transport 7. Add a double layer of insulation (gray material) over the wrapped specimens 8. Place **two large refrigerated gel packs** on top of the gray material 9. Paperwork must be separated from specimens and can be placed on top of the cooler contents
28 qt / 26 L **Ice pack -20°C**	1. Place **one large refrigerated gel pack** on the bottom of the cooler 2. Add a double layer of insulation (gray material) over the gel pack 3. Place **one large frozen ice pack** standing up against the side/end (depending on the shape) of the cooler 4. Place two pieces of cardboard against the ice pack on the side/end 5. Place specimens in a bag(s) with the appropriate number of absorbent sheets for the volume of the specimens 6. Close/seal specimen bag(s) 7. Wrap bag(s) of specimens in bubble wrap to provide an extra layer of insulation, and place in cooler on top of the gray material **NOTE:** It is extremely important that specimens do not come in direct contact with the ice pack 8. Fill any empty space around the specimens with cushioning material in order to prevent shifting during transport 9. Add a double layer of insulation (gray material) over the wrapped specimens 10. Place **one large refrigerated gel pack** on top of the gray material 11. Paperwork must be separated from specimens and can be placed on top of the cooler contents
28 qt / 26 L **Ice pack -40°C**	1. Place **one medium frozen ice pack** on the bottom of the cooler 2. Add a double layer of insulation (gray material) over the ice pack 3. Place specimens in a bag(s) with the appropriate number of absorbent sheets for the volume of the specimens 4. Close/seal specimen bag(s) 5. Wrap bag(s) of specimens in bubble wrap, to provide an extra layer of insulation, and place in cooler on top of the gray material **NOTE:** It is extremely important that specimens do not come in direct contact with the ice pack 6. Fill any empty space around the specimens with cushioning material in order to prevent shifting during transport 7. Add a double layer of insulation (gray material) over the wrapped specimens 8. Place one **medium frozen ice pack** on top of the gray material

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	9. Paperwork must be separated from specimens and can be placed on top of the cooler contents
16-18 qt /15-17 L **Ice pack -20°C**	1. Place **one large refrigerated gel pack** on the bottom of the cooler 2. Add a double layer of insulation (bubble wrap) over the gel pack 3. Place **one large frozen ice pack** standing up against the side/end (depending on the shape) of the cooler 4. Place two pieces of cardboard against the ice pack on the side/end 5. Place specimens in a bag(s) with the appropriate amount of absorbent sheets for the volume of the specimens 6. Close/seal specimen bag 7. Wrap bag(s) of specimens in bubble wrap, to provide an extra layer of insulation, and place in cooler on top of the bubble wrap **NOTE:** It is extremely important that specimens do not come in direct contact with the ice pack 8. Fill any empty space around the specimens with cushioning material in order to prevent shifting during transport 9. Add a double layer of insulation (bubble wrap) over the wrapped specimens 10. Place **one large refrigerated gel pack** on top of the bubble wrap 11. Paperwork must be separated from specimens and can be placed on top of the cooler contents
16-18 qt /15-17 L **Ice pack -40°C**	1. Place **one medium frozen ice pack** on the bottom of the cooler 2. Add a double layer of insulation (bubble wrap) over the ice pack 3. Place specimens in a bag(s) with the appropriate number of absorbent sheets for the volume of the specimens 4. Close/seal specimen bag(s) 5. Wrap bag(s) of specimens in bubble wrap, to provide an extra layer of insulation, and place in cooler on top of the bubble wrap **NOTE:** It is extremely important that specimens do not come in direct contact with the ice packs 6. Fill any empty space around the specimens with cushioning material in order to prevent shifting during transport 7. Add a double layer of insulation (bubble wrap) over the wrapped specimens 8. Place **one large refrigerated gel pack** on top of the bubble wrap 9. Paperwork must be separated from specimens and can be placed on top of the cooler contents
8-10 qt / 8-9 L **Ice pack -20°C**	1. Place **one medium frozen ice pack** on the bottom of the cooler 2. Add a double layer of insulation (bubble wrap) over the ice pack 3. Place specimens in a bag(s) with the appropriate number of absorbent sheets for the volume of the specimens 4. Close/seal specimen bag(s) 5. Wrap bag(s) of specimens in bubble wrap, to provide an extra layer of insulation, and place in cooler on top of bubble wrap **NOTE:** It is extremely important that specimens do not come in direct contact with the ice packs 6. Fill any empty space around the specimens with cushioning material in order to prevent shifting during transport 7. Add a double layer of insulation (bubble wrap) over the wrapped specimens 8. Place **one medium frozen ice pack** on the top of the bubble wrap 9. If there is room at the top add more cushioning material to fill the cooler 10. Paperwork must be separated from specimens and can be placed on top of the cooler contents

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5 qt / 5L **Ice Packs -20°C**	**NOTE:** For local deliveries **only** (Fredericton City Limits) 1. Place **one small frozen ice pack** on the bottom of the cooler 2. Add a double layer of insulation (bubble wrap) over the ice pack 3. Place specimens in a bag(s) with the appropriate number of absorbent sheets for the volume of the specimens 4. Close/seal specimen bag(s) 5. Wrap bag(s) of specimens in bubble wrap, to provide an extra layer of insulation, and place in cooler on top of bubble wrap **NOTE:** It is extremely important that specimens do not come in direct contact with the ice packs 6. Fill any empty space around the specimens with cushioning material in order to prevent shifting during transport 7. Add a double layer of insulation (bubble wrap) over the wrapped specimens 8. Place **one small frozen ice pack** on the top of the bubble wrap 9. Paperwork must be separated from specimens and can be placed on top of the cooler contents

c. Specimens to be transported at AMBIENT (16-25°C) (Room Temperature)

Cooler Size	Work instructions
48 qt / 45 L	1. Place **two large room temperature gel packs** on the bottom of the cooler 2. Add a double layer of insulation (gray material) over the gel packs 3. Place specimens in a bag(s) with the appropriate number of absorbent sheets for the volume of the specimens 4. Close/seal specimen bag(s) 5. Wrap bag(s) of specimens in bubble wrap, to provide an extra layer of insulation, and place in cooler on top of gray material 6. Fill any empty space around the specimens with cushioning material in order to prevent shifting during transport 7. Add a double layer of insulation (gray material) over the wrapped specimens 8. Place **two large room temperature gel packs** on top of the gray material 9. Paperwork must be separated from specimens and can be placed on top of the cooler contents
28 qt / 26 L	1. Place **two large room temperature gel packs** on the bottom of the cooler 2. Add a double layer of insulation (gray material) over the gel packs 3. Place specimens in a bag(s) with the appropriate number of absorbent sheets for the volume of the specimens 4. Close/seal specimen bag(s) 5. Wrap bag(s) of specimens in bubble wrap, to provide an extra layer of insulation, and place in cooler on top of the gray material 6. Fill any empty space around the specimens with cushioning material in order to prevent shifting during transport 7. Add a double layer of insulation (gray material) over the wrapped specimens 8. Place **two large room temperature gel packs** on top of the gray material 9. Paperwork must be separated from specimens and can be placed on top of the cooler contents
16-18 qt / 15-17 L	1. Place **one large room temperature gel pack** on the bottom of the cooler 2. Add a double layer of insulation (bubble wrap) over the gel pack

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	3. Place specimens in a bag(s) with the appropriate number of absorbent sheets for the volume of the specimens 4. Close/seal specimen bag(s) 5. Wrap bag(s) of specimens in bubble wrap, to provide an extra layer of insulation, and place in cooler on top of the bubble wrap 6. Fill any empty space around the specimens with cushioning material in order to prevent shifting during transport 7. Add a double layer of insulation (bubble wrap) over the wrapped specimens 8. Place **one large room temperature gel pack** on top of the bubble wrap 9. Paperwork must be separated from specimens and can be placed on top of the cooler contents
8-10 qt / 8-9 L	1. Place **one large room temperature gel pack** on the bottom of the cooler 2. Add a double layer of insulation (bubble wrap) over the gel pack 3. Place specimens in a bag(s) with the appropriate number of absorbent sheets for the volume of the specimens 4. Close/seal specimen bag(s) 5. Wrap bag(s) of specimens in bubble wrap, to provide an extra layer of insulation, and place in cooler on top of the bubble wrap 6. Fill any empty space around the specimens with cushioning material in order to prevent shifting during transport 7. Add a double layer of insulation (bubble wrap) over the wrapped specimens 8. If there is room at the top of the cooler add more cushioning material to fill the cooler 9. Paperwork must be separated from specimens and can be placed on top of the cooler contents
5qt / 5L	**NOTE:** For local deliveries **only** (Fredericton City Limits) 1. Line bottom and sides of cooler with bubble wrap 2. Place **two medium room temperature gel packs** on the bottom of the cooler over the bubble wrap 3. Add a double layer of insulation. (bubble wrap) over the gel packs 4. Place specimens in a bag(s) with the appropriate number of absorbent sheets for the volume of the specimens 5. Close/seal specimen bag(s) 6. Wrap bag(s) of specimens in bubble wrap, to provide an extra layer of insulation, and place in cooler on top of the bubble wrap 7. Fill any empty space around the specimens with cushioning material in order to prevent shifting during transport 8. Add a double layer of insulation (bubble wrap) over the wrapped specimens 9. Place **one medium room temperature gel pack** on top of the bubble wrap 10. Paperwork must be separated from specimens and can be placed on top of the cooler contents

- Extreme weather conditions and transportation delays have been taken into account during the validation of the coolers and the individual packing schemes. In order for the coolers to maintain the correct temperature ranges:
  - proper packing materials in the proper amount must be used;
  - coolers should not be sent half full. Add more packing materials or use a smaller cooler;
  - specimens that are to be sent between 2°-10°C should be refrigerated as soon as possible before being packed for transport.

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- Five quart coolers are validated for temperatures between 3.5°C and 25°C for up to three hours. **NOTE:** These coolers may only be used for refrigerated and room temperature specimens for local transport within Fredericton City Limits.

Pneumatic Tube System

Please refer to HHN-PR-001FR Pneumatic Tube System (PTS) for details on the proper use of the Pneumatic Tube System at the Dr. Everett Chalmers Regional Hospital. This policy is available for internal use only.

Rejection of Specimens

All specimens collected for laboratory testing must be labeled and identified with the patient's full name and at minimum 1 unique patient identifier. Specimens/requisitions submitted to the laboratory without the patient's full name and identifier shall not be processed and a request will be made to recollect the specimen as necessary.

Laboratory Specimens may also be rejected for (but not limited to):

1. Insufficient quantity of specimen
2. Specimens too old to process
3. Leaking specimens - For the safety of our workers, and the possible integrity of the specimen, it may be necessary to discard specimens which leak and cause contamination. The laboratory reserves the right to reject patient specimens that have not been properly packaged and delivered [2,2,3]. In such cases, the sending location will be promptly notified.
4. Hemolyzed specimen (depends on test requested)
5. Incorrect type of specimen or container
6. Anticoagulated specimens that are clotted
7. Specimens that did not receive proper storage and/or transportation conditions
8. Damage beyond repair (e.g. broken slides)
9. Specimen or Requisition having a health care number which is incorrect by two or more digits
10. Improperly labeled specimens (e.g. unlabeled specimen wrapped in a requisition, unlabeled specimen in a bag that contains a label, label placed on top of tinfoil)

NOTE: Specimens that are deemed as compromised/irretrievable may be processed with a completed **LAB-3-ADM-05-F00004** Authorization to Proceed with Testing form.

Technical Criteria: All specimens must be technically suitable for the purpose of testing. Refer to Section 8 of this manual for specific test collection/referral instructions. Results of patient's tests can only be as good as the collection and transportation process.

Contamination: Contamination of specimen containers and requisitions with blood, urine, feces, etc. represents a substantial hazard for the transmission of disease. If contamination occurs, senders must use appropriate disinfectant to clean the outside of specimen containers before sending them to the laboratory[4].

[2] Occupational Health and Safety Act, Part 9.1
[3] Standards for Hospitals in New Brunswick, Section 3.1.4
[4] RVH Infection Control Manual, Section 8.4

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Diagnostic Imaging Tests & Bloodwork Orders

EXAMS	BLOODWORK
Interventional Radiology	
Biliary Drain Insertion Cyst Drain Drainage Tube Insertion Gastrostomy Tube Insertion Liver Biospy Lymph Node Biopsy Lumbar Puncture Nephrostomy Tube Insertion Solid Mass Biopsy Thoracentesis	CBC, PT/INR, APTT
Angiogram Fistulogram IVC Filter Insertion IVC Filter removal Sclerotherapy Uterine Artery Embolization	CBC, PT/INR, APTT, CREAT
CT Procedures	
Lung Biopsy Liver Biopsy Renal Biopsy Bone Biopsy Drainage Tube Insertion Omentum Biopsy Neck Biopsy Retroperitoneal Lymph Node Biopsy	CBC, PT/INR, APTT, CREAT
Ultrasound Procedures	
Liver Biopsy Abdomen Biopsy Abscess Parotid Biopsy Certain Lymph Node Biopsy Sonohystogram Cyst drainage	CBC, PT/INR, APTT
Radiology Procedures	
Hysterosalpingogram	hCG
Nuclear Medicine Procedures	
Iodine Whole Body Scan (D.BODY) Thyroid Ablation (D.ABLATION)	TSH exception, Thyroglobulin, others as requested by Endocrinologists.

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Reporting of Laboratory Tests

- All patient test results are available in PCI as soon as the results are verified.
- Reports are sent to the ordering physician unless otherwise specified.
- Preliminary reports may be transmitted by telephone or by some other form and it should be recognized that in all cases the regular report takes precedence over preliminary reports. Results transmitted by auto-FAX or through Meditech Scheduler (only at the request of the physician) are considered to be the official report. However, **in some instances**, a follow-up report is provided by using the regular reporting system of the Laboratory.
- Reports to doctors' offices, hospitals, and health agencies in the province are delivered by the most expeditious way. The bus, FAX, courier services, telephone and postal services are utilized. Other means are used when deemed more effective. Department of Health Notification: In accordance with the Public Health Act, the laboratory provides details of patients with positive results for communicable diseases under surveillance to the New Brunswick Medical Officer of Health[5].

Meditech Result Flags

Critical High	*H
Critical Low	*L
Critical Abnormal	*A
High	H
Low	L
Abnormal	A
Microbiology abnormal	**
Delta Flag	#

Critical Values

Critical values, also known as "panic" values are laboratory results that indicate a life-threatening situation for the patient. Urgent notification of the appropriate health care professional is mandatory[6].

Inpatients, outpatients or referred of DECRH, HDSJ Perth, OPH and URVH:
- Critical values are telephoned to the physician, Nurse Practitioner, Registered Nurse or Licensed Practical Nurse followed by a printed/faxed report.

See next few pages for Critical values tables.

[5] Reportable Communicable Diseases in New Brunswick, Revised List
[6] Standards for Hospitals in New Brunswick, Section 5

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Critical Values – Chemistry

Test	Units	Lower Limit	Upper Limit
Blood Gases/Cooximetry			
pH		< 7.2	> 7.6
pH (cord gas)****		≤ 7.0	
pCO2	mm Hg	< 20	> 70
pO2, arterial	mm Hg	< 40	
Carboxyhemoglobin (CO level)	%		> 20
BE (cord gas)****	mmol/L	≤ -15.0	
Electrolytes/Routine Chemistry			
Ammonia	umol/L		> 100
Bilirubin – total, newborn	umol/L		> 300
Calcium	mmol/L	< 1.50	> 3.0
Calcium, ionized	mmol/L	< 0.75	> 1.60
CO2 (bicarbonate)	mmol/L	< 10	> 40
Creatinine	umol/L		> 600*
Glucose	mmol/L	≤2.5	≥ 25.0
Lactate	mmol/L		> 4
Magnesium	mmol/L	< 0.4	> 2.0
Osmolality, serum	mOsm/Kg	< 250	> 350
Phosphorus	mmol/L	< 0.4	> 3.0
Potassium	mmol/L	< 2.8	> 6.2
Sodium	mmol/L	< 120	> 160
Troponin T high sensitivity	ng/L		> 50**
Toxicology/Drug Monitoring			
Acetaminophen	umol/L		> 665
Acetone	mmol/L		>3.4
Carbamazepine	umol/L		> 63
Digoxin	nmol/L		> 3.0
Ethanol	mmol/L		> 65
Ethylene Glycol	mmol/L		> 3.2***
Gentamicin, Peak	mg/L		> 10
Gentamicin, Trough	mg/L		> 2
Isopropanol	mmol/L		> 6.7***
Methanol	mmol/L		> 6.2***
Lithium	mmol/L		> 2.0
Phenobarbital	umol/L		> 200
Phenytoin	umol/L		> 120
Salicylate	mmol/L		> 2.2
Theophylline	umol/L		> 110
Tobramycin, Peak	mg/L		> 10
Tobramycin, Trough	mg/L		> 2
Valproate	umol/L		> 1000
Vancomycin, Trough	mg/L		> 25

*Do not call if within previous 2 months Creatinine has been ≥600. Do not call Dialysis patients.
** First time hs-Troponin-T only
***Broadcast any presence
****Call result to DECRH NICU (506-452-5151), regardless of patient location
Revision: October 2024

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Critical Values - Haematology and Immunology

Please refer to Area-specific Oncology Critical Values below

Hgb	Platelet	LKC	Diff	INR	APTT	D-Dimer	Fibrinogen	CSF
≤70 g/L ≥200 g/L ≥225 g/L ≤1 week old	≤30 x 10^9/L ≥1000 x 10^9/L	≤2.0 x 10^9/L ≥50.0 x 10^9/L	Blasts	≥5.0	≥100.0 seconds	≥1000 FEU ng/mL	≤1.0 g/L	≥10 x 10^6/L
• Peripheral Smear, Bone Marrow or Flow Cytometry results that indicate possible new acute leukemia • CSF - Presence of malignant cells by morphology • Presence of Blood Parasites (Malaria, Babesia)								

After Hours Protocol DECRH Patients

1. Call report to Ordering Provider (DECRH Oncology patients - call family physician first)
2.If unavailable, contact on-call doctor for the group
3. For very Abnormal results not on this table: During regular working hours, the technologist must use their professional judgement. Consultation with the Clinical Specialist is required before calling. If the event occurs on an off-shift, the MLT will call the result and leave a message for the Clinical Specialist

DECRH Oncology Critical Values

Hgb	Platelet	ANC	Diff	INR	APTT	D-Dimer	CSF
≤70 g/L	≤10 x 10^9/L must be called each time	≤0.50	Blasts (new case)	≥5.0	≥75 sec	Broadcast Results	≥10 x 10^6/L
	11 - 20 x 10^9/L called the first time. If the previous result is >20, PLT must be called again	ANC must be called if previous result was >0.50	+ Peripheral Smear, Bone Marrow or Flow Cytometry that indicate possible new acute leukemia				+ Presence of malignant cells by morphology in CSF

Saint John Regional Hospital Oncology LAB-2S-HM-06001 Critical Values

Hgb	Platelet	ANC	Diff	INR	D-Dimer
≤70 g/L	≤30 x 10^9/L ≥1000 x 10^9/L	≤0.50	Blasts (New case)	≥5.0 As per LAB-2S-HM-08401	Refer to physician letters on DECRH Bench 1
Exceptions: ANC is called once for the length of time it remains in the critical range. ANCs resulted after 1600 hrs. on **outpatients** can wait until the next morning to be called Platelets: Critical values are called on the first occasion only **or** if there is a fall by 50% or more Critical Platelet Counts ≤10 X10^9/L **must** be called every time Peripheral Smear, Bone Marrow or Flow Cytometry that indicate possible new acute leukemia					

The Moncton Hospital Oncology LAB-1MV-HM-01070 Critical Values

Hgb	Platelet	ANC	Diff	INR
≤70 g/L	≤15 x 10^9/L ≥ 1000 x 10^9/L	≤0.50	Blasts (New case)	≥5.0
Peripheral Smear, Bone Marrow or Flow Cytometry results that indicate possible new acute leukemia				

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Transfusion Medicine Critical Results

Serological	• Identification of a new clinically significant antibody in pre-transfusion testing
	• When not able to provide crossmatch compatible blood explain there are higher risks with transfusion (refer to Clinical Specialist if necessary)
	• Positive DAT in recently transfused patient or in neonate
	• Warm autoantibody identified in a patient to be transfused, explain there are higher risks with transfusion (refer to Clinical Specialist if necessary)
	• Crossmatch incompatibility found in blood previously issued unmatched, explain the risks as appropriate to the incompatibility (refer to Clinical Specialist if necessary)
	• Incompatible crossmatch when transfusion is urgently needed, explain risks are unknown until investigation is complete
Fetal/Maternal	• Prenatal testing showing a clinically significant antibody (i.e. implicated in HDN)
	• Cord blood results on maternal patients with a clinically significant antibody
	• Positive Kleihauer-Betke test with a calculated bleed >5 mL whole blood
	• Prenatal titer results which are 8 or greater (first time)
	• Titer results that demonstrate a greater than 2-fold increase in titer compared to the previous titer (if available)

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Cytopathology Critical, Reportable, or Unexpected Values
Critical, reportable, or unexpected diagnoses in cytology shall be treated accordingly and efforts shall be made to finalize results the same day if possible and verbally communicate these results to the appropriate physician or their delegate. Determination of critical, reportable, or unexpected values in Cytology shall be at the discretion of the signing pathologist or their delegate as per Cytology Lab Policy # LAB-3D-CY-00415.
Examples:
Critical Results - A malignancy involving a critical anatomic site in a non-gynecologic or FNA specimen. Example: a neoplasm that might result in superior vena cava syndrome or paralysis. - Identification of possible pathogenic organisms in a non-gynecologic or FNA specimen from an immunosuppressed patient or in any orbital or CSF sample. Invasive fungal infections, Herpes infection in cerebrospinal fluid, or Herpes in a gynecological specimen from a pregnant woman. - A corrected report, where it is deemed critical to communicate any significantly changed result that could result in a critically different patient management.
Reportable Results: - Bacterial, mycobacterial, viral, and fungal infections for which antimicrobial treatment might be added or changed, as well as malignancies in fluid for which more aggressive therapy or hospice care might be initiated. - Results deemed by the pathologist to be of sufficient importance to warrant direct communication with the treating clinician.
Unexpected Results: - Any unusual or unexpected cytology result, which may include an unexpected malignancy in a gynecological, non-gynecological, or FNA specimen.

Research Activities

- The Research Ethics Board reviews and approves research activities with which the laboratory is involved. It also verifies that these activities meet applicable ethics protocols and standards.
- The laboratory does not use patient specimens for anything other than the stated purpose unless consent has been obtained, or unless residual specimens are made anonymous or pooled with others.

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Section 2: Clinical Chemistry

Blood Collection Tube Requirement for Chemistry Lab Pre-Analytical Instrumentation at DECRH

Since May 7, 2012, the Chemistry Laboratory at the DECRH has been using pre-analytical automated instrumentation to speed sample processing. The instrumentation will, however, only process a certain size blood collection tube. The laboratory will accept blood samples collected only in the following Becton Dickinson collection tubes and/or aliquot tubes described below:

tube	Meditech order#	Catalogue #	anticoagulant	size	volume
Gray	7031929	367925	Sodium fluoride, Potassium oxalate	13X100	4.0 mL
Dark Green (Heparin)	7031926	367878	Sodium Heparin	13X100	6.0 mL
Light Green (Heparin)	7031991	367962	Lithium Heparin (PST)	13X100	4.5 mL
Olive Green (Heparin)	0107561	365056	Lithium Heparin (Barricor™)	13X100	5.5 mL
Olive Green (Heparin)	0135378	365049	Lithium Heparin (Barricor™)	13X100	4.5 mL
Red (plain)	7031937	367815		13X100	6.0 mL
Gold (SST)	7031938	367986	Serum Separator	13X100	5.0 mL
Lavender (EDTA)	7031933	367861	Lavender EDTA	13X75	4.0 mL
Grenier aliquot tubes with caps	7032911 contact Central Stores at DECRH				

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Common Approved Chemistry Profiles

ABDOMINAL
Total Bilirubin
Alkaline phosphatase
Lipase
Alanine aminotransferase)

CARDIAC (HEART)
CK (Creatine Kinase)

CHEM 9
Sodium
Potassium
Chloride
CO_2 Content
Anion Gap
Glucose
Creatinine
Calcium
Phosphate
Magnesium

ERP (Emergency Rooms Only)
Sodium
Potassium
Chloride
CO_2 Content
Anion Gap
Glucose
Urea
Creatinine

EXTLYTE (Extended Lytes)
Calcium
Phosphorous
Magnesium

GSP (General Surgery Profile)
Sodium
Potassium
Chloride
Glucose
Creatinine
Albumin
Total Bilirubin
Alkaline phosphatase
Alanine aminotransferase

HITACHI-12
Sodium
Potassium
Chloride
Glucose
Creatinine
Uric Acid
Calcium
Total Protein
Alkaline phosphatase
Lactate dehydrogenase
Alanine aminotransferase
Cholesterol

IRON STUDIES
Iron
UIBC
TIBC
% Transferrin Saturation (calculation)
Transferrin (calculation)

KIDTR (Kidney Transplant)
Sodium
Potassium
Chloride
CO2 Content
Glucose
Urea
Creatinine
Uric Acid
Calcium
Phosphate
Magnesium
Total Protein
Albumin
Alkaline phosphatase
Alanine aminotransferase

LIPIDP
Cholesterol
Triglycerides
HDL Cholesterol
LDL Cholesterol (calculation)
Non HDL (calculation)
Cholesterol/HDL Cholesterol Ratio (calculation)

LIVER
Total Bilirubin
Alkaline phosphatase
Alanine aminotransferase

LYTE
Sodium
Potassium
Chloride

NON LIP (Non fasting profile)
Cholesterol
Triglycerides (Non fasting)
HDL Cholesterol
Non HDL (calculation)
LDL Cholesterol (calculation)
Cholesterol/HDL Chol Ratio (calculation)

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ONCP (Oncology)	PRE DIALYSIS
Sodium	Sodium
Potassium	Potassium
Chloride	Chloride
Glucose	CO_2 Content
Creatinine	Creatinine (Pre)
Calcium	Calcium
Magnesium	Magnesium
Albumin	Phosphorous
Total Protein	Albumin
Total Bilirubin	Calcium-Phosphorous Product (calculation)
Alkaline phosphatase	**POST DIALYSIS**
Alanine aminotransferase	Sodium
Lactate dehydrogenase	Potassium
ONCRADSJ (SJRH Oncology)	Chloride
Sodium	CO_2 Content
Potassium	Creatinine (Post)
Chloride	**TOXIC DRUG PANEL**
CO_2 Content	Acetaminophen
Creatinine	Salicylate
Calcium	Alcohol (Ethyl)
Magnesium	Osmolality
Total Protein	
Albumin	
Total Bilirubin	
Alkaline phosphatase	
Alanine aminotransferase	
Lactate dehydogenase	

URINE DRUG PROFILES

DRUG – URINE
Creatinine
Amphetamine
Benzodiazepine
Cocaine
Fentanyl
Opiate
Oxycodone

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Adrenocortical Function Tests

Adrenocorticotropic Hormone, ACTH: order **ACTH**

- ACTH is reserved for a suspected pituitary-dependent Cushing's syndrome and for the ectopic ACTH syndrome. ACTH levels may also have some prognostic value. Increasing plasma ACTH levels may herald the development of a pituitary tumour post-adrenalectomy (Nelson's syndrome).

ACTH Stimulation Test, Standard Dose (Cortrosyn Stimulation): order **ACTHS**

- ACTH stimulation test can be done at any time throughout the day provided staffing resources are sufficient to ensure timed collections

- Control blood specimens (0 minute baseline) are drawn for cortisol (Lt. Green, PST) and ACTH (Ice-Lav). 0.25 mg of Cortrosyn (Cosyntropin), dissolved in sterile saline, is then injected intramuscularly. Blood specimens (Lt. Green, PST) are drawn 30 and 60 minutes later and the serum cortisol level is then determined on each. In children, aged 2 years or less, a dose of 0.125 mg will often be adequate.

- **Note: ACTH stimulation test can be done at any time provided staffing resources are sufficient to ensure timed collections following injection of Cortrosyn(Cosyntropin)**

- The normal response, in most cases, is an approximate doubling of the basal level, provided that this value does not exceed the normal range. The following criteria have been established for a normal response:
  - The base serum cortisol level should exceed 140 nmol/L.
  - The peak serum cortisol level should be greater than 550 nmol/L.

- These criteria also apply when the drug is injected intravenously in 2-5 mL of saline over a 2-minute period.

- This is a screening test only. A normal (positive) response rules out primary and overt secondary adrenal insufficiency, but a partial ACTH deficiency is not excluded. A subnormal response indicates decreased adrenal reserve and a diagnosis of insufficiency, either primary to adrenal failure (e.g. Addison’s disease) or secondary to pituitary disease or suppression by steroid medications. To distinguish primary and secondary insufficiency, the prolonged ACTH test and plasma ACTH measurements may be performed.

- In adrenal hyperplasia, there is a 3 to 5-fold increase; in adrenal carcinoma, there is little or no response.

NOTE: Patients taking inadvertent doses of hydrocortisone on the test day (Group I) and women taking estrogen-containing drugs (Group II) may exhibit abnormally high basal serum cortisol levels. A paradoxical response may be noted in the Group I patients shown by a decrease in serum cortisol values following a stimulating dose of Cortrosyn. In the Group II patients, only a normal incremental response is to be expected.

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Calcitonin: order **CALCI**

- Medullary carcinoma of the thyroid (MCT) is a neoplasm of the parafollicular or C cells, which are the sites of origin of calcitonin. The measurement of serum calcitonin thus becomes a valuable test in the differential diagnosis of tumors of the thyroid where calcitonin is elevated in MCT. However, in a small proportion of patients with MCT, the basal (fasting) level of calcitonin is normal. In such cases, a provocative stimulus such as calcium infusion or pentagastrin injection is followed by an abnormally large increase in serum calcitonin level.
- Elevated levels of calcitonin have also been found in patients with carcinoma of the breast or lungs as well as in association with a variety of less common neoplastic disorders including intestinal carcinoid, malignant melanomas, and islet cell tumors of the pancreas.

Protocol for Provocative Test for Calcitonin Release: order **CALCI** for each timed specimen; collect 0, 2, 5, and 15-minute specimens

Out-patients

Book the test with Central Scheduling. Inform the physician that he/she must arrange for someone to administer the injections. The patient must be fasting.

In-patients

Book the test with CIU and Pharmacy. Arrange for an intern to administer the injections. The patient must be fasting.

Test Procedure

1. Inform the patient that he/she will experience some mild, transient sensations after the injections, notably flushing and nausea.
2. Have available:
   i) Calcium, 2 mg Ca^{++}/kg, from calcium gluconate
   ii) Pentagastrin, 0.5 μg/kg in 2-4 mL of physiologic saline
   iii) Four Gold or Red tubes
3. Draw one blood specimen before injection, labelled 0 minutes.
4. By IV infusion, inject calcium gluconate over 1 minute, followed by a 5-10 second injection of pentagastrin.
5. Draw blood from the opposite arm at 2, 5, and 15 minutes following the pentagastrin injection. The 2-minute sample is the most critical one. Label samples, including elapsed time following pentagastrin injection. Mix and deliver all specimens, together on ice, to Chemistry ASAP.

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Cortisol – Plasma: order **CORT**

- Normally, the plasma cortisol reaches a maximum (6 AM to 8 AM) in the morning and declines to a minimum around midnight. Roughly cortisol level at 8 PM is 50% of the 8 AM result.

- AM cortisol is the default blood work for screening hypercortisolism or hypocortisolism. Blood specimens (Light green – lithium heparin tube) should be drawn, preferably, at approximately 8 AM and is acceptable to collect until 10 AM. Cortisol measurements at other time of the day have very limited clinical utility.

- For hypercortisolism/crushing's syndrome, either a 1mg dexamethasone suppression test (DEXAMTETHASON) or 24h urine free cortisol collection is the preferred screening test.

- For glucocorticoid deficiency, AM cortisol is decreased and further study such as ACTH stimulation test (ACTHS) is needed to establish the diagnosis.

Cortisol - Urinary Free (Unconjugated Corticoids): order **CORT-24H**

- In cases of suspected adrenocortical hyper function, it may be desirable to measure the urinary excretion of free cortisol. However, its determination is of little use in the assessment of adrenocortical hypo function.
- Collect a 24-hour urine specimen with no preservative and keep the specimen refrigerated during the collection period to prevent bacterial growth.

Dehydroepiandrosterone Sulfate (DHEAS): order **DHEAS**

- Testing for DHEAS instead of 17-Ketosteroids has been suggested for estimating adrenal androgen production. Included below are some examples where this diagnostic information is pertinent:
  a) assessment of adrenal hyperplasia
  b) adrenal tumors
     i. adrenal cortical tumors - values are higher in adrenal carcinomas than in adrenal adenomas
     ii. ectopic ACTH-producing tumors
  c) Cushing's disease
  d) polycystic ovary disease
  e) adrenarche
  f) delayed puberty
  g) hirsutism

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Dexamethasone Suppression Tests

- Once the diagnosis of Cushing's syndrome is suspected by the demonstration of increased cortisol production and the absence of diurnal variation of plasma cortisol, suppression tests may be carried out to determine whether the syndrome is due to abnormal regulation of ACTH secretion or to other factors, such as adrenocortical tumors.
- The physician must provide the patient with a prescription for the Dexamethasone and proper instruction for ingestion and blood work the next day.

Rapid Overnight (Low dose) Inhibition Test: order **DST**

This test is a screening test for Cushing's syndrome. Dexamethasone suppresses ACTH and cortisol production in normal patients but not in patients with Cushing's syndrome.

Test Procedure

Day 1 at 2300-2400 hours - Administer 1 mg oral Dexamethasone.
Day 2 at 0800-1000 hours (next day) - Draw plasma cortisol specimen.

Interpretation

In normal and obese patients, serum cortisol level falls to less than 140 nmol/L, whereas in patients with Cushing's syndrome it often remains above 280 nmol/L. Occasionally patients with Cushing's disease will suppress to less than 55 or even 50 nmol/L. Therefore, the 2008 Endocrine Society and 2021 Pituitary Society guidelines update both suggest a diagnostic cortisol criterion of 50 nmol/L for DST to maximize the sensitivity (to almost 100%), recognizing that this choice decreases specificity (to about 91%. [1,2]

References

1. Nieman LK, Biller BM, Findling JW, Newell-Price J, Savage MO, Stewart PM, Montori VM. The diagnosis of Cushing's syndrome: an Endocrine Society Clinical Practice Guideline. J Clin Endocrinol Metab. 2008;93(5):1526.

2. Fleseriu M, Auchus R, Bancos I et al. Consensus on diagnosis and management of Cushing's disease: a guideline update. Lancet Diabetes Endocrinol. 2021;9(12):847.

Testosterone (Total) - Clinical Uses: order **TEST**

- In the male, testosterone is mainly synthesised in the Leydig cells of the testes. Its production is regulated by a feedback mechanism in the hypothalamus and pituitary. The hypothalamus produces gonadotropin releasing hormone (GTRH), also called LHRH, which induces the pituitary to secrete luteinizing hormone (LH) and follicle stimulating hormone (FSH). LH in turn stimulates the Leydig cells of the testes to secrete testosterone. Testosterone is responsible for the development of the prostate and seminal vesicles as well as the growth of facial, pubic and axillary hair. Its assay, therefore, is of help in evaluating the hypogonadal state. Common causes of decreased testosterone levels in males include hypogonadism, orchidectomy, estrogen therapy, Klinefelter's syndrome, hypopituitarism, testicular feminization, and hepatic cirrhosis.

- In the female, testosterone levels are normally much lower than those in the male. Testosterone in the female comes from three sources. It is secreted in small quantities by the adrenal gland and the ovaries, but in normal women 50 - 60% of the daily testosterone production arises from peripheral metabolism of its precursors, mainly androstenedione. Common causes of increased serum testosterone levels in females include polycystic ovaries (Stein-Leventhal syndrome), ovarian tumors, adrenal tumors, and adrenal hyperplasia. Virilization in women is associated with the administration of androgens or with endogenous overproduction of testosterone. There appears to be a correlation between the level of serum testosterone and the degree of virilization in women.

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Bioavailable Testosterone – Clinical Uses: order **TESTB**

- Bioavailable Testosterone measurement by ammonium sulphate precipitation is replaced with calculation using the Vermeulen mass-action formula based on measured serum albumin, sex hormone binding globulin (SHBG), and total testosterone concentrations. Bioavailable Testosterone results include SHBG, total testosterone, and calculated bioavailable testosterone. It is the second line laboratory investigation on androgen status.

Withdrawal of Urinary 17-Ketosteroid and 17-Hydroxycorticoids Tests

- Since the direct serum androgen tests for DHEAS and testosterone are now available and are performed at DECRH together with our existing serum (and urinary) cortisol assays, the indications for urinary 17-ketosteroids and total 17-hydroxycorticoids in assessing the adrenal cortical and adrenal androgen functions will be limited. In the past, 17-ketogenic steroids detected by the 17-hydroxycortosteroid assay were used as an indirect indication of pregnanetriol levels in patients suspected of congenital adrenal hyperplasia. This is now replaced by the specific serum 17-hydroxyprogesterone assay (OHPROG). We will, therefore, no longer process requests for urinary 17-ketogenic steroids or 17-ketosteroids.

Captopril Stimulation Test: order **ALDO** and **RENIN** for the appropriate timed specimen

Prerequisite
Discontinue medications (except potassium) for at least 2 weeks and the diuretic, Spironolactone for at least 3 weeks. No special diet is required. This test is recommended when risks from volume overload preclude the use of other procedures.

Rationale
Captopril essentially inhibits the conversion of angiotensin I to II thus removing the angiotensin II stimulus to aldosterone secretion.

Test Procedure
An overnight fast is required. The patient must be in a comfortable seated position. Blood specimens for aldosterone and renin are drawn at 0800 hours. The patient then receives 25 mg captopril. Two hours later (1000 hours) specimens are again drawn for aldosterone and renin.

Interpretation Normal response after Captopril Stimulation:
Aldosterone - < 240 ρmol/L
Renin is normal or high

Primary aldosteronism is defined as failure to suppress plasma aldosterone to less than 240 ρmol/L 2 hours after captopril stimulation (25 mg of oral captopril) as well as exhibiting a low plasma renin level.

Creatine Kinase Iso-enzymes (CK-MB) – This test is no longer available

NOTE: LDH Isoenzymes - This test is no longer available.

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Gastrin Challenge Test (Secretin Stimulation): order **GASCT**; collect 0, 2, 5 and 10-minute specimens

The majority of patients with peptic ulcer disease resulting from the hyper secretion of gastrin by gastrinomas (Zollinger-Ellison syndrome) will demonstrate fasting serum gastrin levels above 1,000 ng/L. In patients in whom the diagnosis of a Zollinger-Ellison syndrome is suspected, but in whom the fasting serum gastrin level is less than 1,000 ng/L or less than ten times the normal median value of serum gastrin for the laboratory method, several techniques for provoking gastrin hyper secretion have been advocated. These include calcium infusion, a protein meal, and secretin stimulation. In general, the secretin stimulation technique has been found to be the most reliable, the simplest to perform and the one with the least variability and patient intolerance.

Indications

The test is indicated in patients with a very aggressive ulcer diathesis, in patients with ulcer recurrence following preventive surgery, and in any patient scheduled for peptic ulcer surgery in which the fasting gastrin level is higher than 50 ng/L, even though it is NOT diagnostically elevated. Exceptions to the latter category are patients with uremia, previous vagotomy, and pyloric obstruction, in all of whom high fasting gastrin levels may be anticipated.

Gastrin Challenge Test (continued)

Test Procedure

1. The patient should discontinue anti-secretory drugs for at least 72 hours prior to the test. These include anti-cholinergics and H2 receptor blockers.
2. The test is performed in the morning after a 12 hour fast.
3. A fasting blood sample is drawn for basal gastrin level initially.
4. A dose of 1 to 2 mL/kg of body weight of Ferring secretin is then injected intravenously as a 5 minute bolus.
5. At 2, 5 and 10 minutes after secretin injection, repeat blood samples for gastrin levels are drawn.

Interpretation

An increased post-secretin serum gastrin level of $\geq$ 110 ng/L over the fasting gastrin level is indicative of a gastrinoma.

Other types of the hypergastrinemic syndrome, including antral G cell hyperplasia, retained antrum, and non-tumorous hypergastrinemic hyperchlorhydria, do not show this characteristic result.

Gestational Diabetic Screening: order **GDS**

All pregnant women should be screened for gestational diabetes mellitus (GDM) between 24 and 28 weeks gestation. The patient does not need to fast prior to the glucose load. At any time of the day, a drink containing 50 grams glucose is given and must be consumed within 5 minutes. The patient is not allowed anything to eat or drink (except **sips** of water, **total ≤ 300mL**) until the specimen is drawn 1 hour later. For patients who cannot tolerate the 50g drink, they may instead consume the equivalent glucose in tablet form. Dex4 (4g sugar tablets) are available from pharmacy. The patient must consume 12.5 tablets with not more than 300 mL of water. The tablets should be consumed within ~5 minutes.

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Interpretation - 1 hour PC

< 7.8 mmol/L:	Normal
≥ 11.1 mmol/L:	GDM
7.8 – 11.0 mmol/L:	Perform 75 gram Prenatal GTT

Women with multiple risk factors should be screened during the first trimester and reassessed during subsequent trimesters.

Glucose Tolerance Tests (Diabetes mellitus)

Information

- The oral glucose tolerance test (OGTT) has been widely used in the diagnosis of diabetes mellitus (DM) to assess carbohydrate intolerance. It is, however, not always realised that variation in the glucose load given, as well as the effect of inactivity, diet, and a number of drugs such as thiazides, glucocorticoids, nicotinic acid, β-adrenergic blocking agents and phenytoin, will alter the response of the OGTT. If diet has been low in carbohydrate for as little as 3 days preceding the test, for instance, OGTT may be abnormal. Similarly, subjects who either have inadequately fasted or fasted too long before the tests may have the glucose intolerance exaggerated.

- The Canadian and American Diabetes Associations published position statements regarding the diagnosis and classification of diabetes mellitus and other categories of glucose intolerance. Diagnosis of diabetes can be made in the following **four** ways:

  1. Fasting serum glucose ≥ 7.0 mmol/L

  2. A1C ≥ 6.5% (in adults)

  3. Two hour glucose ≥ 11.1 mmol/L during 75 gram OGTT

  4. Elevation of random plasma glucose (≥ 11.1 mmol/L)

  In the absence of symptomatic hyperglycemia (including polyuria, polydipsia and unexplained weight loss), if a single laboratory test results is in the diabetes range, a repeat confirmatory laboratory test (FPG, A1C, 2hPG in a 75 gram OGTT) must be done on another day. It is preferable that the same test be repeated for confirmation, but a random PG in the diabetes range in an asymptomatic individual should be confirmed with an alternate test. In the case of symptomatic hyperglycemia, the diagnosis has been made and a confirmatory test is not required. Confirmatory testing should not delay initiation of treatment to avoid rapid deterioration.

The following Oral Glucose Tolerance Tests are available:

1. **Glucose Tolerance Test - 2 Hour :** order **GTT2**
   Collect 0 and 2 hour specimens

2. **Glucose Tolerance Test – Prenatal:** order **GTTP**
   Collect 0, 1 and 2 hour specimens

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Glucose Tolerance Tests (continued)

Procedure

1. The patient should be on an unrestricted diet with unrestricted physical activity three days preceding the test.

2. The patient must fast at least 8 hours and not more than 16 hours. Nothing of food value, either liquid or solid, should be ingested after midnight prior to the day of testing. Water is allowed.

3. Collect a fasting specimen of blood into a grey-top tube and invert gently and thoroughly to mix. The actual test volume required is less than 1 mL but the vacuum tube must be allowed to draw at least half capacity to prevent inhibition by excess fluoride.

4. **Adults and children of 12 years and older are given a chilled flavoured drink containing 75 grams of glucose. Younger children (less than 42.9 kg) are given a measured portion of the adult drink containing 1.75 grams glucose per kg body weight with a maximum of 75 grams.** Timing is started as the patient begins to drink the dose that must be consumed in less than 5 minutes. Additional specimens may be collected at extended times as required by the attending physician for diagnosis of hypoglycemia. The laboratory does not supply the drink. For DECRH patients the drink is available from the Pharmacy.
For patients who cannot tolerate the 75 g drink, they may instead consume the equivalent glucose in tablet form. Dex4 (4 g sugar tablets) are available from pharmacy. The patient must consume 19 tablets with not more than 300 mL of water. The tablets should be consumed within ~5 minutes.

5. Some walking about but no strenuous exercise is permitted during the test. No caffeine or nicotine is allowed during the test. The patient is not allowed anything to eat or drink (except **sips** of water, **total ≤ 300mL**) until the test is completed. If pallor, nausea, sweating or fainting occurs, the test should be discontinued and repeated at another time.

6. For prenatal women, if the 1 hour PC in the 50 gram dose screening test (order **GDS**) is 7.8 – 11.0 mmol/L, a 75 gram Prenatal GTT should be performed (order **GTTP**). In this case, fasting, 1 hour PC and 2 hour PC glucose samples are to be taken. Drinking water is permitted during the test.

Glucose Tolerance Tests (continued)

Interpretation

1. **Glucose Tolerance Test - 2 Hour:** order **GTT2**

   a) Glucose levels in the normal non-pregnant adult:

Fasting	< 5.5 mmol/L
2 hour	< 7.8 mmol/L

   b) Criteria for Diabetes Mellitus in non-pregnant adult: The fasting glucose level is > 7.0 mmol/L. If the fasting level is < 7.0 mmol/L, the 2 hour level must be > 11.1 mmol/L.

   c) Criteria for Impaired glucose tolerance (IGT): The fasting glucose level is < 6.1 mmol/L and 2 hour glucose level is 7.8 - 11.0 mmol/L.

   d) Criteria for Impaired fasting glucose (IFG): The fasting glucose level is 6.1 - 6.9 mmol/L and the 2 hour glucose level is < 7.8 mmol/L.

   e) Criteria for combined IGT and IFG: The fasting glucose level is 6.1 - 6.9 mmol/L and the 2

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hour glucose level is 7.8 - 11.0 mmol/L.

2. **Glucose Tolerance Test – Prenatal:** order **GTTP**

   If 1 or more of the following levels are met or exceeded, the diagnosis is GDM.
   Fasting - 5.3 mmol/L
   a) 1 hour - 10.6 mmol/L
   b) 2 hour - 9.0 mmol/L

Glucose/Mixed Meal Tolerance Test - 5 Hr (Hypoglycemia assessment)

A 5-hour glucose tolerance test is useful for select patients who may be exhibiting post-prandial (reactive) hypoglycemia. The patient is to present following an 8 hour fast. Samples are collected for glucose, insulin, and c-peptide. Once samples have been collected patient will be administered a glucose load by either consumption of a 75g glucose drink or, preferably, consumption of a mixed meal. Once the glucose or mixed meal has been consumed timed specimens will be collected according to schedule (below)

0.5 hour	Draw glucose, insulin, c-peptide
1 hour	Draw glucose, insulin, c-peptide
2 hour	Draw glucose, insulin, c-peptide
3 hour	Draw glucose, insulin, c-peptide
4 hour	Draw glucose, insulin, c-peptide
5 hour	Draw glucose, insulin, c-peptide

The fasting sample will always have the insulin and c-peptide processed to evaluate possible fasting hypoglycemia. The remaining insulin and c-peptide that have been collected will only be processed when the glucose falls below 3 mmol/L or at the 5-hour collection in the absence of a decrease in glucose below 3 mmol/L.

Growth Hormone (Somatotropin) Assays

Single Fasting Growth Hormone Assay: order **GH**

- The diagnosis of hyposecretion of growth hormone cannot normally be made by assay of the baseline serum growth hormone level, since low levels are not significant. Single assays are therefore of little use and a response to a challenge test is required.

Growth Hormone Challenge Test - Arginine Stimulation: order **GHCT**; collect 0, 30 and 60 minute specimens for Growth Hormone

- A falling blood glucose concentration triggers secretion of growth-hormone-releasing-factor from the hypothalamus that subsequently stimulates the anterior pituitary to secrete growth hormone. Administration of arginine or L-dopa is also able to stimulate human growth hormone release.
- Arginine stimulation has the advantage over insulin-induced hypoglycemic stimulation of not requiring a hypoglycemic stimulus with the attendant hazards. It is therefore a safer procedure and reliably indicates the diagnosis of hypopituitarism in preadolescent children.

<u>Test Procedure</u>

1. It is recommended that patients fast for 8 - 12 hours.
2. A fasting specimen for serum growth hormone is drawn.
3. Infusion of arginine monohydrochloride by slow IV is given over half an hour (arginine dose for

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children is usually 0.5 g/kg body weight).
4. Blood samples for growth hormone are drawn at 30 and 60 minutes subsequent to the start of infusion.

Interpretation
Growth Hormone Reference Ranges:

Baseline (fasting) level:	< 5 μg/L
Post arginine rise above baseline:	> 5 μg/L
Peak response:	> 10 μg/L

If baseline (fasting) Growth Hormone level is > 5 μg/L, no increase may be seen.

Growth Hormone - Glucose Suppression Test: order **GLU-R, GH and IGF-1** for **each** timed specimen.

Test Procedure
1. It is recommended that patients fast for 8 - 12 hours.
2. Fasting specimens for GLU-R, GH and IGF-1 are taken.
3. A drink containing 75 grams of glucose is administered.
4. 2 hours after drink draw specimens for GLU-R, GH and IGF-1.

Interpretation
The response in acromegaly may be either, no change in the basal level or a paradoxical increase of growth hormone. Normal individuals, on the other hand, will suppress growth hormone levels to < 2 μg/L or undetectable levels 60-120 minutes after a 75 gram oral glucose load.

Lactose Tolerance Test: order **LACTOSE**; collect 0, 30, 45, 60 and 90 minute specimens.

- The patient must fast for 8 hours prior to and during the test. Outpatients treated with insulin should be advised to postpone the morning medication until after the blood is drawn. A fasting specimen of blood is collected. A suspension containing 50 g of lactose in 100-200 mL of tap water flavoured with a few drops of lemon juice is administered to adults. The children's dose is 1 g/kg of body weight. Blood samples are drawn at 30, 45, 60 and 90 minutes following administration of lactose.

- Invert each grey tube several times to mix. The actual volume required for the test is less than 1 mL. However, vacuum tube must be allowed to draw at least half capacity to avoid inhibition by excess fluoride.

- The laboratory does not supply the drink. For DECRH patients - the drink is available from the Pharmacy.

- Some walking about but no strenuous exercise is permitted during the test. No caffeine or nicotine is allowed during the test. Nothing of food value may be ingested after the drink until the test is completed.

- Lactase deficiency will lead to fermentation of unhydrolyzed lactose by intestinal bacteria, producing gas and lactic acid. Please notify Chemistry if diarrhea frequently occurs during the testing period.

Change in glucose from fasting level:

Normal:	> 1.7	mmol/L
Inconclusive:	1.1 - 1.7	mmol/L
Abnormal:	< 1.1	mmol/L

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Occult Blood Test:

HHN-0752 Occult Blood Collection Instructions

Saline Suppression Test: order aldosterone, renin, cortisol and electrolytes for each timed specimen.

Rationale

Rapid volume expansion with intravenous saline should suppress plasma aldosterone in normal patients but not in patients with primary aldosteronism.

Test Procedure

1. Care must be taken to ensure that the patient is not hypokalemic before starting the test.
2. The patient is awakened at 0600 hours and kept in an upright posture for 2 hours.
3. Blood is drawn at 0800 hours for determination of serum aldosterone, renin, cortisol and electrolytes.
4. The patient then assumes a supine position, and 2 liters of isotonic saline, 0.9 g/dL, are infused over a 4 hour period.
5. Blood is drawn again at 1200 hours for serum aldosterone, renin, cortisol and electrolytes determination.

Interpretation

Normal patients show a serum aldosterone level of 140 ρmol/L or less after saline infusion. Levels greater than 280 ρmol/L are usually seen in patients with autonomously functioning aldosterone-secreting tumors (primary aldosteronism).

Thyroid Autoantibodies – TRAb, TPOAb, and TGAb

- Autoantibodies are produced against human thyroid tissue and its secretions produce disorders that may involve stimulation (as in Graves' disease) or suppression and destruction of the gland (as in Hashimoto's thyroiditis). These autoantibodies are TSH receptor autoantibodies (TRAb), thyroperoxidase (TPOAb), and anti-thyroglobulin (TGAb).

Clinical Significance of Thyroid Autoantibodies

- **TSH Receptor** Autoantibodies (TRAb): (mnemonic code: TRAB)
  Among the autoantibodies found in autoimmune thyroid disease (AITD), TRAb (it has multiple nomenclatures such as Long-Acting Thyroid Stimulator, Thyroid-Stimulating Immunoglobulins, Thyroid-Stimulating Hormone Receptor, and TRAb is preferred). TRAb is the most closely associated with disease pathogenesis. Almost all forms of autoimmune thyrotoxicosis (Graves' disease, Hashitoxicosis, neonatal thyrotoxicosis) are caused by the production of TRAb-stimulating autoantibodies. During pregnancy, the presence of TRAb is a risk factor for fetal or neonatal dysfunction as a result of the transplacental passage of maternal TRAb. It is recommended as the first-line test for autoimmune thyrotoxicosis.

  TRAb immunoassay usually does not differentiate the stimulating Ab (TSI), inhibiting Ab (TSH-Binding Inhibiting Immunoglobulin, TBII), or neutral Ab, but mostly it detects the TSI. In very rare situations TBII or TSI is needed specifically, it will be sent to the USA for bio-assays.

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- **Anti-thyroperoxidase Antibody (TPOAb):** (mnemonic code: ANTI-TPO)
  TPOAb is frequently (50-90%) present in the sera of patients with autoimmune hypothyroidism. However, occasionally patients with AITD have negative thyroid autoantibody test results.

- **Anti-thyroglobulin Antibody (TGAb):** (mnemonic code: ANTI-TG)
  TGAb is often used aas an adjunct in the diagnosis of AITD. In individuals with autoimmune hypothyroidism, 30% to 50% will have detectable TGAb. The presence of TGAb, which occurs in 15% to 30% of thyroid cancer patients, could result in misleading (usually underestimation) in immunometric thyroglobulin (TG) assay results. It should be measured in every serum specimen sent to the laboratory for thyroglobulin testing.

- The use of thyroid autoantibody measurements for monitoring the treatment for AITD is generally not recommended. This is not surprising since treatment of AITD addresses the consequence (thyroid dysfunction) and not the cause (autoimmunity) of the disease. Thyroid autoantibodies may persist after apparent clinical cure.

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Thyrotropin Releasing Hormone (TRH) Stimulation Test: order **TSH** for each timed specimen; collect 0, 20, 30, 45 and 60 minute specimens

- This test is designed primarily to distinguish between different forms of hypothyroidism and for confirmation of hyperthyroidism. A zero time sample is drawn for TSH, prolactin and FT4. The patient is then given 200 μg of TRH intravenously and samples for TSH and prolactin are drawn at 20, 30, 45 and 60 minutes after the injection. The 45 minute specimen is also tested for FT4.
- In normal subjects, a peak TSH level occurs after 20 minutes and reaches values between 15 and 20 mU/L (20 μU/mL). Levels gradually decline and return to basal values in approximately 2 hours.

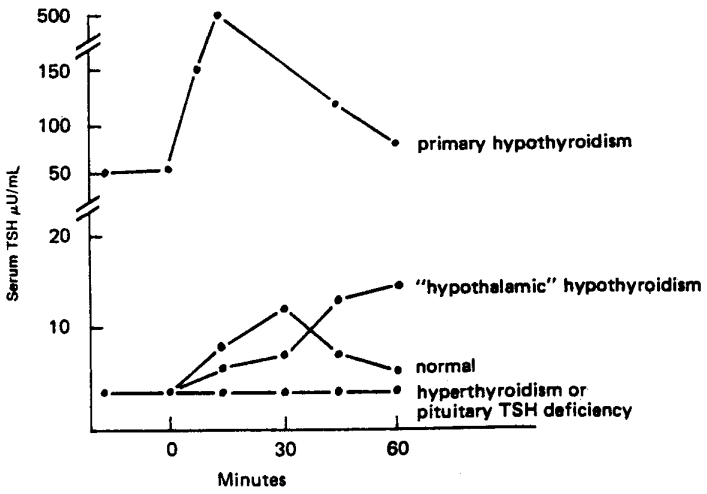

Figure: Patterns of TSH response to TRH Stimulation

Diagnostic Information

- Exaggerated response, (> 35 mU/L), in primary hypothyroidism.
- Inadequate or no response in hypothyroidism due to pituitary deficiency (secondary) and in primary hyperthyroidism (except in TSH-producing tumors).
- In hypothyroidism secondary to hypothalamic disorders (tertiary), response of normal magnitude is seen, but peak may be delayed (> 60 minutes). These responses are not seen consistently, and differentiation of pituitary and hypothalamic hypothyroidism often requires other tests of thyroid and pituitary function.
- High doses of glucocorticoids can completely inhibit the TSH response to TRH stimulation.
- Women receiving oral contraceptives show an augmented TSH response to TRH stimulation.
- Synthetic TRH under the name *Relefact TRH* is available from DECRH Pharmacy.

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Toxicology and TDM

Acetaminophen Poisoning

- Acetaminophen (N-acetyl-p-aminophenol, paracetamol) is metabolized in the liver primarily by glucuronide and sulphate-conjugation, but some is also transformed by a mixed function oxidase system into a highly reactive intermediate alkylating metabolite. Small amounts of the metabolite can be rendered harmless by conjugation with hepatic glutathione. If the dose however, is large, the hepatic glutathione can be depleted and excess metabolite is free to combine irreversibly with hepatocyte constituents. This may cause liver damage and has to be considered in the increasing instances of an acetaminophen overdose.
- If such an overdose of the drug is suspected, blood should be sent to the laboratory for testing. The significance of the blood level, however, can only be interpreted if the time of ingestion is known. By determining the half-life of plasma acetaminophen (the time for the plasma level to decrease by one-half, usually 2 hours), one can arrive at a prognosis within a few hours after admission. In general, plasma concentrations of more than 1300 μmol/L at 4 hours, and more than 330 μmol/L at 12 hours after ingestion, are often associated with liver damage. The same applies to half-life values exceeding 4 hours. The longer it takes for the blood level to fall, the more severe will be the liver damage due to an overdose.
- Alcoholic, fasting or malnourished patients and those on chronic therapy with microsomal enzyme-inducing drugs (anticonvulsants) may have increased susceptibility to acetaminophen hepatotoxicity. Therefore, in the case of alcoholics or fasting patients, it has been proposed that the decision line be lowered by 50 - 70%. In these instances, the panic value is set at 666 μmol/L at 4 hours.
- An important aspect of the treatment of an overdose of acetaminophen is that the maximum efficiency is observed when N-acetylcysteine is administered within 8 hours. The efficiency declines sharply between 18 and 24 hours after ingestion; hence, prompt treatment of an overdose is essential.

Ethanol

- The DECRH Regional Laboratory will assay specimens for ethanol for diagnostic purposes only, using the alcohol dehydrogenase method. Medico-legal specimens should be handed directly to a police officer who will deliver them to a provincial toxicologist.

Blood Specimen:	A gray stoppered tube (4 mL) must be **completely filled** to avoid loss of the volatile alcohol into a partial vacuum.
Interpretation:	Methanol, ethylene glycol and acetone do not react significantly in the alcohol dehydrogenase assay while 2-propanol and 1-propanol react at a rate of 0.3% and 6.0% respectively, relative to the reactivity of ethanol. A serum/plasma result will be approximately 12% higher than a corresponding result for whole blood.

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Digoxin / Quinidine Interaction and Digoxin Drug Interferences

- Physicians, who order digoxin and quinidine to be given concomitantly, should be aware that quinidine significantly affects the serum digoxin level. It has been reported that on the average, the serum level of digoxin increases by a factor of two. The increase begins on the first day of quinidine administration and reaches a steady state in about 5 days. Even if digoxin is discontinued before quinidine is given, the residual digoxin level may rise.
- The mechanisms responsible for this effect appears to be a displacement of digoxin from tissue binding sites, and a slight decrease in renal clearance of the drug in the absence of other renal impairment. It is still very much a matter of debate whether the increased serum digoxin causes cardio toxicity, since the concentration of digoxin in the heart muscle may actually be decreased. However, gastrointestinal symptoms (nausea, vomiting, and anorexia) have been associated with the increased serum digoxin levels.
- Other orally active antiarrhythmic drugs (procainamide, disopyramide and mexiletine) may increase the plasma digoxin concentration.
- Spironolactone and canrenone may interfere with digoxin assays. High concentrations of hydrocortisone (5000 mg/mL), prednisolone or dexamethasone may produce negative interference.
- “Digoxin-like” immunoreactive factor (DLIF) contained in sera of neonates, pregnant women and patients with advanced liver or renal disease can yield a falsely elevated digoxin level.

Theophylline

- Theophylline is useful as a bronchodilator in the treatment of asthma as well as a central respiratory stimulant in the treatment of idiopathic apnea in premature infants. The pharmacological effects and toxicity of this drug are closely related to its concentration in the serum; hence, serum theophylline levels are monitored:
  - In the treatment of acute asthmatic symptoms, to allow an adjustment of the infusion rate of the drug.
  - In the treatment of chronic asthma, to determine the proper dosage for continuing therapy.
  - In assessing changes in a patient's theophylline clearance when continuous theophylline therapy is indicated.
- The Chemistry Department at DECRH now measures theophylline levels with an immunochemical method that is highly specific for theophylline. Similar compounds found in food, drink and drugs such as caffeine, given at the same time; do not interfere with theophylline determination by this method.

Therapeutic Ranges:	55-110 μmol/L (asthma therapy)
	30-60 μmol/L (apnea, < 1 year old)
Toxic Range:	>110 μmol/L

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Blood Sampling for Therapeutic Drug Monitoring (TDM)

- Therapeutic drug monitoring is dependent upon accurate and precise timing both in the administration of the drug and the collection of the specimen. It is imperative that the elapsed time since the last dose be known.
- During long-term therapy, blood samples should be drawn during the “steady-state”, i.e. after treatment with a constant dose after at least 5 half-lives. Levels obtained before a steady-state exists may be erroneously low or high; adjusting the dose on the basis of such a result could produce a toxic or sub therapeutic concentration.
- For chronically administered oral medications, the specimen is drawn at the time of the maximum serum concentration (peak) and/or immediately before administration of the next dose (trough), depending on the clinical indication.
- In the case of IV administration, drugs produce their trough concentration in serum immediately before the subsequent dose. A specimen for peak concentration must be drawn after the distribution phase is complete, usually 1 to 2 hours after dosing. Exceptions to this do occur; e.g. the distribution phase of digoxin is not completed until after 6 to 8 hours.
- In cases where toxicity is a concern or is suspected, sampling can be undertaken even if the steady-state has not been reached.
- Serum concentrations of drugs must always be interpreted with regards to the total disease picture in the patient. For example, digoxin, although at a therapeutic concentration in blood, may produce toxic symptoms in the presence of hypokalaemia, hypercalcemia, hypomagnesemia, hypothyroidism, acidosis and hypoxemia.

The table on the next page(s) of this manual can be used as a guide for ordering and interpreting serum drug levels.

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Table: Therapeutic Drug Information

DRUG NAME (Category)	OPTIMUM CONCENTRATION (p) peak (t) trough	WHEN TO DRAW SAMPLES (p) peak (t) trough	NORMAL TIMES TO STEADY STATE (a) adults (c) children (n) neonates - 0 to 28 days	MONITORING CONSIDERATIONS
Amikacin (Antibiotic)	Moderate to severe infections: (p) 20-25 mg/L (t) 1-4 mg/L Life threatening infections: (p) 25-30 mg/L (t) 5-8 mg/L One daily dose regimen: (p) ≥ 40 mg/L has been suggested Toxic Level: (p) > 30 mg/L (t) > 8mg/L	(p) IM - 60 minutes after injection (p) 60 minutes after oral dose (p) IV - 30 minutes after 30 minute infusion (p) IV - end of 60 minute infusion (t) Immediately prior to dose	(a) 5-35 hours (c) 3.5-15 hours (n) Highly variable May be prolonged in patients with renal dysfunction.	Renal function assessment needed for dosage adjustment. Dosage should be stable for at least three doses prior to sampling. Usually obtain peak and trough levels.
Amitriptyline or Elavil (Antidepressant)	For parent drug + demethylated metabolite, Nortriptyline: (t) 0.45-0.90 μmolL Toxic >1.80 μmol/L	(t) 12 hours after dose	3-8 days	
Carbamazepine or Tegretol (Anticonvulsant)	17-50 μmol/L	(t) Immediately prior to dose	2-6 days of chronic oral dosing.	Trough level preferred.
Cyclosporin (Immunosuppressant)	(t) 150-300 μg/L (2 hour) - see below	(t) Immediately prior to dose (2 hour) 2 hours ± 10 minutes post dose		
	Cyclosporin 2 hour Optimum Concentrations for patients on Neoral: **Transplanted Organ / 0-6 Months / 6-12 Months / 12+ Months** Liver / 1000 / 800 / 600 Kidney / 1700 / Pending / 1200 Heart / 1500 / 800-1200 / 800-1200 Lung / 1500-1700 / Pending / Pending			
Digoxin or Lanoxin (Cardiac)	0.6 – 1.3 nmol/L (for heart failure) 1.0 – 2.0 (for atrial fibrillation)	Immediately prior to dose or 6-24 hours after dose	5-7 days in patients with normal renal function.	Dosage should be stable for 5-7 days in patients with normal renal function. The time to steady-state is prolonged in patients with decreased renal function. Levels taken within 6 hours of dose may be artificially elevated.
Disopyramide or Norpace or Rythmodan (Cardiac)	6-18 μmol/L	(p) 2-3 hours after oral dose (t) Immediately prior to dose	(a) 20-50 hours	Trough provides best guide for dosage adjustment.
Ethosuximide or Zarontin (Anticonvulsant)	280-710 μmol/L	(t) Immediately prior to dose or at least 12 hrs post dose	(a) 8 days (c) 5 days	Trough level preferred.
Gentamicin (Antibiotic)	Multiple daily dose regimen: (p) 5-10 mg/L (t) < 2 mg/L Once daily dose regimen or extended internal dosing: consult Pharmacy.	(p) IM – 60 minutes after injection (p) IV –15-30 minutes after completion of traditional IV infusion (t) 5- 30 minutes before next dose	(a) 2.5-15 hours (< 30years) 7.5-75 hours (> 30years) (c) 2.5-12.5 hours (n) 10-45 hours May be prolonged in patients with renal dysfunction.	Renal function assessment needed for dosage adjustment. Doses should be stable for at least three doses prior to sampling. Usually obtain peak and trough levels.

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DRUG NAME (Category)	OPTIMUM CONCENTRATION (p) peak (t) trough	WHEN TO DRAW SAMPLES (p) peak (t) trough	NORMAL TIMES TO STEADY STATE (a) adults (c) children (n) neonates - 0 to 28 days	MONITORING CONSIDERATIONS
Imipramine or Tofranil (Antidepressant)	For parent drug + demethylated metabolite, desipramine: (t) 0.64-1..25 μmol/L Toxic >1.80 μmolL	(t) Immediately prior to AM dose or 10-12 hours after dose	2-5 days	
Lithium (Antimanic)	0.8-1.2 mmol/L	12 hours after dose	5-7 days	Draw levels twice weekly during acute phase. If changes in dose are made, take level in 5-7 days. Outpatient levels should be done once a month for three months, then every three months.
Nortriptyline or Aventyl (Antidepressant)	(t) 0.45-0.90 μmol/L Amik + Nort: Toxic >1.8μmol/L	(t) Immediately prior to AM dose or 10-12 hours after dose	4-20 days	
Phenobarbital or Phenobarb (Anticonvulsant)	65-175 μmol/L	(t) Immediately prior to dose	(a) 10-25 days (c) 8-15 days	
Phenytoin or Dilantin (Anticonvulsant)	(adult) 40-80 μmol/L (neonates) 24-56 μmol/L	(t) Immediately prior to dose (p) IV - 60 minutes after end of infusion	1-5 weeks	Trough levels are generally measured. In children levels may fluctuate necessitating serial serum concentrations. A trough level should be taken one week after initiating therapy and again in 3-5 weeks.
Primidone or Mysoline (Anticonvulsant)	23-55 μmol/L	(t) Immediately prior to dose	50-60 hours Note: Phenobarb levels appear in 5-7 days	Primidone is partially metabolized to Phenobarb so both levels should be measured.
Procainamide or Pronestyl (Cardiac)	Procainamide 17-42 μmol/L NAPA 22-72 μmol/L	IV loading dose: Immediately after dose Followed by IV continuous infusion: 2 hours after the beginning of the maintenance infusion Oral - (t) Immediately prior to dose	Procainamide: 15 - 25 hours NAPA: 30-50 hours	Both procainamide and its metabolite NAPA are pharmacologically active. Absorption may be slow in some patients resulting in high levels at the end of the dosage interval. Take several samples.
Quinidine (Cardiac)	6.2-15.4 μmol/L	(t) Immediately prior to dose	(a) 30-50 hours	Trough measurements give the most reliable index of serum concentration.
Tacrolimus or FK 506 (Immunosuppressant)	(t) see below	(t) Immediately prior to dose (12 hour trough)		

Tacrolimus (FK 506) Optimum Concentrations (μg/L):

Transplanted Organ	Week 1-4	Long-Term
Liver	5-15	3-10
Kidney	10-20	5-10
Bone Marrow	10-20	10-20

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DRUG NAME (Category)	OPTIMUM CONCENTRATION (p) peak (t) trough	WHEN TO DRAW SAMPLES (p) peak (t) trough	NORMAL TIMES TO STEADY STATE (a) adults (c) children (n) neonates - 0 to 28 days	MONITORING CONSIDERATIONS
Theophylline (Bronchodilator)	55-110 μmol/l (asthma therapy) 30-60 μmol/l (apnea, <1 year old)	Oral - sustained release: (p) Twice daily products: about 4 hours after dose. Once daily products: about 10 hours after dose. Consult individual product monographs. (t) Immediately prior to dose Liquid and plain uncoated tablets: (p) 1-2 hours after liquid dose, 2 hours after tablet dose (t) Immediately prior to dose IV loading dose: Sample 30 minutes after an IV loading dose. Followed by IV continuous infusion: 24-48 hours after the beginning of the maintenance infusion.	(a) 2 days (c) 1-2 days Newborn 120 hours Premature 150 hours	Dosage should be stable for 48 hours before sampling. Trough levels may be monitored to assess efficacy at the end of the dosing interval.
Tobramycin (Antibiotic)	Multiple daily dose regimen: (p) 5-10 mg/L (t) < 2 mg/L Once daily dose regimen or extended internal dosing: consult Pharmacy.	(p) IM – 60 minutes after injection (p) IV – 15-30 minutes after completion of traditional IV infusion (t) 5-30 minutes before the dose	(a) 2.5-15 hours (< 30years) 7.5-75 hours (> 30years) (c) 2.5-12.5 hours (n) 10-45 hours May be prolonged in patients with renal dysfunction.	Renal function assessment needed for dosage adjustment. Doses should be stable for at least three doses prior to sampling. Usually obtain peak and trough levels.
Valproic Acid or Depakene or Valproate (Anticonvulsant)	350-700 μmol/L	(t) Immediately prior to dose (p) 2-3 hours after dose	2-3 days	Trough levels are generally measured.
Vancomycin (Antibiotic)	(t) 10-15 mg/L	(t) Immediately prior to dose (p) Peak levels should only be ordered in rare situations to facilitate pharmacokinetic modeling. Draw peak: IV - 30 minutes after end of infusion, IM and oral - 60 minutes after dose.	4 doses (2 days)	Toxicity may be potentiated with concurrent administration of an aminoglycoside

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Unit Conversion for Some Drugs and Toxic Agents

Drug	Blood Toxic Level (SI Units)	Conversion	Traditional Units
Acetaminophen (Tylenol)	Variable μmol/L	μmol/L x 0.15 = μg/mL	μg/mL
Alcohol (ethyl)	70 mmol/L	mmol/L x 4.6 = mg/dL	mg/dL
Alcohol (methyl)	6.2 mmol/L	mmol/L x 3.2 = mg/dL	mg/dL
Amitriptyline (Elavil)	1.8 μmol/L	μmol/L x 280 = ng/mL	ng/mL
Barbiturate – Phenobarbital	170 μmol/L	μmol/L x 0.23 = μg/mL	μg/mL
Carbon Monoxide (carboxyhemoglobin)	0.15 (decimal fraction)	100	%
Chlordiazepoxide (Librium)	16.7 μmol/L	μmol/L x 300 = ng/mL	ng/mL
Diazepam (Valium)	17.55 μmol/L	μmol/L x 285 = ng/mL	ng/mL
Digoxin	3.0 nmol/L	nmol/L x 0.78 = ng/mL	ng/mL
Disopyramide	20.6 μmol/L	μmol/L x 0.34 = μg/mL	μg/mL
Ethylene glycol	5 mmol/L	mmol/L x 6.2 = mg/dL	mg/dL
Imipramine (Tofranil)	1.8 μmol/L	μmol/L x 280 = ng/mL	ng/mL
Methaqualone	40 μmol/L	μmol/L x 0.25 = μg/mL	μg/mL
Phenytoin	120 μmol/L	μmol/L x 0.25 = μg/mL	μg/mL
Salicylates (ASA)	2.0 mmol/L	mmol/L x 138 = μg/mL	μg/mL
Theophylline	110 μmol/L	μmol/L x 0.18 = μg/mL	μg/mL

NOTE: mg/dL = mg% and μg/mL = mg/L

e.g. 1 mg/dL = 1 mg% = 10 μg/mL

e.g. 1 mg = 10^3 μg (1,000 μg) = 10^6 ng (1,000,000 ng)

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Urine, 24 Hour Specimen - Collection Instructions

For proper evaluation of tests performed on a 24 hour urine sample, the patient must be given the following instructions in order to insure a complete and accurate collection.

Please refer to Form# **HHN-0858 - 24 Hour Urine Collection Patient Instructions**

Please refer to **Form # HHN-0840 - Diet and Drug Restrictions Prior to 24 Hour Urine Collection** for restrictions.

See *Section 7: Laboratory Tests - Alphabetical List* in this manual for the **proper collection bottle** (with or without preservative).

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Instructions for the Collection of Urine for Urinalysis

- A sterile, screw-capped jar must be used. This may be obtained from the Specimen Collection Unit or from the Laboratory.
- The Specimen Collection Unit or Laboratory will label the specimen container with the appropriate personal and test information.
- Whenever possible obtain an early morning specimen or allow urine to remain in the bladder for at least 4 hours before collecting.
- Add date and time of collection to the label.
- If you get urine on the outside of the jar, put the cap back on and wipe the outside of the jar with a disinfectant and place in a bag for transport.
- Keep the urine refrigerated and bring back to the Specimen Collection Department or Laboratory of the hospital on the same day that it is collected as soon as possible.

Females

- Remove the cap of the urine container.
- Wash hands thoroughly with soap and water.
- With one hand, spread the outside lips of the vagina apart and keep them separated until after the specimen has been collected.
- Begin voiding (peeing), but do not collect the first flow of urine.
- After 2-3 seconds, without stopping, place the sterile container in the stream of urine, and collect it until the jar is one-quarter to one-half full.
- Put the jar aside, and finish peeing into the toilet.
- Put the cap back on the jar.

Males

- Remove the cap of the urine container.
- Wash hands thoroughly with soap and water.
- For circumcised men, no preparation is needed.
- For uncircumcised men. Pull back the skin covering the head of the penis with one hand and hold it there until the specimen has been collected.
- Wash the head of the penis thoroughly with warm water and pat dry with gauze or a clean towel to remove excess water.
- Begin voiding (peeing), but do not collect the first flow of urine.
- After 2-3 seconds, without stopping, place the sterile container in the stream of urine, and collect it until the jar is one-quarter to one-half full.
- Put the jar aside, and finish peeing into the toilet.
- Put the cap back on the jar.
- After 2-3 seconds, without stopping, place the sterile container in the stream of urine, and collect it until the jar is one-quarter to one-half full.
- Put the jar aside, and finish peeing into the toilet.
- Put the cap back on the jar tightly so it won't leak.

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Water Deprivation Test, Overnight: order **NA**, **OSMO**, **NA-U** and **Copeptin**, if desired, for the appropriate specimen. Copeptin has replaced ADH and AVP as makers for the investigation of water balance disorders. (The Acid Test, Volume 32:2, July 4, 2019)

Prerequisite
Document polyuria (urine volume >2.5 L/d) and exclude glycosuria.

Rationale
Water deprivation provides a maximal stimulus for ADH release. This can be assessed indirectly by measuring urine osmolality or directly by measuring plasma ADH (Copeptin is used as the better surrogate marker). If urine remains hypo-osmolal during water deprivation, the administration of ADH can help differentiate central diabetes insipidus from nephrogenic diabetes insipidus.

Test Procedure
The patient is weighed at 2200 hours, at which time serum and urine samples are collected for the determination of sodium concentrations and osmolality. No oral intake is allowed until the test is terminated. Care is taken to be sure the patient's body weight does not fall by >5%. Beginning at 0600 hours, the patient is again weighed and urine collected hourly for measurement of volume and determination of osmolality. When urine osmolality is stable (a change of <30 mOsm/Kg for 2 consecutive hours, which usually takes 8-12 h to occur), samples are collected for serum osmolality (and plasma Copeptin, if desired). Five units of aqueous vasopressin (ADH) are given subcutaneously, and urine osmolality is measured 1 hour later. The test is then terminated.

Interpretation
Normal individuals will lose <3% of body weight, will not develop an elevated serum sodium or osmolality, and will produce a urine with an osmolality >400 mOsm/kg, with no further increase in urine osmolality after ADH administration. Patients with central diabetes insipidus may show an increase in serum osmolality and serum sodium; their urine will be less concentrated than normal (<400 mOsm/Kg; but often less than serum), and urine osmolality will increase >10% after ADH administration. Patients with nephrogenic diabetes insipidus will show serum and urine osmolality's similar to those seen with central diabetes insipidus during water deprivation; however, they will not show a significant increase in urine osmolality after ADH injection. In patients with psychogenic polydipsia, a normal response may be seen, but the period of water deprivation may need to be prolonged. However, some of them may show responses suggestive of diabetes insipidus. Measuring plasma Copeptin in response to hypertonic saline may be needed if the diagnosis remains unclear at this point, e.g.

- a baseline (without fluid deprivation) copeptin ≥ 21.4 pmol/L identifies nephrogenic diabetes insipidus with 100% sensitivity and specificity;
- following a fluid deprivation test, a copeptin level ≥ 4.9 pmol/L identifies primary polydipsia with 94-96% sensitivity and specificity;
- following a fluid deprivation test, a copeptin level 2.6 - 4.9 pmol/L identifies partial central diabetes insipidus with 94% sensitivity and specificity;
- following a fluid deprivation test, a copeptin level < 2.6 pmol/L identifies complete central diabetes insipidus with 95-100% sensitivity and specificity.

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Section 3: Anatomical Pathology

Tissue Specimens - Collection Instructions

Anatomical Pathology specimen testing cannot be ordered through Meditech Order Entry. ALL tissue specimens must be accompanied by a Histopathology requisition.

Except for those listed below, specimens must be placed in an appropriate size container with the correct amount of 10% Buffered Neutral Formalin. A formalin-to-tissue ratio of 10 to 20:1 is recommended.

The requisition requires at minimum all of the following:

- Full name - as indicated by legal document or Medicare card
- One unique identifier (this does not include the date of birth)
- Date of birth
- Full name of Ordering Provider
- Date and time of collection (Fixation time is critical for some specimens and is calculated using the collection time)
- Type of tissue (e.g., skin)
- Source of specimen (e.g., left arm)
- History and relevant clinical findings (e.g., itchy, red lesion increasing in size)
- Initials of the person completing the requisition
- **Must** be signed by the submitting physician

Note: Multiple specimens collected during the same surgical procedure must be identified as A, B, C, etc. and submitted on the same requisition.

The label on the specimen container must include:

- The patient's full name
- At least one unique identifier
- The organ/tissue site
- The date of collection
- The time of collection
- The identity of the person who collected the specimen (initials are acceptable and may be added by someone other than the collector)

Note: Multiple specimens collected during the same surgical procedure must be identified as A, B, C, etc. on the containers, **NOT** on the lids.

Detachable labels with the requisition number are located at the bottom of each requisition. One label **must** be placed on each container (not on the lid) submitted for that patient. This label may be used to record the patient's name, unique identifier, organ/tissue site, collection date/time and collector's initials. A demographic label may be used in conjunction with the label. The use of two detachable labels is also acceptable.

Note: If the specimen presents a known or suspected biohazard or is radioactive, the container must be labelled as such. Sentinel lymph nodes are <u>not</u> considered radioactive.

After removal from the body, place the tissue in fixative **immediately** to preserve tissue components, immunological binding sites, and general morphology. The lid must be securely tightened to prevent leakage. Fixation is crucial to all subsequent testing performed on the tissue.

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The DECRH Anatomical Pathology division uses 10% Neutral Buffered Formalin and may be ordered through Stores in 50 mL, 500 mL, 960 mL, 1000 ML or 20 L containers.

Breast Specimens

Cold Ischemic time (time between removal from body and the tumor comes in contact with formalin) **must** be kept to 60 minutes or less.

DECH OR – Specimen(s) are to be sent to Anatomical Pathology laboratory immediately upon removal from patient. After 4:30 pm, notify the pathologist on call.

Satellite Sites OR – The specimen(s) must be incised through the suspicious area, and paper towel or other similar material is placed in the incised area to allow fixative penetration. Immediately following this procedure, place the specimen in 10% Neutral Buffered Formalin fixative. Record the time the tissue is placed in formalin (cold ischemic time). The recommended ratio of formalin to tissue is 20 to 1.

Lymph Node Specimens when lymphoma is suspected, and Flow Cytometry requested:

Most Flow Cytometry testing is performed at the Saint John Regional Hospital by highly specialized laboratory staff. We are required to work withing their schedule, Monday to Friday from 0800-1600, except on statutory holidays. Lymphoma protocol testing **must** be scheduled prior to collection by calling Pathology 506-452-5478 or Flow Cytometry 506-452-5007.

Cell viability is critical, and specimens **must be processed within 24 hours**. To meet this requirement, all specimens must be received in the DECRH Lab **no later than noon on Thursdays** (or **noon Wednesday** if Friday is a holiday) to ensure timely delivery to the SJRH lab.

In the case of a life-threatening emergency, permission must be given by the SJRH Haematology Manager & Haematopathologist to send a specimen outside these hours.

Sterile pink RPMI solution for cell preservation is routinely available by calling Anatomical Pathology (506-452-5478) Monday to Friday, 0630-1630.

- Place a piece of fresh tissue (5 mm cube or needle core specimens at least 1 cm long each) directly in pink RPMI solution. Do **not** place the tissue on paper towel or gauze and do **not** roll it around on any surface as cells are lost on these surfaces.
- Complete and sign a Histopathology requisition and **immediately** deliver to the Anatomical Pathology Laboratory marked STAT.
- If the specimen is collected at any site other than DECRH, it must be refrigerated (2-8°C) prior to and while in transit.
- Notify the Anatomical Pathology Laboratory that a specimen is being sent. If delivered after hours (1630-0630 Sunday to Thursday) Sample Receiving staff will refrigerate the specimen. During weekend hours (Friday 1630 to Sunday 1630) notify the pathologist on call.
- A second specimen submitted in formalin is recommended for routine histological examination.

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Tissue for Immunofluorescent Studies

Zeus Tissue fixative is required for immunofluorescent studies and comes in 10 mL glass bottles. It is available by calling Anatomical Pathology (506-452-5478) Monday to Friday, 0630-1630.

- To prevent breakage, place the bottle in a 90 mL urine/specimen container for delivery.
- The glass bottle containing the specimen **must** be labeled as above, and it is preferable to label the plastic specimen container with a demographic label.
- The specimen must be delivered **immediately** to the Anatomical Pathology Laboratory as it must not remain in this fixative for more than 5 days.
- A second biopsy from the same or similar site, placed in formalin, is recommended for routine histological examination as the tissue morphology will be distorted in Zeus fixative.

Fetal Tissue for Cytogenetics/Chromosome Analysis (RAD)

Specimens are referred to the IWK Hospital in Halifax, NS.

Place the tissue in a sterile specimen container with a **small** amount of saline. **DO NOT** place the tissue in any fixative. Formalin fixed tissue cannot be tested for cytogenetics or chromosome analysis.

An EDTA blood sample from the mother is required to detect maternal cell contamination.

Notify the Anatomical Pathology laboratory or pathologist on call of expected specimen and deliver it to the Laboratory at DECRH **immediately** after collection.

All specimens must be sent with:

- A completed Histopathology requisition (specify “RAD testing” in the Clinical Information area)
- A completed IWK Health Centre - Clinical Genomics - Genetic Testing for IUFD & Products of Conception (POC)
- A completed IWK Health Centre - Clinical Genomics - Genetics Testing General Requisition (one for the mother’s EDTA blood sample and one for the father, if collected)
- The Horizon forms “Labour and Delivery Permission for Respectful Disposition of Remains.

Delivery instructions:

- Monday to Friday 0800 to 1630 – Notify the Anatomical Pathology division and deliver immediately to the Anatomical Pathology laboratory
- After hours Monday to Thursday – Keep the specimen in the refrigerator (4 to 8°C) overnight. Deliver the specimen to the Anatomical Pathology laboratory between 0800-0830 the following morning
- Weekend or Holiday - Contact the pathologist on call **in the morning** (0800 to 0830). Deliver the specimen to Sample Receiving

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Tissue for Frozen Section

Available during **regular working hours, 0800-1630, Monday to Friday, except statutory holidays.**

Notify the Anatomical Pathology laboratory of a specimen being sent as soon as possible. The specimen must be collected in a dry container (no fixative or other liquid). Deliver it to the Anatomical Pathology Laboratory immediately.

Satellite sites - Place the container inside a larger container with ice to keep it cool during transport. Indicate "Frozen Section" on the requisition. Lab staff will plan for immediate transport to the DECRH Anatomical Pathology laboratory.

Liver biopsies for Iron Analysis

A minimum of two 1.0 cm cores fixed in formalin is required. One core is submitted for iron analysis, and the second core is reserved for histological evaluation.

Muscle biopsies

Muscle biopsies are referred to the Saint John Regional Hospital (SJRH). The DECRH Anatomical Pathology department must be contacted at least 7 days prior to collecting the specimen to schedule it with the SJRH Anatomical Pathology department.

- The specimen must be collected by no later than 0900, Monday to Friday to allow time for the DECRH Anatomical Pathology department to send it to the SJRH by 1000.
- A complete patient history is required as well as a Histopathology requisition
- Submit a longitudinal section of muscle, 0.8-1.0 cm in diameter and 1.5-2.0 cm in length
- Place it on a piece of tongue depressor that will fit in a 90 mL container
- Dampen a piece of gauze with no more than 6-8 drops of saline and wrap it gently around the muscle and tongue depressor. Place it in the container.
- Call the Anatomical Pathology department to notify the specimen is on its way and send it STAT

Kidney biopsies

Routine histology only will be performed at the DECRH unless otherwise requested. Immunofluorescent studies/electron microscopy will be referred to the Saint John Regional Hospital. The DECRH Anatomical Pathology department must be contacted at least 7 days prior to collecting the specimen to schedule it with the SJRH Anatomical Pathology department.

- The specimen must be collected by no later than 0900, Monday to Friday to allow time for the DECRH Anatomical Pathology department to send it to the SJRH by 1000.
- A complete patient history is required as well as a Histopathology requisition.
- A minimum of 2 cores are required, submitted in 2-5 mL of saline in a sterile 90 mL container. Do not use lens paper.
- Call the Anatomical Pathology department to notify the specimen is on its way and send it STAT

Sural Nerve biopsies

Sural nerve biopsies are referred to the Saint John Regional Hospital (SJRH). The DECRH Anatomical Pathology department must be contacted at least 7 days prior to collecting the specimen to schedule it with the SJRH Anatomical Pathology department.

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- The specimen must be collected by no later than 0900, Monday to Friday to allow time for the DECRH Anatomical Pathology department to send it to the SJRH by 1000.
- A complete patient history is required as well as a Histopathology requisition
- Submit a section of nerve in a container with enough saline to cover the tissue.
- Call the Anatomical Pathology department to notify the specimen is on its way and send it STAT

Maximum Delay in Transport	
Please note: Maximum Delay in Transport indicates time before sample must be tested. Samples arriving at or just before these times may require an Authorization to Proceed with Testing form prior to the release of results	
Test	**Maximum Delay**
Zeus media specimens	5 days
RPMI specimens	Deliver immediately
• Any tissue for frozen section • Muscle biopsies • Fresh kidney biopsies • Fresh sural nerve biopsies	Deliver immediately

Deceased Patients

The Registration of Death is submitted electronically, and its completion is the responsibility of hospital staff, coroners, nurse practitioners and medical practitioners.

Prior to transferring to the morgue, a decedent must be placed in a body bag and identified with two identification tags labeled with the deceased's name and one unique identifier. One is attached to a toe or wrist (arm band) and the second one is attached to the outside of the body bag. Any personal belongings being sent to the morgue must also be clearly identified.

Receiving and Releasing Bodies in the Morgue

- **SPD Staff** are responsible for logging inpatient decedents in the Morgue register located in Admitting and delivering them to the morgue along with the Record of Death form (completed by nursing staff)
- **Coroners and/or Funeral Home staff** – Deliver decedents from outside the hospital to the morgue and log them in the Morgue Register. If an autopsy is required, a completed coroner's authorization form must be delivered to Admitting as well.
- **Autopsy Suite or Anatomical Pathology staff (0800-1600 Monday to Friday with the exception of weekday holidays)** are responsible for receiving decedents from coroners and funeral home staff, verify the identification is correct on the body and the body bag. They are also responsible for releasing bodies to funeral homes.
- **Security staff (1600–0800 and weekends/holidays)** – Receive decedents from coroners and funeral home staff and verify identification is correct on the body bag. They are also responsible for releasing bodies to funeral homes.

An autopsy shall be performed after a documented request is submitted by one of the following:

- A Coroner (Coroner's case)
- A physician of an in-patient (Hospital Case)
- The legal next of kin of the decedent (Private autopsy)

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Paediatric cases may be referred to the Saint John Regional Hospital at the discretion of the pathologist, Coroner or Physician. The requesting physician may consult with a pathologist on individual cases to determine whether a routine or paediatric autopsy is required, which will then determine which facility will perform the case

- Coroner's case
- Hospital case
    - Referred case
- Private autopsy
- Fetal/stillbirth autopsy

Coroner's case:

1. Any death that falls under Section 4 of the Coroner's Act, whether inside or outside of the hospital, must be reported to the Coroner. Please refer to Coroner Notification HHN-SA-021
2. Autopsies on Coroner's cases are performed at the request and authorization of the Coroner. Forms to be completed by the coroner are:
    - The Coroner's authorization form (provided by the coroner)
    - The morgue register (located in the Admitting department) when the decedent is admitted to the morgue

    The coroner shall place the authorization form in the morgue register for morgue staff to collect when consulting the register each morning.
3. The Deceased Patient Information (300000319 (10/18)) form shall be completed by staff in the Admitting department:
    - When the nursing unit notifies the Admitting department of the death; or
    - When the coroner registers the deceased in the morgue register.

    The form shall be placed in the morgue register.
    Morgue staff shall make a copy and leave the original in the Admitting department
4. The decedent is admitted to the morgue by Morgue staff Monday to Friday between 0800-1600 hours. Security Services will admit after-hours and on holidays.
5. Morgue staff shall request the decedent's medical record from Health Records. Should the decedent have been a resident in another city/town in the province, such as URVH, the local Health Records department shall be contacted by the Morgue staff. Should the decedent originate from another province, the coroner may request the medical records if deemed relevant.
6. Once the autopsy is completed, the decedent is released only upon the authority of the Coroner.
7. Should the coroner determine that no autopsy is required, a physician or legal next of kin may request an autopsy. See the Hospital case or Private autopsy procedure below.

Hospital case:

1. When a death occurs in the hospital and is not reportable to the coroner, the attending physician may request an autopsy.
2. Consent must be given by the legal next of kin.
3. The attending physician is responsible for ensuring form LAB-3D-AP-F00005 Authorization for Autopsy - English or LAB-3D-AP-F00006 Authorization for Autopsy - French is completed and signed by the legal next of kin and a witness. The completed form shall be sent to the Admitting department.

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NOTE: Telephone consent requires two witnesses, but ultimately must be signed by the legal next of kin before the final report is signed out.

4. The nursing unit shall contact the Admitting department to notify them of a death.
5. The Deceased Patient Information form shall be completed by staff in the Admitting department and placed in the morgue register when they record the decedent information. The form shall be photocopied by Morgue staff and the original left in the register.
6. Morgue staff shall request the decedent's medical record from Health Records. Should the decedent have been a resident in another city/town in the province, such as URVH, the local Health Records department shall be contacted by the Morgue staff. Should the decedent originate from another province, medical records may be requested if deemed relevant.
7. Once the autopsy is completed, the pathologist assigned to the case shall notify the morgue attendant that the decedent can be released.
8. The Morgue attendant shall notify the Admitting department that the decedent may be released to a funeral home.
9. The funeral home shall contact the Admitting department to ensure the decedent can be released prior to making arrangements for transfer to the funeral home.

Referred case:

Should the decedent from a hospital case require transfer to the Saint John Regional Hospital for autopsy or tissue/organ retrieval:

a. The **physician requesting the autopsy must:**
   - Contact the Saint John Regional Hospital Pathology department by telephone to arrange a date and time for autopsy or tissue/organ retrieval.
   - Contact the funeral home of the family's choice by telephone to arrange for transport for the agreed upon date and time. The cost of transport is covered by the autopsy department and is billed by the funeral home.
   - Communicate the date/time of the autopsy to the DECRH morgue staff. This will ensure any delay in transfer will be noticed and resolved as quickly as possible. The morgue staff will contact the physician and/or funeral home as well as the Anatomical Pathology manager to resolve any issue.

     Note: Should the requesting physician be unable to contact the funeral home, they can contact a morgue attendant, relay the arranged date/time of the autopsy to be performed. The morgue attendant will then contact the funeral home for transport and document their actions.

b. Refer to Saint John Request For Autopsy and Saint John Authorization for Autopsy. Forms in Appendix A and B **must** be completed prior to transfer of the deceased to Saint John.

c. Once transferred to the Saint John Regional Hospital, the funeral home staff will wait until the autopsy or organ/tissue retrieval is complete to return the decedent to Fredericton within a suitable time. Should the decedent require return to the morgue prior to burial/cremation, funeral home staff must register the arrival in the morgue register in the Admitting department.

Private autopsy:

1. When a death occurs in the hospital that is not reportable to the coroner and the attending physician does not request an autopsy, the legal next of kin may request one.
2. The attending physician is responsible for ensuring form LAB-3D-AP-F00005 Authorization for Autopsy - English or LAB-3D-AP-F00006 Authorization for Autopsy - French is completed and signed by the legal next of kin and a witness. The completed form shall be sent to the Admitting department.

   NOTE: Telephone consent requires two witnesses, but ultimately must be signed by the legal next of kin before the final report is signed out.

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3. The nursing unit shall contact the admitting department to notify them of a death.
4. The Deceased Patient Information form shall be completed by staff in the Admitting department and placed in the morgue register when they record the decedent information. The form shall be photocopied by Morgue staff and the original left in the register.
5. The legal next of kin is required to pay for the autopsy prior to commencement at the cashier's office, located in the lobby of the main entrance of the Dr. Everett Chalmers Regional Hospital.
6. The legal next of kin is required to present the receipt to the Admitting staff, who will make a copy to attach to the Authorization for Autopsy form.
7. Morgue staff shall request the decedent's medical record from Health Records. Should the decedent have been a resident in another city/town in the province, such as URVH, the local Health Records department shall be contacted by the Morgue staff. Should the decedent originate from another province, medical records may not be requested.
8. Once the autopsy is completed, the pathologist assigned to the case shall notify the morgue attendant that the decedent can be released.
9. The morgue attendant shall notify the Admitting department that the decedent may be released to a funeral home.
10. The funeral home shall contact the Admitting department to ensure the decedent has been released prior to making arrangements for transfer to the funeral home.

Fetal/stillbirth autopsy

1. Fetal and stillbirth autopsies are referred to the IWK Health Centre in Halifax, Nova Scotia.
2. Notify the morgue attendant (5495) when an autopsy request is expected
3. The attending physician is responsible for ensuring required forms are completed. They must include at minimum:
    a. If fetus/stillbirth is ≥ 500 grams or ≥ 20 weeks: Copy of Registration of Death or Stillbirth Certificate
    b. IWK Consent for Autopsy
    c. Horizon Labour and Delivery Permission for Respectful Disposition of Remains

    Note: Other forms may be required depending on the manner of death, abnormalities, the attending physician's findings, etc.:
    a. IWK List of requirements for Fetal Autopsy Consultation
    b. IWK Fetal Pathology Requisition
    c. IWK Request for Placental Examination
    d. IWK Consultation request for Autopsy
    e. IWK Surgical Pathology Request
4. Deliver the fetus to the morgue and place it in the morgue cooler. Forms are placed in the autopsy suite door or given directly to the morgue attendant.
5. The morgue attendant will notify the Pathology Division Head or designate of the autopsy request.
6. The Pathology Division Head or designate will contact the IWK Health Centre Pathology department to request the autopsy and the name of the pathologist who will be assigned to it.
7. They will write a request for consult letter to include with the forms.
8. The morgue attendant will prepare the fetus and forms for shipment and schedule transportation (air or ground).
9. Fetus will be returned to DECH once autopsy is complete. The morgue attendant will contact Admitting to notify them and they will notify the funeral home for pick-up.

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Turnaround Time Guidelines

Specimen Categories	Final Reporting	Threshold	Comment
• Needle cores: breast, lung, liver, and any other core biopsies • Bladder biopsies • Lymph nodes • Temporal arteries • Cases marked STAT or Urgent • Colorectal biopsies for suspected malignancies	7 days	80%	
Routine Surgical specimens	14 days	80%	
Frozen sections	20 minutes	90%	One specimen, one section
Unusual complex or special cases with ancillary studies	Add time as per special procedures below		
Autopsy cases	90 days		

Additional procedures may increase the turnaround time:

Special Procedures	Number of Days
Extended fixation	1 - 2
Decalcification	1 - 2
Resubmission	1 - 2
Recuts	1
Immunohistochemistry	1-2
Intradepartmental consultation	1
External consultation	10-14
External specialized testing	10-14

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Section 4: Transfusion Medicine

Blood Products Administration Resources on Skyline

- To access, either:
  1) Click this link: http://skyline/patientcare/blood/Pages/default.aspx
  2) Or from the Skyline Home page, select "Tools & Resources" ► "Patient Care" ► "Blood Products Administration"

Administration of Blood Products Policy

- Refer to Horizon Health Network Policy Number HHN-CL-NU022 Administration of Blood Products

Informed Consent

- Informed Consent must be obtained as per Horizon Health Network Policy Number HHN-SA-014 Consent to Treatment
- Associated forms:
  - HHN-0208 Consent for Rho (D) Immune Globulin (WinRho SDF)
  - HHN-0210 Consent for Transfusion of Blood and/or Blood Products
  - HHN-0211 Emergency Treatment without Consent
- Patient Information Pamphlet:
  - HHN-0226 Blood Transfusion Informed Consent - Patient Guide

Collecting Specimens for Transfusion Medicine

- **SPECIMEN COLLECTION and POSITIVE PATIENT IDENTIFICATION REQUIREMENTS:** The following are required at the bedside for positive patient identification immediately prior to collection:
  - Requisition:
    - Meditech generated with order *or*
    - Transfusion Medicine Requisition Form # 300000494 (10/22)
  - Tube labels:
    - Meditech generated with order or
    - Generic patient demographic labels from the patient care location or
    - Hand written
  - Patient Identification Wrist band

- After collection the phlebotomist must sign the requisition with their full signature (**legible first and last name**), label the tubes along with their initials with the date and time of collection all while still at the "bedside".
  NOTE: Where phlebotomist signature is not practical such as specimens drawn in a sterile field in the OR, a healthcare worker **witnessing** the phlebotomy and the patient identification, may assume responsibility for such with THEIR full signature on the requisition and initials on the tube labels. They must also ensure printed by their signature on the requisition is "for" followed by the actual phlebotomist first and last name (printed)

- **Collection of Semen Analysis Sample – Patient Instructions**
  Please refer to "Collection of Semen Analysis Sample", Form # 300000519 (12/23)

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Turn around Times for Tests and Blood Product Preparation

Transfusion Medicine Tests	Comments	Routine	ASAP	STAT
Crossmatch (uncomplicated)		<5 hours*	<2 hours	<1 hour
	Additional Red Cell Products	30 min	10 min	10 min
Group & Screen (uncomplicated)		<5 hours*	<2 hours	<1 hour
	Converted to crossmatch	30 min	10 min	10 min
Direct Antiglobulin Test		<96 hours	<2 hours	<1 hour
Transfusion Reaction Investigation		n/a	n/a	<1 hour
Cord Blood Workup	RhIg Eligibility	<24 hours	n/a	n/a
	Suspect HDN	<5 hours*	<2 hours	<1 hour
Kleihauer-Betke	RhIg dosing	<24 hours	n/a	n/a
Kleihauer-Betke at DECRH	FMH suspected	n/a	<2 hours	<1.5 hour
Kleihauer-Betke *referred* to DECRH	FMH suspected	n/a	<4 hours	<3.5 hour
Prenatal Group & Screen		<96 hours	n/a	n/a
Antibody titer		<96 hours	n/a	n/a

*NOTE: Routine tests received outside of dayshift may be left until the next day

Other Testing	Routine	ASAP	STAT
Semen Analysis (Booked Test)	<5 hours	n/a	n/a

Product Preparation	Routine	ASAP	STAT
Uncrossmatched O Negative No Specimen **or** Specimen drawn (but not in lab or testing has not begun)	n/a	n/a	5 min
Uncrossmatched *Group specific / Group compatible* Sample tested for ABO/Rh only (antibody screen still pending) NOTE: If the recipient has no previous blood type on file, only Group O red blood cells can be issued until blood type can be confirmed by a second determination	n/a	n/a	10 minutes
Plasma Thaw	Within 60 min of request to transfuse	Available as soon as thawed (~30 to 40 min)	
Cryoprecipitate Thaw and Pool	Within 60 min of request to transfuse	~45 min from request to transfuse	
Red Cell Aliquot on crossmatched blood	Within 60 min of request to transfuse	Within 20 min of request to transfuse	
Blood for Exchange Transfusion	As soon as prepared (<2 hours)		

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Blood Products Routinely kept in Inventory (by Facility)

Product/Brand Name	Size/volume	Order by/in	Facility			
			DECRH	URVH	HDSJ	OPH
Red Blood Cells	~287 mL* **Actual Vol on Label**	Number of units, *see NOTE 1*	X	X	X	X
Red Blood Cells - **Irradiated**	~287 mL* **Actual Vol on Label**	Number of units, *see NOTE 1* **Add requirement in Comment**	X	X	X	
Platelets *Platelets Psoralen Treated*	Apheresis ~277 mL* Pooled ~ 181 mL* **Actual Vol on Label**	Dose, *see NOTE 1*	X *see NOTE 2*			
Plasma *Solvent/detergent treated*	Octaplasma 200 mL*	Volume in mL (cc's)	X	X	X	X
Cryoprecipitate	~10 mL* per unit	Number of units	X			
Albumin	5% 250 mL	Number of 250 mL vials	X	X		
	25% 100 mL	Number of 100 mL vials	X	X	X	X
Rh Immune Globulin	1500 IU	Ordered by lab staff	X	X	X	X
Intravenous Immune Globulin (IVIG)	5g, 10g, 20g (2.5 g as available)	Dose as calculated on IVIG request form, order in grams per day	X	X	X	
Subcutaneous Immune Globulin	1g, 2g, 4g, 8g, 10g	For Home Infusion program	X	X		
Factor VIII/Long Acting Factor VIII (Recombinant)	Multiple sizes 250-3000 IU	IU	X	X	X	X
FVIII/vWF	1000 RcoF IU 2000 RcoF IU	IU of vWF:RCof	X	X		
Factor IX (Recombinant)	500 IU &/or 1000 IU	IU	X			
FVIIa (Recombinant)	1 mg 2 mg	Dose based on patient's weight, order in mg	X			
C1-Esterase Inhibitor	1500 IU	Dose based on patient's weight, order in IU	X	X		X
HBIG	5 mL	Dose based on wt, order in mL	X	X		
	0.5 mL syringe	mL	X			
VZIG	125 IU	Dose based on wt, order in IU	X			
Prothrombin Complex Concentrate	500 IU (20 mL) 1000 IU (40 mL)	Dose will depend on the INR before treatment and the targeted INR, order in IU or volume in mL	X	X	X	X
Fibrinogen Concentrate	1 g (50 mL)	Dose is based on the extent of bleeding, laboratory values, and the clinical condition of the individual patient	X	X		

- *NOTE 1* - Enter specific volume requirements in comments as applicable for Special patient populations (e.g. neonate, pediatric or other small volume transfusion).
- *NOTE 2* - DECRH: Platelet Standing order arrives Tues and Fri am. Platelets <u>may or may not</u> be available in inventory at any given time due to usage and short outdate period for this type of product. <u>Platelets may have to be ordered from CBS</u>.
- * = mean volume of product as per CBS Circulars of Information

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Ordering Blood Products and Special Requirements

- Enter Orders in Meditech system via Order Entry. Category is “BBK”. Select the product under “Procedure” or via Lab Module depending on user access.

ORDERING BLOOD PRODUCTS IN MEDITECH ORDER ENTRY		
Order Entry Name	Example Brands✳	Order Entry Mnemonic
25 % ALBUMIN		ALB25
5 % ALBUMIN		ALB5
FRESH FROZEN PLASMA		FFP
AUTOLOGOUS DONATION 1ST UNIT		AUTBLD
AUTOLOGOUS DONATION/ADDITIONAL		AUTADD
C1-ESTERASE INHIBITOR	Berinert®	C1EI
CRYOPRECIPITATE		CRYO
CYTOMEGALOVIRUS IMM GLOBULIN		CMVIG
FACT 8 INHIBITOR BLOCKING ACTI	FEIBA™	F8IBA
FIBRINOGEN CONCENTRATE	RiaStap®	FI
FACTOR VII CONCENTRATE	Niastase® (FVIIa)	FVII
FACTOR XIII CONCENTRATE		FXIII
HEPATITIS B IMMUNE GLOBULIN		HBIG
HUMATE	Humate-P®	HUMATE
INTRAMUSCULAR IMMUNE GLOBULIN	Gamastan®	IGIM
INTRAVENOUS IMMUNE GLOBULIN	Gamunex®, Gammagard ®, Privigen®	IVIG
SUBCUTANEOUS IMMUNE GLOBULIN	Cuvitru®	IGSQ
PLATELET CONCENTRATE		PLT
CONTINUOUS INFUSION		CI
PROTHROMBIN COMPLEX	Octaplex®	PROTHROMBN
GROUP,TYPE,SCREEN, & BLOOD		GRPBLD
RECOMBINANT FACTOR VIII	Adynovate®, Kovaltry™, Xyntha®	F8REC
RECOMBINANT FACTOR IX	BeneFIX®, Rebinyn	F9REC
VARICELLA ZOSTER IMM. GLOBULIN	VariZIG™	VZIG
RED BLOOD CELL ALIQUOT/INFANT		BLDBABY

✳ the above “Brands” of blood products is not all inclusive and is subject to availability

See next page for Blood product Special Requirements…

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SPECIAL REQUIREMENTS:

- The physician must indicate in the order if a patient has special requirements for Blood products. Depending on the special requirement a time element may be involved in obtaining the blood product.
- When the order is entered in Meditech the special requirements MUST be placed under comments so that the Lab will be aware. It is recommended, particularly for new requirements, that the lab be advised by phone as well.
- Examples of some requirements and some common indications (guideline only)

  - *IRRADIATED:* Patient groups with a well-defined risk for TA-GvHD:
    - Directed donation of cellular components from a related family member
    - Granulocyte concentrates
    - HLA-matched platelets
    - Fetuses undergoing intrauterine or exchange transfusion
    - Newborns who have previously undergone intrauterine transfusions
    - Patients with congenital T-cell immunodeficiency, including:
      - Severe combined immunodeficiency disease (SCID)
      - Di George syndrome
      - Wiskott-Aldrich syndrome
      - Purine nucleoside phosphorylase deficiency
      - Reticular dysgenesis
      - Cell-mediated immune deficiency of unspecified etiology
    - Selected patients with acquired immunodeficiency:
      - Hodgkin lymphoma
      - Receiving or having received treatment with purine antagonists (e.g. fludarabine, cladribine, pentostatin); purine-like antagonists (bendamustine); alemtuzumab (anti-CD52) therapy; anti-thymocyte globulin (ATG)
    - Hematopoietic stem cell transplant recipients:
      - Allogeneic transplant – for life
      - Autologous transplant – 3 months following transplant if no total-body irradiation conditioning; 6 months following transplant with total-body irradiation conditioning

    Reference: CBS Clinical Guide to Transfusion, Chapter 15 CMV Seronegative, Irradiated and Washed Blood Components (Aug 1, 2016)

  - *IgA DEFICIENT*: For IgA deficient patients with documented anti-IgA
    Reference: CBS Professional Education, Anaphylactic transfusion reactions and IgA deficiency

  - *HLA MATCHED*: indicated for recipients that fail to respond to platelet transfusion because of demonstrated anti-HLA antibodies (alloimmune refractoriness).
    Reference: CBS Clinical Guide to Transfusion, Chapter 18 Platelet transfusion, alloimmunization and management of platelet refractoriness

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Intravenous Immune Globulin (IVIG)

- Select the appropriate discipline specific IVIG request form from list below and available on Skyline. These are to notify the Transfusion Medicine Lab of the intended treatment and must be faxed to the number as shown on the bottom of the form.

  IVIG Request Form - Dermatology - Adult and Pediatric
  IVIG Request Form - Hematology - Adult
  IVIG Request Form - Hematology - Pediatric
  IVIG Request Form - Immunology - Adult and Pediatric
  IVIG Request Form - Infectious Disease - Adult and Pediatric
  IVIG Request Form - Neurology - Adult and Pediatric
  IVIG Request Form - Rheumatology - Adult and Pediatric
  IVIG Request Form - Solid Organ Transplant - Adult and Pediatric

  STEPS:

  1) Complete all required sections. **Any change to indication, dose, duration, or frequency requires a new request**.
  2) **NOTE:** IVIG dose is calculated using the patient's DOSING BODY WEIGHT (DBW) for all indications.
     - If Patient height **Under 152.4 cm**, Dosing Body Weight equals Actual Weight.
     - If patient height **over 152.4 cm**, use DBW calculator to obtain a clinically appropriate Dosing Body Weight.
     - Dose to be rounded down to the nearest 5g. Link to dosing calculator: IVIG Tools (nshealth.ca)

Subcutaneous Immune Globulin (SCIG)

- There is one request form to notify the Transfusion Medicine Lab of the intended treatment for patient's trained and approved for immunoglobulin self administration at home:

  SCIG Request Form - Adult and Pediatric

Electronic Crossmatch

- Over 90% of units crossmatched are eligible for an electronic crossmatch and can be performed in <2 minutes. Eligible patients have a negative antibody screen on a current Crossmatch specimen and no history of clinically significant antibodies. Therefore, blood requested on these patients will be crossmatched when there is an order to transfuse or going to the OR as opposed to being "On hand". In Meditech PCI a test called "Crossmatch", along with a canned text comment, will be added to identify these patients. See next page:

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To Check if Blood is "Ready" for a Patient Using Meditech PCI

- Check (as shown below) in Patient Care Inquiry (PCI) to determine blood availability. For routine requests, allow at least 2 hours from the time of sample collection before checking availability.

A) In MEDITECH bring up the Patient in PCI and use the right arrow or mouse click to select the following:

B) From the main PCI screen:

select ▶ Blood Bank Tests / Blood Bank History / Blood Bank Products then select ▶ Product: All Products / RED CELL CONCENTRATE (Date: 21 Jan 10:54, Time: 21 Jan 10:54)

or ▶ IRRADIATED RED CELL CONC *(as applicable)*

C) Check the Status, if:

1) **READY** - then unit(s) with this status are ready to be issued

Date	Time	Product	Unit	Status	Volume
21 Jan, 16	10:54	RED CELL CONCENTRA	C057116210101	READY	350

2) **ORDERED** – then go to the test screen (next screen)

Date	Time	Product	Unit	Status	Volume
21 Jan, 16	10:54	RED CELL CONCENTRA		ORDERED	

a) If there is a Test called **CROSSMATCH** with either of the comments below (in red), then units are ready to be issued the same as if they were READY as above. Example:

Most patients this comment will be seen:

```
> CROSSMATCH          | UNITS ARE READY!       |     |                  | REH
                      |  ** CALL TRANSFUSION MEDICINE WHEN READY TO TRANSFUSE **
                      |  THIS CROSSMATCH SPECIMEN EXPIRES 96h FROM 0843h 20/01/16
```

PACL surgical patients will have this comment:

```
> CROSSMATCH          | UNITS ARE READY!       |     |                  | REH
                      |  **** CALL TRANSFUSION MEDICINE WHEN READY TO TRANSFUSE ****
                      |  THIS CROSSMATCH IS VALID UNTIL 0800h ON THE 4th DAY POST-OP
```

b) If any of the following are seen, crossmatched blood is not yet available:

ELECTRONIC XM	PENDING RECEIPT	*OR*
ELECTRONIC XM	PENDING	*OR*
RCC	PENDING	

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How Long is the Specimen Good For?

- **SPECIMEN EXPIRY:**
  All transfusion medicine laboratory specimens are valid for 96 hours from the date and time of collection.

  Exception Specimens for future OR drawn in the DECRH Pre-Admit Clinic may be collected up to 28 days prior to the date of the procedure provided the patient in the 3 months prior to specimen collection:
  - has not been transfused with a blood component and
  - has not been pregnant

  If the patient has been recently transfused or pregnant as above, then the standard 96 hours for specimen expiry applies.

Crossmatched Blood Cancellations

- Patient's eligible for electronic crossmatch, i.e. those with no antibody(s) or other serological difficulties, do not have blood to cancel but do in fact have blood available until the crossmatch expires (96 hours from collection). For surgical patients this will be until 0800 on the 4th day post-op.
- Patient's with antibody(s) or those with special units reserved will have their crossmatched blood held until the specimen expires at 96 hours from collection.
- Autologous blood drawn by CBS will be held reserved for the patient until the autologous unit expires.

Emergency/Unmatched Blood Request

- Physician accepts responsibility for use of uncrossmatched blood by their (or designates) signature on the request form when the blood is delivered.
- The blood issued depends on urgency and circumstances as follows:

Circumstance	Fastest Available
No Sample (arrange collection STAT)	Uncrossmatched O Negative - 5 minutes
Sample drawn – not in lab	
Sample tested for ABO/Rh only (antibody screen pending)	Uncrossmatched Group Specific* - 5 minutes
Uncomplicated STAT crossmatch	Crossmatched Group Specific* - 40 minutes
Current Group & Screen already completed	Crossmatched Group Specific* - 10 minutes
Positive antibody screen or crossmatch	Time can vary extensively. Risks and benefits weighed on case by case basis. Communication crucial between Lab and ward/ physician

* Group Compatible may be substituted for Group Specific depending on inventory at hand

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Neonatal Blood Requests

- **EMERGENCY Neonatal Requests**
  - If testing as outlined for Routine requests has not been performed and the request is too urgent to wait, then:
    Group O Rh Negative irradiated CMV negative UNCROSSMATCHED blood will be provided. Physician's signature is required for uncrossmatched products.

- **ROUTINE Neonatal Requests**
  - An aliquot of Group O Rh Negative Irradiated Red Blood Cells that are ≤7 days old are used for routine neonatal transfusions.
  - Initial small volume transfusion request for baby, call to notify Transfusion Medicine and use GRPBLD in Order Entry. Order 1 unit RCC. Under comments specify volume to be transfused. Mother's name and hospital number must be on the requisition for cross-referencing.
  - Transfusion Medicine will divide the unit "aliquot" ensuring there is at least an extra 50 mL to account for tubing
  - For most requests 1 lavender microtainer specimen with a minimum of 250 uL is sufficient. In situations where there is no previous Group & Screen (G&S) or no recent G&S performed on the mom, and she is not available to have a current G&S drawn and tested, a lavender microtainer specimen with 1000 uL will be required.
  - Subsequent small volume transfusions call to notify Transfusion Medicine and use BLDBABY in Order Entry.
  - Crossmatches on neonates are initially valid until the neonate:
    - reaches 4 months of age or
    - has been discharged
  - In cases where the mother has a clinically significant antibody, contact the Transfusion Medicine Laboratory at extension 5454.

Requirement for ABO/Rh "Blood Group" Confirmation

- All **Group & Screen or Crossmatch** requests received on recipients with **no previous blood group record** will have a specimen ordered and tested by the Transfusion Medicine (TM) lab. This is to confirm the recipient's blood group and is required before group specific/group compatible red blood cells can be crossmatched and issued to a non-group O recipient. The TM lab will provide a "Tan" top colored vacutainer to the Patient Care Unit or with the phlebotomist along with a patient demographic label. Purpose of the standard is to further reduce the chance of inadvertently issuing incompatible blood which may result in a potentially life-threatening hemolytic reaction
- The urgency of the request for the confirmation specimen is directly proportional to the urgency and likelihood of a Red Blood Cell Transfusion. The collection of this specimen at each facility will follow the same process as any other Lab test requiring collection (Routine/Urgent/STAT).
- In urgent situations Group O blood can be issued until the blood group is confirmed, however this should only be a contingency followed with efforts to collect the confirmation specimen STAT

Reference: Kraegel J. (ed) Blood and blood components Z902-15, Mississauga, ON: Canadian Standards Association; December 2015. **Update No.1 – January 2018 10.6.1.3**

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ABO and Rh Compatibility Charts

✳RED BLOOD CELLS:

ABO selection order of compatible red blood cells				
Recipient's ABO Group	Donor ABO Group			
	1st Choice – ABO identical	2nd Choice – ABO compatible	3rd Choice – ABO compatible	4th Choice – ABO compatible
O	O	NONE	NONE	NONE
A	A	O	NONE	NONE
B	B	O	NONE	NONE
AB	AB	A	B	O

Rh selection order of compatible red blood cells			
A) Rh **Positive** recipients: either Rh Positive or Rh Negative red blood cells may be used			
B) Rh **Negative** recipients: **ABO & Rh** Selection order of compatible Red Blood Cells, are as follows:			
Recipient's ABO & Rh	1st Choice – ABO & Rh identical	2nd Choice – Rh Negative, ABO compatible	Last Choice – Rh Positive, ABO compatible
O Negative	O negative	NONE	O Positive
A Negative	A Negative	O Negative	A Positive O Positive
B Negative	B Negative	O Negative	B Positive O Positive
AB Negative	AB Negative	A Negative B Negative O Negative	AB Positive A Positive B Positive O Positive

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✳PLATELET PRODUCTS:

ABO selection order of platelet products				
Recipient's ABO Group	Donor ABO Group			
	1st Choice (ABO identical)	2nd Choice	3rd Choice	4th Choice
O	O	A	B	AB
A	A	AB	(B)*	(O)*
B	B	AB	(A)*	(O)*
AB	AB	(A)*	(B)*	(O)*
*Blood groups in (parentheses) represent choices with incompatible plasma, listed in "least incompatible" order				

Rh selection order of platelet products
• Rh **POSITIVE** Recipients: either Rh Positive or Rh Negative platelets may be used
• Rh **NEGATIVE** Recipients: Rh Negative platelets should be used, especially in children and women of child bearing age. In emergency situations and/or inventory availability, Rh Positive platelets may be substituted. In these cases, prophylactic Rh Immune Globulin must be ordered by the physician and given within 72 hrs.

✳PLASMA:

ABO selection order of compatible plasma for all recipients				
Recipient's ABO Group	Donor ABO Group			
	1st Choice – ABO identical	2nd Choice – ABO compatible	3rd Choice – ABO compatible	4th Choice – ABO compatible
O	O	A	B	AB
A	A	AB	NONE	NONE
B	B	AB	NONE	NONE
AB	AB	NONE	NONE	NONE

✳CRYOPRECIPITATE:

ABO selection order of cryoprecipitate
Cryoprecipitate recipients can be transfused with any ABO group, although neonates and minor children should be given ABO compatible units when possible. Volume of each unit of cryoprecipitate ~10+/-2 mL. Routinely Group A is kept in inventory at DECRH

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Sign Out of Blood Products

1) **NOTIFY LAB:** Call Transfusion Medicine when ready to begin administration and enter a "release" request via Order Entry. This release prints in Transfusion Medicine Laboratory. Only enter a release for one unit at time.
   NOTE: After hours at HDSJ and OPH refer to section "Sign-Out of Blood Products after LAB hours (HDP and OPH)"

2) **NOTIFY SPD (DECH):** Call SPD that a product is available to be picked up, provide the:
   - name of the patient and
   - delivery location

3) **RELEASE SLIP**: Sign out and transport of Blood Products to the patient care area must be performed by medical staff or SPD porter that has been trained to perform this function. A "release slip" consisting of an imprint of the patient's hospital demographics card on a label or the card itself is to be used to sign-out with the lab staff (SPD is to provide the name and delivery location)

4) **CHECK:**
   - Perform a visual inspection of product for leaks, abnormal appearance, port integrity etc. Refer to Canadian Blood Services Visual Assessment Guide on Skyline:
     Skyline home page → Tools & Resources → Patient Care → *click on* "Blood Products Administration
   - With the unit flat on a bench alongside the accompanying "Issue/Transfuse" form, verify with the lab staff the following:
     - Patient's name on the "Release Slip" (verbally provided to SPD porter) compared with the name on the Issue/Transfuse form and the crossmatch label match
     - Patient's Hospital Number on the "Release Slip" (n/a for SPD porter) compared with the **MEDIC #** on the "Issue/Transfuse" form and the **ID No** on the crossmatch label match

✳✳ *If ANY discrepancies are found, they MUST be resolved before release from the lab.* ✳✳

5) **SIGN:** On the Issue/transfuse form sign where it says "SIGNED OUT BY: _____ and write the TIME: _____.

6) **ARRIVAL AT PATIENT CARE LOCATION:** The unit is to be handed directly to medical staff at the patient care location. Do not leave the unit at the desk unattended.

7) **NOTES:** Do not call or send a release until ready and set-up to begin infusion. **Never use any refrigerator to store blood products on the nursing unit.** If an unexpected delay occurs, the product must be returned to the Transfusion Medicine Laboratory immediately. Blood components must be returned within 30 minutes, otherwise it will be discarded. The unit can be reissued from step 1 above when ready to start infusion.

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Blood Product Arrival

- **ARRIVAL OF BLOOD PRODUCT**
  When the unit is brought to the patient's location all processes as listed in Policy Number: HHN-CL-NU022 Administration of Blood Products must take place and performed as in the policy such as:
  - Visual Inspection, product expiration date/time
  - Mixing the product by gentle inversion
  - Verify product matches the physician's order
- Perform and verify with a second RN, LPN, RRT, Laboratory Technologist or Physician/NP, the identification on unit and Issue/Transfuse form as follows:
  - **Patient's name**
    - on the crossmatch label and the
    - name on the "Issue/Transfuse" form
  - **Patient's Hospital Number**
    - Hospital Number on the crossmatch label (**ID No**.) with that on the
    - "Issue/Transfuse" form (**MEDIC #**)
  - **Product Type:**
    - found in the middle left area of the unit label with that on the
    - crossmatch label (**Product**) and with that on the
    - "Issue/Transfuse" form
  - **Product (donor) number:**
    - found on the top left of the unit label with that on the
    - crossmatch label (**Unit/Lot#**) and with that on the
    - "Issue/Transfuse" form (**Product #**)
  - **Patient's (Recipient) blood group:**
    - on the crossmatch label (**Rec Bl Grp)** with that on
    - the "Issue/Transfuse" form (**BLD TYPE**)
  - **Product blood group**
    - located in the top right area of the unit label with the
    - crossmatch label (**Product Bld Grp**) <u>and</u> with the
    - Product blood group on the "Issue/Transfuse" form (in brackets [ ] between the product type and product number)

    NOTE: The product may not be group specific but <u>MUST</u> be ABO compatible. See section "**ABO and Rh Compatibility Charts".**
    If the unit is not group specific, the following statement under COMMENTS will be on the Issue/Transfuse form:

    ** UNIT IS NOT GROUP SPECIFIC BUT IS CONSIDERED **
    *****COMPATIBLE*****
  - **Markers:** If the patient has special requirements as ordered by the physician these must be listed on the crossmatch label (**Markers**) <u>and</u> on the "Issue/Transfuse" form "**Markers**", i.e. CMV Negative and/or Irradiated
  - If ANY discrepancies are found while performing the clerical check, notify the lab immediately. Do NOT use until discrepancies are resolved.

- **Perform Pre-Transfusion Check in the Presence of the Recipient (at the BEDSIDE) as per Policy**

- **DOCUMENTATION:** on the Issue/Transfuse form the following must be recorded:
  - Verified signatures for the Pre-transfusion check as well as signature of who administered
  - Transfusion start date/time and time ended with volume transfused
  - Comments as necessary
- After all the data has been entered on the Issue/Transfuse form, attach to the patient's chart.

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Sign-Out of Blood Products after LAB hours (HDP and OPH)

- Only one unit at a time may be released
- If ANY discrepancies are found with the procedures below, notify the lab tech on call immediately and return the unit to the refrigerator where it was taken. Do NOT Use.

- **RELEASE SLIP** as under "**Sign Out of Blood Products**".

- **BLOOD LOCATION**: Crossmatched blood along with the "Issue/Transfuse" form are located in the lab as follows:
  - HDP: on the top shelf of Refrigerator "BBR25 Blood Bank". This refrigerator has taupe colored sides and is located approximately 20 feet diagonally from the main lab door.
  - OPH: on the top shelf of the Refrigerator. This refrigerator is blue and located approximately 10 feet past the main lab door on the right.

- **CHECK:** as under "**Sign Out of Blood Products**".

- **DOCUMENTATION:** Enter the date and time of issue/release on the unit's crossmatch label
  - On the Issue/transfuse form sign by "INSPECTED BY:_____" and "SIGNED OUT BY: _____ and write the TIME: _____to indicate clerical checks and visual inspection was performed and found acceptable
  - Additionally, at:
    - HDP: Locate the patient's crossmatch requisition on the desk on the left side of the refrigerator. Next to the unit number being signed out initial and add the date and time.
    - OPH: affix the patient demographics label (Release slip) to the clipboard labeled "TRANSFUSION MEDICINE SIGNOUT RCC, APHFFP, PLATELETS" found on the wall immediately past the fridge to the left in the Transfusion Medicine area.

- **BLOOD PRODUCT ARRIVAL:** perform as under **"Blood Product Arrival".**

Emergency Unmatched O Neg Blood Release after LAB hours (HDP & OPH)

- There are 2 units of O Negative Red Blood Cells set aside in the event a patient does not have crossmatched blood and the physician has ordered an immediate emergency transfusion in response to a life-threatening situation. If this situation occurs, immediately contact the lab technologist on-call. Also ensure a crossmatch specimen is drawn STAT.
- The units are located in the lab as described in "Sign-Out of Blood Products after LAB hours (HDP and OPH)" above. The units will have a label attached above the large product information label as follows:

UNCROSSMATCHED RED BLOOD CELLS

Patient _____

Patient Unique ID# _____Pt ABO/Rh_____

Unit Number: _____ Unit ABO/Rh_____

Tech: _____ Date _____

Facility: ___ DECRH ___URUH ___OPH ___HDSJ Store at 1-10 C

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- Along with the unit is a Pink Blood Bank Transfusion requisition 01-1425 (09/92) or equivalent with the label where the physician must sign acknowledging and assuming responsibility for transfusing the uncrossmatched blood.

***** UNCROSSMATCHED BLOOD *****

I hereby request, and assume responsibility with my signed declaration below, the release of red cell concentrate(s) without compatibility testing due to the urgency of the clinical situation:

_____ _____

Signature (Physician or authorized designate) Date

- When blood arrives at the patient location write known patient information on the label and requisition.
- Verify the unit's number and blood group on the requisition matches the large unit information label.
- Sign the requisition when administered along with the date and time
- After transfusion, the top copy remains on the chart, return the carbon copy to the lab

Transfusing Blood Products at Community Health Centers:

- **Ensure the security seal on the crate is intact***
  - Cut the security seal with scissors and open the cardboard flaps
  - Remove the "Temperature in Transit to a Health Center for Transfusion" form and the Issue/Transfusion form. These should be on top of the Styrofoam cover
- **Check the date and time packaged has not exceeded 24 hours***
  - Remove the Styrofoam cover of the crate
  - Without disturbing the temperature probe, record the minimum, current and maximum temperature for the 1st unit on the "Temperature in Transit to a Health Center for Transfusion" form
- **All 3 temperatures must be in the range of 1-10°C for Red Blood Cell products or 20-24°C for platelets***
  - Remove a unit without disturbing the probe of the temperature monitor. (The probe is positioned between the gel pack and the bottom unit)
  - Immediately replace the cover
- **Observe the unit visually for abnormal appearance***
  - Administer according to Horizon Health Network Policy Number HHN-CL-NU022 Administration of Blood Products (Adult)
  - Repeat steps above for the 2nd and 3rd unit if applicable
  - When transfusions have completed, place the temperature monitor with probe along with the completed paper work in an envelope (the back copy of the issue/transfuse form and the "Temperature in Transit to a Health Center for Transfusion" form)
  - Address and send the envelope and CBS crate back to the Transfusion Medicine Laboratory at the DECRH (HDP if from TVCHC). Do not put the envelope in the crate, send separately
  - Discard the empty blood bags on site in the biohazard waste

*Notify DECRH Transfusion Medicine Lab at 506-452-5454 (HDSJ for TVCHC at 506-273-7198) immediately and do not transfuse the blood if:

- security seal is missing or appears tampered with
- time in transit exceeds 24 hours
- temperatures on the monitor are outside of 1-10°C for Red Cell products or outside of 20-24°C for platelets
- product has an abnormal appearance

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Transfusion Adverse Event / Reaction Investigation

- Any reaction suspected to be as a result of transfusion of a blood product should be investigated as an adverse event.
- Refer to Horizon Health Network Policy Number HHN-CL-NU022 Administration of Blood Products

For all Transfusion Reactions

1. **Stop the transfusion**
2. Maintain IV access with 0.9 % Sodium Chloride (NaCl)
3. Perform Clerical Check
4. Assess vital signs every 15 minutes until stable
5. Contact health care provider. Decision to restart the transfusion will be made by the Health Care Provider.
6. Notify Transfusion Medicine Laboratory

PROCEDURE:

- When the Health Care Provider orders a transfusion reaction investigation:

1) Order a “TRI” and a “U/A” in Meditech Order Entry
2) Collect 1 pink EDTA tube of blood (taken from a site other than the infusion site).
3) Collect first post-transfusion urine specimen for urinalysis (Indicate it’s for a Transfusion Reaction)
4) Consider chest x-ray if the patient is showing respiratory symptoms
5) Complete a Transfusion Reaction form with the following information:
    - Unit number(s) of product(s) implicated
    - ABO/Rh type of unit if applicable
    - Indicate whether a blood warmer was used
    - Time transfusion started
    - Volume given in mLs
    - Time the reaction was noted
    - Time transfusion stopped
    - Indicate whether patient has had a previous transfusion reaction
    - Indicate by check mark all the known clinical manifestations, use the “Other” category and specify if necessary
    - Record the vital signs taken before, during, and after
    - List “Action Taken”, such as medications
    - Sign and date the form
6) Immediately send blood specimens and the unused portion of the blood product with the administration set attached (appropriately bagged) to Transfusion Medicine Laboratory.
7) Monitor the patient’s vital signs every 15 minutes (TPR and BP) until stable.
8) See Transfusion Reaction Chart on the next page…

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TRANSFUSION REACTION CHART

Signs and Symptoms		May occur:	Actions & Suggested Treatment / Investigations	Possible Reaction
Fever and/or **Chills/ Rigors**	Temperature >38°C, <39°C and 1°C above baseline	during or up to 4 hrs. post-transfusion	1. Consider acetaminophen 2. Continue transfusion with caution	Febrile Non-Hemolytic Transfusion Reaction (FNHTR)
	Temperature >38.5°C with chills, rigors, shock hypotension , nausea, vomiting, tachycardia, bleeding, pain	during or up to 4 hrs. post-transfusion	1. **DO NOT** restart transfusion 2. Do blood cultures on recipient 3. TM will order blood cultures on product 4. Treat shock, DIC, renal failure 5. Consider use of broad spectrum antibiotics	Bacterial Contamination
	Temperature >39°C,chills, rigors, hypotension, nausea/vomiting, headache, pain, tachycardia, hemoglobinuria	early in transfusion up to 24 hrs. post-transfusion	1. **DO NOT** restart transfusion 2. Serologic testing to investigate incompatibility 3. DAT, LDH, BUN, Creatinine 4. IV fluids	Acute Hemolytic Transfusion Reaction (AHTR)
Urticaria (hives) and/or **Itching** and/or **Rash**	<2/3 of body affected and no other symptoms	within 2-3 hrs. of initiating transfusion	1. Consider diphenhydramine IV / PO 2. Restart transfusion with caution if not more than 4 hours since begun 3. After 2 episodes, consider premedication with antihistamine	Minor Allergic
	>2/3 of body, + dyspnea, hypotension,↓SPO_2, hoarseness, nausea/vomiting	within 45 min. of initiating transfusion	1. **DO NOT** restart transfusion 2. Consider diphenhydramine IV / PO 3. Provide supportive care, oxygen	Severe Allergic/ Anaphylactoid
	as above **AND** profound hypotension, loss of consciousness	within 45 min. of initiating transfusion, often within first 5 min.	1. **DO NOT** restart transfusion 2. Consider epinephrine, fluid bolus, vasopressors for intractable hypotension; ventilator support	Anaphylactic
Dyspnea and/or **↓ Oxygen Saturation**	Dyspnea, orthopnea, cyanosis, hypoxemia, tachycardia, hypertension, pulmonary/ pedal edema, elevated JVP	within 1-2 hrs. of initiating transfusion up to 6 hrs. post-transfusion	1. **DO NOT** restart transfusion 2. Give oxygen, diuretics 3. Elevate head of bed 4. **Chest X-ray to rule out TRALI**	Transfusion Associated Circulatory Overload (TACO)
	Dyspnea, hypotension, fever/chills; +/- nausea /vomiting, DIC, hemoglobinuria, +/- pain	early in transfusion up to 24 hrs. post-transfusion	As above for Bacterial Contamination and Acute hemolytic (AHTR)	Acute Hemolytic Reaction (AHTR) or Bacterial Contamination
	Acute Respiratory distress, dyspnea, cyanosis, severe hypoxemia, severe bilateral pulmonary edema, bilateral infiltrates on chest X-ray, hypotension unresponsive to fluid bolus	within 1-2 hrs. of initiating transfusion up to 6 hrs. post-transfusion	1. **DO NOT** restart transfusion 2. Do chest X-ray 3. Consider oxygen, intubation and ventilation, vasopressors	Transfusion Associated Acute Lung Injury (TRALI)

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OTHER REACTIONS THAT MAY OCCUR OR BE OBSERVED:

During:

- Bradykinin Mediated Hypotension (>30 mmHg drop in systolic or diastolic blood pressure-Adults)

Post transfusion:

- Delayed Reactions
  - Immune and/or Amnestic response to donor red cell antigens (alloantibodies)
- Hemolysis from:
  - Use of hypotonic IV solutions with RBC transfusions
  - Medical device-related (e.g. cell saver, blood warmer malfunction)
  - Overheating of RBCs due to improper storage (e.g. RBC placed on radiator)
  - Freezing of RBCs (e.g. transport of blood directly on ice or storage in freezer)
  - Transfusion of RBCs under pressure through a small bore needle
  - Transfusion of outdated RBCs
- Transfusion-Associated Graft vs Host Disease (TA-GvHD)
- Cytopenias
  - Post-Transfusion Purpura
  - Transfusion-Related Alloimmune Thrombocytopenia
  - Transfusion-Related Alloimmune Neutropenia
- Transfusion associated viral infection
  - HIV: 1 in 7.8 million
  - HCV: 1 in 2.3 million
  - HBV: 1 in 153,000
  - Human T-cell lymphotropic virus (HTLV): 1 in 4.3 million
  - West Nile Virus (WNV): <1 in 1 million
  - Cytomegalovirus (CMV)
- Other rare infectious agents
  - Viral – Parvovirus B19, Hepatitis A virus, Tick-borne encephalitis, Dengue, Colorado Tick Fever, Human herpes virus 8, Chikungunya, SEN-Virus (Sen-V), Simiam foamy virus (SFV)
  - Protozoal – Malaria, Toxoplasmosis, Leishmaniasis, Babesiosis
  - Helminthic – Filariasis
  - Spirochetal – Treponema pallidum (Syphilis)
  - Rickettsial – R. rickettsii (Rocky Mountain Spotted Fever), R. burnetii (Q fever), Ehrlichia (Ehrlichiosis)
- Transfusion associated infection with prions
  - Variant Creutzfeldt-Jakob Disease (vCJD)

Reference: Clinical Guide to Transfusion, Chapter 10 Adverse Reactions

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Massive Transfusion Protocol (MTP)

- One algorithm for blood product support is utilized by the Transfusion Medicine Lab when an MTP is activated, I.e. for Trauma patients, Surgical patients, Obstetrics & Gynecology and ICU. Refer to: HHN-CL-GC004 Massive Transfusion in the Major Trauma Patient

- COMPLICATIONS OF MASSIVE TRANSFUSION:
  - Dilutional coagulopathy
  - Hypothermia
  - Hypocalcemia/Hypomagnesemia/Citrate toxicity
  - Metabolic acidosis
  - Hyperkalemia

Blood and Blood Component Resources

- See below for each product type where the following information can be located:
  - Descriptions
  - Actions
  - Indications and usage
  - Contraindications
  - Adverse reactions and hazards
  - Dosage, dosage forms and administration

A) Copies of the CBS "Circular of Information for the Use of Human Blood and Blood Components" for:
   - Red blood cells
   - Platelets
   - Plasma and Cryoprecipitate

   can be obtained from the Transfusion Medicine Lab or accessed on the Canadian Blood Services website using the link: https://blood.ca/en/hospitals/circular-information

B) Refer to the product's monograph for Factor Products such as:
   - FVIII concentrate (Advate, Helixate, Kogenate, Xyntha)
   - FVIII/vWF concentrates (eg. Humate, wilate, etc.)
   - Prothrombin Complex concentrate (Octaplex, Beriplex)
   - FVIIa concentrate (NiaStase)
   - C1-Esterase Inhibitor concentrate (Berinert)
   - FVIII Inhibitor Bypassing Activity concentrate (FEIBA)
   - FIX concentrate (BeneFIX, Immunine)
   - Fibrinogen Concentrate (RiaSTAP)

C) Refer to the product's monograph for Immunoglobulin Products such as:
   - Intravenous Immune Globulin (Gamunex/IGIVnex, Gammagard, Privigen, Octagam)
   - Rh Immune Globulin (WinRho)
   - Hepatitis B Immune Globulin (HyperHEP B, HepaGam B)
   - Varicell-Zoster Immune Globulin (VariZIG)

D) Refer to the product's monograph for Albumin: 5% and 25% (Plasbumin, Alburex, Albumin)

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Section 5: Microbiology

Specimen Maximum Delay in Transport

Specimens must reach the Microbiology Laboratory within a specified time period in order to be suitable for examination.

SPECIMEN	MAXIMUM DELAY	TEMPERATURE	COMMENTS
Urine	1 day	4-8°C	Should reach the laboratory within 1 day of collection. Specimens will be accepted up to 2 days.
Pertussis Swab	5 days	4-8°C	Nasopharyngeal swab collected in UTM (Viral Transport media)
Stool C&S- in Enteric transport	72h	RT	Collect in screw-capped container with buffer
Stool C&S- NOT in Enteric transport	<2 hours	RT	**NOT** processed if >2 hours old.
Stool O&P – with SAF	Indefinitely	RT	Providing well mixed & proper volumes
Stool O&P - without SAF	24h	RT	Send ASAP after collection
Stool C. difficile	24h	4-8 °C	Collect in clean, dry container. Should reach the laboratory within 1 day of collection. Specimens will be accepted up to 72 hours.
Stool H. pylori	4-7 days	4-8 °C	Good for 7 days at 4-8 °C but testing is batched so check for testing day
Enterotest, Duodenal aspirate, Amoeba	ASAP	RT	Collect in clean, dry container
Leukocytes (stool)	Test no longer available		Collect in clean, dry container at RT
Throat/Nose swab	48h	RT	
Sputum / E-tube	48h	4-8 °C	Purulent specimen, minimal salivary contamination
- TB culture	5 days	4-8 °C	Referred. Time to receipt in Saint John.
Cervical/Urethral swab	48h	RT	
Vaginal swab	72h	RT	
Vaginal/Rectal swab (GBS)	48h	RT	
Wound swab / Pus	48h	RT	
- Anaerobic culture	ASAP	RT	Use of anaerobic transport media is optimal
Blood specimens	36h	RT	
CSF / Body Fluid	STAT		Urgent specimen
	During the day: Culture immediately. Technologist on-call after regular hours.		
- in Blood culture bottle	36h	RT	
Chlamydia: Swab	90 days	4-8 °C or RT	Chlamydia collection kit
Urine	24 hours	4-8 °C	Collect in clean, dry container
Viral -PCR and Culture	24h	4-8 °C	Usually UTM (Universal {Viral} Transport Medium. Refer to LUM for source or DECH Microbiology staff
Skin scrapings (Mycology)	72h	RT	Collect in sterile screw capped container

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Turn Around Times - Microbiology In-House Testing

Specimen Type	Preliminary	Positive or Final	Negative Final	Notes
CSF or other sterile Body Fluid	1 hour for gram 18-24 hours for culture	24-72 hours depending on the isolate	72 hours	
Blood Cultures	Gram stain result within 1 hour of being flagged positive	24-48 hours after isolation of a significant isolate	Final -5 days Preliminary-48 hrs	Specific cultures are kept for extended periods
Urine	Within 18-24 hours of incubation	18-48 hours	18-24 hours	
Wounds	18-24 hours if a significant organism is present	18-48 hours	48-72 hours	Certain cultures may be kept for extended periods
Throat Screen Plate	18-24 hours	18-24 hours	48 hours	
Eyes, ears	18-24 hours if a significant organism is present	24-48 hours	48 hours	
Sputum or other respiratory specimens	Stat gram: 1 hour 18-24 hours if a significant organism is present	24-48 hours	48 hours	
Stool Culture	18-48 hours - notification within 1 hour of any positive findings	24-48 hours after isolation	48 hours	Some isolates may be sent to a reference lab, resulting in delays

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Specimen Type	Preliminary	Positive or Final	Negative Final	Notes
Vaginal Smears	N/A	24-72 hours	24-72 hours	Not routinely processed on weekends
Group B Strep Screen	N/A	24-48 hours	24-48 hours	
Cervical/Urethral	Significant cultures as appropriate	24-48 hours	72 hours	
Stool- C. difficile Toxin A&B Screen	N/A	Upon receipt if required stat, otherwise testing performed once daily	24-48 hours	
C. difficile Molecular	N/A	24-48 hours	24-48 hours	Not routinely processed on weekends
Covid/Flu/RSV	N/A	Testing performed upon receipt of specimen.(ASAP)	Testing performed upon receipt of specimen.(ASAP)	Testing only available Monday-Sunday 0700-2200
Stool O/P	N/A	3-6 days	3-6 days	Not routinely processed on weekends
Chlamydia/GC	N/A	2-5 days	2-5 days	Not routinely processed on weekends
Hepatitis Testing	N/A	2-5 days	2-5 days	Not routinely processed on weekends
Mycology	Calcofluor white stain: 1-3 days	Dependent on organism growth rate.	4 weeks	Not routinely processed on weekends

NOTE: Referred-out tests TATs cannot be guaranteed as this is governed by the Referral Laboratory.

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Sputum Collection – Patient Instructions

Please refer to "Instructions for collection of Sputum Specimens form # HHN-0452".

Urine Collection for Microbiology Testing – Patient Instructions

Urine is normally a sterile body fluid. However, unless it is collected properly, it may become contaminated with normal flora from the urethra, vagina, prostate or perineum.

Please refer to "Instructions for Collection of Urine Specimens for Microbiology Testing" form # HHN-0822 for routine midstream urine collections.

Voided Urines:

Midstream urine (MSU)
First, carefully clean the urethral meatus. Then void and discard the first 10 - 20 mL of urine in order to clear the urethra. Collect the subsequent urine into a clean, sterile container.

Neonatal bagged urine
Place a clean collection bag over the external genitalia. Transfer the urine from the bag into a clean, sterile container.

Indwelling catheter urine (Foley catheter/suprapubic indwelling catheter)
Access the urinary catheter port aseptically, aspirate urine and transfer the urine into a clean sterile container.

Ileal conduit urine
Clean the stomal opening with alcohol. Insert a sterile catheter to collect the urine and transfer the urine into a clean, sterile container.

In and Out Catheter / Catheter Insertion Urine
Collect urine into a clean, sterile container immediately following the initial insertion of a catheter into the bladder.

Aseptically Collected Urines:

Nephrostomy urine
Urine draining from a nephrostomy tube placed in the renal pelvis is collected by gravity directly from the nephrostomy catheter (not from the collection bag) into a clean, sterile container.

Cystoscopy urine
Collect urine into a clean, sterile container following temporary insertion of a cystoscope into the bladder.

Suprapubic urine aspirate
Aspirate urine through the bladder using a sterile needle and syringe. Transfer the urine into a clean, sterile container. Procedure performed by physicians.

**Nursing – refer to Perry and Potter for additional guidance on specific urine collection procedures

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Stool Collection for Microbiology Testing – Patient Instructions

Please refer to HHN-0448 Instructions for Collection of Stool Specimens for Microbiology

Collection of Blood Cultures

The most important factor in recovering microorganisms in a blood culture is the volume of blood drawn. **The volume of blood inoculated into any blood culture bottle presently used should not be more than 10 mL. Overfilling of the bottle upsets the blood/broth ratio and may cause false negative results. Underfilling may also result in false negatives.**

***NOTE: NEVER COLLECT BLOOD CULTURES FROM A PERIPHERAL IV LINE.**

A. In adults and children weighing > 80 lb (36.5 kg):

1. Draw first set - 10 mL each into an aerobic (1st) and anaerobic (2nd) blood culture bottle. Collect the second set in the same order from the same site.

   Alternatively, for the second set, repeat the venipuncture using a new sterile withdrawal set, from a separate anatomical site (i.e. opposite arm), before starting therapy.

B. For infants and young children:

1. **Neonates to 1 yr** (4 kg): Obtain 0.5 to 1.5 mL/pediatric blood culture bottle. The ordering physician should be contacted if there is concern about the amount of blood to be collected or has had previous venipuncture for other reasons.

2. **Children weighing 30 to 80 lb (13.6-36.3 Kg)**: Obtain 0.5 to 3 mL/pediatric blood culture bottle. Two collections are recommended. The ordering physician should be contacted if there is concern about the amount of blood to be collected, especially if the child is below normal weight or has had previous venipuncture for other reasons.

Refer to the Blood Culture Section of the Regional Phlebotomy Manual for further information.

Recommendations Regarding the Use of Blood Culture Identification 2 (BCID2) Panel Data

The Microbiology laboratory at the DECRH offers the BioFire® FilmArray® BCID2 to provide rapid identification of certain bacteria and yeasts from blood cultures in the clinical setting, allowing for earlier transition to optimal therapy.

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It also detects 10 genes associated with antimicrobial resistance, including those responsible for methicillin resistance in staphylococci, vancomycin resistance in enterococci, carbapenem resistance in Gram-negative bacteria, and one of many genes encoding for extended-spectrum β-lactamase.

Table 1: List of isolates and resistance genes detected

Gram-positive bacteria	Gram-negative bacteria	Yeast	Resistance genes

• *Enterococcus faecalis*
• *Enterococcus faecium*
• *Listeria monocytogenes*
• Staphylococcus spp.
  ○ *S. aureus*
  ○ *S. epidermidis*
  ○ *S. lugdunensis*
• Streptococcus spp.
  ○ *S. agalactiae* (Gr. B)
  ○ *S. pyogenes* (Gr. A)
  ○ *S. pneumoniae*
	• *Enterobacterales*
	  ○ *E. cloacae* complex
	  ○ *E. coli*
	  ○ *K. aerogenes*
	  ○ *K. oxytoca*
	  ○ *K. pneumoniae* group
	  ○ *Proteus* spp.
	  ○ *Salmonella* spp.
	  ○ *Serratia marcescens*
	• *Pseudomonas aeruginosa*
	• *Haemophilus influenzae*
	• *Neisseria meningitis* (encapsulated)
	• *Acinetobacter baumannii* complex
	• *Stenotrophomonas maltophilia*
	• *Bacteroides fragilis* (anaerobe)
		• *Candida albicans*
		• *Candida auris*
		• *Candida glabrata*
		• *Candida krusei*
		• *Candida parapsilosis*
		• *Candida tropicalis*
		• *Cryptococcus neoformans/gattii*
			• Carbapenemases
			  ○ KPC
			  ○ NMD
			  ○ OXA-48-like
			  ○ VIM
			  ○ IMP
			• Methicillin resistance
			  ○ *mecA/C*
			  ○ *mecA/C* and MREJ (=MRSA)
			• Vancomycin resistance
			  ○ *vanA/B* (=VRE)
			• Colistin resistance
			  ○ *mcr-1*

This assay will primarily be performed on blood cultures that reveal the presence of Gram-positive cocci in both sets and demonstrate positivity within 24 hours. Blood cultures with evidence of yeast on the Gram stain will also undergo testing with the BCID2 assay.

The results of this assay will be transmitted to the Infectious Diseases and/or Antimicrobial Stewardship Teams to guide interpretation of results and tailoring of antimicrobials.

In certain situations, the assay will be performed when requested by Infectious Diseases/Medical Microbiology. These instances include but are not limited to: sepsis, high suspicion of MDR Gram-negative organism, clinical parameters/allergies not permitting broad spectrum empiric therapy, smudge method not possible/contributory.

The BCID2 is not performed after-hours or on the weekend unless there is an ID/MM physician or ASP pharmacist involved who will interpret results and guide therapy. The utility and cost-effectiveness of this test is entirely dependent on clinicians reacting to the data.

Given the limited number of targets on the panel, several potential pathogens might still be present in the specimen and are not identified by this PCR assay. Therefore, it is important to maintain adequate empiric coverage when in doubt until final culture results are reported.

Additionally, the detection of a resistance gene does not always equate to confirmation of resistance when compared with the phenotypic AST. **A Not Detected result for a genetic marker of antimicrobial resistance cannot be definitely linked to the microorganism(s) detected and/or isolated.** Additionally, although CTX- is the most commonly isolated ESBL gene, many

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other resistance genes could be present and confer resistance although not detected by this assay.

Final pathogen identification and susceptibilities are usually available in 24-72 hours and should always be reviewed to determine if therapy adjustments should be made. For example, the *E. coli* assay cross reacts with *Shigella* species which are practically indistinguishable from *E. coli* by both phenotypic and genetic analyses but are only very rarely isolate in blood culture.

Common Misinterpretation of Results from Rapid Blood Culture Identification Panel

The BCID2 identifies pathogens to the genus (*Staphylococcus* spp., *Streptococcus* spp.) or order-level (*Enterobacterales*). Confusion could occur with the interpretation of these analytes as well as markers of antimicrobial resistance. A genus includes numerous bacterial species.

Results for AMR genes are not reported unless an applicable bacterium is also detected, therefore the results are based on multiple assays.

The results for each of the antimicrobial resistance genes will be listed as:

- Detected – when an applicable bacterium is detected AND the antimicrobial resistance gene assay(s) are positive.
- Not Detected – when an applicable bacterium is detected AND the antimicrobial resistance gene assay(s) are negative.
- N/A – when all applicable bacteria are Not Detected, regardless of the result of antimicrobial resistance gene assay(s).

For example, the *Staphylococcu*s genus PCR detects multiple species of staphylococci including *S. aureus*, *S. epidermidis*, *S. hominis* and others. When *S. aureus* is present, the *Staphylococcus* genus and *S. aureus* analytes will both be detected. Similarly, when *S. epidermidis* is present both the *Staphylococcus* genus and the *S. epidermidis* markers will be positive. But when a coagulase-negative staphylococcus such as *S. hominis* is present, only the *Staphylococcus* genus analyte will be detected.

For oxacillin resistance to be detected in *S. aureus* (MRSA), both the *mecA/C* gene and the MREJ target (which detects the far-right extremity of SCCmec and orFX and is a *S. aureus* specific target) need to be detected. Thus, detection of *mecA/C*/MREJ suggests MRSA is present.

The detection of only *mecA/C* without MREJ when *Staphyloccus* genus and *S. aureus* are positive indicates that a Coagulase-negative *Staphylococcus* (e.g. MRSE) may also be present in addition to *S. aureus*. The *mecA/C* result is only reported when one of the specific staphylcoccal species is detected (*S. epidermidis*, or *S. lugdunensis*). Thus, if only the *Staphylococcus* genus is detected *mecA/C* will not be reported even if it demonstrates oxacillin resistance.

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It is also possible to obtain a Detected result for *Staphylococcus aureus mecA/C* and MREJ (MRSA) using the BioFire BCID2 Panel but to recover an isolate from culture that is characterized as methicillin sensitive *S. aureus* (MSSA) using phenotypic AST methods. This can occur when a sample contains a strain of *S. aureus* that carries the *orfX* gene (MREJ) with an empty *mecA/C* (phenotypically MSSA) in a co-culture with a second *Staphylococcus* species carrying the *mecA/C* gene. This may also be observed in instances of heterogenous cultures of MRSA and MSSA.

Another area of confusion is concerning the *Enterobacterales* order. Families within this order encompasses many Gram-negative organisms including *E. coli, Klebsiella* species, *Enterobacter* species and *Proteus*, among others. Thus when *E. coli* is present, both the *Enterobacterales* and *E. coli* analytes will be positive. If an *Enterobacterales* order member that does not have a species-specific PCR target is present (e.g. *Citrobacter* species), only the *Enterobacterales* analyte will be positive.

Occasionally the BCID2 panel will be completely negative suggesting that the recovered pathogen does not figure on the offered panel.

Fecal Culture and Parasite Examination on Inpatients Hospitalized > 3 Days

The following changes in acceptance criteria for specimens requesting 1) fecal culture and 2) parasite examination are being made at this time as per guidelines issued by the American Society for Microbiology.

1. The laboratory will commence rejecting fecal cultures received from **adult** patients hospitalized for **> 3 days**, unless the patient is known to be HIV virus positive or in cases of a cluster epidemic within the hospital. Stool specimens from **infants and toddlers will not be rejected until after the 4th day of hospitalization** since it is recognized that it may take longer to collect a stool sample from such patients admitted for gastroenteritis for a variety of reasons i.e. not eating a normal diet.

   Local data: Of 2543 inpatient stool cultures collected in DECH between 2008-2010, 35 were positive for enteric pathogens and of these 34 were collected within the first 72 hrs of admission to hospital and, conversely, only one was collected after 72 hrs of admission. In the case of patients who develop diarrhea after 3 days of admission, the most probable cause is C. difficile colitis.

2. The laboratory will reject stools for **parasite** examination from **inpatients that have been in hospital for > 3 days**. Data suggests that patients who develop diarrhea following a few days of hospitalization are symptomatic not from parasites but generally from other causes. There is always the chance (rarely) that the problem is related to a hospital associated parasitic infection i.e. possibly Cryptosporidium and microsporidium. In any case where this is a concern, the involved physician is requested to call the Microbiologist (452-5254) or Chief Technologist (452-5464).

   Local data: During the period 2008-2010, 7 inpatient stools were positive for parasites. All stools were collected within one day of admission.

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Collection of Specimens (swabs etc.)

Nasal swab

- Insert dry swab into nostril approximately 1.0 to 1.5 cm parallel to the palate.
- Leave in place for about 5-15 seconds.
- Slowly withdraw with a rotating motion.
- Using the same swab repeat for the other nostril.
- Tip of the swab is placed in the supplied plastic vial containing viral transport medium and applicator is broken/cut off. Screw cap on.
- Apply patient label.
- Double bag specimen and take to lab.

Nasopharyngeal Swab

- Explain the procedure to the patient.
- Use the NP swab supplied with the viral transport media.
- If the patient has a lot of mucus in the nose, this can interfere with the collection of cells. Either ask the patient to use a tissue to gently clean out visible nasal mucus or clean the nostril yourself with a cotton swab (e.g. Q-Tip).
- Estimate the distance to the nasopharynx: prior to insertion, measure the distance from the corner of the nose to the front of the ear and insert the shaft approximately 2/3 of this length.
- Seat the patient comfortably. Tilt the patient's head back slightly to straighten the passage from the front of the nose to the nasopharynx to make insertion of the swab easier (see Figure 1)
- Insert the swab provided along the medial part of the septum, along the floor of the nose, until it reaches the posterior nares; gentle rotation of the swab may be helpful. (If resistance is encountered, try the other nostril; the patient may have a deviated septum.)
- Allow the swab to sit in place for 5–10 seconds.
- Rotate the swab several times to dislodge the columnar epithelial cells. Note: Insertion of the swab usually induces a cough.
- Withdraw the swab and place it in the collection tube. (Swab shaft may be broken off. Screw cap on)
- Apply patient label
- Double bag and transport to lab immediately.

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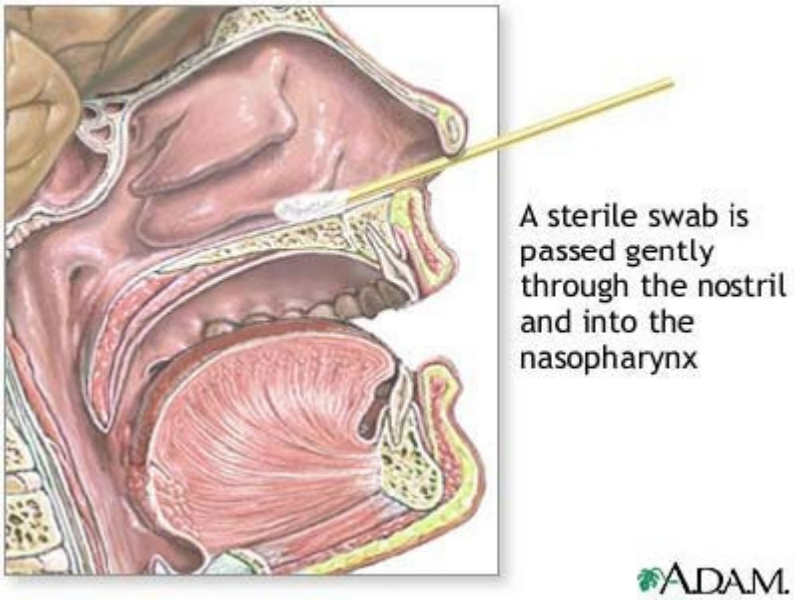
Figure 1: Nasopharynx (NP) swab collection



Obtained from: http://www.nlm.nih.gov/medlineplus/ency/imagepages/9687.htm

Throat swab

- Both tonsils and the posterior pharynx are swabbed vigorously, and the swab is placed in the appropriate transport medium.
- Apply patient label. If hand labelling, write patient name, unique identifier (i.e. Medicare) and source of specimen
- Double bag and send to lab.

Creutzfeldt-Jakob Disease (CJD) and Other Classic TSEs

It is important for healthcare personnel to follow best practices to prevent transmission of prion diseases such as Creutzfeldt-Jakob Disease (CJD), which is also known as Transmissible Spongiform Encephalopathy (TSE), sporadic CJD (sCJD), variant CJD (vCJD), Gerstmann-Straussler-Scheinker syndrome (GSS), and Fatal Familial Insomnia (FFI).

The Department of Laboratory Medicine is committed to providing procedures that ensure all laboratory staff handling specimens from at-risk or high-risk patients for CJD is aware of the precautions necessary to prevent transmission.

Because of the additional precautions and potential associated risks to performing CJD testing, requests are restricted to Neurologists only and should only be collected at DECRH from Monday to Friday between 0830-1200. The lab must be contacted prior to any collections and also for requests to collect at other healthcare facilities.

If a concern arises, please notify the Microbiology Division Manager and/or consult with the Medical Microbiologist.

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Procedure for Labelling and Transport Protocol for CJD Specimens for Nursing Units

Procedure is to be performed Monday - Friday between the hours of 0830 and 1200 only

<u>Microbiology lab must be consulted before testing is ordered or sample is collected.</u>**

- After specimens have been collected, please contact the Microbiology Department at 452-5465 to notify the laboratory that a spinal fluid for CJD will be sent
- Place each <u>labelled</u> specimen tube into an individual plastic bag
- Seal each plastic bag
- Label each bag with a 'CJD precautions' sticker (stickers may be obtained by calling Sample Receiving in the Chemistry lab @ 452-5435)
- Place all labelled bags together into another bag and label outer bag with 'CJD precautions' sticker
- Place bag in a Styrofoam cup to keep specimen tubes upright
- If paper requisition(s) are required, <u>place into a separate sealed bag</u>
- Send the specimen(s) by SPD porter to the laboratory ASAP (do not send in Pneumatic Tube System)

Specimen Types:
Blood, cerebral spinal fluid (CSF), tissue, blood cultures, other body fluids

Identification of Infectivity Risk of Tissues/Fluids

High risk	Medium risk	Low risk
- Brain - Spinal cord - Dura mater - Posterior eye - Pituitary - Cranial nerves & ganglia	- Spinal ganglia - Olfactory epithelium **<u>In vCJD only:</u>** • Tonsil • Spleen • Appendix • Thymus and GALT	All others not listed in other categories including: - **CSF** - Blood - Saliva - Urine - Most peripheral (non-CNS) tissues
		Thought to contain very low concentrations of infectious agent. Containment Level 2 (**general and/or enhanced general laboratory precautions**)

vCJD = variant CJD

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Section 6: Haematology

Maximum Delay in Transport		
Maximum Delay in Transport indicates the maximum allowable time before a sample must be tested. Samples arriving at or just before the time may be rejected, as specimen preparation/testing time may exceed the time limit		
Test	**Maximum Delay**	**Temperature**
CBC & Reticulocyte	24 hours	Room temperature
PT	24 hours uncentrifuged	Room temperature
D-dimer, Fibrinogen, Factor VIII assay, Non-heparinized patient APTT	4 hours uncentrifuged	Room temperature
	Centrifuged twice and plasma placed in aliquot tube within 2 hours of collection	Frozen
Heparinized patient APTT	1 hour uncentrifuged	Room temperature
	Centrifuged twice and plasma placed in aliquot tube within 1 hour of collection	Frozen
Platelet Function Screen	4 hours	Room temperature
Serous fluids (except for synovial fluids)	24 hours	Refrigerated immediately
Synovial Fluids	Deliver immediately	Room temperature
CSF	Deliver immediately	Room temperature
Bronchial Lavage	Up to 3 hours	
Flow cytometry	Deliver immediately	Room temperature
Autoimmune (ANA, IFA, etc.)	Centrifuged and serum placed in aliquot tube within 2 hours of collection	Refrigerated
RPMI specimens	Deliver immediately	

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CBC:
A Complete Blood Count includes a hemoglobin, counting and sizing information for leukocytes, red cells and platelets and a differential leukocyte count. The CBC is processed using advanced cellular analysis systems. The differential is generated by technology which uses volume, conductivity and light scatter measurements. Results that fall outside the action limits recommended by the International Consensus Group for Hematology or any values that are flagged by the analyzer are followed up with a microscopic examination.
Results for the absolute neutrophil cell population may be reported in Meditech ABS NEUT COUNT or NEUT/AB depending on the method by which it was counted.

Flow Cytometry:

Cerebral Spinal Fluid:

When required, flow cytometry samples must be collected in addition to anatomical pathology or cytology as **specimens cannot be shared.**

1. Cytology Specimens
   - Handle as usual (main/prime specimen).
   - Complete Cytology requisition.
   - Collect a minimum of 1.0 mL of cerebrospinal fluid in a sterile tube and deliver specimen and requisition to Cytology Lab immediately.

2. Flow Cytometry
   - Call Haematology/Flow Cytometry (452-5007) when flow cytometry planned.
   - **Specimens can be collected Monday-Thursday only,** since flow cytometry specimens must be processed within 24 hours because of cell "viability" and due to the limited technical staff trained in this highly specialized testing procedure. Specimens are referred to the Saint John Regional Hospital for processing.
   - Complete a Haematology requisition stating for "Flow Cytometry"
   - Collect a minimum of 3.0 mL of cerebrospinal fluid in a sterile tube.
   - Deliver specimen and requisition to Haematology Lab immediately.

Lymph node specimens where lymphoma suspected, and flow cytometry requested:
When required, flow cytometry samples must be collected in addition to anatomical pathology or cytology as **specimens cannot be shared.**

- Call Haematology/Flow Cytometry (452-5007) when flow cytometry planned.
- **Specimens can be collected Monday-Thursday only,** since flow cytometry specimens must be processed within 24 hours because of cell "viability" and due to the limited technical staff trained in this highly specialized testing procedure. Specimens are referred to the Saint John Regional Hospital for processing.
- For surgical or fine needle aspirate samples, sterile pink RPMI solution for flow cytometry cell preservation is routinely available in the DECRH O.R. If additional solution is required, call Anatomical Pathology (452-5478) Monday to Friday, 0630 to 1630.
- See below for specimen procurement.

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Surgical Specimens
(Anatomical Pathology 452-5478/ Flow Cytometry 452-5007))

When required, flow cytometry samples must be collected in addition to anatomical pathology samples as **specimens cannot be shared.**

1. Routine Anatomical Pathology Specimens
   - Handle as usual (prime specimen)
   - Place specimen in formalin.
   - Complete Anatomical Pathology requisition.
2. Flow Cytometry
   - Place piece of fresh tissue (5 mm cube or needle core specimens at least 1 cm long each) in pink RPMI solution.
   - Complete a Haematology requisition stating “Flow cytometry”.
   - Call Haematology/Flow Cytometry at 452-5007 and deliver to lab ASAP.

Note: Do not leave fresh tissue dry for prolonged periods.

Fine Needle Aspirates
(Cytology 452-5489/Flow Cytometry 452-5007)

When required, flow cytometry samples must be collected in addition to cytology samples as **specimens cannot be shared.**

1. Cytology Specimens
   - Handle as usual (main/prime specimen).
   - Place specimen in cytology CytoLyt preservative.
   - Complete a blue Cytology requisition.
2. Flow Cytometry
   - Procure material from multiple additional needle passes to ensure sufficient material for analysis. Place aspirated material in RPMI solution.
   - **Specimens can be collected Monday-Thursday only,** since flow cytometry specimens must be processed within 24 hours because of cell “viability” and due to the limited technical staff trained in this highly specialized testing procedure. Specimens are referred to the Saint John Regional Hospital for processing.
   - Complete a Haematology requisition stating “Flow cytometry”.
   - Call Haematology/Flow Cytometry at 452-5007 and deliver to lab ASAP.

Body Fluids
(Cytology 452-5489/Flow Cytometry 452-5007)

When required, flow cytometry samples must be collected in addition to cytology samples as **specimens cannot be shared.**

1. Cytology Specimens
   - Handle as usual (main/prime specimen)
   - Place specimen in cytology Cytolyt preservative. (pink-topped “Cytology Only” specimen container)
   - Complete a blue Cytology requisition
2. Flow Cytometry
   - Collect 5-6 EDTA 4 mL draw tubes when possible
   - Complete a Haematology requisition stating “Flow Cytometry”
   - Call Haematology/Flow Cytometry at 452-5007 and deliver to lab ASAP

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Autoimmune Aliquot Requirements:

Profile	Name	Tests Included	Aliquots
ANA	Antinuclear Antibody	ANA	1 x 0.5 mL
Cytoplasmic Antibody	Anti-Mitochondrial Antibody	AMA	1 x 0.5 mL
	Anti-Parietal Antibody	APCA	
	Anti-Smooth Muscle Antibody	ASMA	
ANCA Hep/IBD	Anti- Neutrophil Cytoplasmic Antibody- for Ischemic Bowel Disease/Hepatitis	P- ANCA	1 x 0.5 mL
		C-ANCA	
ANCA Vasculitis	Anti- Neutrophil Cytoplasmic Antibody- for Vasculitis	MPO	1 x 0.5 mL
		PR3	
DNA	Double Stranded DNA	DNA	1 x 0.5 mL
B2GP1	Beta-2-Gylcoprotein 1	B2GP1 IgG	1 x 0.5 mL
		B2GP1 IgM	
ACA	Anti Cardiolipin Antibodies	ACA IgM	1 x 0.5 mL
		ACA IgG	
ENA	Extractable Nuclear Antigen (all positive screens will reflex an END ID which will test for each antigen separately)	SSA (RO52, RO60, SSB, SM, SM/RNP, Jo-1, SCL-70)	1 x 0.5 mL
CCP	Cyclic Citrullinated Peptide	CCP	1 x 0.5 mL
Celiac Profile	Tissue transglutaminase IgA	tTG- IgA	1 x 0.5 mL
	Serum IgA (done in Chemistry)	IgA	
TTG-G	Tissue transglutaminase IgG	tTG- IgG	1 x 0.5 mL
DGP IgG	Deaminated Gliadin IgG	DGP IgG	1 x 0.5 mL
ENCEPH/PARANEO	Autoimmune Encephalitis/Paraneoplastic Syndrome Panel	Amphiphysin, CV2, PNMA2 (Ma2/Ta), Ri, Yo, recoverin, SOX1, titin, zic4, GAD65, Tr (DNER), AMPA, CASPR2, LGI1, DPPX, GABA B1/B2, NMDA	2 x 0.5 mL

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MYOSITIS	Autoimmune Inflammatory Myopathies	Mi-2α, Mi-2β, TIF1γ, MDA5, NXP2, SAE1, Ku, PM-Scl100, PM-Scl75, Jo-1, SRP, PL-7, PL-12, EJ, OJ, Ro-52, cN-1A, Ha, Ks and Zo	2 x 0.5 mL
GBM	Anti Glomerular Basement Membrane	GBM	1 x 0.5 mL

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Section 7: Cytology

Maximum Delay in Transport	
Please note: Maximum Delay in Transport indicates time before sample must be tested. Samples arriving at or just before these times may be rejected as that may not allow for processing	
Test	**Maximum Delay**
Liquid-based ThinPrep samples (HPV and Pap Testing)	Samples may be stored in PreservCyt between 15 and 30 degrees Celsius for up to 6 weeks; however, for best results, transport specimen to the laboratory daily for processing.
Non-gyne. samples	Cells in CytoLyt Solution are preserved for 8 days at room temperature; however, for best results, transport specimen to the laboratory immediately for processing. This 8-day preservation period pertains to samples in a minimum CytoLyt Solution-to-sample ratio of one-part CytoLyt Solution to three parts sample.

Sputum for Cytology Collection – Patient Instructions
Please refer to "Pt Guide Sputum Specimens for Cytology", Form #300000175

Urine for Cytology Collection – Patient Instructions
Please refer to "Pt Guide Urine Specimens for Cytology", Form #300000174

PD-L1 & Molecular Testing on Cytology Cell Blocks:

PD-L1 testing of Cytology pleural fluid samples when no tissue sample is submitted but non-small cell lung carcinoma (NSCLC) is suspected:

Specimens with potential need (based on clinical advice) should be collected in 2 parts:

1. Collect pleural fluid specimen in a pink-topped Cytology specimen container of CytoLyt (methanol-based solution) for Cytology testing. Label "A."
2. Collect pleural fluid sample in a 10% Formalin container for Cytology cell block processing. Label "B."

Complete a blue Cytology requisition form indicating desired testing in the "History, Treatment & Clinical Findings" section:
"A – Cytology testing"
"B – PD-L1 testing"

The first specimen, “A – Cytology testing” will be processed for cytologic examination and the second specimen, “B – PD-L1 testing” will be put on hold pending the pathologist’s determination if the specimen qualifies for molecular/PD-L1 testing based on the adequacy (minimum of 100 viable tumor cells) and the cytologic findings. If these criteria are met, the formalin-fixed cell block “B” will be sent for molecular /PD-L1 testing, otherwise it can be used as an additional cell block.

NGS, MMR, and other molecular testing requests:

Specimens with potential need (based on clinical advice) should be collected in 2 parts:

1. Collect sample in a pink-topped Cytology specimen container of CytoLyt (methanol-based solution) for Cytology testing. Label “A.”
2. Collect sample in 10% Formalin container for Cytology cell block processing. Label “B.”

Complete a blue Cytology requisition form indicating desired testing in the “History, Treatment & Clinical Findings” section:
“A – Cytology testing”
“B – Molecular testing (specify)”

The first specimen, “A – Cytology testing” will be processed for cytologic examination and the second specimen, “B – Molecular testing” will be put on hold pending the pathologist’s determination if the specimen qualifies for the requested testing based on the adequacy (minimum of 100 viable tumor cells) and the cytologic findings. If these criteria are met, the formalin-fixed cell block “B” will be sent for molecular testing, otherwise it can be used as an additional cell block.

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Section 8: Laboratory Tests - Alphabetical List

-Key to Test Table-

Column Name	Description
Test	Laboratory tests listed alphabetically.
Specimen:	The type of specimen required.
Container:	The Container into which the specimen is to be collected. Tubes for blood specimens are indicated by the color of the stopper of the vacutainer tube. Tubes containing anti-coagulant must be inverted several times to ensure complete mixing of the blood with the anti-coagulant. Never force the blood into the tube as this may result in hemolysis causing erroneous test results. Containers for specimen collection will be provided by the Fredericton Regional Laboratory and may be ordered from DECRH Stores department. **Approved heavy metal-free urine containers** are available from DECRH Stores, any other container may not be acceptable for collection for heavy metal determinations **Acid Washed serum/plasma containers** are available from DECRH Chemistry Department Example: • **Gold** – Serum Separator Tube • **PST** – Plasma Separator Tube • **Yellow (ACD):** Yellow top tube with Acid Citrate Dextrose Refer to Order of Draw for Multiple Tube Collections
Amount:	The amount of specimen required. Best results are always obtained when the full amount of blood is added to the anti-coagulant present in the tube. Specimens collected for multiple orders in the same container type, for the same department, may require less total volume. Contact the department if necessary. Strict adherence to the instructions requiring exact amounts is essential **mL**: Millilitre **g**: Grams
Department	The department that will perform the test: • **C:** Chemistry • **H:** Hematology • **CG:** Cytogenetics • **AP:** Anatomical Pathology • **CY:** Cytology • **M:** Microbiology • **I:** Immunology • **TM:** Transfusion Medicine
Turnaround time	Expected turnaround time for the tests under normal circumstances from the time of collection/receipt in Lab. Expressed in the following: Hours, Days, Weeks.
OE Category	Module of entry for Order Entry
OE Mnemonic	Order Entry Mnemonics **NOTE:** Order entry Mnemonics and Lab Mnemonics may be different for the same test.
Lab Mnemonic	Lab Mnemonics used by the laboratory **NOTE:** Order entry Mnemonics and Lab Mnemonics may be different for the same test.
Collection/Referral Instructions:	Special instructions for specimen collection and for the transportation to DECRH for testing. Also, amounts are given for some tests that are referred by DECRH "**Referred":** The DECRH laboratory refers the tests to a reference laboratory. "**If Transported**": If the specimen is to be transported to the DERH laboratory from another facility **Temperature requirements**: **frozen**=on dry ice/not allowed to thaw **cold**=on an ice pack **room temperature**=18-25 degrees

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Test Table - Alphabetical List

Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
1, 25-Di-hydroxy Vitamin D	Blood	Gold	5 mL	C	12 Days	LAB		MISC	Used to assess Vitamin D nutritional status. **Testing only available after consultation with the Clinical Biochemist (506)452-5443.** Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Referred- 2 mL serum frozen
11-Deoxycortisol (Compound S)	Blood	Gold	5 mL	C	12 Days	LAB	DEOXYC	DEOXYC	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Referred - 1 mL serum - Frozen.
17-Alpha Hydroxyprogesterone (17-Hydroxyprogesterone)	Blood	Red	6 mL	C	12 days	LAB	HYDROXYPRO	OHPROG	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, aliquot and store upright at 4ºC. **If sample will not reach DECRH within 24 hours sample must be frozen.** Referred - 1 mL Serum frozen.
17-Beta Estradiol (Estradiol, Estrogen)	Blood	Light Green	1 mL	C	< 24 Hours	LAB	ESTRADIOL	ESTRA	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If transported, serum must be sent frozen if not received at DECRH within 48 hours of collection.
17-Hydroxyprogesterone (17-Alpha Hydroxyprogesterone)	Blood	Red	6 mL	C	12 Days	LAB	HYDROXYPRO	OHPROG	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, aliquot and store upright at 4ºC. **If sample will not reach DECRH within 24 hours sample must be frozen.** Referred - 1 mL Serum frozen.
25-Hydroxy Vitamin D	Blood	Light Green	1 mL	C	< 24 Hours	LAB	VITD	VIT D	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Used to assess Vitamin D nutritional status. If transported, plasma must be sent frozen if not received at DECH within 4 days of collection.
5-HIAA (5-hydroxy-Indole-Acetic Acid)	a) Urine b) Urine	Large plastic bottle with HCL	Complete 24 hour output	C C	15 Days 15 Days	LAB	5HIAA-S 5HIAA-24H	5HIAA-SCREEN HIAA-24H	a) **No longer available.** Order HIAA-24H b) Refer to Diet/Drug Restriction form HHN-0840 for patient restrictions. c) Collect over 25 mL of 6N HCL. **Specimen must be refrigerated during collection**. If sent from Health Centre or other outside collection site please refer entire collection in original container. **Ensure start date/time and end date/time are recorded on the label.** If sent from hospital laboratory state 24h volume and send 10 mL aliquot. Referred.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
7-Dehydrocholesterol	Blood	Dark Green	4 mL	C	10 Days	LAB	DEHYDRO7	7 DEHYDRO	Specimen must be delivered to lab within 2 hrs, otherwise, centrifuge specimen, separate plasma from clot and freeze ASAP. Referred – 0.5 mL Plasma frozen
A/G Ratio	Blood	Light Green	1 mL	C	< 24 Hours	LAB	A/G	A/G	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Calculated from Total Protein (TP) and Albumin (ALB)
Abscess	Swab	Routine Swab		M	72 hours	MIC	ABS	ABS	Store at room temperature.
Absolute Eosinophil									**Test not available**
Acetaminophen	Blood	Red	1 mL	C	< 24 Hours	LAB	ACETA	ACETA	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Avoid hemolysis. This test is also part of a Drug Toxic Panel (DRUG-TOX). If transported, serum must be sent frozen if not received at DECRH within 48 hours of collection. See Chemistry Section in this manual for additional information.
Acetone	Blood	Light Green	Full	C	< 24 Hours	LAB	TOXICALCEG	TOXICALCEG	Refer to Toxic Alcohol and Ethylene Glycol
Acetylcholine Receptor Antibodies (Anti-Cholinesterase)	Blood	Red	5 mL	C	10 Days	LAB	ACETY	ACETYCO	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Referred 1.5 mL Serum frozen
Acid Fast Bacilli				M					See *Type of specimen +TB*
Acid Phosphatase									Test is **no longer available.**
ACTH (Adrenocorticotropic Hormone)	Blood	Lavender (pre-chilled)	4 mL	C	5 days	LAB	ACTH	ACTH	Specimen should be collected between 6 and 10 AM, unless the physician is requesting a specific time due to a stimulation test (Fasting is not required). Place on ice immediately after collection and deliver to Chemistry ASAP. See Chemistry Section in this manual for additional information. Sample can remain on ice for up to 2 hours. Plasma must be separated using refrigerated centrifuge, aliquoted in pre-chilled aliquot tube, and frozen. Referred – 1 mL plasma frozen.
ACTH Stimulation Test - Low Dose				C	5 days	LAB			Call Medical Day Care at DECRH for testing information. Referred.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
ACTH Stimulation Test - Standard Dose	Blood			C	5 days	LAB	ACTHS	ACTHS	See ACTH Stimulation test in the Chemistry Division section of this manual for additional information. Referred.
ACTH Stimulation Test for CAH (Congenital Adrenal Hyperplasia)	Blood			C	7 Days	LAB		ACTH ST FOR CAH	Call Medical Day Care at DECRH for testing information. Referred.
Actinomyces	Swab	Anaerobic Swab		M	4 days	MIC	ACT	ACTIN	Collect using an anaerobic swab collection container- obtain from Microbiology. Store at room temperature.
Activated Partial Thromboplastin Time (APTT)	Blood	Blue (Sodium Citrate)	2.7 mL Exactly Etched line is the minimum fill volume	H	Stat 1 hr Routine 24 hr	LAB	APTT		Heparinized samples: Deliver to the lab within 30 minutes of collection. Non-heparinized samples: Deliver to the lab within 2 hours of collection. If transported, separate plasma within 30 minutes then centrifuge plasma a second time to achieve platelet poor plasma (count < 10): 1. **1st spin**: Spin specimens in the centrifuge, after 1st spin is complete, remove blue tubes from centrifuge and transfer 1st spin plasma to a separate labeled 12x75 plastic tube. 2. **2nd spin**: Cap the 12x75 tubes and re-spin plasma, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting platelets at bottom of tube. 3. Carefully remove platelet poor plasma, leaving sediment (containing platelets) in bottom of tube. Transfer directly to labeled 12x75 plastic tube for the platelet count. Perform and record plt count on label if applicable. 4. Send frozen in 1 aliquot of 2 mL.
Activated Protein C Resistance									Test no longer available
Acylcarnitine Blotter	Blood	Blood Blotter		C	8 Days	LAB	ACYCARBLOT	ACYCARBLOT	Referred - allow blotter to dry for 3 hours and send at Room Temperature. Sample must be accompanied by completed Biochemical Genetics Testing RequisitionFinal.pdf
Acylcarnitine Serum	Blood	Red	2 mL	C	10 Days	LAB	ACYCARSER	ACYCARSER	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. **If transported, serum must be sent frozen if not received at DECRH within 24 hours of collection.** Referred - 1 mL frozen

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Adalimumab (Humira™)	Blood	Gold	6 mL	C	20 Days	LAB	ADAL	ADAL	Draw trough specimen prior to next dose. Specimen must be delivered to the lab within 2 hours; otherwise, serum must be separated from the cells within 2 hours of collection and stored at 4 ˚C. If not delivered to DECRH within 24 hours sample must be frozen. Referred – 1 mL frozen.
ADAMTS-13	Blood	Blue (Sodium Citrate)	2.7 mL Exactly Etched line is the minimum fill volume	H	72 hours	LAB	ADAMTS13	ADAMTS13	0.5 mL x 4 aliquots must be frozen within 4 hours of collection at -20C degrees or below **Blue x 3** - Deliver to the lab within 2 hours of collection. If transported, separate plasma within 30 minutes then centrifuge plasma a second time to achieve platelet poor plasma (count < 10) must be achieved with the following procedure: 1. **1st spin**: Spin specimens in the centrifuge, after 1st spin is complete, remove blue tubes from centrifuge and transfer 1st spin plasma to a separate labeled 12x75 plastic tube. 2. **2nd spin**: Cap the 12x75 tubes and re-spin plasma, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting platelets at bottom of tube. 3. Carefully remove platelet poor plasma, leaving sediment (containing platelets) in bottom of tube. Transfer directly to labeled 12x75 plastic tube for the platelet count. Perform and record plt count on label if applicable. 4. Send frozen to DECRH at -20C (minimum) in 4 aliquots of 0.5 mL each. Referred. **Please call Haematology (452-5450) before sending**. Order will be reviewed by DECRH Pathologist before being referred out from DECRH Haematology. Specimens must be received @ DECRH lab by 1200 hrs Monday – Thursday in order to be sent to Referral Lab for overnight delivery. Specimens received after that time or a different day will be referred out on the next regular shipping day
Adenovirus/Rotavirus- **see Stool Viral PCR**	Stool			M					Rapid test no longer available. Included in **Stool Viral PCR**.
Adenovirus- Respiratory	nose/throat nasopharyngeal	UTM (Viral Transport Media)		M	1 WEEK	MIC	ADENO-RESP	ADENO-RESP	Specimen refrigerated until delivery to laboratory. 2-8°C if sending same day or Freeze at -70˚C.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Adenovirus-Non Respiratory	Tissue Fluid	Sterile Screw-cap jar		M	1 WEEK	MIC	ADENONONRESP	ADENONONRESP	Deliver to laboratory immediately. Specimen refrigerated until delivery to laboratory. 2-8°C if sending same day or Freeze at -70˚C.
ADH (Antidiuretic Hormone) (Vasopressin)									Test **no longer available.** Please refer to Copeptin proAVP. Has replaced ADH and AVP as indicators of water balance disorders.
AFP (Alpha Fetoprotein -Tumor Marker)	Blood	Light Green	1 mL	C	4 Days	LAB	AFP	AFP	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. AFP tumor marker is done at DECRH. If transported, serum must be sent frozen if not received at DECRH within 7 days of collection. For genetic testing, see Maternal Serum Screen (MSAFP)
Albumin	a) Blood b) Spinal Fluid c) Body Fluid	Light Green Sterile Screw-cap tube Dark Green	1 mL 0.5 mL 2 mL	C C C	< 24 Hours < 24 Hours < 24 Hours	*LAB*	ALB ALB-CSF ALB-FLUID	ALB ALB-CSF ALB-F	a) Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. b) Deliver tube # 1 of the three tubes collected to Chemistry immediately. c) Invert tube several times to mix. Indicate origin of fluid.
Albumin Urine (Albumin/Creatinine Ratio)	a) Urine b) Urine	Screw-cap jar Large plastic bottle	10 mL Complete 24 hr output	C C	< 24 Hours < 24 Hours	LAB	ACR ACR-24H	ACR ACR-24H	a) Random specimen. If transported, send a 10 mL Urine aliquot. b) **Ensure start date/time and end date/time are recorded on the label.** If sent from Health Centre or other outside collection site, please refer entire collection in original container. If sent from hospital laboratory state 24h volume and send 10 mL aliquot.
Alcohol, Ethyl (Ethyl Alcohol) (Ethanol)	Blood	Gray	Full	C	< 24 Hours	LAB	ALC	ALC	a) Do not use any type of alcohol to disinfect skin. The tube must be allowed to draw to complete full vacuum. Invert tube several times to mix. **Keep tube sealed until analysis**. Medicolegal specimens should be delivered directly to a police officer, not to the laboratory. If transported, do not centrifuge. This test is also part of a Drug Toxic Panel (DRUG-TOX). See Chemistry Section in this manual for additional information.
Alcohol, Isopropyl (Isopropyl Alcohol) (Isopropanol)	Blood	Light Green	Full	C	< 24 Hours	LAB	TOXICALCEG	TOXICALCEG	Refer to Toxic Alcohol and Ethylene Glycol for instructions.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Alcohol, Methyl (Methyl Alcohol) (Methanol)	Blood	Light Green	Full	C	< 24 Hours	LAB	TOXICALCEG	TOXICALCEG	Refer to Toxic Alcohol and Ethylene Glycol for instructions.
Aldosterone	Blood	Red	6 mL	C	10 Days	LAB	ALDO	ALDO	**Patient to discontinue Spironolactone (Aldactone) for 4 weeks prior to collection or for as long as is clinically feasible.** Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, remove serum immediately, store at 4ºC. Collection after patient is active for 2 hours in AM after waking is recommended. If Aldosterone and Renin are both ordered, an Aldosterone/Renin ratio will also be reported. Referred – 1.2 mL serum, frozen
Aldosterone/Renin Ratio				C	10 Days	LAB		RATIO ALDO REN	This is a calculation to be ordered only when both Aldosterone and Renin are ordered.
Alkaline Phosphatase	Blood	Light Green	1 mL	C	< 24 Hours	LAB	ALK	ALK	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC.
Alkaline Phosphatase Fractionation	Blood	GOLD	5mL	C	15 Days	LAB	ALKF	ALKFRACT	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Referred - 1 mL Serum
Allergy Test (Rast)	Blood	GOLD	5 mL	C	16 Days	LAB	RAST	RAST	Refer to RAST (Allergy test)
Alpha 1 Antitrypsin - Total and Phenotyping	Blood	Red	6 mL	C	20 Days	LAB	ANTITRY	A1AT	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Phenotyping will be referred if Total Alpha 1 Antitrypsin is < 1.15 g/L.
Alpha 2 Antiplasmin (Alpha 2 Plasma Inhibitor)	Blood	Blue X 2 (Sodium Citrate)	4.5 mL x 2	C	12 Days	LAB	AAPLAS	AAPLAS	Deliver to Chemistry immediately. Separate and freeze plasma ASAP. Referred - 3 mL Plasma frozen
Alpha Galactosidase	Blood	Red X 2	4 mL	C	21 Days	LAB	AGALC	AGALC	**Specimen must be delivered to lab immediately**, otherwise, centrifuge specimen immediately and freeze, store and refer frozen. Referred - 4 mL Serum frozen
Alpha 2 Plasma Inhibitor (Alpha 2 Antiplasmin)	Blood	Blue X 2 (Sodium Citrate)	4.5 mL x 2	C	12 Days	LAB	AAPLAS	AAPLAS	Deliver to Chemistry immediately. Separate and freeze plasma ASAP. Referred - 3 mL Plasma frozen
Alpha Fetoprotein -Tumor Marker (AFP)	Blood	Light Green	1 mL	C	4 Days	**LAB**	**AFP**	AFP	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. AFP tumor marker is done at DECRH. If transported, serum must be sent frozen if not received at DECRH within 7 days of collection.
Alprazolam (Xanax)									Test no longer routinely available

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
ALT, Alanine Aminotransferase (SGPT)	Blood	Light Green	1 mL	C	< 24 Hours	LAB	ALT	ALT	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Avoid hemolysis.
Aluminum	a) Blood b) Urine	Royal Blue EDTA Heavy metal free large plastic bottle	6 mL Complete 24 hour output	C C	15 Days 15 Days	LAB	ALUM ALUMINU-24	AL AL-24h	a) Do not centrifuge. Store and send cold. Referred - 6 mL whole blood referred b) Refer to Diet/Drug Restriction form HHN-0840 for patient restrictions. If sent from Health Centre or other outside collection site, please refer entire collection in original container. **Ensure start date/time and end date/time are recorded on the label.** If sent from hospital laboratory state 24h volume and send 10 mL aliquot. Record volume from jug. Transfer 10 mL aliquot to an orange topped urine specimen container. Referred
Amikacin	Blood	Red	6 mL	C	6 Days	LAB	AMI	AMI	Trough – Collect immediately before next dose. Wait until the third dose before collecting samples for therapeutic monitoring. Peak – For traditional dosing, collect sample 30 minutes after end of dose infusion. Wait until the third dose before collecting samples for therapeutic monitoring. - For extended dosing, after the third dose collect a sample 8-12 hours after end of dose infusion. Specimen must be delivered to the lab within 2 hours; otherwise, serum must be separated from the cells within 2 hours of collection and frozen. See Chemistry Section in this manual for additional information. Referred - 1 mL Serum frozen
Amino Acid Quantitation	a) Blood b) Urine	Light Green (on wet ice) Screw-cap jar	2 mL 5 mL	C C	12 Days 12 Days	LAB	AA-QT AA-S	AA-QT AA-S	a) Following collection place sample on wet ice and deliver to Chemistry immediately. Fasting specimen preferred. Avoid hemolysis. For interpretation, provide date of birth and clinical indicators. If not transported immediately plasma must be separated and frozen within 4 hours of collection. Referred – 0.5 mL Plasma frozen. b) Random urine sample. Refrigerate and refer to DECRH at 4ºC. For interpretation, provide date of birth and clinical indicators. **Please indicate if taken from 24-hour collection.** Referred - 5 mL urine aliquot frozen

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Amino Acid Screen (AA Screen)	Urine								Test no longer available.
Aminophylline (Theophylline)	Blood	Red	1 mL	C	< 24 Hours	LAB	THEO	THEO	Specimen must be delivered to the lab within 2 hours; otherwise, centrifuge and remove serum within 2 hours of collection and store at 4ºC. If transported, serum must be sent frozen if not received at DECRH within 48 hours of collection. **Oral - sustained release:** Twice daily products: draw peak about 4 hours after dose. Once daily products: draw peak about 10 hours after dose. Consult individual product monographs. Draw trough immediately prior to dose. **Liquid and plain uncoated tablets:** Draw peak 1-2 hours after liquid dose or 2 hours after tablet dose. Draw trough immediately prior to dose. **IV loading dose:** Draw 30 minutes after an IV loading dose. **Followed by IV continuous infusion:** Draw 24-48 hours after the beginning of the maintenance infusion. See Chemistry Section in this manual for additional information.
Amiodarone (Cordarone)	Blood	Red	6 mL	C	12 Days	LAB	AMIO	AMIO	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge, remove serum within 2 hrs of collection, store at 4ºC. If not delivered to DECRH within 72 hrs sample must be frozen. Draw trough prior to next dose. Referred - 3 mL Serum
Amitriptyline (Elavil)	Blood	Red	6 mL	C	10 Days	LAB	AMIT	AMIT	Draw 1 hour prior to next dose or at least12 hours after last dose. Specimen must be delivered to the lab within 2 hrs; otherwise, serum must be separated from the cells within 2 hrs of collection. Store at 4ºC. See Chemistry Section in this manual for additional information. Referred - 2 mL Serum
Ammonia	Blood	Lavender (pre-chilled)	Full	C	STAT ≤45 minutes* Routine < 24 Hours	LAB	AMM	AMMON	Avoid hemolysis. Deliver on ice to Chemistry immediately. The tube must be allowed to draw to complete vacuum. Invert tube several times to mix. **Do not use capillary collection for this test. Plasma must be separated and analyzed or frozen within 20 minutes of time of collection.** If transported, send 2 aliquots of frozen plasma. ***Turn around time would be impacted by travel in all sites except DECRH**
Amniocentesis for Chromosome Studies	Amniotic fluid	Sterile Screw-cap tube x 2 (If FISH is also requested add 1 more tube for a total of 3)	10 mL x 2	CG	90 Days			AMNIO	If FISH testing is also requested, 1 more tube is required for a total of 3. Draw specimen on Monday to Wednesday mornings only. Specimens must be kept at Room Temperature. **A properly completed requisition MUST arrive with, or in advance of, the specimen.** Requisition available from Chemistry. Referred

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
AMP (Cyclic AMP)									Testing no longer available
Amphetamines	Urine	Screw-cap jar	5 mL	C	< 24 Hours	LAB	AMPHE	AMPHET-U	Random specimen. This is a semi-quantitative test. If transported, urine must be sent frozen if not received at DECRH within 48 hours of collection.
Amylase (Pancreatic)	Blood	Light Green	1 mL	C	STAT ≤45 minutes Routine < 24 Hours	LAB	P-AMYL	P-AMYL	Please initiate routine testing for pancreatitis by choosing lipase. Pancreatic Amylase is only done by special request. Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, store upright at 4ºC.
Amylase Fractionation (Isoenzymes)	Blood	GOLD	5 mL	C	25 Days	LAB	AMYISO	AMYISO	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Serum Amylase must be elevated. Include diagnosis on requisition. Referred - 1 mL Serum
Anaerobic Culture	Swab	Anaerobic Swab- obtain from Microbiology		M	4-7 days	MIC	ANCULT	ANCULT	Place swab in anaerobic collection medium. Deliver **immediately** to the laboratory. Store at room temperature.
Anafranil (Clomipramine)	Blood	Red	6 mL	C	12 Days	LAB	CLOM	CLOM	Draw 1 hour prior to next dose or at least 12 hours after last dose. Deliver to the lab immediately. Separate serum from clot ASAP. Referred - 3 mL Serum
Anatomical Pathology - Tissue	Breast Tissue	See Collection Instructions	See Collection Instruction	AP	Biopsy 80% ≤ 7 days Other 80% ≤ 14 days	N/A	Cannot be ordered through Meditech OE	N/A	See Anatomical Pathology Section in this manual. Special procedures apply.
Anatomical Pathology - Tissue	Fetal Tissue	See Collection Instructions	See Collection Instructions	AP	Variable, Complexity dependent	N/A	Cannot be ordered through Meditech OE	N/A	This is a referred test. See Anatomical Pathology Section in this manual as well as IWK Health Centre - Clinical Genomics - Genetic Testing for IUFD and Products of Conception (POC). Special procedures apply.
Anatomical Pathology - Tissue	Kidney Biopsy	See Collection Instructions	See Collection Instruction	AP	Variable, Complexity dependent	N/A	Cannot be ordered through Meditech OE	N/A	This is a referred test. See Anatomical Pathology Section in this manual. Contact the Anatomical Pathology department at least 7 days prior to surgical procedure.
Anatomical Pathology - Tissue	Liver Biopsy	See Collection Instructions	2 cores minimum	AP	Variable, Complexity dependent	N/A	Cannot be ordered through Meditech OE	N/A	This is a referred test. See Anatomical Pathology Section in this manual.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Anatomical Pathology - Tissue	Lymph Node	See Collection Instructions	See Collection Instruction	AP	Variable, Complexity dependent	N/A	Cannot be ordered through Meditech OE	N/A	This is a referred test. See Anatomical Pathology Section in this manual.
Anatomical Pathology - Tissue	Muscle Biopsy	See Collection Instructions	See Collection Instruction	AP	Variable, Complexity dependent	N/A	Cannot be ordered through Meditech OE	N/A	This is a referred test. See Anatomical Pathology Section in this manual. Contact the Anatomical Pathology department at least 7 days prior to surgical procedure.
Anatomical Pathology - Tissue	Nerve Biopsy	See Collection Instructions	See Collection Instruction	AP	Variable, Complexity dependent	N/A	Cannot be ordered through Meditech OE	N/A	This is a referred test. See Anatomical Pathology Section in this manual. Contact the Anatomical Pathology department at least 7 days prior to surgical procedure.
Anatomical Pathology - Tissue	Tissue	See Collection Instructions	See Collection Instruction	AP	Priority 80% ≤ 7 days Routine 80% ≤ 14 days	N/A	Cannot be ordered through Meditech OE	N/A	See Anatomical Pathology Section in this manual. Special procedures may apply.
Anatomical Pathology - Tissue	Tissue - Immunofluorescent Studies	• Biopsy in Zeus Tissue Fixative And • Biopsy in 10% Neutral Buffered Formalin	10 ml 50 ml	AP	80% ≤ 14 days	N/A	Cannot be ordered through Meditech OE	N/A	See Anatomical Pathology Section in this manual. Place specimen in Zeus Tissue Fixative. Call the Anatomical Pathology Laboratory for issue of fixative. Zeus Tissue Fixative distorts normal histology. Please submit a second biopsy in 10% Neutral Buffered Formalin for routine examination.
Androstenedione	Blood	GOLD	5 mL	C	10 Days	LAB	ANDRO	ANDRO	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Referred - 2 mL Serum frozen
Angiotensin Converting Enzyme	Blood	GOLD	5 mL	C	8 Days	LAB	ACE	ACE	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. 12-hr fast preferred, lipemic samples will be rejected for testing. Referred - 1 mL Serum
Anti-Adrenal Antibodies	Blood	GOLD	5 mL	C	15 Days	LAB	ANTI-ADREN	ANTIADRENAL	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Referred - 1 mL Serum
Anti-AQU 4 (Anti-aquaporin 4)	Blood	Gold	6 mL	C	14 days	LAB	NMO AB	NMO AB	Refer to Neuromyelitis Optica antibodies

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Antibody Identification	Blood	Pink	6 mL	TM	24 hr			ABID	Avoid hemolysis. If transported, **DO NOT** separate plasma from cells and transport within 24 hours at 2-8°C to DECRH
Antibody Titre	Blood	Pink x 2	6 mL x 2	TM	96 hr			ABQT	Avoid hemolysis. If transported, **DO NOT** separate plasma from cells and transport within 24 hours at 2-8°C to DECRH
Anti-Cardiolipin Antibody	Blood	Red Gold	5 mL	H	14 days	LAB	ACA	ACA	**Avoid hemolysis.** Separate serum within 2 hours of collection. If specimen cannot be transported to DECRH within 24 hours of collection, centrifuge and separate serum as follows: **Red or Gold**- If transported**, Gold tube only requires one spin. Red tube requires two spins** to ensure no red cells are left in the serum. • **1st spin:** Spin specimens in the centrifuge, after 1st spin is complete, remove tubes from centrifuge and transfer 1st spin serum to a separate labeled 12x75 plastic tube. • **2nd spin**: Cap the labelled 12x75 tubes and re-spin serum, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting button at bottom of tube. • Remove serum, leaving sediment in bottom of tube. Transfer directly to labeled 12x75 plastic tube. • Send 1 aliquot of 0.5 – 1.0 mL at 4°C
Anti-Cholinesterase (Acetylcholine Receptor Antibodies)	Blood	Red	5 mL	C	25 Days	LAB	ACETY	ACETYCO	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Referred – 1.5 mL Serum frozen

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Anti-Cyclic Citrullinated Peptide	Blood	Red Gold	5 mL	H	14 days	LAB	ANTI CCP	CCP	**Avoid hemolysis.** Separate serum within 2 hours of collection. If specimen cannot be transported to DECRH within 24 hours of collection, centrifuge and separate serum as follows: **Red or Gold-** If transported**, Gold tube only requires one spin. Red tube requires two spins** to ensure no red cells are left in the serum. • **1st spin:** Spin specimens in the centrifuge, after 1st spin is complete, remove tubes from centrifuge and transfer 1st spin serum to a separate labeled 12x75 plastic tube. • **2nd spin**: Cap the labelled 12x75 tubes and re-spin serum, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting button at bottom of tube. • Remove serum, leaving sediment in bottom of tube. Transfer directly to labeled 12x75 plastic tube. • Send 1 aliquot of 0.5 – 1.0 mL at 4°C
Anti-deaminated Gliadin IgG	Blood	Red Gold	5 mL	H	14 days	LAB	DGPIGG	DGPIGG	**Avoid hemolysis.** Separate serum within 2 hours of collection. If specimen cannot be transported to DECRH within 24 hours of collection, centrifuge and separate serum as follows: **Red or Gold-** If transported**, Gold tube only requires one spin. Red tube requires two spins** to ensure no red cells are left in the serum. • **1st spin:** Spin specimens in the centrifuge, after 1st spin is complete, remove tubes from centrifuge and transfer 1st spin serum to a separate labeled 12x75 plastic tube. • **2nd spin**: Cap the labelled 12x75 tubes and re-spin serum, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting button at bottom of tube. • Remove serum, leaving sediment in bottom of tube. Transfer directly to labeled 12x75 plastic tube. • Send 1 aliquot of 0.5 – 1.0 mL at 4°C

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Anti-ds DNA (double stranded DNA)	Blood	Red Gold	5 mL	H	14 days	LAB	DSDNA	DSDNA	**Avoid hemolysis.** Separate serum within 2 hours of collection. If specimen cannot be transported to DECRH within 24 hours of collection, centrifuge and separate serum as follows: **Red or Gold**- If transported**, Gold tube only requires one spin. Red tube requires two spins** to ensure no red cells are left in the serum. • **1st spin:** Spin specimens in the centrifuge, after 1st spin is complete, remove tubes from centrifuge and transfer 1st spin serum to a separate labeled 12x75 plastic tube. • **2nd spin**: Cap the labelled 12x75 tubes and re-spin serum, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting button at bottom of tube. • Remove serum, leaving sediment in bottom of tube. Transfer directly to labeled 12x75 plastic tube. Send 1 aliquot of 0.5 – 1.0 mL at 4°C
Antidiuretic Hormone (ADH) (Vasopressin)									Test **no longer available.** Please refer to Copeptin proAVP. Has replaced ADH and AVP as indicators of water balance disorders.
Anti-DNase B									Test **no longer available.**
Anti-Gliadin Antibody									Test no longer available

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Anti-Glomerular Basement Membrane Antibody (Glomerular Basement Membrane Antibody)	Blood	RED GOLD	5 mL	H	7 Days	LAB	ANTIGLO	ANTIGLO	**Avoid hemolysis.** Separate serum within 2 hours of collection. If specimen cannot be transported to DECRH within 24 hours of collection, centrifuge and separate serum as follows: **Red or Gold**- If transported**, Gold tube only requires one spin. Red tube requires two spins** to ensure no red cells are left in the serum. • **1st spin:** Spin specimens in the centrifuge, after 1st spin is complete, remove tubes from centrifuge and transfer 1st spin serum to a separate labeled 12x75 plastic tube. • **2nd spin**: Cap the labelled 12x75 tubes and re-spin serum, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting button at bottom of tube. • Remove serum, leaving sediment in bottom of tube. Transfer directly to labeled 12x75 plastic tube. Send 1 aliquot of 0.5 – 1.0 mL at 4°C
Anti-Glutamic Acid Decarboxylase (GAD65)	Blood	GOLD	5 mL	C	6 Days	LAB	GAD	GAD	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Referred – 1 mL Serum
Anti-GM1 (GM1 Ganglioside Antibody)	Blood	Red	6 mL	C	12 Days	LAB	ANTIGM	ANTIGM	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Referred 1 mL.

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Anti-Heparin Antibody (Heparin Induced Thrombocytopenia)	Blood	Red and Blue	2X6 mL and 3X2.7 mL	H	STAT < 24 hours Routine 5 Days	LAB	AHEP	AHEP	Specimen must be delivered to lab within 1 hour; otherwise, centrifuge specimen within 1 hour, and separate serum/plasma. **Specimens must be double-spun, aliquoted and clearly marked plasma and serum.** If transported, platelet poor plasma (count < 10) must be achieved with the following procedure: 1. **1st spin**: Spin specimens in the centrifuge, after 1st spin is complete, remove blue tubes from centrifuge and transfer 1st spin plasma to a separate labeled 12x75 plastic tube. 2. **2nd spin**: Cap the 12x75 tubes and re-spin plasma, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting platelets at bottom of tube. 3. Carefully remove platelet poor plasma, leaving sediment (containing platelets) in bottom of tube. Transfer directly to labeled 12x75 plastic tube for the platelet count. Perform and record plt count on labels. Freeze promptly. Send frozen: 3 aliquots of "clearly marked" plasma and 3 aliquots of "clearly marked" serum. Referred.
Anti-Histone Antibody	Blood	GOLD	5 mL	C	15 Days	LAB	AHIS	AHIS	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Referred - 1 mL Serum frozen
Anti-Intrinsic Factor (Intrinsic Factor Antibodies)	Blood	GOLD	5 mL	C	35 Days	LAB	AIFA	AIFA	Specimen should be collected following an 8 hr fast**.** Avoid B12 injections for 2 weeks prior to collection. Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, separate serum and store upright at 4ºC. Referred – 1.0 mL frozen Serum.
Anti-MAG (Myelin Associated Glycoptotein IgM Antibody)	Blood	Red	6 mL	C	14 Days	LAB	MYEGLYCO	ANTIMAG	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen, separate and store at 4ºC. Sample is stable for 28 days at 4ºC. Referred - 1 mL serum frozen
Anti-MOG (anti-myelin oligodendrocyte glycoproteins)	Blood	Gold	6 mL	C	14 Days	LAB	NMO AB	NMO AB	Refer to Neuromyelitis Optica Antibodies
Antimony									No longer routinely available. Contact Biochemist for special requests.

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Anti-Mullerian Hormone	Blood	Red	6 mL	C	15 Days	LAB	AMH	AMH	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Referred - 1 mL Serum frozen Please see Utilization rules
Anti-Neutrophil Cytoplasmic Antibody: ANCA Vasculitis ANCA IBD or Hepatitis	Blood	GOLD or Red	5 mL	H	Stat 8 hr Routine ANCA Vas 7 days ANCA Hep/IBD 14 days	LAB	ANCAVAS OR ANCAIBDHEP	ANCAVAS OR ANCAIBDHEP	**Avoid hemolysis.** Separate serum within 2 hours of collection. If specimen cannot be transported to DECRH within 24 hours of collection, centrifuge and separate serum as follows: **Red or Gold-** If transported**, Gold tube only requires one spin. Red tube requires two spins** to ensure no red cells are left in the serum. • **1st spin:** Spin specimens in the centrifuge, after 1st spin is complete, remove tubes from centrifuge and transfer 1st spin serum to a separate labeled 12x75 plastic tube. • **2nd spin**: Cap the labelled 12x75 tubes and re-spin serum, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting button at bottom of tube. • Remove serum, leaving sediment in bottom of tube. Transfer directly to labeled 12x75 plastic tube. • Send 1 aliquot of 0.5 – 1.0 mL at 4°C
Anti-Nuclear Antibody (ANA)	Blood	Red Gold	5 mL	H	14 days	LAB	ANA	ANA	**Avoid hemolysis.** Separate serum within 2 hours of collection. If specimen cannot be transported to DECRH within 24 hours of collection, centrifuge and separate serum as follows: **Red or Gold-** If transported**, Gold tube only requires one spin. Red tube requires two spins** to ensure no red cells are left in the serum. • **1st spin:** Spin specimens in the centrifuge, after 1st spin is complete, remove tubes from centrifuge and transfer 1st spin serum to a separate labeled 12x75 plastic tube. • **2nd spin**: Cap the labelled 12x75 tubes and re-spin serum, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting button at bottom of tube. • Remove serum, leaving sediment in bottom of tube. Transfer directly to labeled 12x75 plastic tube. • Send 1 aliquot of 0.5 – 1.0 mL at 4°C

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Anti-Ovarian Antibodies (Ovarian Antibodies)	Blood	GOLD	5 mL	C	35 Days	LAB	ANTIOVA	ANTIOVA	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store and send at 4ºC. Referred - 1 mL Serum
Anti-Phospholipid Syndrome	Blood	GOLD or Red Blue (Sodium Citrate) x 3	5mL and 2.7 mL Exactly in each tube Etched line is the minimum fill volume	H H C	25 days	LAB	APS	APS	**Avoid hemolysis.** Separate serum within 2 hours of collection. If specimen cannot be transported to DECRH within 24 hours of collection, centrifuge and separate serum as follows: **Red or Gold-** If transported**, Gold tube only requires one spin. Red tube requires two spins** to ensure no red cells are left in the serum. • **1st spin:** Spin specimens in the centrifuge, after 1st spin is complete, remove tubes from centrifuge and transfer 1st spin serum to a separate labeled 12x75 plastic tube. • **2nd spin**: Cap the labelled 12x75 tubes and re-spin serum, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting button at bottom of tube. • Remove serum, leaving sediment in bottom of tube. Transfer directly to labeled 12x75 plastic tube. • Send 1 aliquot of 0.5 – 1.0 mL at 4°C **Blue x 3**- Deliver to the lab within 2 hours of collection. If transported, platelet poor plasma (count < 10) must be achieved with the following procedure: 4. **1st spin**: Spin specimens in the centrifuge, after 1st spin is complete, remove blue tubes from centrifuge and transfer 1st spin plasma to a separate labeled 12x75 plastic tube. 5. **2nd spin**: Cap the 12x75 tubes and re-spin plasma, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting platelets at bottom of tube. 6. Carefully remove platelet poor plasma, leaving sediment (containing platelets) in bottom of tube. Transfer directly to labeled 12x75 plastic tube for the platelet count. Perform and record plt count on label if applicable. 7. Send frozen in 3 aliquots of 1.5 - 2 mL each.
Anti-Pancreatic Islet (Islet Cell Antibody)	Blood	GOLD	5 mL	C	12 Days	LAB	ICAB	ICAB	Deliver to Chemistry immediately. Separate serum from clot and store at 2-8°C. Referred - 1 mL Serum

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Anti-Saccharomyces Cerevisiae Antibody	Blood	GOLD or Red	5 mL	M	25 days	LAB	SEROL	SEROL	Separate and send serum if delay in transit of greater than 2 hours. 2-8°C if sending same day or Freeze at -70˚C.Referred. Indicate specimen order in comments.
Anti-Thrombin III	Blood	Blue (Sodium Citrate) X 2	2.7mL x2 Exactly Etched line is the minimum fill volume	H	Stat 6 hours Routine 21 days	LAB	AT3	ATIII	Testing must be ordered by or in consultation with clinicians in the Internal Medicine Group. Deliver to the lab within 2 hours of collection. If transported, platelet poor plasma (count < 10) must be achieved with the following procedure: 8. **1st spin**: Spin specimens in the centrifuge, after 1st spin is complete, remove blue tubes from centrifuge and transfer 1st spin plasma to a separate labeled 12x75 plastic tube. 9. **2nd spin**: Cap the 12x75 tubes and re-spin plasma, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting platelets at bottom of tube. 10. Carefully remove platelet poor plasma, leaving sediment (containing platelets) in bottom of tube. Transfer directly to labeled 12x75 plastic tube for the platelet count. Perform and record plt count on label if applicable. 11. Send frozen in 1 aliquot of 2 mL. Referred
Anti-Thyroglobulin Antibody	Blood	Gold	7 mL	C	8 Days	LAB	ANTI-TG	ANTI-TG	**Although serum is optimal, Li heparin plasma form light green PST is acceptable as well.** Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If transported, serum or plasma must be sent frozen if not received at DECRH within 48 hours of collection. Referred – 1.5 mL frozen. (ANTI-TG testing will be performed as part of the Thyroglobulin panel.)
Anti Thyroid Peroxidase (also known as anti-microsomal antibody or anti-thyroid antibody)	Blood	Gold	7 mL	C	20 Days	LAB	ANTI-TPO	ANTI-TPO	**Although serum is optimal, Li heparin plasma form light green PST is acceptable as well.** Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If transported, serum or plasma must be sent frozen if not received at DECRH within 48 hours of collection. Referred – 1.5 mL frozen.

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Apolipoprotein B	Blood	GOLD	5mL	C	15 Days	LAB	APOB	APOB	Specimen must be delivered to the lab within 2 hrs; otherwise, centrifuge within 2 hr of collection, aliquot serum and store upright at 4°C. If transported, serum sample must be frozen if not received at DECRH within 72 hours of collection. Please see Utilization rules Referred – 1 mL Serum
APT Test	Fresh Meconium	Screw-cap jar		H	Stat 4 hr Routine 24 hr	LAB	APT	APT	Deliver to Haematology immediately.
Arbovirus Serology	a)Blood b) CSF	Red or GOLD Sterile container	5 mL 250-500 uL	M	25 days	LAB	ARBOVIRUS	ARBOVIRUS	**MUST** have travel history. Serum: **Acute and convalescent serum specimens, collected 14 days apart. Single specimens will not be processed.** **CSF: requires CSF and serum sample, collected the same day.** Deliver to the laboratory immediately. If transported, separate serum from clot and store. 2-8°C if sending same day or Freeze at -70°C. Referred.
Arsenic	a) Urine b) Nail	Heavy metal free large plastic bottle Screw-cap jar	Complete 24 hour output 0.05 g	C C	15 Days 20 Days		ARS ARSN	AS AS-NAIL	a) Refer to Diet/Drug Restriction form HHN-0840 for patient restrictions. If sent from Health Centre or other outside collection site, please refer entire collection in original container. **Ensure start date/time and end date/time are recorded on the label.** If sent from hospital laboratory state 24h volume and send 10 mL aliquot. Referred b) Submit clippings from all 10 nails of either fingers or toes. (Ensure source of nails is recorded on outside of container) Referred – 0.05 g nail clippings
Arylsulphatase A	Blood	Dark Green x 2	6mL x 2	C	45 Days	LAB	ASULA	ASULA	Collect specimen Monday - Thursday between 1100 and 1300 at DECRH only. Avoid collecting before a holiday as well. Deliver to Chemistry immediately. Specimen must arrive at Sick Kids within 24 hours of collection. Referred – whole blood

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ASA (Salicylate)	Blood	Red	1 mL	C	< 24 Hours	LAB	SAL	SAL	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Avoid Hemolysis. If transported, serum must be sent frozen if not received at DECRH within 48 hours of collection. This test is also part of a Drug Toxic Panel (DRUG-TOX).
ASO (Anti-Streptolysin O Screen)	Blood	Red or GOLD	5 mL	M	7 days STAT 24 hrs			ASO	Avoid haemolysis. Deliver to the laboratory immediately. If transported, separate serum from clot and send serum. Store at 2-8℃ for up to 48 hours after collection. Send on ice pack or -70℃ for extended storage.
L-Asparaginase	Blood	Lavender (on ice)	4 mL	C	7 days	LAB	ASP	ASP	Sample must be delivered to lab immediately on ice. If transported from outside, separate plasma in refrigerated centrifuge within 30 minutes of collection and store at 2-8℃ for up to 5 days. If sample will not reach DECRH within 5 days sample must be frozen. Testing can be performed at either of 2 locations depending on how/where patient is being followed. Sample will need to be accompanied by site specific requisition (below). **IWK/Ste Justine** – ASPARAGINASE-Fr-ang-v3.pdf.aspx (chusj.org) **NEXT Molecular Analytics** - NEXT Requisition Referred- 1mL Frozen
Aspergillus IgE	Blood	GOLD	5 mL	M	14 days	LAB	ASPIGE	ASPIGE	Deliver to the laboratory immediately. If transported, separate serum from clot and store at 2-8°C if sending same day or Freeze at -70˚C. Referred.
Aspergillus Serology	Blood	Red or GOLD	5 mL	M	14 days	LAB	ASPIGG	ASPIGG	Includes: *Aspergillus* fumigatus IgG *only*. Deliver to the laboratory immediately. If transported, separate serum from clot and store at 2-8°C if sending same day or Freeze at -70˚C. Referred For *Farmers Lung see Farmers Lung*
AST, Aspartate Aminotransferase (SGOT)	Blood	Light Green	1 mL	C	< 24 Hours	LAB	AST	AST	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Please see Utilization rules
Ativan (Lorazepam)	Blood	Red	6 mL	C	15 Days	LAB	LOR	LOR	Refer to Lorazepam
Autoimmune Inflammatory Myopathies	Blood	Red or GOLD	1 mL	H	14 Days	LAB	MYOSITIS	MYOSITIS	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, remove serum and store at 4ºC. Serum- 2 x 0.5 mL aliquots
Aventyl (Nortriptyline)	Blood	Red	6 mL	C	10 Days	LAB	NORT	NORT	Collect within 1 hour prior to next dose or 12 hours after last dose. Deliver to the lab immediately. Separate serum from clot ASAP, store and send at 4ºC. Referred – 3 mL Serum

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Azathioprine Metabolites									Refer to Thiopurine Metabolites
B12 (Vitamin B12)	Blood	Light Green	1 mL	C	< 24 Hours	LAB	B12	B12	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If transported, serum must be sent frozen if not received at DECRH within 48 hours of collection. Please see Utilization rules
BABESIA Parasites Smear and PCR testing	Whole Blood	Lavender x 2	3 mL x 2	H/ M	Stat Smear preliminary 4 hr Routine Smear 48 hr	LAB	BABESIA	BABESIA	Indicate endemic area on requisition. Deliver to the laboratory immediately. If transported, specimen must arrive at DECRH laboratory on day of collection. Store at 2-8 ºC.
BABESIA Parasites PCR testing only	Whole Blood	Lavender	3 mL	M	17 days			BABESIAPCR	Indicate endemic area on requisition. Deliver to the laboratory immediately. If transported, specimen must arrive at DECRH laboratory on day of collection. Store at 2-8 ºC.
Bactrim (Sulfamethoxazole)	Blood	Red	6 mL	C	7 Days	LAB	BACT	SULFAM	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Serum for a peak level should be drawn 30 minutes after completion of infusion of an intravenous dose or 60 minutes after an intramuscular or oral dose. Referred - 1 mL Serum frozen
Barbiturates									Test no longer available.
Bartholin's Abscess	Swab	Routine Swab		M	72 hours	MIC	BART	BART	Specimen kept at room temperature
Bartonella Serology (Cat Scratch Fever)	Blood	Red or GOLD	5 mL	M	25 days	LAB	BART	BART	If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C. Referred.
BCR-ABL	Blood	Lavender x 2		CG	25 Days		BCR-ABL	BCR-ABL	Collect blood Monday through Thursday before 1200h. Specimen must arrive at referral site within 24h of collection. Store and ship at room temperature. A completed and signed SJRH Molecular Diagnostics Laboratory requisition must be submitted with the sample. Referred - Whole blood.

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Bed Bug	Bed bug	Sterile Screw-cap jar		M	48 hours	MIC	INS	INS	Place a few drops of water in the jar. Store at room temperature.
Benadryl (Diphenhydramine)	Blood	Gold	5 mL	C	8 Days	LAB	BEN	DIPHENHY	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Referred - 1 mL Serum
Bence Jones Protein	a) Blood b) Urine c) Urine	 Screw-cap jar Large plastic bottle	 30 mL Complete 24 hr output	 C C	7 Days 7 Days 7 Days	LAB	 BJP BJP-24H	 BJP BJP-24H	a) **Test no longer available**. b) Random specimen (early morning urine preferred). c) For M-protein Quantitation. If sent from Health Centre or other outside collection site, please refer entire collection in original container. **Ensure start date/time and end date/time are recorded on the label.** If sent from hospital laboratory state 24h volume and send 30 mL aliquot. Please see Utilization rules
Benzodiazepines	Urine	Screw-cap jar	5 mL	C	< 24 Hours	LAB	URINE-BENZ	BENZO-U	Random specimen. This is a semi-quantitative test. If transported, urine must be sent frozen if not received at DECRH within 48 hours of collection.
Beta 2 Microglobulins	Blood	GOLD	5 mL	C	5 Days	LAB	B2MIC	B2MICRO	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Refer serum to DECRH at 4ºC. Referred - 1 mL serum refrigerated
Beta-D-Glucan Assay	Blood	GOLD	5 mL	M	10 Days	LAB	BETDGLU	BETDGLU	**Do not** open the tube, centrifuge, refrigerate and send tube to DECH Laboratory
Beta Galactosidase	Blood	Yellow (ACD)	5 mL	C	20 Days	LAB	BGSE	BGSE	Collect specimens Monday - Thursday AM only. Store and transport whole blood at room temperature in original tube. Deliver to Chemistry as soon as possible. Referred – Whole blood at RT
Beta Glucosidase (Glucocerebrosidase)	Blood	Lavender	4 mL	C	20 Days	LAB	BGLUCO	BETAGLU	Collect specimens Monday – Thursday AM only. Store and transport whole blood in original tube at 4ºC. Deliver to Chemistry as soon as possible. Referred – Whole blood refrigerated

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Beta 2 Glycoprotein 1 Antibody	Blood	Gold or Red	5 mL	H	14 Days	LAB	B2GP1	B2GP1	**Avoid hemolysis.** Separate serum within 2 hours of collection. If specimen cannot be transported to DECRH within 24 hours of collection, centrifuge and separate serum as follows: **Red or Gold**- If transported**, Gold tube only requires one spin. Red tube requires two spins** to ensure no red cells are left in the serum. • **1st spin:** Spin specimens in the centrifuge, after 1st spin is complete, remove tubes from centrifuge and transfer 1st spin serum to a separate labeled 12x75 plastic tube. • **2nd spin**: Cap the labelled 12x75 tubes and re-spin serum, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting button at bottom of tube. • Remove serum, leaving sediment in bottom of tube. Transfer directly to labeled 12x75 plastic tube. • Send 1 aliquot of 0.5 – 1.0 mL at 4°C
Beta Hydroxybutyrate	Blood	Light Green	1 mL	C	STAT ≤45 Minutes* Routine <24 Hours	LAB	BETAHY	BHB	Deliver to Chemistry immediately. Separate plasma and refrigerate immediately if not performed at site. Testing is performed at DECRH and URVH only. If referred (send STAT to closest performing site) - 1 mL serum at 4ºC. ***Turn around time impacted by travel at sites other than DECRH and URVH**
Beta (β) 2 Transferrin	Fluid	Sterile Container		C	8 Days	LAB	FLUID	FLUID	Indicate the source of the fluid and from which side of body it is collected. The fluid must be collected in a sterile container and must be allowed to flow freely into the container. If direct collection is not possible a cotton swab or gauze may be used. If gauze is used please circle area on gauze where sample was collected. Cotton swab or gauze must be placed in a sterile container, do not add liquid to swab or gauze. **The sample must be delivered to Chemistry immediately**. If transported, freeze fluid and send frozen. Referred.

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Bethesda Inhibitor Assay	Blood	Blue (Sodium Citrate) x 2	2.7mL x2 Exactly in each Etched line is the minimum fill volume	H	Stat 6 hr Routine 14 days	LAB	BETH	BETH	Deliver to the lab within 2 hours of collection. If transported, platelet poor plasma (count < 10) must be achieved with the following procedure: 1. **1st spin**: Spin specimens in the centrifuge, after 1st spin is complete, remove blue tubes from centrifuge and transfer 1st spin plasma to a separate labeled 12x75 plastic tube. 2. **2nd spin**: Cap the 12x75 tubes and re-spin plasma, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting platelets at bottom of tube. 3. Carefully remove platelet poor plasma, leaving sediment (containing platelets) in bottom of tube. Transfer directly to labeled 12x75 plastic tube for the platelet count. Perform and record plt count on label if applicable. 4. Send frozen in 1 aliquot of 2 mL. *All Factor inhibitors can be ordered under this order, please specify which Factor is ordered. Referred
Bicarbonate (CO_2 Content)	Blood	Light Green	Full	C	STAT ≤45 minutes Routine < 24 Hours	LAB	CO2	CO2	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. The tube must be allowed to draw to complete vacuum.
Bile	Urine								**Test no longer available.**
Bile	Bile	Screw-cap jar	2 mL	M	72 hours	MIC	FLU	FLU	Deliver **immediately to the laboratory.**
Bile Acids	Blood	Light Green	5 mL	C	4 Days	LAB	BILEA	TBA	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Serum is acceptable.
Bilirubin Direct (Conjugated)	Blood	Light Green (protect from light)	1 mL	C	< 24 Hours	LAB	BILD	DBIL	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. **Protect from exterior light.**
Bilirubin Pigment	Amniotic fluid	Sterile Tubes x 2 -protected from light	10 mL x 2	C	8 Days	LAB	BIL-P	BILP	Chemistry must be informed before collection. Fluid must be protected from light. Deliver to Chemistry immediately. Specimen collection only done at DECRH. Referred - 10 ml, protected from light

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Bilirubin Total	a) Blood b) Fluid	Light Green Screw-cap jar	1 mL 1 mL	C C	STAT ≤45 minutes Routine <24 hours	LAB	BIL-T BIL-F	TBIL TBIL-F	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Protect from exterior light. Protect from exterior light.
Bilirubin, Neonatal	Blood	Light Green	0.5 mL	C	STAT ≤45 minutes Routine < 24 Hours	LAB	BIL-T	TBIL	Please order Total Bilirubin.
Bismuth	Blood	Royal Blue EDTA	6 mL	C	7 Days	LAB	BISMUTH	BISMUTH	Do not centrifuge. Store and send cold. Referred - 6 mL whole blood referred
BK Virus PCR	Blood	Lavender	4 mL x 2	M	14 days	LAB	BKVPCR	BKVPCR	Deliver **immediately to the laboratory**. EDTA tubes are centrifuged at 1100 rpm for 20 minutes, within 6 hours of collection. Aliquot spun plasma into 3 viral load tubes and freeze at -70 ºC. Contact the Microbiology Lab to obtain viral load tubes.
Blastomycosis Serology	Blood	Red or GOLD	5 mL	M	24 days	LAB	BLAST	BLAST	Deliver **immediately to the laboratory** If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C. Referred.
Bleeding Time									Test no longer available.
Blood Gases - Arterial	Blood	Blood Gas collection kit	1 mL	C	< 15 minutes	LAB	BG	BG	Collect blood in a heparinized syringe. Expel all air. Rotate to mix. Remove needle, cap syringe securely, label & place in crushed ice. To retain specimen label integrity, place specimen in a plastic bag prior to placing on ice. Deliver on ice to Chemistry immediately. The specimen must be analyzed within 1 hour of collection. If patient is on oxygen therapy, note this on the sample label.
Blood Gases - Capillary	Blood	Heparanized capillary tube	1 or 2 full tubes	C	< 15 minutes	LAB	BG-CAP	BG-CAP	Collect blood from heel stick or finger stick into heparanized capillary tube continaing metal flea, once completely full, cap both ends trying not to trap air. Deliver to Chemistry immediately at room temp. The specimen must be analyzed within 30 minutes of collection (Specimens for Lactate must be run within 15 min. of collection). If patient is on oxygen therapy, note this on the sample label.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Blood Gases – Central Line	Bood	Blood Gas collection kit	1 mL	C	<15 minutes	LAB	BG-CENTRAL	BG-CENTRAL LINE	Collect blood in a heparinized syringe. Expel all air. Rotate to mix. Cap syringe securely, label & place in crushed ice. To retain specimen label integrity, place specimen in a plastic bag prior to placing on ice. Deliver on ice to Chemistry immediately. The specimen must be analyzed within 1 hour of collection. If patient is on oxygen therapy, note this on the sample label. Panel includes pH, pCO_2, HCO_3, total CO_2, O_2 saturation, hemoglobin, base excess, Ionized calcium, sodium, potassium and chloride
Blood Gases - Cord, Arterial	Blood	Blood Gas collection kit	1 mL	C	< 15 minutes	LAB	BG-CORDART	BG-CORD	Collected by Labour and Delivery staff. Collect blood in a heparinized syringe. Expel all air. Rotate to mix. Remove needle, cap syringe securely, label & place in crushed ice. To retain specimen label integrity, place specimen in a plastic bag prior to placing on ice. Deliver on ice to Chemistry immediately. The specimen must be analyzed within **1 hour** of collection.
Blood Gases - Cord, Venous	Blood	Blood Gas collection kit	1 mL	C	< 15 minutes	LAB	BG-CORDVEN	BG-CORD-VENOUS	Collected by Labour and Delivery staff. Collect blood in a heparinized syringe. Expel all air. Rotate to mix. Remove needle, cap syringe securely, label & place in crushed ice. To retain specimen label integrity, place specimen in a plastic bag prior to placing on ice. Deliver on ice to Chemistry immediately. The specimen must be analyzed within **1 hour** of collection.
Blood Gas – Mixed Venous	Blood	Blood Gas collection kit	1mL	C	<15 minutes	LAB	BG-MIXED	BG-MIXED VENOUS	Blood is collected in a heparinized syringe using a pulmonary artery catheter. Expel all air. Rotate to mix. Cap syringe securely, label & place in crushed ice. To retain specimen label integrity, place specimen in a plastic bag prior to placing on ice. Deliver on ice to Chemistry immediately. The specimen must be analyzed within 1 hour of collection. If patient is on oxygen therapy, note this on the sample label. Panel includes pH, O_2 saturation, and hemoglobin
Blood Gases - Venous	Blood	Heparinized syringe	1 mL	C	< 15 minutes	LAB	BGVTPN	VBG	Collect 1-3 ml blood in heparinized syringe. Expel all air. Rotate to mix. Cap syringe securely, label & place in crushed ice. Deliver on ice to Chemistry immediately. To retain specimen label integrity, place specimen in a plastic bag prior to placing on ice. The specimen must be analyzed within 1 hour of collection. If patient is on oxygen therapy, note this on the requisition.
Blood Group (ABO and Rh)	Blood	Pink	6 mL	TM	96 hr	BBK	BLDGRP	BX:BLDGRP	Indicate **MEDICAL** reason for test order. If transported, **DO NOT** separate plasma from cells and transport within 24 hours at 2-8°C
Blood Group and Antibody Screen (Prenatal)	Blood	Pink	6 mL	TM	96 hr	BBK	PRENAT	PN	If transported, **DO NOT** separate plasma from cells and transport within 24 hours at 2-8°C

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Blood/Bone Marrow: TB	Blood / Bone Marrow	Myco/F lytic Blood Culture Bottle	1-5 mL	M	6 weeks	MIC	TBCBLD	TBCBLD	Special bottle available from Microbiology. Deliver **immediately**. Keep at Room Temperature. Referred.
Blood: Aerobic / Anaerobic	Blood	Anaerobic (Green) + Anaerobic (Purple) Blood Culture Bottles	10 Ml per bottle	M	5 days	MIC	BLD	BLDAN	Deliver **immediately**. Keep at Room Temperature. It is recommended that one set from two different sites be collected at the same time (4 bottles).
Blood: Paediatric	Blood	Paediatric (Yellow) Blood Culture Bottle	3-5 mL	M	5 days	MIC	BCP	BCP	Deliver **immediately**. Keep at Room Temperature. It is recommended that one set from two different sites be collected at the same time (2 bottles).
Blood: Yeast	Blood	FAN (Green) Blood Culture Bottle	10 mL	M	5 days	MIC	BLD	BLD	Deliver **immediately**. Keep at Room Temperature. Include "**Yeast**" in specimen comment.
Blood: Systemic Fungus	Blood:	Myco/F lytic Blood Culture Bottle	1-5 ml	M	5 weeks	MIC	FUNGAL BC	MFBLD	Special bottle available from Microbiology. Deliver **immediately**. Keep at Room Temperature. Referred.
BNP (Pro BNP)	Blood	Light Green	1 mL	C	STAT ≤45 Minutes Routine <24 Hours	LAB	BNP	PRO BNP	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If transported, serum must be sent frozen if not received at DECRH within 6 days of collection. Please see Utilization rules
Body Fluid Cell Count • Synovial Fluid • Peritoneal Fluid • Pleural Fluid • Bronchial Wash/Aspirate	Body Fluid	Lavender •Synovial Fluid •Peritoneal Fluid •Pleural Fluid Sterile screw-top container **•bronchial wash only**		H	Stat Preliminary report 4 hr Routine 48 hr	LAB	BF	BF	Deliver to the lab immediately. **Please indicate origin of fluid.**

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Body Fluid: C&S	Body Fluid	Sterile Screw-cap jar or tube	2 mL	M	72 hours	MIC	FLU	FLU	Deliver **immediately to the laboratory**. Although 2 mL of fluid is desirable, any amount of fluid sent will be processed.
Body Fluid: C&S For transport to DECRH	Body Fluid and Body Fluid in Blood Culture Bottle	Sterile Screw-cap jar or tube + Paediatric (Yellow) or Aerobic FAN (Green) Blood Culture Bottle		M	Culture – 72 hours Bottle -5 days		FLB + FLU	FLB + FLU	Aseptically transfer 0.5 mL or half the volume of the fluid to a blood culture bottle. **HOLD the bottle at Room Temperature until delivered. Keep the tube with the remainder of the body fluid at room temperature if it will be delivered to the DECH lab in ≤ 24 hours. Place the tube with the remainder of the body fluid in the refrigerator IF > 24 hrs will elapse before it's received at DECH lab.**
Body Fluid: TB	Body Fluid	Sterile Screw-cap jar	2 mL	M	smear 3 days final 8 weeks	MIC	AFB	TBC	Deliver **immediately to the laboratory**. Store at 2-8ºC. Referred.
Body Fluid: Yeast/Fungus	Body Fluid	Sterile tube	2 mL	M	smear 3 days final 4 weeks	MIC	MYC	MYC	Deliver **immediately**. Same specimen may be used for C&S, yeast and Fungus
Boil	Swab	Routine Swab		M	72 hours	MIC	SKIN	WOUND	Swab **only** the infected area. Bacteria from the surrounding area prevent accurate interpretation of the results. Indicate source of swab. Specimen stored at room temperature.
Bone	Bone	Sterile Screw-cap jar		M	72 hours	MIC	BONE	BONE	Deliver **immediately to the laboratory**. If transported store at 2-8ºC.
Bone (Bone Bank)	Bone	Bone Transport Medium		M	9 days	MIC	BONE	BONE BANK	Special transport medium available from Microbiology. Deliver **immediately**.
Bone Marrow Examination	Bone Marrow			H	Stat Preliminary 24 hr Routine 7–10 days	LAB	BM	BM	An appointment must be booked with the Haematology laboratory. Collect CBC, Differential and Reticulocytes on the day of the scheduled aspiration. Notify Haematology technologist when the physician is ready to perform the aspiration. DO NOT collect marrow in heparin. If transported, DO NOT fix smears. Include peripheral smear with marrow specimen. All bone marrow requests MUST be accompanied by patient's history.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Bone Marrow for Chromosome Studies/ Karyotyping	Bone Marrow	Dark Green (Sodium Heparin)	1 mL minimum	CG	86 Days			CG	Please call Haematology in advance to arrange testing. Draw specimen on Monday to Wednesday, mornings only. Specimen must be kept at Room Temperature. **A properly completed requisition MUST arrive with, or in advance of, the specimen.** Referred.
Bronchial Wash / Aspirate	Bronch Wash/ Aspirate	Sterile Screw-cap jar		M	72 hours	MIC	BRON	BRON	Deliver **immediately to the laboratory**. If transported store at 2-8ºC.
BUN (Urea)	a) Blood b) Urine c) Urine	Light Green Large plastic bottle Screw-cap jar	1 mL Complete 24 hour output 2 mL	C C C	STAT ≤45 minutes Routine <24 Hours	LAB	BUN UREAEX	BUN UNE UREA-UR	a) Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. b) Measured as urea nitrogen excretion. If sent from Health Centre or other outside collection site, please refer entire collection in original container. **Ensure start date/time and end date/time are recorded on the label.** If sent from hospital laboratory state 24h volume and send 10 mL aliquot. c) Random specimen Please see Utilization rules
Buprenorphine	Urine	Screw-cap jar	5 mL	C	< 24 Hours	LAB	URINE-SUB	SUBOXONE	Refer to suboxone
Burn	Swab	Routine Swab		M	72 hours	MIC	BURN	WOUND	Swab **only** the infected area. Bacteria from the surrounding area prevent accurate interpretation of the results. Indicate source of swab. Specimen stored at room temperature.
C1 Esterase Inhibitor	Blood	Red	5 mL	C	15 Days	LAB	C1EST	C1EST	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If transportation to DECRH is to be delayed longer than 8 days serum must be frozen Referred - 1 mL Serum Frozen
C1q Binding	Blood	GOLD	5 mL	C	10 Days	LAB	C1Q	C1Q	Deliver to Chemistry immediately. Separate and freeze serum within 1 hour of clotting. Referred - 1 mL Serum frozen
C_3 Complement	Blood	Light Green	1 mL	C	< 24 Hours	LAB	C3	C3	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If transported, plasma must be received at DECRH within 8 days of collection.
C_4 Complement	Blood	Light Green	1 mL	C	< 24 Hours	LAB	C4	C4	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If transported, plasma must be received at DECRH within 48 hours of collection.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
CA 15-3	Blood	GOLD	5 mL	C	24-48 Hours	LAB	CA15-3	CA15-3	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Referred - 1 mL Serum
CA 19-9	Blood	GOLD	5 mL	C	8 Days	LAB	CA19-9	CA 19-9	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Please see Utilization rules Referred - 1 mL Serum
CA-125	Blood	Light Green	1 mL	C	<24 Hours	LAB	CA125	CA125	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If transported, serum must be sent frozen if not received at DECRH within 5 days of collection. Please see Utilization rules
Cadmium	a) Blood b) Urine	Royal Blue EDTA Heavy metal free large plastic bottle	6 mL Complete 24 hr output	C C	15 Days 15 Days	LAB	CAD CAD-24H	CAD CAD-24H	a) Do not centrifuge. Store and send cold. Referred - 6 mL Whole Blood b) Refer to Diet/Drug Restriction form HHN-0840 for patient restrictions. If sent from Health Centre or other outside collection site, please refer entire collection in original container. **Ensure start date/time and end date/time are recorded on the label.** If sent from hospital laboratory state 24h volume and send 10 mL aliquot. Referred
Caffeine	Blood	GOLD	5 mL	C	7 Days	LAB	CAF	CAF	Draw trough specimen 0-4 hours prior to next dose. Specimen must be delivered to the lab immediately. Centrifuge specimen and freeze serum ASAP. Referred - 1 mL serum frozen
Calcitonin (Thyrocalcitonin)	Blood	GOLD on ice	5 mL	C	5 Days	LAB	CALCI	CALCI	For 12-hours prior to collection, patient is to avoid taking supplements containing biotin (vitamin B7). Specimen must be **immediately placed on ice** following collection and delivered on ice to lab within 2 hrs; otherwise, centrifuge specimen in refrigerated centrifuge within 2 hr of collection and immediately transfer to aliquot tube and freeze. Referred - 1 mL serum frozen.
Calcitonin Provocative Test	Blood	GOLD on ice	5 mL for each specimen	C	5 Days	LAB	CALCI	CALCI for each timed specimen	For 12-hours prior to collection, patient is to avoid taking supplements containing biotin (vitamin B7). Timed specimen must be delivered on ice to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection and freeze. See Chemistry Section in this manual for additional information. Referred - 1 mL serum frozen.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Calcium	a) Blood b) Urine c) Urine	Light Green Large plastic bottle Screw-cap jar	1 mL Complete 24 hr output 2 mL	C C C	STAT ≤45 Minutes Routine <24 Hours	LAB	CA CA-24H CA-R	CA CA-24H CA-R	a) Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC Collect sample within 1 minute after applying tourniquet. Draw without stasis. Patient should do no forearm exercise (fist clinching) during blood collection. If drawing more than one tube take calcium aliquot from first tube. b) If sent from Health Centre or other outside collection site, please refer entire collection in original container. **Ensure start date/time and end date/time are recorded on the label.** If sent from hospital laboratory state 24h volume and send 10 mL aliquot. c) Random specimen
Calcium/Creatinine Ratio	Urine	Screw-cap jar	2 mL	C	< 24 Hours	LAB	CACR	CA/CR-U	Random specimen
Calculus Analysis (Stone Analysis)	a) Gall stone b) Renal stone c) Salivary stone d) Stone of other source	Screw-cap jar Screw-cap jar Screw-cap jar Screw-cap jar	Total stone Total stone Total stone Total stone	C	7 Days 7 Days 7 Days 7 Days	LAB	STONE-G STONE-R STONE-SAL STONE-O	STONE-G STONE-RENAL STONE-SAL STONE-O	Indicate origin Indicate origin Indicate origin Indicate origin
Calprotectin	Feces	Screw cap jar	Pea-sized portion	C	15 Days		CALPRO-FE	CALPRO-FE	Suggest first morning bowel movement. Referred. Please see Utilization rules. Refrigerate sample once collected. Sample must be frozen if not to reach DECRH lab within 72 hours of collection. Referred frozen
Campylobacter	Stool	Enteric Transport Medium		M	72 hours	MIC	STOOL	STOOL	Collect only one specimen. If it is negative and the symptoms continue, two more may be collected on separate days. Formed stool should be the size of a quarter. Liquid stool should be equal to the amount of the transport medium in the jar. **Routine culture includes Salmonella, Shigella, Yersinia, Campylobacter and E. coli**. If patient has eaten seafood, also order Vibrio Culture (VIB). See Form HHN-0448 for patient collection instructions. . Specimen stored at room temperature.
Candida auris Screen (CAURIS)	Swab	Routine Swab		M	9 days	MIC	CAURIS	CAURIS	Indicate site from which specimen was collected. Specimen stored at room temperature. Referred.

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Captopril Stimulation Test	Blood			C	7 Days				See Chemistry Section in this manual for additional information.
Carbamazepine (Tegretol)	Blood	Red	1 mL	C	<24 Hours	LAB	CARB	CARB	Specimen must be delivered to the lab within 2 hours; otherwise, centrifuge specimen and remove serum within 2 hours of collection, store at 4ºC. Draw trough immediately prior to next dose. If transported, serum must be sent frozen if not received at DECRH within 48 hours of collection. See Chemistry Section in this manual for additional information.
Carbapenemase screen	Swab	Routine Swab	N/A	M	48 hours	MIC	CPE	CPE	Indicate site from which specimen was collected. Specimen stored at room temperature.
Carbon Monoxide (Carboxyhemoglobin)	Blood	Dark Green	Full	C	< 15 Minutes	LAB	CO BG	CO BG	Tube must be full. Invert tube several times to mix. Do not open tube. **DO NOT** separate cells from plasma. Blood Gas specimen is acceptable.
Carcinoembryonic Antigen (CEA)	Blood	Light Green	1 mL	C	< 24 Hours	LAB	CEA	CEA	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If transported, plasma must be sent frozen if not received at DECRH within 7 days of collection. Please see Utilization rules
Carnitine	a) Blood b) Urine	Red Screw-cap jar	5 mL 10 mL	C C	17 Days 17 Days	LAB	CARN CARNU	CARN CARNU	a) Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Referred - 1 mL serum frozen. b) Random specimen. Referred – 1.5 mL Urine aliquot frozen
Carotene	Blood	Red (protect from light)	6 mL	C	12 Days	LAB	CARO	CARO	Patient should abstain from alcohol for 24 hours prior to collection. Patient should fast 12 hours and not take any medication in the AM prior to test. **Protect from light.** Specimen must be labeled inside and outside the light-protecting wrap. Specimen must be delivered to lab as soon as possible; otherwise **centrifuge within 1 hour of collection**, separate serum and store at 4 °C. (protect from light) Referred - 1 mL serum frozen
Cat Scratch Fever (Bartonella Serology)	Blood	Red or GOLD	5 mL	M	24 days	LAB	BART	BART	If transported, separate serum from clot and send serum. . 2-8°C if sending same day or Freeze at -70˚C. Referred.

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Catecholamines (Epinephrine, Norepinephrine and Dopamine)	a) Blood	Lavender x 2 (pre-chilled)	4 mL x 2	C	15 Days	LAB	CATECH	CATECH	a) Patient must be supine for at least 30 minutes prior to and during collection. Patient must refrain from eating, using tobacco and drinking caffeinated beverages for at least 4 hours prior to collection. Catechol drugs may interfere, including alpha methyldopa, alpha-methyl-para-tyrosine, isoproteronal, dobutamine and carbidopa. Collect in pre-chilled tube, place on ice and deliver to laboratory immediately. If transported, separate plasma within 60 minutes using a cold centrifuge and freeze in two equal aliquots. Referred – 2 x 2.5 mL Plasma frozen. b) Refer to Diet/Drug Restriction form HHN-0840 for patient restrictions. Collect urine in a container with 25 mL of 6N HCl. The final pH must be maintained from 2-4. If sent from Health Centre or other outside collection site, please refer entire collection in original container. **Ensure start date/time and end date/time are recorded on the label.** If sent from hospital laboratory state 24h volume and send 25 mL aliquot. Referred – 25 mL aliquot.
	b) Urine	Large plastic bottle with HCl	Complete 24 hour output	C	15 Days		CAT-24H	CAT-24H	
CD4									**Please refer to ICP**
CD55 + CD59 for Paroxysmal Nocturnal Hemoglobinuria									**Please refer to PNH (Paroxysmal Nocturnal Hemoglobinuria)**
CEA (Carcinoembryonic Antigen)	Blood	Light Green	1 mL	C	< 24 Hours	LAB	CEA	CEA	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If transported, plasma must be sent frozen if not received at DECRH within 7 days of collection. Please see Utilization rules

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Celiac Profile Includes: - Plasma IgA - Tissue Transglutaminase (TTG)	Blood	1 GOLD or Red 1 Light Green	5 mL	H C	14 days	LAB	CELIAC	CELIAC	**Avoid hemolysis.** Separate serum/plasma within 2 hours of collection. **Red or Gold**- labeled for TTG If transported**, Gold tube only requires one spin. Red tube requires two spins** to ensure no red cells are left in the serum. • **1st spin:** Spin specimens in the centrifuge, after 1st spin is complete, remove tubes from centrifuge and transfer 1st spin serum to a separate labeled 12x75 plastic tube. • **2nd spin**: Cap the labelled 12x75 tubes and re-spin serum, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting button at bottom of tube. • Remove serum, leaving sediment in bottom of tube. Transfer directly to labeled 12x75 plastic tube. • Send 1 aliquot of 0.5 – 1.0 mL at 4°C for TTGA. **Light Green**-labeled for IgA Separate plasma and store/ship at 4°C.
Cellcept (Mycophenylic Acid)	Blood	Lavender	4 mL	C	12 Days	LAB	MYCOP	MYCOP	Specimen must be delivered to the lab within 2 hours; otherwise, plasma must be separated from the cells within 2 hours of collection and stored at 4ºC. Referred – 1 mL Plasma frozen
Celontin (Methsuximide)									Test no longer routinely available
Ceruloplasmin	Blood	GOLD	5 mL	C	24-48 Hours	LAB	CERU	CERU	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Referred - 1 mL Serum
Cervix	Swab	Routine Swab		M	96 hours	MIC	CX	CX	For Chlamydia and Gonorrhoeae PCR, see Chlamydia Trachomatis/Gonorrhoeae: Cervix/ Urethra. Specimen stored at room temperature.
CH50, Complement	Blood	GOLD	5 mL	C	10 Days	LAB	CH50	CH50	Deliver to Chemistry immediately. If transported, allow blood to clot at 22-37°C for 30 -60 min. Separate and freeze ASAP. Referred - 2 mL Serum frozen
Chicken Pox (Varicella Zoster) (Immune Status)	Blood	Red or GOLD	5 mL	M	1 week	LAB	VZ	VZG	Deliver **immediately to the laboratory**. If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C.
Chicken Pox (Varicella Zoster) (Recent Infection)	Blood	Red or GOLD	5 mL	M	1 week	LAB	VZM	VZM	Deliver **immediately to the laboratory**. If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C. Referred.

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Chlamydophila pneumoniae PCR	BAL/NPA/ Sputum / CSF	Sterile Screw-cap tube		M	2 weeks	MIC	CP	MYCOSPU	.Testing combined with *Mycoplasma pneumoniae, Chlamydia pneumoniae* and *Chlamydia psittaci*. Deliver **immediately to the laboratory**. If transported, store at -70°C. Referred.
Chlamydia Trachomatis / Gonorrhoeae: Cervix / VAG	Cervical Swab Vaginal swab	Cobas PCR Female Swab Sample Packet		M	72 hours	LAB	CHLCGEC CHLGCVAG	CHLCGEC CHLGCVAG	Preferred specimen for females. Method is validated for Cervical and Vaginal Specimens. Specimens are stored at room temperature or 2-8 ˚C. Swabs are to be delivered to the Lab within 2 weeks of collection. Please see Utilization rules
Chlamydia trachomatis / Gonorrhoeae: Urine	Urine	Sterile Screw-cap jar	10 mL	M	72 hours	LAB	CHLGCUR	CHLGCUR	See Form HHN-0822 for patient collection instructions. Maximum transportation time from specimen collection: 24 hours. *Recommended to immediately transfer urine to Cobas buffer but will be acceptable up to a max of 24 hours refrigerated. Please see Utilization rules
Chlamydia trachomatis & Gonorrhoeae: Eye	Eye Swab	Chlamydia PCR Kit		M	72 hours	LAB	CHLGCEYE	CHLGCEYE	Specimens are stored at room temperature or 2-8 ˚C. Swabs are to be delivered to the Lab within 2 weeks of collection.
Chlamydia trachomatis/ Neisseria gonorrheae PCR: Rectal	Rectal Swab	Chlamydia PCR Kit		M	72 hours	LAB	CHLGCR	CHLGCR	Specimens are stored at room temperature or 2-8 ˚C. Swabs are to be delivered to the Lab within 2 weeks of collection.
Chlamydia trachomatis Neisseria gonorrheae PCR: Throat	Throat Swab	Chlamydia PCR Kit		M	72 hours	LAB	CHLGCT	CHLGCT	Specimens are stored at room temperature or 2-8 ˚C. Swabs are to be delivered to the Lab within 2 weeks of collection.
Chlordiazepoxide (Librium) (Includes Nordiazepam metabolite)	Blood	Red (protect from light)	6 mL	C	12 Days	LAB	LIB	CDZ	Collect trough specimen prior to next dose. **Protect sample from light.** Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store and send frozen. Referred - 2 mL serum frozen

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Chloride	a) Blood b) Sweat c) Urine d) Urine	Light Green Large plastic bottle Screw-cap jar	1 mL Complete 24 hr output 5 mL	C C C C	STAT ≤45 Minutes Routine <24 Hours	LAB	CL SWEAT CL-24 CL-R	CL CL-SWEAT CL-24H CL-R	a) Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Part of an electrolyte (LYTE or ISE) profile. b) The DECRH Chemistry staff collects all sweat specimens. In-patient requests are performed Monday to Friday until 1400 hours. Out-patient appointments should be made for 0900 - 1100 hours Tuesday or Friday. c) If sent from Health Centre or other outside collection site, please refer entire collection in original container. **Ensure start date/time and end date/time are recorded on the label.** If sent from hospital laboratory state 24h volume and send 10 mL aliquot. Part of a 24 hour urine electrolyte (LYTE-24H) profile. If output per day is not required, a random specimen is acceptable. d) Random specimen. Part of a random urine electrolyte (LYTE-U) profile.
Chlorpromazine (Largactil)	Blood	Red	6 mL	C	13 Days	LAB	CPZ	CPZ	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Draw trough prior to next dose. Referred -1.5 mL Serum
Cholesterol	Blood	Light Green	1 mL	C	< 24 Hours	LAB	CHOL	CHOL	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Patient need not fast if test is ordered without triglycerides or other lipids. This test should not be done within 3 months of myocardial infarction, surgery or similar trauma.
Cholinesterase - ERC									**Refer to Acetylcholinesterase - ERC**
Cholinesterase (Pseudocholinesterase)	Blood	GOLD	1 mL	C	7 Days	LAB	PSEUDO	PSEUDO	Specimen must be delivered to lab within 2 hours; otherwise, centrifuge specimen within 2 hours of collection, store at 4ºC. Collect blood at least 24 hours following surgery involving the administration of succinylcholine. Referred - 2 mL Serum
Cholinesterase Phenotyping (Pseudocholinesterase Phenotyping)	Blood	GOLD	5 mL	C	15 Days	LAB	PSEUDO PHEN	PSEUDOPHEN	Specimen must be delivered to lab within 2 hours; otherwise, centrifuge specimen within 2 hours of collection, store at 4ºC. Collect blood at least 24 hours following surgery involving the administration of succinylcholine. Referred - 2 mL Serum frozen

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Chorionic Villus Sampling	Amniotic Fluid	CVS Transport Media available from Chemistry		CG	14 Days			CVS	Please call Chemistry in advance to arrange testing. Specimen transport media available from Chemistry. Draw specimens on Monday to Wednesday, mornings only. Specimens must be kept at Room Temperature. **A properly completed requisition MUST arrive with, or in advance of, the specimen.** Requisition available from Chemistry. Referred.
Chromium	a) Blood b) Urine	Royal Blue EDTA Heavy metal free large plastic bottle	6 mL Complete 24 hour output	C C	15 days 15 Days	LAB	CHROMIUM CHROM-24H	CHROMIUM CHROM-24H	a) Do not centrifuge. Store and send cold. Referred - 6 mL Whole Blood b) Refer to Diet/Drug Restriction form HHN-0840 for patient restrictions. If sent from Health Centre or other outside collection site, please refer entire collection in original container. **Ensure start date/time and end date/time are recorded on the label.** If sent from hospital laboratory state 24h volume and send 10 mL aliquot. Referred
Chromogranin A	Blood	Red	4 mL	C	5 Days	LAB	CHRA	CHRA	Patient must abstain from proton pump inhibitor medication for two weeks prior to collection. Specimen must be delivered to lab within 2 hours; otherwise, serum must be separated from the cells within 2 hours of collection and stored at 4ºC. Please note: aliquot must be frozen if not delivered to DECRH within 24 hours of collection. Referred –0.5 mL aliquot serum – Frozen.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Chromosome Analysis (Karyotyping)	a) Blood	Dark Green (Sodium Heparin)	6 mL or full pediatric tube	CG	86 Days		CHROMANALS	CHRBLD	a) Draw blood Monday to Wednesday, mornings preferable. **A properly completed requisition MUST arrive with, or in advance of, the specimen.** Requisition available from Chemistry. Send to Chemistry as soon as possible, specimen must arrive at referral site within 72h of collection. Store and ship at room temperature. Referred - Whole blood.
	b) Bone Marrow	Dark Green (Sodium Heparin)	1 mL minimum	CG				CG	b) Please call Haematology in advance to arrange testing. Draw specimen on Monday to Wednesday, mornings only. Specimen must be kept at Room Temperature. **A properly completed requisition MUST arrive with, or in advance of, the specimen.** Referred.
	c)Amniotic Fluid	Sterile Screw-cap tube x 2	10 mL x 2	CG		LAB		AMNIO	c) Draw specimen on Monday to Wednesday, mornings only. Specimens must be kept at Room Temperature. **A properly completed requisition MUST arrive with, or in advance of, the specimen.** Referred
	d) Tissue	Sterile 100 mL Screw-cap		CG					d) Please call the Anatomical Pathology Department in advance to arrange testing. Collect specimen on Monday to Wednesday, mornings only. Specimens must be kept at Room Temperature. **A properly completed requisition MUST arrive with, or in advance of, the specimen.** Referred.
Chylomicrons (Standing plasma/fluid for appearance)	a)Blood	Light Green	1 mL	C	48 hours	LAB	CHYLO	CHYLO	a) Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC.
	b)Fluid	Dark Green	1mL				CHYLO-F	CHYLO-F	b) Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC.
Circulating Anticoagulants									No longer orderable. Please order mixing studies.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Citrate	Urine	Large plastic bottle	Complete 24 hr output	C	15 Days	LAB	CIT-24H	CIT-24H	Full 24-hour collection in plain jug(s). If sent from Health Centre or other outside collection site, please refer entire collection in original container on ice pack. **Ensure start date/time and end date/time are recorded on the label.** If sent from hospital laboratory enter 24h volume, start date/time, and end date/time. **Referred 10 mL aliquot.**
CK (Creatine Kinase)	Blood	Light Green	1 mL	C	< 24 Hours	LAB	CK	CK	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC.
Clobazam (Frisium)	Blood	Red	6 mL	C	15 Days	LAB	CLO	CLO	Specimen must be delivered to the lab within 2 hours; otherwise, centrifuge specimen and remove serum within 2 hours of collection, store at 4ºC. Draw trough immediately prior to next dose. If transported, serum must be sent frozen if not received at DECRH within 24 hours of collection. Referred -1 mL Serum frozen
Clomipramine (Anafranil)	Blood	Red x 2	6 mL	C	12 Days	LAB	CLOM	CLOM	Draw 1 hour prior to next dose or at least 12 hours after last dose. Deliver to the lab immediately. Separate serum from clot ASAP. Referred - 3 mL Serum
Clonazepam (Rivotril)	Blood	Red x 2	6 mL	C	12 Days	LAB	CLON	CLON	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Draw trough prior to next dose. DO NOT confuse this drug with Clobazam. Referred – 3 mL Serum frozen
Clostridium difficile Cytotoxin	Stool	Sterile Screw-cap jar		M	24 hours	MIC	CDIF	CDT	Only liquid or unformed stool specimens are suitable. See Form HHN-0448 for patient collection instructions Specimen should be delivered within 2 hours or stored at 4ºC.Collect only one specimen per day. Please see Utilization rules
Clozapine (Clozaril)	Blood	Lavender	4 mL	C	12 days	LAB	CLOZAPINE	CLOZ	Specimen must be delivered to the lab within 2 hours; otherwise, plasma must be separated from the cells within 2 hours of collection and frozen. Referred - 1 mL Plasma frozen
CMV (Cytomegalovirus)	SEE Cytomegalovirus								
CO_2 Content (Bicarbonate)	Blood	Light Green	Full	C	< 24 Hours	LAB	CO2	CO2	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. The tube must be allowed to draw to complete vacuum.
Cobalt	Blood	Royal Blue EDTA	6 mL	C	15 Days	LAB	CB	CB	Do not centrifuge. Store and send cold. Referred - 6 mL Whole Blood

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Cocaine	Urine	Screw-cap jar	5 mL	C	< 24 Hours	LAB	URINE-COCA	COCA-U	Random specimen. This is a semi-quantitative test. If transported, urine must be sent frozen if not received at DECRH within 48 hours of collection.
Coccidiomycosis Antibody	Blood	Red or GOLD	5 mL	M	25 days	LAB	SEROL	SEROL	**Add comment: Coccidiomycosis.** Deliver to the lab immediately. If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C. Referred.
Codeine	Urine	Screw-cap jar	5 mL	C	< 24 Hours	LAB	URINE-OPIA	OPIATE-U	Random specimen. This is a semi-quantitative test. If transported, urine must be sent frozen if not received at DECRH within 48 hours of collection.
Cold Agglutinins	Blood	Red x 2	6 mL	TM	<1 week	LAB	COLD	COLD	Deliver to lab within 24 hours. Upon receipt in lab centrifuge at ambient room temperature then aliquot serum off the red cells. Send BOTH serum and red cells at refrigerated temperature to The Moncton Hospital for testing and reporting (Cold Agglutinin screen and when indicated an antibody ID/titer/thermal amplitude will be performed)
Complement, C3	Blood	Light Green	1 mL	C	< 24 Hours	LAB	C3	C3	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If transported, plasma must be t received at DECRH within 8 days of collection.
Complement, C4	Blood	Light Green	1 mL	C	< 24 Hours	LAB	C4	C4	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If transported, plasma must be received at DECRH within 48 hours of collection.
Complement, CH50	Blood	GOLD	5 mL	C	15 Days	LAB	CH50	CH50	Deliver to Chemistry immediately. If transported, allow blood to clot at 22-37°C for 30 -60 min. Separate and freeze ASAP. Referred - 2 mL Serum frozen

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Complete Blood Count (CBC) Includes: - Leukocyte Count (LKC) - Erythrocyte Count (ERC) - Hemoglobin (HGB) - Hematocrit (HCT) - ERC Indices (MCV, MCH, MCHC) - ERC Distribution Width (EDW) - Platelet Count - Mean Platelet Volume (MPV) - Differential	Blood	Lavender	4 mL Minimum 1 mL fill volume	H	Stat 0.5 hr Routine 24 hr Electronic Differential Stat 0.5 hr Routine 24 hr Manual Differential Stat Preliminary Report 4 hr Routine 24 hr	LAB	CBC	CBC	**Mix by inverting gently 8-10 times.** Deliver to the lab within 4 hours of collection. If transported, the specimen must be received at DECRH the same day as collected.
Complete Blood Count ACD (CBCACD) Includes: - Leukocyte Count (LKC) - Erythrocyte Count (ERC) - Hemoglobin (HGB) - Hematocrit (HCT) - ERC Indices (MCV, MCH, MCHC) - ERC Distribution Width (EDW) - Platelet Count - Mean Platelet Volume (MPV) - Differential	Blood	Light Yellow	6 mL	H	Stat 0.5 hr Routine 24 hr Electronic Differential Stat 0.5 hr Routine 24 hr Manual Differential Stat Preliminary Report 4 hr Routine 24 hr	LAB	CBCACD	CBCACD	**Mix by inverting gently 8-10 times.** Deliver to the lab within 4 hours of collection. If transported, the specimen must be received at DECRH the same day as collected. (Ordered only when EDTA specimen results in platelet clumps)
Compound S (11 Deoxycortisol)	Blood	GOLD	5 mL	C	12 Days	LAB	DEOXYC	DEOXYC	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Referred - 1 mL Serum

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Copeptin proAVP	Blood	Light Green	1 mL	C	5 Days	LAB	CPAVP	CPAVP	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, remove plasma, store at 4ºC. Referred – 0.5 mL plasma frozen
Copper	a) Blood	Royal Blue EDTA	6 mL	C	15 Days	LAB	CU	CU	a) Do not centrifuge. Store and send cold. Referred - 6 mL whole blood referred.
	b) Urine	Heavy metal free large plastic bottle	Complete 24 hour output	C	15 Days		CU-24H	COPPER-24H	b) Refer to Diet/Drug Restriction form HHN-0840 for patient restrictions. If sent from Health Centre or other outside collection site, please refer entire collection in original container. **Ensure start date/time and end date/time are recorded on the label.** If sent from hospital laboratory state 24h volume and send 10 mL aliquot. Record volume from jug. Transfer 10 mL aliquot to an orange topped urine specimen container. Referred
	c) Tissue	Sterile, orange-top specimen container		C	15 Days		CU-T	CU-T	c) 0.5 mm x 5 mm from a needle biopsy; a larger section is needed from a wedge biopsy. Place in sterile, orange-top (metal-free) specimen container and freeze. Note on the requisition the type of tissue, the suspected diagnosis and clinical information. Referred frozen
Coproporphyrins (included with quantitative Porphyrins)	a) Blood	Lavender x2	4 mL x 2	C	16 Days	LAB	PP-QUAN-B	PP-QUAN-B	a) Protect from light. Do not centrifuge. Hematocrit result must be provided. Referred - 7 mL Whole Blood
	b) Urine	Large plastic bottle with Anhydrous Sodium Carbonate	Complete 24 hour output	C	13 Days		PP-24H	PP-24H	b) Protect from light. Collect over 5g of Anhydrous Sodium Carbonate. **Ensure start date/time and end date/time are recorded on the label.** Referred - 100 mL Urine aliquot frozen
	c) Feces	Screw-cap jar	50 g	C	13 Days		PP-QUAN-FE	PP-QUAN-FE	c) Random specimen. Protect from light. Referred - 50 g Feces frozen
Cord Blood Workup	Blood	Red	7 mL	TM	Stat 1 hr Asap 2 hr Routine 24 hr		CORD	CORD	Workup includes Blood Group and Direct Antiglobulin Test (if required).
Cordarone (Amiodarone)	Blood	Red	6 mL	C	12 Days	LAB	AMIO	AMIO	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Draw trough prior to next dose. Referred – 1.5 mL Serum

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Cornea	Swab	Routine Swab		M	72 hours	MIC	EYE	EYE	Specimen stored at room temperature.
Cortisol	a) Blood	Light Green	1 mL	C	< 24 Hours	LAB	CORT	CORT	a) Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Sample should be collected between 0600 and 1000 hours. If transported, plasma must be sent frozen if not received at DECRH within 48 hours of collection. See Chemistry Section in this manual for additional information.
	b) Blood	Light green	1 mL	C	< 24 Hours		CORT-R	CORT-R	b) Random collection. Reference intervals available for collections between 1600-2000 only. Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If transported, plasma must be sent frozen if not received at DECRH within 48 hours of collection.
	c) Urine	Large plastic bottle	Complete 24 hr output	C	16 Days		CORT-U24H	CORT-24H	c) See Chemistry Section in this manual for additional information. If sent from Health Centre or other outside collection site, please refer entire collection in original container. **Ensure start date/time and end date/time are recorded on the label.** If sent from hospital laboratory state 24h volume and send 10 mL aliquot. Referred – 10 mL aliquot.
	d) Saliva	Salivette®		C	15 Days		CORT-SAL	CORT-SAL	d) Special Salivette® collection container and instructions must be obtained from Specimen Collection with appointment or Chemistry Send Out if being collected by outside facility. Avoid collecting if patient has bleeding gums. Patient must wait at least 30 minutes after consuming any food, liquids, or medication by mouth before collecting sample. Specimens not delivered to DECRH same day must be kept refrigerated. **Refrigerated samples must be delivered to DECRH within 96 hours of collection.** Referred – complete collection frozen
COVID-19 PCR	(a) NPS (b) Throat/ nose (c) BAL TRACHASP	(a/b) UTM (Viral Transport Media) (c) dry sterile container		M	24-48 hours	LAB	CORVIR	CORVIR	Specimens are stable @ 2-8°C for 48 hours. Ship on an ice pack If unable to ship with 48 hours, freeze @ -80°C and ship on dry ice

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
COVID-19 Rapid screen	NPS	UTM (Viral Transport Media)		M	2-3 hours			CORVIRSCR	This test can only be ordered by the laboratory. **Patients must meet current criteria or be approved by the Microbiologist.**
COVID-19 Serology	Blood	GOLD	2 ml	M	24-48 hours	LAB	COVIDSER	COVIDSER	**main indication for ordering the test-** prior to the administration of monoclonal antibodies against COVID-19 in people with more severe forms of the disease.
Coxsackie Virus Serology				M					No longer available. For Respiratory specimens see Enterovirus-Respiratory For stool samples see Stool: Coxsackie/Enterovirus For any other sources see Enterovirus-OTHER
C-Peptide	Blood	Gold	6 mL	C	12 Days	LAB	CPEP	CPEP	Overnight fast (at least 10 hrs) is recommended but not required, especially if part of a glucagon challenge test. Specimen must be delivered to lab within 2 hrs, otherwise, centrifuge specimen within 2 hr of collection, aliquot serum, and store at 4ºC. If sample not delivered to DECRH within 48 hours sample must be frozen. Referred - 1 mL Serum frozen.
Creatine Kinase (CK)	Blood	Light Green	1 mL	C	< 24 Hours	LAB	CK	CK	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC.
Creatine Kinase Isoenzymes (CK-MB)									Test no longer available.
Creatinine	a) Blood b) Urine c) Urine d) Body Fluid	Light green Large plastic bottle Screw-cap jar Dark Green	1 mL Complete 24 hr output 2 mL 2 mL	C C C C	STAT ≤45 minutes Routine <24 Hours	LAB	CREAT CREATU-24H CREATR CREAT-FLUD	CREAT CREAT-24H CREAT-R CREAT-F	a) Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. b) If sent from Health Centre or other outside collection site, please refer entire collection in original container. **Ensure start date/time and end date/time are recorded on the label.** If sent from hospital laboratory state 24h volume and send 10 mL aliquot. c) Random specimen d) Indicate origin of fluid.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Creatinine Clearance	Blood and Urine	Light Green and Large plastic bottle	1 mL and Timed output or 24 hr output	C	< 24 Hours	LAB	CREATCL	CRCL	A blood sample is collected at a convenient time immediately before, during or immediately following the 24 hour urine collection. Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. For DECRH out-patients, the blood collection should be booked through CIU. The patient's height and **current weight** must be noted on the requisition. At least 24 hours must have elapsed after injection of IVP before urine collection is started. If transported, send Plasma (for Creatinine) and if sent from Health Centre or other outside collection site, please refer entire urine collection in original container. **Ensure start date/time and end date/time are recorded on the label.** If sent from hospital laboratory state 24h volume and send 10 mL aliquot.
Creutzfeldt-Jakob Disease 14 – 3 - 3	Spinal fluid	Sterile Screw-cap tube	2 mL	M	14 days	MIC	CSFPROTEIN	CSF14-3-3	**Microbiology lab must be contacted before CJD testing is ordered/collected**. Refer to Creutzfeldt-Jacob special instructions before ordering and collecting specimens.. Referred
Creutzfeldt-Jakob Disease Gene Sequence	Blood	Lavender x 5	3 mL x 5	M	32 days	LAB	CJDGENE	CJDGENE	**Microbiology lab must be contacted before testing is ordered**. Draw blood on Monday to Wednesday only. Deliver to Microbiology immediately. Referred.
Crossmatch, Routine (Red Blood Cells)	Blood	Pink x 2	6 mL x 2	TM	Stat 1 hr Asap 2 hr Routine 5 hr		GRPBLD	RCC	**∗PROPER PATIENT IDENTIFICATION IS CRITICAL∗** Specimens collected, and requisition must be signed immediately after collection while in the vicinity of the patient (i.e. bedside) If transported, **DO NOT** separate plasma from cells and transport within 24 hours at 2-8°C. Indicate on the order form/requisition product required (i.e. Red Blood Cells) and date and time required. **The individual who collects the specimen MUST:** sign the requisition with **full signature** and initials with date and time of collection. Specimen label must have date and time with collector's initials.
CRP (C-Reactive Protein)	Blood	Light Green	1 mL	C	< 24 Hours	LAB	CRP	CRP	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC.
Cryofibrinogen	Blood	Blue x 4 (pre-warmed)	2.7 mL x 4	C	15 Days	LAB	CRYOFIB	CRYOFIB	Place a hot wet towel on the arm over the vein from which the blood is to be drawn. Collect blood in pre-warmed (37ºC) tubes, label and place tubes in 37ºC water. Deliver to Chemistry immediately. If transported, separate plasma from cells at 37ºC and store at 4ºC, 4 mL of plasma required. Label the specimen as "Plasma" and transport at 4ºC or Room Temperature. A Cryoglobulin specimen MUST be submitted as well. 12-14 hour fast required.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Cryoglobulin	Blood	Red x 4 (pre-warmed)	6 mL x 4	C	7 Days	LAB	CRYO	CRYO	Place a hot wet towel on the arm over the vein from which the blood is to be drawn. Collect blood in pre-warmed (37ºC) tubes, label and place tubes in 37ºC water. Deliver to Chemistry immediately. Blood must be kept at 37ºC for 2 hours to clot before centrifugation. If transported, separate serum from cells at 37ºC and store at 4ºC. 6 mL serum required. Transport at 4 ºC or Room Temperature. 12-14 hour fast required.
Cryptococcal antigen	CSF	Sterile container		M	72 hours	MIC	CRYPTOCSF	CRYPTO CSF	Deliver immediately to laboratory. If transporting, separate serum. Store at 4°C for up to 72 hours. If longer storage is required, freeze at -70°C.
	BLOOD	Red x1				LAB	SEROL	SEROL	
Crystal Identification	Fluid	Dark Green	1 mL	C	<24 Hours	LAB	CRYS-F	CRYS-F	Invert tube several times to mix. Indicate origin of fluid.
CSF				M					See *Spinal Fluid*
Cyanide	Blood	Gray	4 mL	C	7 Days	LAB	CY	CY	Store and ship specimen at 4ºC. If specimen will not arrive at DECRH within 7 days, mix and transfer whole blood sample to screw-cap vial and freeze**.** Referred – whole blood frozen
Cyclic AMP (AMP)									Testing no longer available
Cyclosporin	Blood	Lavender	4 mL	C	4 Days	LAB	CYCLO	CYCLO	Draw blood prior to next dose. Do not centrifuge. If transported, send as whole blood at 4ºC. See Chemistry Section in this manual for additional information.
Cyclosporin - 2 Hour	Blood	Lavender	4 mL	C	4 Days	LAB	CYCLO2HR	CYCL2	Draw 2 hours ± 10 minutes post dose. Do not centrifuge. If transported, send as whole blood at 4ºC. See Chemistry Section in this manual for additional information.
Cystatin C (eGFRcr-cys)	Blood	Light Green	6 mL	C	< 24 Hrs	LAB	CYSC	CYSC	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, store and send at 4ºC.
Cystinuria Monitoring	Urine	Screw-cap jar	20 mL	C	20 Days	LAB	CYSMON	CYSMON	Indicate if patient is a known cystinuric. Referred - 10 mL Urine aliquot frozen Test is intended for monitoring known cystinuric patients**. To diagnose cystinuria please refer to amino acid quantitation (AA-QT)**
Cytokeratin Antibodies (Soluble Liver Antigen Antibodies)	Blood	GOLD	5 mL	C	15 Days	LAB	SOLIVERAB	S-LIVER AB	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, store and send at 4ºC. Referred - 1 mL Serum frozen
				CY					

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Cytology – HPV DNA	Liquid Based Cytology	ThinPrep collection kit: PreservCyt vial, spatula and cytobrush		CY	2 weeks		Cannot be ordered through Meditech OE		Collect material using a plastic spatula or cervical brush device from the cervical, endocervical and/or vaginal area of the genital tract. Rinse spatula/cytobrush as quickly as possible into the PreservCyt® Solution vial by swirling the spatula/cytobrush **vigorously** in the vial 10 times while pushing against the PreservCyt vial wall. Swirl the brush vigorously to further release material. Discard the spatula/cytobrush.and tighten the cap on the vial. Date of last menstrual period (LMP) or menstrual status must be provided in all cases. Label the vial with patient's full name and healthcare number or other unique number (**Not DOB).** To ensure optimal specimen collection, an HPV test should be performed before other cervical procedures including STI testing and IUD insertion. The optimal time to schedule an HPV test is at least 5 days after the end of the menstrual period to avoid excess blood which obscures cells.
Cytology - Gynecological	Liquid Based Cytology	ThinPrep Pap Test collection kit: PreservCyt vial, spatula and cytobrush		CY	Priority 2-3 days Routine 4 weeks		Cannot be ordered through Meditech OE		Collect material using a plastic spatula or cervical brush device from the cervical, endocervical and/or vaginal area of the genital tract. Rinse spatula/cytobrush as quickly as possible into the PreservCyt® Solution vial by swirling the spatula/cytobrush **vigorously** in the vial 10 times while pushing against the PreservCyt vial wall. Swirl the brush vigorously to further release material. Discard the spatula/cytobrush.and tighten the cap on the vial. Date of last menstrual period (LMP) or menstrual status must be provided in all cases. Label the vial with patient's full name and healthcare number or other unique number (**Not DOB).** To ensure optimal specimen collection, a Pap test should be performed before other cervical procedures including STI testing and IUD insertion, so as not to remove diagnostic cells required for Pap test. The optimal time to schedule a Pap test is at least 5 days after the end of the menstrual period to avoid excess blood which obscures cells.
Cytology - Gynecological	Endometrial	Glass slide		CY	Priority 2-3 days Routine 4 weeks		Cannot be ordered through Meditech OE		Using an endometrial sampler, i.e. Endopap endometrial sampler, collect sample. Smear on glass slide(s) and **fix immediately with Cytospray**. Label slide (s), in pencil, with patient's name and healthcare number.
Cytology – HPV DNA	Rectal/Anal Swab (Males)	N/A							**Test not available.**

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Cytology - Non-Gynecological	Body cavity fluids & abdominal washings	Blue topped "Cytology Only" container with CytoLyt	Max. vol.90 ml (including 30 ml CytoLyt)	CY	80% within 3-5 days		Cannot be ordered through Meditech OE		**Place the fluid in 30 mL of CytoLyt IMMEDIATELY after collection to prevent settling of diagnostic cellular material.** These fluids are not satisfactory when clotted. Containers are available from SPD. Joint, pericardial, peritoneal, and pleural fluids are all collected in this fashion. Please differentiate between peritoneal fluids that are obtained by paracentesis technique and abdominal washes that are taken at the time of surgery. Only one 90 ml Cytology sample container is required for testing. **Imperative - clearly indicate the source of the specimen on the request form.**
Cytology - Non-Gynecological	Bronchial brushing	Blue topped "Cytology Only" container with CytoLyt		CY	80% within 3-5 days		Cannot be ordered through Meditech OE		Collect these specimens at the time of the surgical procedure. Break off the brush and drop into a container of CytoLyt.
Cytology - Non-Gynecological	Bronchial washings	Blue topped "Cytology Only" container with CytoLyt		CY	80% within 3-5 days		Cannot be ordered through Meditech OE		After collecting bronchial washings, add 30 mL of CytoLyt. Deliver immediately.
Cytology - Non-Gynecological	Cyst aspirations	Blue topped "Cytology Only" container with CytoLyt		CY	80% within 3-5 days		Cannot be ordered through Meditech OE		Collect the specimen in 30 mL of CytoLyt. Containers are available from SPD.
Cytology - Non-Gynecological	Esophageal	Blue topped "Cytology Only" container with CytoLyt		CY	80% within 3-5 days		Cannot be ordered through Meditech OE		The specimen is collected by washing or by brushing. If washings are collected, they must be placed immediately in 30 mL of CytoLyt. Washings should be collected before biopsy. If brushings are collected, break off the brush and drop into a container of CytoLyt.
Cytology - Non-Gynecological	Common bile duct (CBD) brushings	Blue topped "Cytology Only" container with CytoLyt		CY	80% within 3-5 days		Cannot be ordered through Meditech OE		Collect cellular fluid at time of surgical procedure into a container of CytoLyt preservative. Brush or stent may be sent in Cytology container for processing.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Cytology - Non-Gynecological	Gastric washing	Blue topped "Cytology Only" container with CytoLyt		CY	80% within 3-5 days		Cannot be ordered through Meditech OE		Specimen must be obtained from clean surface area to ensure the presence of epithelial cells. Place washings immediately into 30 mL of CytoLyt.
Cytology - Non-Gynecological	Fine needle aspirations	Blue topped "Cytology Only" container with CytoLyt		CY	80% within 3-5 days		Cannot be ordered through Meditech OE		Expel contents of needle barrel and syringe into a container of CytoLyt and deliver immediately to Cytology Lab. Refer to Clinical & Laboratory Standards Institute approved guidelines for detailed FNA collection instructions including patient preparation and positioning, equipment and technique for site-specific sampling: CLSI: GP20 – A2, section 4.
Cytology - Non-Gynecological	Nipple discharge	Glass slide		CY	80% within 3-5 days		Cannot be ordered through Meditech OE		Collect nipple secretions on glass slides. **Fix immediately with Cytospray.** If enough secretion is available, make several slides, fixing each one as it is smeared. Even partial drying can cause distortion of these cells. Label slide (s), in pencil, with patient's name and Medicare number.
Cytology - Non-Gynecological	Spinal fluid	Sterile tube	1.0 ml	CY	80% within 3-5 days		Cannot be ordered through Meditech OE		Deliver Spinal fluid immediately to the laboratory with no fixative added. One mL of specimen is sufficient for cytological analysis. If there is to be a delay in delivery, add an equal amount of CytoLyt to the specimen and refrigerate.
Cytology - Non-Gynecological	Sputum	Blue topped "Cytology Only" container with CytoLyt		CY	80% within 3-5 days		Cannot be ordered through Meditech OE		To ensure against contamination of cells from the oral cavity, the patient must rinse his or her mouth with clear water and discard before collection. **Sputum must be an early morning deep cough specimen collected before the patient has breakfast** and expectorated directly into a container with 30 mL of CytoLyt. Only one specimen per day, for 3 days is preferred for most effective sampling. Please collect sputa **Monday through Friday only**. Specimens must be delivered to the laboratory on the day of collection.
Cytology - Non-Gynecological	Urine – voided, cystoscopic, catheterized, renal pelvic washings	Blue topped "Cytology Only" container with CytoLyt		CY	80% within 3-5 days		Cannot be ordered through Meditech OE		Collect mid-morning voided urine samples in CytoLyt at approximately 1100 hours. **An early morning specimen is not satisfactory for voided specimens.** One specimen per day is sufficient, Monday to Friday. Cystoscopic and catheterized samples as well as renal pelvic washings should be collected directly into CytoLyt and sent to the lab.
Cytomegalovirus serology: IgG Avidity	Blood	Red or GOLD	5 mL	M	2 weeks		CMVGAV	CMVGAV	Deliver to laboratory immediately. If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C. Referred.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Cytomegalovirus (CMV) serology	Blood	Red or GOLD	5 mL	M	1 week	LAB	CMV	CMV	Includes both CMV IgG (immune **status) and** CMV IgM (Acute or recent infection). If transported, separate serum from clot and send serum 2-8°C if sending within 72 hours or Freeze at -20˚C.
Cytomegalovirus (CMV) PCR: Urine	Urine	Sterile Screw-cap jar	15 mL	M	1 week	MIC	CMVC	CMVC	Call Microbiology before collection. Must be delivered to laboratory immediately after voiding. Referred.
Cytomegalovirus-CMV (Viral Load/PCR)	Blood	Lavender x 3	3 mL x 3	M	4 days	LAB	CMVPCR	CMVPCR	Specimen must be delivered to the lab within 6 hours; otherwise specimen must be centrifuged at 1100 g for 20 minutes, separate plasma from cells immediately and store at -70 ºC. If transported send plasma frozen on dry ice. Test referred.
Cytoplasmic Antibodies Includes: - Anti-Mitochondrial Ab (AMA) - Anti-Parietal Cell Ab (APCA) - Anti-Smooth Muscle Ab (ASMA)	Blood	GOLD or Red	5 mL	H	14 days	LAB	CYTOPLASAB	CYTOPLASAB	**Avoid hemolysis.** Separate serum within 2 hours of collection. If specimen cannot be transported to DECRH within 24 hours of collection, centrifuge and separate serum as follows: **Red or Gold**- If transported**, Gold tube only requires one spin. Red tube requires two spins** to ensure no red cells are left in the serum. • **1st spin:** Spin specimens in the centrifuge, after 1st spin is complete, remove tubes from centrifuge and transfer 1st spin serum to a separate labeled 12x75 plastic tube. • **2nd spin**: Cap the labelled 12x75 tubes and re-spin serum, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting button at bottom of tube. • Remove serum, leaving sediment in bottom of tube. Transfer directly to labeled 12x75 plastic tube. • Send 1 aliquot of 0.5 – 1.0 mL at 4°C
Cytotoxic Antibodies (HLA Antibody Testing) (Transplant Antibodies)	Blood	Red	7 mL	C	5 Days	LAB	TRANSBBK	TR	A Nova Scotia Health Authority Histocompatibility Laboratory requisition must be completed by the ordering site and it must be signed by the phlebotomist. These requisitions are available from the website of the reference laboratory (https://www.nshealth.ca/sites/default/files/documents/Histocompatibility%20%28HLA%29%20Requisition.pdf). Serum must be separated from the cells within 2 hours of collection and stored at 4ºC. Referred.
Date Rape Drugs (Rape Drugs)	Urine	Screw-cap jar	10 mL	C	7 Days			DATE RAPE DRUGS	This profile includes Rohypnol (Flunitrazepam) and GHB (Gamma Hydroxybutyrate). Referred - 10 mL urine aliquot

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
D-Dimer Quantitative	Blood			H	Stat 1 hr Routine 24 hr			DDIMQT	Deliver to the lab immediately. If transported, platelet poor plasma (count < 10) must be achieved with the following procedure: 5. **1st spin**: Spin specimens in the centrifuge, after 1st spin is complete, remove blue tubes from centrifuge and transfer 1st spin plasma to a separate labeled 12x75 plastic tube. 6. **2nd spin**: Cap the 12x75 tubes and re-spin plasma, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting platelets at bottom of tube. 7. Carefully remove platelet poor plasma, leaving sediment (containing platelets) in bottom of tube. Transfer directly to labeled 12x75 plastic tube for the platelet count. Perform and record plt count on label if applicable. Send frozen in 1 aliquot of 2 mL.
D-Dimer Screen									Test no longer performed
Decubitus Ulcer	Swab	Routine Swab		M	72 hours	MIC	WOUND	ULC	Requires saline irrigation followed by a deep swab collection. Biopsy collection is preferred over swabs. Specimen stored at room temperature.
Delta Aminolevulinic Acid (DALA)	Urine	Large plastic bottle	Complete 24 hour output	C	15 Days	LAB	ALA	ALA	**Protect specimen from light. Specimen must be labeled inside and outside the light-protecting wrap**. If sent from Health Centre or other outside collection site, please refer entire collection in original container. **Ensure start date/time and end date/time are recorded on the label.** If sent from hospital laboratory state 24h volume and send 20 mL aliquot frozen (protect from light). **Note: This test is included in an order for Porphobilinogen-24hr.** Referred - 20 mL Urine aliquot frozen.
Demerol (Meperidine)	a) Blood b) Urine	Red Screw-cap jar	6 mL 10 mL	C C	11 Days 11 Days	LAB	MEP-B MEP-U	MEP-B MEP-U	a) Specimen must be delivered to the lab within 2 hours; otherwise, centrifuge specimen, remove serum within 2 hours of collection and store at 4°C. Referred – 1.5 mL Serum b) Referred - 10 mL Urine aliquot

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Depakene (Valproic Acid) (Epival)	Blood	Red	1 mL	C	< 24 Hours	LAB	VALP	VALP	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Trough levels are generally measured. Draw trough immediately prior to next dose. If transported, serum must be sent frozen if not received at DECRH within 48 hours of collection. See Chemistry Section in this manual for additional information.
Desipramine (Pertofrane)	Blood	Red	2 X 6 mL	C	10 Days	LAB	DESIP	DESIP	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Collect within 1 hour prior to next dose or at least 12 hours after last dose. Referred – 3 mL serum.
Desyrel (Trazodone)	Blood	Red	6 mL	C	13 Days	LAB	TRAZ	TRAZ	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Collect trough specimen prior to next dose after steady state (2 days or more after commencement of therapy) Referred – 1.5 mL serum.
Dexamethasone Suppression Tests	Blood			C	72 Hours	LAB	DST	DST	See Chemistry Section in this manual for additional information.
DHEA-Sulfate (DHEAS)	Blood	Light Green	1 mL	C	< 24 Hours	LAB	DHEAS	DHEAS	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If transported, plasma must be sent frozen if not received at DECRH within 48 hours of collection. See Chemistry Section in this manual for additional information.
Dialysis Fluid	Fluid	Aerobic and Anaerobic Blood Culture Bottles	20 mL	M	5 days	MIC	DIAL	DIAL	Aseptically transfer 10 mL to each aerobic and anaerobic blood culture bottle. Send remaining fluid and bottles to the laboratory at Room Temperature.
Diazepam (Valium)	Blood	Red	6 mL	C	15 Days	LAB	DIAZ	DIAZ	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Referred -1 mL Serum

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DIC Screen Includes: - Prothrombin Time (PT/INR) - Activated Partial Thromboplastin Time (APTT) - Fibrinogen (Fib) - D-Dimer Quantitative (DDIMQT)	Blood	Blue (Sodium Citrate)	2.7 mL 1.8 mL Etched line is the minimum fill volume	H	Stat 1 hr Routine 24 hr		DICSC	DICSC	Deliver to the lab immediately. If transported, separate plasma within 30 minutes then centrifuge plasma a second time. If transported, platelet poor plasma (count < 10) must be achieved with the following procedure: 8. **1st spin**: Spin specimens in the centrifuge, after 1st spin is complete, remove blue tubes from centrifuge and transfer 1st spin plasma to a separate labeled 12x75 plastic tube. 9. **2nd spin**: Cap the 12x75 tubes and re-spin plasma, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting platelets at bottom of tube. 10. Carefully remove platelet poor plasma, leaving sediment (containing platelets) in bottom of tube. Transfer directly to labeled 12x75 plastic tube for the platelet count. Perform and record plt count on label if applicable. Send frozen in 1 aliquot of 2 mL.
Differential (Manual)									Order CBC
Digoxin	Blood	Red	1 mL	C	< 24 Hours	LAB	DIG	DIG	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Draw immediately prior to AM dose or 6-24 hours after last dose. If transported, serum must be sent frozen if not received at DECRH within 72 hours of collection. See Chemistry Section in this manual for drug interaction information.
Dihydrotestosterone	Blood	GOLD	5 mL	C	15 Days	LAB	DHTEST	DHTEST	Specimen must be delivered to lab within 2 hrs; otherwise, serum must be separated from the cells within 2 hrs of collection. Store and send frozen. Referred – 1 mL Serum frozen
Dilantin (Phenytoin)	Blood	Red	1 mL	C	< 24 Hours	LAB	DIL	PTN	Draw immediately prior to next dose. If transported, serum must be sent frozen if not received at DECRH within 48 hours of collection. See Chemistry Section in this manual for additional information.
Dilaudid (Hydromorphone)	a) Urine b) Blood	Screw-cap jar Red	1 mL 6 mL	C	20 Days 20 Days	LAB	URINE-DILA DILAUDID	DILA-U DILA	a) Random specimen. Referred. b) Specimen must be delivered to the lab within 2 hours; otherwise, specimen must be centrifuged, and serum removed and stored at 4ºC. Referred - 2 mL serum

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Dimenhydrinate (Gravol) (Dramamine)									Test no longer routinely available
Diphenhydramine (Benadryl)	Blood	GOLD	5 mL	C	8 Days	LAB	DIPHENHY	DIPHENHY	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Referred - 1 mL Serum
Direct Antiglobulin Test (Direct Coombs)	Blood	Pink	6 mL	TM	Stat 1 hr Asap 2 hr Routine 96 hr	DAT	DAT	BBDAT	**DO NOT** separate plasma from cells. If transported send within 24 hours at 2-8°C Only performed at the DECRH
Disopyramide (Rythmodan) (Norpace)	Blood	Dark Green	6 mL	C	12 Days	LAB	DISO	DISO	Specimen must be delivered to the lab within 2 hours; otherwise, plasma must be separated from the cells within 2 hours of collection and stored at 4ºC. Referred - 1 mL Plasma
DNA Analysis, Molecular	Blood	Lavender x 2	4 mL x2	CG	86 Days	LAB	DNABLD	DNABLD	Draw blood on Monday to Thursday, mornings preferable. Friday may be acceptable in special circumstances call DECRH Laboratory prior to Friday collections. **A properly completed requisition and a consent form signed by the patient MUST arrive with, or in advance of, the specimen.** Requisition available from Chemistry. Store and ship at Room Temperature. Referred - Whole Blood
Donath-Landsteiner Test for Paroxysmal Cold Hemoglobinuria									Test no longer performed
Dopamine (included with Catecholamines)	Blood	Lavender x 2	4mL x 2	C	15 Days	LAB	CATECH	CATECH	Patient must be supine for at least 30 minutes prior to and during collection. Patient must refrain from eating, using tobacco and drinking caffeinated beverages for at least 4 hours prior to collection. Catechol drugs may interfere, including alpha methyldopa, alpha-methyl-para-tyrosine, isoproteronal, dobutamine and carbidopa. Collect in pre-chilled tube, place on ice and deliver to laboratory immediately. If transported, separate plasma within 60 minutes using a cold centrifuge and freeze. Referred - 2 mL Plasma frozen.
Dopamine 24H	Urine	Large plastic bottle with HCL	Complete 24-hour output	C	15 Days	LAB		DOP-24H	Collect urine in a container with 25 mL of 6N HCL. The final pH must be less than 3.0. Restrict caffeine, nicotine, and alcohol 24 hours prior to collection. Discontinue Methyldopa (Aldomet) at least 5 days prior to collection. Other drugs do not interfere with this assay. If sent from Health Centre or other outside collection site, please refer entire collection in original container. **Ensure start date/time and end date/time are recorded on the label.** If sent from hospital laboratory state 24h volume and send 20 mL aliquot. Referred – 20 mL aliquot.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Doxepin (Sinequan)	a) Blood b) Urine	Red Screw-cap jar	6 mL 10 mL	C C	10 Days 7 Days	LAB	DOX DRUGSC1	DOX DRUGSC1	a) Draw trough specimen 1 hour prior to next dose, or at least 12 hours post dose. Deliver to Chemistry immediately. Separate serum from clot ASAP. Referred – 3 mL Serum b) Part of Drug Screen, General (DRUGSC1). Specify screening for Sinequan. Referred - 10 mL Urine
Dramamine (Dimenhydrinate)(Gravol)									Test no longer routinely available
Drug Screen, General (Referred)	Urine	Screw-cap jar	12 mL	C	7 Days	LAB	DRUGSC1	DRUGSC1	Random urine only. This drug screen detects a variety of drugs, prescription and non-prescription. Relevant history should be noted on the requisition. Referred - 12 mL Urine
Drug Screen, Routine	Urine	Screw-cap jar	5 mL	C	< 24 Hours	LAB	URINE-DRUG	DRUG-URINE	Screen includes Creatinine, Amphetamines, Benzodiazepines, Cocaine, Fentanyl, Opiates, and Oxycodone. Each test may also be ordered individually. If transported, urine must be sent frozen if not received at DECRH within 48 hours of collection.
Drug Screen, STAT (available at all sites except DECRH)	Urine	Screw-cap jar	5 mL	C	< 24 Hours	LAB	DRUGSC2	DRUGSC2	Not available at DECRH. Available only at OPH, URV, and HDP facilities. Screen includes: Amphetamines, Barbiturates, Benzodiazepines, Cocaine, Ecstasy, Methadone, Methamphetamines, Opiates, Oxycodone, THC, Tricyclics, and Fentanyl
Drug Toxic Panel (Toxic Panel, Drug)	Blood	Red, gold and gray	6 mL red & gold 4 mL gray	C	< 24 Hours	LAB	DRUGTOX	DRUG-TOX or TOXI-PANEL	Both red and glod tubes must be delivered to the lab within 2 hours; otherwise, centrifuge specimen, remove serum within 2 hours of collection and store at 4ºC. If transported, serum must be sent frozen if not received at DECRH within 48 hours of collection. Panel includes quantitative tests for Acetaminophen, Ethyl Alcohol, Salicylate, and Osmolality. **Gray tube for Ethyl Alcohol:** Do not use any type of alcohol to disinfect skin. The tube must be allowed to draw to complete vacuum. Invert tube several times to mix. **Keep tube sealed until analysis**. Medicolegal specimens should be delivered directly to a police officer, not to the laboratory. If transported, do not centrifuge. See Chemistry Section in this manual for additional information.
Duodenal Aspirate	Aspirate	Sterile Screw-cap jar		M	72 hours	MIC	DUO	DUO	Deliver **immediately**.

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Ear	Swab	Routine Swab		M	72 hours	MIC	EAR	EAR	Specimen stored at room temperature.
EBV Panel (Immune Status, Past Exposure)	Blood	GOLD	5 mL	M	10 Days	LAB	EBV PANEL	EBV PANEL	Includes EBNA and EBV IgG (**based on results IgM may be reflexed**). Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, store at 4ºC. Referred - 1 to 2 mL Serum frozen
EBV VCA IGM (Acute Infection)	Blood	Red/GOLD	7 mL	M	10 days	LAB	EBV IGM	EBV IGM	**See EBV PANEL** This test is usually only ordered by the Laboratory department on patients less than 17 years old with a negative Mononucleosis test Serum stored for 2-8° C for 7 days or - 20° C for longer periods.
EBV PCR	Blood	Lavender	4 mL	M	7 days	LAB	EBVPCR	EBVPCR	DO NOT spin. Deliver ASAP or freeze at -70 within 6 hours of collection if unable to deliver to DECRH ASAP. Referred.
Echo Virus Serology				M					Test no longer available
Ecoli 0157	Stool	Enteric Transport Medium		M	72 hours	MIC	STOOL	STOOL	Collect only one specimen. If it is negative and the symptoms continue, two more may be collected on separate days. Formed stool should be the size of a quarter. Liquid stool should be equal to the amount of the transport medium in the jar. **Routine culture includes Salmonella, Shigella, Yersinia, Campylobacter and E. coli**. If patient has eaten seafood, also order Vibrio Culture (VIB). See HHN-0448 for collection instructions. Specimen stored at room temperature.
Ecstasy	Urine	Screw-cap jar	5 mL	C	< 24 Hours	LAB	URINE-ECST	ECS-U	Random specimen. This is a qualitative result.
Elastase Fecal	Feces	Screw-cap jar	5 grams	C	30 days	LAB	ELASF	ELASF	Collect a fresh random fecal specimen. If not delivered to lab within 72 hours sample must be frozen. Referred: frozen

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Elavil (Amitriptyline)	Blood	Red	6 mL	C	10 Days	LAB	AMIT	AMIT	Draw 1 hour prior to next dose or at least12 hours after last dose. Specimen must be delivered to the lab within 2 hrs; otherwise, serum must be separated from the cells within 2 hrs of collection. Store at 4ºC. See Chemistry Section in this manual for additional information. Referred - 2 mL Serum
Electrolyte Profile	a) Blood b) Urine c) Urine	Light Green Large plastic bottle Screw-cap jar	1 mL Complete 24 hr output 5 mL	C C C	STAT ≤45 Minutes Routine <24 Hours	LAB	LYTE LYTE-24H LYTE-R	LYTE LYTE-24H LYTE-U	a) Specimen must be delivered to the lab within 2 hours; otherwise, specimen must be centrifuged within 2 hours of collection, store upright at 4ºC. Profile includes: Sodium, Potassium, and Chloride. b) Profile includes: Sodium, Potassium, and Chloride. If sent from Health Centre or other outside collection site, please refer entire collection in original container. **Ensure start date/time and end date/time are recorded on the label.** If sent from hospital laboratory state 24h volume and send 10 mL aliquot. If output per day is not required, a random specimen is acceptable. c) Random urine specimen. Profile includes: Sodium, Potassium and Chloride
ESR									See Sedimentation Rate
Expanded Autoimmune Encephalitis/ Paraneoplastic Neurologic Syndrome panel	Blood CSF	Gold Screw cap tube	1 mL	H	14 Days	LAB	ENCEPH ENCEPHCSF	ENCEPH ENCEPHCSF	a) Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, remove serum and store at 4ºC. Serum- 2 x 0.5 mL aliquots b) Aliquot and store at 4ºC. CSF- 2 x 0.5 mL aliquots Panel will include: Encephalitis as well as Paraneoplastic

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Enhanced First Trimester Prenatal Screen (eFTS)	Serum	Gold or Red	6 mL	C	10 days	LAB	MATERNEFTS	EFTS	Specimen must be delivered to the lab within 2 hours; otherwise, serum must be separated from the cells within 2 hours of collection and stored at 4ºC. If transported, serum must be frozen if not received at DECRH within 6 days of collection. Pregnancy should be at least 11 weeks, 2 days and no more than 13 weeks, 3 days gestation for interpretation of results. **A properly completed Prenatal Screening Requisition Form MUST arrive with the specimen**. When feasible patient current weight in kg must be added to the requisition. (Weight that may be recorded by physician office may not be current weight at time of collection) **Testing also requires an NT ultrasound exam on the same day as collection and testing is routinely booked through Maternal/Fetal Medicine unit only. General practitioners please refer to STS (Second Trimester Screening).** Referred Links for helpful information: NB Perinatal Health Program - Horizon Health Network (horizonnb.ca) Laboratories | North York General Hospital (nygh.on.ca)
Enterovirus-OTHER	Swab (must indicate source site)	UTM (viral transport media)		M	1 week	MIC	ENTERO-OTH	ENTERO-OTH	Specimen refrigerated. If transporting, 2-8°C if sending same day or Freeze at -70˚C.
Enterovirus- Respiratory	Nose/throat nasopharyngeal	UTM (viral transport media)		M	1 week	MIC	ENTERORESP	ENTERORESP	For stool samples see Stool: Coxsackie/Enterovirus Specimen refrigerated. If transporting, 2-8°C if sending same day or Freeze at -70˚C.
Environmental Culture				M				ENV	No longer available.
Eosin-5-maleimide (EMA) for Hereditary Spherocytosis	Blood	Lavender	3 mL x 2	H	7 Days	LAB	OF	EMA	**Collect Monday to Wednesday am only and deliver to DECRH Haematology Lab immediately.** Must be received in DECRH Haematology before 1200 hours. Send one lavender tube at RT and the other at 4ºC. Contact DECRH Haematology @ 452-5451 with questions. Referred
Eosinophil - Respiratory	a) Nasal secretion b) Sputum	Nasal Swab Screw-cap jar		H	24 hr	LAB	EOSRESP	EOSRESP	

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Epidermal Antibodies (Skin Antibodies)	Blood	GOLD X 2	5 mL x 2	C	12 Days	LAB	ANTIEP	ANTIEPID	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Assay includes both pemphigus and basement membrane zone antibodies. Referred - 3 mL Serum
Epiglottis	Swab	Routine Swab		M	72 hours	MIC	EPIG	EPIGL	Specimen stored at room temperature.
Enhanced First Trimester Screen (eFTS)	Serum	Gold or Red	6 mL	C	10 days	LAB	EFTS	EFTS	Specimen must be delivered to the lab within 2 hours; otherwise, serum must be separated from the cells within 2 hours of collection and stored at 4ºC. If transported, serum must be frozen if not received at DECRH within 6 days of collection. Pregnancy should be at least 11 weeks, 2 days and no more than 13 weeks, 3 days gestation for interpretation of results. **A properly completed Prenatal Screening Requisition Form MUST arrive with the specimen**. Patient current weight in kg must be added to the requisition. (Weight that may be recorded by physician office may not be current weight at time of collection) **Testing also requires an NT ultrasound exam on the same day as collection and testing is routinely booked through Maternal/Fetal Medicine unit only. General practitioners please refer to STS (Second Trimester Screening).** Referred Links for helpful information: NB Perinatal Health Program - Horizon Health Network (horizonnb.ca) Laboratories | North York General Hospital (nygh.on.ca)
Epival (Depakene) (Valproic Acid)	Blood	Red	1 mL	C	< 24 Hours	LAB	VALP	VALP	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Trough levels are generally measured. Draw trough immediately prior to next dose. If transported, serum must be sent frozen if not received at DECRH within 48 hours of collection. See Chemistry Section in this manual for additional information.
Equanil (Meprobamate)	a) Blood b) Urine	Red Screw-cap jar	6 mL 5 mL	C C	8 Days	LAB	MEPRO-B MEPRO-U	MEPRO-B MEPRO-U	a) Specimen must be delivered to lab within 2 hours; otherwise, centrifuge specimen, remove serum within 2 hours of collection and store at 4ºC. Referred – 3 mL Serum. b) Referred - 5 mL Urine aliquot
Erythrocyte Morphology	Blood	Lavender	3 mL	H	Stat Preliminary Report 4 hr Routine 24 hr	LAB	SMEAR	SMEAR	**Mix by inverting gently 8-10 times.** Deliver to the lab within 4 hours of collection. If transported, the specimen must be received at DECRH the same day as collected.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Erythropoietin	Blood	GOLD	5 mL	C	5 Days	LAB	ERYS	ERYS	Due to diurnal variation, it is recommended that specimen be collected between 0730 a.m. and noon. Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, remove serum, store upright at 4ºC. Referred - 1 mL Serum frozen.
Esophagus	Swab	Routine Swab		M	72 hours	MIC	ESOPH	ESOPH	Specimen stored at room temperature.
Estradiol (17-Beta Estradiol, Estrogen)	Blood	Light Green	1 mL	C	< 24 Hours	LAB	ESTRADIOL	ESTRA	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If transported, plasma must be sent frozen if not received at DECRH within 48 hours of collection.
Estrone	Blood	Red (gold tube not acceptable)	6 mL	C	6 Days	LAB	ESTRONE	ESTRONE	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Referred - 1 mL Serum frozen
Ethosuximide (Zarontin)	Blood	Red	6 mL	C	10 days	LAB	ETHO	ETHO	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Draw trough within 1 hour prior to next dose or at least 12 hours after last dose. Referred - 0.5 mL Serum
Ethyl Alcohol (Ethanol) (Alcohol, Ethyl)	Blood	Gray	Full	C	< 24 Hours	LAB	ALC	ALC	Do not use any type of alcohol to disinfect skin. The tube must be allowed to draw to complete full vacuum. Invert tube several times to mix. **Keep tube sealed until analysis**. Medicolegal specimens should be delivered directly to a police officer, not to the laboratory. If transported, do not centrifuge. This test is also part of a Drug Toxic Panel (DRUG-TOX). See Chemistry Section in this manual for additional information.
Ethylene Glycol	Blood	Light Green	Full	C	< 24 Hours	LAB	TOXICALCEG	TOXICALCEG	Refer to Toxic Alcohol and Ethylene Glycol for instruction
E-tube	E-Tube	Sterile Screw-cap jar		M	72 hours	MIC	ET	ET	Deliver to laboratory immediately. Refrigerate specimen.
EXTLYTE	Blood	Light Green	1 mL	C	Stat ≤45 min Routine <24 hrs	LAB	EXTLYTE	EXTLYTE	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Collect sample within 1 minute after applying tourniquet. Draw without stasis. Patient **should not** do forearm exercise (fist clinching) during blood collection. This is a **profile** that includes: Calcium, Magnesium and Phosphate.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Extractable Nuclear Antibody Screen Screens for presence of: - Anti-SSA/RO - Anti-SSB/LA - Anti-SM - Anti-SM/RNP - Anti-SCL-70 - Anti-JO	Blood	GOLD or Red	5 mL	H	14 days	LAB	ENA	ENA	**Avoid hemolysis.** Separate serum within 2 hours of collection. If specimen cannot be transported to DECRH within 24 hours of collection, centrifuge and separate serum as follows: **Red or Gold-** If transported**, Gold tube only requires one spin. Red tube requires two spins** to ensure no red cells are left in the serum. • **1st spin:** Spin specimens in the centrifuge, after 1st spin is complete, remove tubes from centrifuge and transfer 1st spin serum to a separate labeled 12x75 plastic tube. • **2nd spin**: Cap the labelled 12x75 tubes and re-spin serum, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting button at bottom of tube. • Remove serum, leaving sediment in bottom of tube. Transfer directly to labeled 12x75 plastic tube. • Send 1 aliquot of 0.5 – 1.0 mL at 4°C
Eye	Swab	Routine Swab		M	72 hours	MIC	EYE	EYE	Specimen stored at room temperature.
Factor Assays: -Factor II -Factor V -Factor VII -Factor VIII -Factor IX -Factor X -Factor XI -Factor XII -Factor XIII	Blood	Blue (Sodium Citrate) X 2	2.7mL x2 Exactly for each assay ordered Etched line is the minimum fill volume	H	Stat (FVIII) 1 hr Stat Chromogenic Factor 8 and all other factors 6 hours Routine 14 days	LAB	F2 F5 F7 F8 F9 F10 F11 F12 F13SC	FII FV FVII FVIII FVIX FX FXI FXII F13SC	Deliver to the lab within 2 hours of collection. If transported, platelet poor plasma (count < 10) must be achieved with the following procedure: 11. **1st spin**: Spin specimens in the centrifuge, after 1st spin is complete, remove blue tubes from centrifuge and transfer 1st spin plasma to a separate labeled 12x75 plastic tube. 12. **2nd spin**: Cap the 12x75 tubes and re-spin plasma, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting platelets at bottom of tube. 13. Carefully remove platelet poor plasma, leaving sediment (containing platelets) in bottom of tube. Transfer directly to labeled 12x75 plastic tube for the platelet count. Perform and record plt count on label if applicable. Send frozen in 1 aliquot of 2 mL.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Factor V Leiden (Factor V Mutation)	Blood	Lavender	3 mL	H	2 – 3 weeks	LAB	FactorV F5Leiden	FVMUT	Testing must be ordered by or in consultation with clinicians in the Internal Medicine Group. Lavender Tube - If transported, do **not** centrifuge. Store and transport at 4°C. Referred. Ordered as a group reflex with Prothrombin Gene Mutation
Farmer's Lung	Blood	Red or GOLD	5 mL x 2	M	14 days	LAB	ASPAB	ASPAB	**Must indicate request for Farmer's lung in comments or on requisition**. If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C. Referred.
Fat (Microscopic)	a) Feces b) Body Fluid	Screw-cap jar Screw-cap jar	1 g 1 mL	C C	48 Hours <24 Hours	LAB	FAT-FE FAT-FL	FAT-FE FAT-FL	a) Fresh specimen. Refrigerate immediately. Referred. b) Indicate origin of fluid.
Fat Total	Feces	Special plastic containers	Timed specimens	C	5 Days	LAB	FAT-72H	FAT-72H	For 3 days prior to and during the collection period: • Patients should be on a fat-controlled diet (100-150 g of fat per day). • Patient should use no laxatives • Patient should consume no synthetic fat substitutes (ie Olestra) or fat-blocking nutritional supplements Diaper rash ointments should be discontinued for the collection period. Barium interferes with procedure, a waiting period of 48 hours before collecton is required post barium treatment. Begin timing with first sample collected. When 72 hours have elapsed, terminate collection. All stool specimens passed in a 72 hour period are collected in special containers obtained from SPD or stores. Each specimen must be labeled with the date and time of collection and sent to Chemistry. **Please note a full 48 hr collection is also a preferred sample. 24 hr collections and random samples can also be referred. Sample must consist of a minimum of 5 grams.** Referred
Fatty Acid Profile	Blood	Dark Green	4 mL	C	7 Days	LAB		FATTY	For nutritional assessment, patient should fast overnight 12-14 hours; for patients with a suspected fatty acid oxidation disorder, collect prior to next feeding as fasting is contraindicated. No alcohol for 24 hours. Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection and store at 4ºC. If transported, plasma must be sent frozen if not received at DECRH within 72 hours of collection otherwise transport at 4ºC. Referred – 0.5 mL plasma frozen.
Fentanyl-Urine	Urine	Screw-cap jar	1 mL	C	<24 Hours	LAB	FEN-U	FEN-U	Specimen must be delivered to lab within 2 hrs; otherwise, sample can be stored at 2-8ºC for up to 48 hours. Store and transport at 2-8ºC.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Ferritin	Blood	Light Green	1 mL	C	< 24 Hours	LAB	FER	FER	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection and store at 4ºC. If transported, plasma must be sent frozen if not received at DECRH within 3 days of collection.
Fertility Serology	Blood	Red or GOLD	5 mL x 2	M	2 weeks	LAB	FERTILITY	FERTILITY	Includes the following tests: RPR titer, HBsAg, anti-HBc, anti-HCV, Rubella, HIV, HTLV I/II and TPPA. If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C. HTLVI/II and TPPA Referred.
Fetal Fibronectin (FFN)	Swab	Specimen collection kit		C	< 24 Hours			FFN	Specimen collection kits are supplied by Chemistry. This test is not available through O/E. A completed requisition must accompany the specimen.
Fetal Lung Maturity									Test no longer available.
Fibrinogen	Blood	Blue	2.7 mL Exactly	H	Stat 1 hr Routine 24 hr	LAB	FIB	FIB	Deliver to the lab within 2 hours of collection. If transported, platelet poor plasma (count < 10) must be achieved with the following procedure: 14. **1st spin**: Spin specimens in the centrifuge, after 1st spin is complete, remove blue tubes from centrifuge and transfer 1st spin plasma to a separate labeled 12x75 plastic tube. 15. **2nd spin**: Cap the 12x75 tubes and re-spin plasma, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting platelets at bottom of tube. 16. Carefully remove platelet poor plasma, leaving sediment (containing platelets) in bottom of tube. Transfer directly to labeled 12x75 plastic tube for the platelet count. Perform and record plt count on label if applicable. Send frozen in 1 aliquot of 2 mL.
Fibrosis-4 Calculation	Blood	Lavender and Light Green	3 ml 1 mL	C	<24 hr	LAB	FIBROSIS-4	FIBROSIS-4	Fibrosis-4 Calculation includes an order for a CBC, AST, and ALT. The platelet result of the CBC, AST, ALT and the patient's age are used to perform the calculation. Specimens must be delivered to lab within 2 hrs; otherwise, centrifuge specimen in light green tube only within 2 hrs of collection, remove plasma. Lavender tube must remain as whole blood in original container. Store both plasma aliquot and lavender tube at 4ºC. **Note: If CBC already performed at site send only plasma aliquot to DECRH.**
First Trimester Prenatal Screen	Blood	Gold or Red	6 mL	C					Refer to Enhanced First Trimester Screening (eFTS). **Requires referral to Maternal Fetal Medicine unit.**

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
FISH (Fluorescent InSitu Hybridization)	Blood	Green (Sodium Heparin)	10 mL or full pediatric tube	CG	176 Hours	LAB	FISHANAL	FISH	Draw blood on Monday to Wednesday, mornings only. Send to Chemistry the same day as collected. Store and ship at Room Temperature. **A properly completed requisition MUST arrive with, or in advance of, the specimen.** Requisition available from Chemistry. Referred - Whole Blood
FK 506 (Tacrolimus)	Blood	Lavender	4 mL	C	3 Days	LAB	FK506	FK506	Draw blood prior to next dose. Do not centrifuge. If transported, send as whole blood at 4ºC.
Fletcher Factor (Prekallkrein)	Blood	Blue (Sodium Citrate)	2.7 mL	C	25 Days	LAB	FF	FF	Deliver to the lab within 2 hours of collection. If transported, platelet poor plasma (count < 10) must be achieved with the following procedure: 1. 1st spin: Spin specimens in the centrifuge, after 1st spin is complete, remove blue tubes from centrifuge and transfer 1st spin plasma to a separate labeled 12x75 plastic tube. 2. 2nd spin: Cap the 12x75 tubes and re-spin plasma, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting platelets at bottom of tube. 3. Carefully remove platelet poor plasma, leaving sediment (containing platelets) in bottom of tube. Transfer directly to labeled 12x75 plastic tube for the platelet count. Perform and record plt count on label if applicable. 4. Send frozen in 2 aliquots of 1 mL each. Referred
Fluid				M					See *Body Fluid*
Fluid Identification (CSF Query)	Fluid	Sterile Container		C	8 Days	LAB	FLUID	FLUID	Refer to Beta (β) 2 Transferrin
Flunitrazepam (Rohypnol)	Urine	Screw-cap jar	5 mL	C	7 Days	LAB		FLUNIT-U	Please note this is part of the “Date Rape Drugs” profile. This test is referred as a Benzodiazepine ID profile. Presence or absence of Flunitrazepam will be reported along with other detectable benzodiazepines. Referred - 5 mL Urine
Fluoride	Blood	Royal Blue EDTA	6 mL	C	25 Days	LAB	FLUORIDE	FL	Deliver to Chemistry immediately. Transfer 2 mL plasma ASAP to an acid-washed 13x75 aliquot tube and freeze. Referred - Frozen

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Fluoxetine (Prozac)	Blood	Red	6 mL	C	8 Days	LAB	FLUOX	FLUOX	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Draw trough prior to next dose. Referred - 1 mL Serum
Folic Acid - Serum (Folate)	Blood	Light Green	1 mL	C	< 24 Hours	LAB	FOL	FOL	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC for up to 2 hours. 8 hour fast is required. **There must be no hemolysis.** If transported, plasma must be refrigerated within 2 hours and must be sent frozen if not received at DECRH within 48 hours of collection. Please see Utilization rules
Fragile-X	Blood	Lavender x 3	3 mL x 2	CG	187 Days	LAB	FRAGANAL	FXBLD & FRAGX	Draw blood on Monday to Wednesday, mornings only. Specimens must be kept at Room Temperature. Send to Chemistry the same day as collected. **A properly completed requisition MUST arrive with, or in advance of, the specimen.** Requisition available from Chemistry. Referred Whole Blood
Free Fatty Acids	Blood	GOLD	5 mL	C	19 Days	LAB	FFA	FFA	12 hour fast is required**. Specimens containing heparin or samples collected from patients receiving heparin therapy are unsuitable for analysis.** Deliver to Chemistry immediately. Separate serum from clot and freeze ASAP. Referred -1 mL Serum frozen
Free Kappa-Lambda Ratio (Free Light Chains)	Blood	GOLD	1 ml	C	7 Days	LAB	LIGHTCHAIN	FREE K-L RATIO	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Referred at 4ºC - 1 mL Serum
Free PSA (Prostate Specific Antigen - Free)	Blood	Gold	1 mL	C	24-48 Hours	LAB	FPSA	FPSA	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If a red tube is used, remove serum immediately. If transported, serum must be sent frozen if not received at DECRH within 5 days of collection. Free PSA will only be done if the total PSA is greater than 4.0 but less than 10µg/L. Referred – 1.0 mL serum. Please see Utilization rules
Free T3	Blood	Light green	1 mL	C	< 24 Hours	LAB	FT3	FT3	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If transported, plasma must be sent frozen if not received at DECRH within 48 hours of collection. **Please note**: TSH is the preferred screening test. If TSH result is outside reference range, a Free T4 is performed. If TSH is < 0.1 mU/L and Free T4 is normal, a Free T3 is performed. Please see Utilization rules.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Free Thyroxine (Free T4)	Blood	Light Green	1 mL	C	< 24 Hours	LAB	FT4	FT4	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If transported, plasma must be sent frozen if not received at DECRH within 48 hours of collection. **Please note:** TSH is the preferred screening test. If TSH result is outside reference range, a Free T4 is performed. If TSH is < 0.1 mU/L and Free T4 is normal, a Free T3 is performed. Please see Utilization rules
Frisium (Clobazam)	Blood	Red	6 mL	C	12 Days	LAB	CLO	CLO	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Draw trough prior to next dose. Referred - 1 mL Serum
Fructosamine	Blood	GOLD	5 mL	C	10 Days	LAB	FRU	FRU	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Referred – 1.0 mL Serum
FSH (Follicle Stimulating Hormone)	Blood	Light Green	1 mL	C	< 24 Hours	LAB	FSH	FSH	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If transported, plasma must be sent frozen if not received at DECRH within 48 hours of collection.
FTA-ABS: Spinal fluid (Fluorescent Treponemal Antibody)	Spinal fluid	Sterile Screw-cap tube	1 mL	M	2 weeks	MIC	CSFPCR	CSFPCR	Deliver to the laboratory immediately. If transported, freeze at -70˚C.Referred.
Fungus				M					See *Specimen type + Fungus*
Gabapentin (Neurontin)	Blood	Red	6 mL	C	11 Days	LAB	GABAP	GABAP	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Draw trough specimen prior to next dose. Referred – 1 mL Serum
Galactomannan	Blood	Gold separator	5 mL	M	72 hours	LAB	GALSEROL	GALSEROL	Deliver to the laboratory immediately. Specimen should be centrifuged upon receipt. Do not remove serum. Do not remove cap. Specimen referred. Store at 4°C.
Galactomannan	Bronchial Wash	Sterile screw-cap jar		M	7 days	MIC	GALACTO	GALACTO	Refrigerate and refer to DECH Laboratory
Galactose 1 Phosphate Uridyl Transferase	Blood	Dark Green	6 mL	C	15 Days	LAB	GPUT	GPUT	Do not centrifuge. Do not freeze. A blood transfusion within the past 3 months invalidates results. Must provide patient's date of birth. Positive screen results are confirmed by quantitation. **If patient is more than 18 years old, testing is only available on consultation with referral laboratory.** Referred - 1 mL Whole Blood

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Galactose Screening	Urine	Screw-cap jar	5 mL	C	12 Days	LAB	GAL	GAL	Random specimen. Deliver to Chemistry as soon as possible either at room temperature or refrigerated. Referred – 5 mL frozen urine (1.0 mL minimum)
Gamma Hydroxybutyrate (GHB)	Urine	Screw-cap jar	5 mL	C	8 Days			GHB-U	Please note this is a "date rape" drug. Peak urine GHB concentrations are observed within 4 hours after an oral dose, but the drug is undetectable after 12 hours. Referred - 5 mL Urine aliquot
Gastric Analysis	Gastric	Screw-cap jar	5 mL	C	<24 Hours			GAS	Gastric Sample. Includes Volume, pH and Total Acidity
Gastric Fluid				M					See *Body Fluid*
Gastrin	Blood	GOLD (place on ice)	5 mL	C	5 Days	LAB	GASTRIN	GASTRIN	8-hr fast is required. Patient to avoid taking dietary supplements contiaing biotin (vitamin B7) for 12 hrs prior to collection. If medically feasible, proton pump inhibitor therapy should be discontinued 7 days prior to collection and any drugs that interfere with gastrointestinal motility (ie opioids) should be discontinued for at least 2 weeks prior to collection. Place sample on ice and deliver to Chemistry immediately. Separate serum from clot within 2 hours in refrigerated centrifuge. Use of pre-chilled carriers is acceptable if there is no access to a refrigerated centrifuge. Referred - 1.0 mL Serum frozen
Gastrin Challenge Test				C	18 Days			GASCT	See Chemistry Section in this manual for additional information.
General Surgery Profile (GSP)	Blood	Light Green	1 mL	C	STAT ≤45 Minutes Routine <24 Hours	LAB	GSP	GSP	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If specimen will not be assayed within 24 hours plasma must be transferred to an aliquot tube following centrifugation and stored at 4ºC.**Fasting is not required.** This is a **pre-surgery screen** and includes Random Glucose, Creatinine, Albumin, Alkaline Phosphatase, Bilirubin, ALT, Sodium, Potassium, and Chloride.
Gentamicin	Blood	Red	1 mL	C	< 24 Hours	LAB	GENTA	GENTA	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Order includes trough and peak specimens. Draw trough 5-30 minutes prior to next dose. Draw peak: 1 hour after IM dose or 15-30 minutes after completion of a traditional IV infusion. For an extended interval infusion and once daily dosing regimen consult pharmacy. If transported, serum must be sent frozen if not received at DECRH within 48 hours of collection. See Chemistry Section in this manual for additional information.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Gentamicin - Random	Blood	Red	1 mL	C	< 24 Hours	LAB	GENTA-R	GENTA-R	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. If transported, serum must be sent frozen if not received at DECRH within 48 hours of collection. See Chemistry Section in this manual for additional information.
Gentamicin - Trough	Blood	Red	1 mL	C	< 24 Hours	LAB	GENTA-T	GENTA-T	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Draw trough 30 minutes prior to next dose. If transported, serum must be sent frozen if not received at DECRH within 48 hours of collection. See Chemistry Section in this manual for additional information.
GGT (Gamma Glutamyl Transferase)	Blood	Light Green	1 mL	C	< 24 Hours	LAB	GGT	GGT	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC.
GHB (Gamma Hydroxybutyrate)	Urine	Screw-cap jar	5 mL	C	8 Days	LAB		GHB-U	Please note this is a “date rape” drug. The sample is valid only if collected within 8 hours of suspected ingestion. Note ingestion time on requisition. Referred - 5 mL Urine aliquot
Glucagon	Blood	Lavender, (Pre-chilled)	2 mL	C	8 Days	LAB	GLUCA	GLUCA	Collect after an 8 hr fast. Draw into a pre-chilled lavender tube. Place full tube in wet ice for 10 minutes. Centrifuge in special refrigerated centrifuge. Use of pre-chilled carriers is acceptable if there is no access to a refrigerated centrifuge. Separate plasma and freeze immediately. Referred frozen.
Glucocerebrosidase (Beta Glucosidase)	Blood								Refer to Beta Glucosidase
Glucose Random	Blood	Light Green or Gray	1 mL	C	STAT ≤45 Minutes Routine <24 Hours	LAB	GLU	GLU-R	Light Green tube must be delivered to the lab within 2 hours; otherwise, specimen must be centrifuged within 2 hours of collection and stored upright in original tube at 4ºC. If specimen will not be assayed within 24 hours plasma must be transferred to an aliquot tube following centrifugation and stored at 4ºC.
Glucose	Body Fluid	Gray	4 mL	C	STAT ≤45 Minutes Routine <24 Hours	LAB	GLU-F	GLU-F	Indicate origin of fluid.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Glucose	Spinal Fluid	Sterile Screw-cap tube	0.5 mL	C	STAT ≤45 Minutes Routine <24 Hours	LAB	GLU-CSF	GLU-CSF	Deliver tube # 1 of the three tubes collected to Chemistry immediately. Testing must be completed as soon as possible within 1 hour. .A concurrent blood sugar determination is recommended.
Glucose	Urine	Screw-cap jar	15 mL	C	STAT ≤45 Minutes Routine <24 Hours	LAB	U/A	U/A	Fresh random specimen for semi-quantitative testing. Included with routine urinalysis.
Glucose - Fasting	Blood	Light Green	1 mL	C	STAT ≤45 Minutes Routine <24 Hours	LAB	GLU-FAST	FGLU	Green tube must be delivered to the lab within 2 hours; otherwise, specimen must be centrifuged within 2 hours of collection and stored upright in original tube at 4ºC. If specimen will not be assayed within 24 hours plasma must be transferred to an aliquot tube following centrifugation and stored at 4ºC. 8 hour fast is required. Out-patients on insulin should be advised to postpone the morning medication until after specimen is drawn.
Glucose - AC	Blood	Gray	4 mL	C	STAT ≤45 Minutes Routine <24 Hours	LAB	GLUAC	AC	8 hour fast is required. Out-patients on insulin should be advised to postpone the morning medication until after AC specimen is drawn.
Glucose - Gestational Diabetes Screen (GDS)	Blood	Gray	4 mL	C	< 24 Hours	LAB	GLUGDS	GDS	The patient does not have to fast prior to the glucose load. A drink containing 50 g glucose is given and the patient is not allowed anything further to eat or drink except **sips** of water **(Total ≤300 mL)** until a blood sample is drawn 1 hour later. See Chemistry Section in this manual for additional information.
Glucose 6 Phosphate Dehydrogenase (G-6 PD)	Blood	Yellow (ACD) or Lavender	2 x 3 mL	H	Stat 48 hr Routine 7 days	LAB	G6PD	G6PD	**Mix by inverting gently 8-10 times.** Deliver to the lab within 4 hours of collection. If transported, the specimen must be received at DECRH the same day as collected.
Glucose Tolerance Test - 2 Hour	Blood	Gray	4 mL for each specimen	C	< 24 Hours	LAB	GTT2	GTT2	This order includes 0 and 2 hour specimens. See Chemistry Section in this manual for additional information.
Glucose Tolerance Test - Prenatal	Blood	Gray	4 mL for each specimen	C	< 24 Hours	LAB	GTTP	GTTP	This order includes 0, 1 and 2 hour specimens. See Chemistry Section in this manual for additional information.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Glucose/Mixed Meal Tolerance Test – 5 Hour	Blood	PST and SST	4 mL for each specimen	C	<24 Hours	LAB	GLU-MMTT5	GLU-MMTT5	This order includes specimens collected at 0, 0.5, 1, 2, 3, 4, and 5 hours post ingestion of 75 g glucose drink or a mixed meal. See Chemistry Section in this manual for additional information.
Glutamic Acid Decarboxylase (GAD65) Antibody									**Refer to Anti-Glutamic Acid Decarboxylase.** **If ordered as part of the extended autoimmune panel, refer to ENCEPH**
Glycosaminoglycans (GAGS)	Urine		10 mL	C	15 Days	LAB	MUCOPOLY	MUCOPOLY	See Mucopolysaccharides Screen
Glycosylated Hemoglobin (HbA1C) (Hemoglobin A1C)	Blood	Lavender	3 mL	C	3 Days	LAB	HA1C	HA1C	If transported, do not centrifuge, send Whole Blood. For capillary sample collect blood in 1 Lavender microvette. Samples may be kept at RT up to 72 hours. If sample will not reach DECRH within 72 hours, refrigerate at 2-8ºC. Please see Utilization rules.
GM1 Ganglioside Antibody (Anti-GM1)	Blood	Red	6 mL	C	12 Days	LAB	ANTIGM	ANTIGM	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Referred 1 mL
Gonorrhoeae culture: Female (see **Chlamydia Trachomatis / Gonorrhoeae PCR: Cervix / VAG** as it is the preferred method of testing)	See collection / referral column	Routine Swab		M	72 hours	MIC	CX	CX	Required for SENSITIVITY TESTING ONLY **Specimen** < 12 yrs old -Vaginal swab, >12 yrs old –Cervix swab & Post-hysterectomy- Urethral swab Specimen stored at room temperature.
Gonorrhoeae culture: Male (see **Chlamydia Trachomatis / Gonorrhoeae PCR: Urine** as it is the preferred method of testing.	Swab	Routine Swab		M	72 hours	MIC	URETH	URETH	Required for SENSITIVITY TESTING ONLY Specimen stored at room temperature.
GQ1b Auto Antibody	Blood	Red	6 mL	C	15 Days	LAB	G1Q	GQ1b AB	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Referred - 1 mL Serum.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Gravol (Dramamine) (Dimenhydrinate)									Test no longer routinely available
Group and Screen	Blood	Pink x 2	6 mL x 2	TM	Stat 1 hr Asap 2 hr Routine 5 hr		GRP	GS	**∗PROPER PATIENT IDENTIFICATION IS CRITICAL∗** Specimens collected, and requisition must be signed immediately after collection while in the vicinity of the patient (i.e. bedside) If transported, **DO NOT** separate plasma from cells and transport within 24 hours at 2-8°C. Indicate on the order form/requisition Group and Screen requested and product required if applicable (i.e. Platelets and Plasma) A crossmatch is not performed with this order. Blood group and antibody screen testing is performed, and the specimen is held in case blood (crossmatch) is required while the specimen is still current (Call Transfusion Medicine Lab) **The individual who collects the specimen MUST:** sign the requisition with **full signature** and initials with date and time of collection. Specimen label must have date and time with collector's initials.
Group and Screen **HOLD**	Blood	Pink x 2	6 mL x 2	TM	Stat 1 hr Asap 2 hr Routine 5 hr		BBHOLD	BBHOLD	**∗PROPER PATIENT IDENTIFICATION IS CRITICAL∗** Specimens collected, and requisition must be signed immediately after collection while in the vicinity of the patient (i.e. bedside) If transported, **DO NOT** separate plasma from cells and transport within 24 hours at 2-8°C. No testing is performed with this order. The specimen is held in case blood (crossmatch) is required while the specimen is still current. Call the Transfusion Medicine Lab if order is changed from a HOLD to a Group & Screen or Crossmatch **The individual who collects the specimen MUST:** sign the requisition with **full signature** and initials with date and time of collection. Specimen label must have date and time with collector's initials.
Group B Streptococcus	Swab	Routine Swab		M	48 hours	MIC	GBS	GBS	Prenatal screen for group B Streptococcus. Swab the vagina and then, using the same swab, swab the rectum. Specimen stored at room temperature.
Growth Hormone	Blood	Gold	6 mL	C	15 Days	LAB	GH	GH	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum and store at 4°C. If sample will not be delivered to DECRH within 24 hours, sample must be frozen. **See Chemistry Section in this manual for additional information.** Referred – 1 mL frozen.
Growth Hormone - Glucose Suppression Test	Blood			C	15 Days				See Chemistry Section in this manual for additional information. Referred

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Growth Hormone Challenge Test – Clonidine Stimulation				C	15 Days				Call Medical Day Care at DECRH for testing information. Referred.
Growth Hormone Challenge Test – Glucagon Stimulation				C	15 Days				Call Medical Day Care at DECRH for testing information. Referred.
Growth Hormone Challenge Test - Arginine Stimulation				C	15 Days	LAB	GHCT	GHCT	See Chemistry Section in this manual for additional information. Referred.
GSP (General Surgery Profile)	Blood	Light Green	1 mL	C	< 24 Hours	LAB	GSP	GSP	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. **Fasting is not required.** This is a **pre-surgery screen** and includes Random Glucose, Creatinine, Albumin, Alkaline Phosphatase, Bilirubin, ALT, Sodium, Potassium, and Chloride.
Haemophilus ducreyi	Swab	Viral Transport Swab **with fluid removed**		M	14 days	MIC	PCR-SPEC	PCR-SPEC	Ulcer: Cleanse the area by flushing with sterile physiological saline, and then collect material from the base of the ulcer using a Dacron or cotton swab. Remove liquid from Universal Transport Medium tube and place swab in the empty container Bubo aspirate: Use needle and syringe to aspirate pustular material from the bubo. Place in a sterile tube Freeze at -70˚C. Ship on dry ice.
Hair for Fungus	Hair	Sterile screw-cap jar		M	smear 3 days final 4 weeks	MIC	MYC	MYC	Hair should be stubs removed with tweezers from infected area. Specimen stored at room temperature.
Haloperidol (Haldol)	Blood	Red	6 mL	C	12 Days	LAB	HAL	HAL	Draw trough prior to next dose. Deliver to Chemistry immediately. Separate serum from cells ASAP. Referred - 1 mL serum frozen
Haptoglobin	Blood	GOLD	5 mL	C	96 Hours	LAB	HAPTO	HAPTO	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Avoid hemolysis. Referred - 1 mL Serum
HCG Screen (Qualitative Urine Pregnancy Test)	Urine	Screw-cap jar	7 mL	C	Stat 1 hr Asap 2 hours Routine 24 hr	LAB	PREGUR	PREGUR	This pregnancy test is sufficiently sensitive for conditions (such as suspected ectopic implantation) where low levels of HCG must be detected quickly. Results are reported as positive or negative. The sensitivity of the test is 25 IU/L. Urines can be refrigerated for up to 24 hours.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
HCG, Beta (Quantitative)	Blood	Light Green	1 mL	C	STAT ≤45 minutes Routine < 24 Hours	LAB	BHCGQT	BHCG	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If transported, plasma must be sent frozen if not received at DECRH within 72 hrs of collection.
HDL Cholesterol	Blood	Light Green	1 mL	C	< 24 Hours	LAB	HDL	HDL	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. This test should not be done within 3 months following myocardial infarction, surgery or similar trauma. The patient need not fast unless other lipid tests are requested.
Heat Shock Protein (68 kD Antibodies)	Blood	GOLD x 2	5 mL x 2	C	20 Days			HSP-70	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Consult Clinical Chemist before drawing specimen. Referred - 2-3 mL Serum
Heavy Metals Screen (Arsenic, Cadmium, Chromium, Lead, Mercury)	Urine	Heavy metal free large plastic bottle	Complete 24 hr output	C	15 Days	LAB	METALS	HEAVY	Refer to Diet/Drug Restriction form HHN-0840 for patient restrictions. If sent from Health Centre or other outside collection site, please refer entire collection in original container. **Ensure start date/time and end date/time are recorded on the label.** If sent from hospital laboratory record 24h volume and send a full 90 mL aliquot in an orange topped urine specimen container. Referred.
Heinz Body Test									Test no longer available
Helicobacter pylori antigen: Stool	Stool	Sterile Screw-cap jar		M	1 week	MIC	HPYLORI	HPYLAG	Preferred test. Test for successful treatment of H. pylori infection (test ≥ 4 weeks post treatment). Test affected by bleeding ulcers, antibiotics, bismuth & PPIs (discontinue these drugs for at least 4 weeks). Histamine 2 blockers may be used in the intervening time. See Form HHN-0448 for patient collection instructions Specimen stored at 2-8°C.
Helicobacter pylori Culture	Gastric biopsy	Amies media or Sterile saline		M	2 weeks				Call Microbiology before collection. Collect Monday-Thursday only. **Deliver to Laboratory ASAP.**
Helicobacter pylori Serology				M					**Testing no longer available. Please order H. pylori stool antigen.**
Hemochromatosis Gene	Blood	Lavender	3 mL	CG	25 Days	LAB	HEMOCHRO	HEMOCHR	Do not separate. Store and ship specimens in original container at Room Temperature. Sample stable for 7 days. Referred - Whole Blood

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Hemoglobin A1C (Glycosylated Hemoglobin) (HbA1C)	Blood	Lavender	3 mL	C	3 Days	LAB	HA1C	HA1C	If transported, do not centrifuge, send Whole Blood. For capillary sample collect blood in 1 Lavender microvette. Samples may be kept at RT up to 72 hours. If sample will not reach DECRH within 72 hours, refrigerate at 2-8ºC. Please see Utilization rules
Hemoglobin Electrophoresis	Blood	Lavender	2 mL x 3	H	2 weeks	LAB	HGBEP	HGBEP	Referring laboratories - please run CBC and RETIC. Stain & coverslip a peripheral smear at originating facility with name and Medicare. Send CBC & RETIC results and stained slide to DECRH. Samples should be stored at 2-8ºC if not shipped on the same day. Some tests in this profile are referred.
Hemosiderin	Urine	Screw-cap jar	15 mL	H	5 days	LAB	HU	HU	Collect Monday to Friday before 1400. Deliver to the lab immediately. First morning specimen. Catheter specimens are acceptable. Store at Room temperature for up to 2 hours and refrigerate if greater than 2 hours until receipt in DECRH Haematology. Referred. *Hemosiderin Sputum testing is no longer available September 2024
Heparin Assay (Anti-Xa)	Blood	Blue x 2	2.7 mL x 2	C	24-48 Hours	LAB	HEPARINASY	HEPASSY	Request must specify "Low Molecular Weight" ("LMW") or specify the Heparin preparation (brand name) administered. Deliver to lab immediately. If transported, the specimen must be spun twice & the plasma removed & frozen ASAP. If transported, platelet poor plasma (count < 10) must be achieved with the following procedure: 17. **1st spin**: Spin specimens in the centrifuge, after 1st spin is complete, remove blue tubes from centrifuge and transfer 1st spin plasma to a separate labeled 12x75 plastic tube. 18. **2nd spin**: Cap the 12x75 tubes and re-spin plasma, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting platelets at bottom of tube. 19. Carefully remove platelet poor plasma, leaving sediment (containing platelets) in bottom of tube. Transfer directly to labeled 12x75 plastic tube for the platelet count. Perform and record plt count on label if applicable. Send frozen in 1 aliquot of 2 mL.
Heparin Induced Thrombocytopenia (Anti-Heparin Antibody)	Blood	Red Blue	2 X 6 mL 3X 2.7mL	H	Stat <24 hrs Routine 5 Days	LAB	HEPARININ	AHEP	Refer to Anti Heparin Antibody

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Hepatitis A Total Antibody	Blood	Red or GOLD	2 mL	M	48 hours	LAB	HAVT	HAVT	Combined IgG/IgM test. If transported, separate serum from clot and send serum. 2-8°C if sending within 72 hours or Freeze at -20˚C.
Hepatitis A IgM Antibody	Blood	Red or GOLD	2 mL	M	48 hours	LAB	HAVM	HAVM	Recent or acute infection. If transported, separate serum from clot and send serum. 2-8°C if sending within 72 hours or Freeze at -20˚C.
Hepatitis Acute Screen (Hepatitis B & C)	Blood	Red or GOLD	5 mL	M	48 hours	LAB	HEPINF	HEPINF	Includes: HBS, HBC, HCV If transported, separate serum from clot and send serum. 2-8°C if sending within 72 hours or Freeze at -20˚C.
Hepatitis B Immunity/Post Vaccine	Blood	Red or GOLD	2 mL	M	48 hours	LAB	HEPIMM	HEPIMM	Includes: HBAB If transported, separate serum from clot and send serum. 2-8°C if sending within 72 hours or Freeze at -20˚C.
Hepatitis B Core Antibody (IgG & IgM-Total)	Blood	Red or GOLD	2 mL	M	48 hours	LAB	HBC	HBC	Past or present hepatitis B infection. If transported, separate serum from clot and send serum. 2-8°C if sending within 72 hours or Freeze at -20˚C.
Hepatitis B Core Antibody (anti-HBc IgM)	Blood	Red or GOLD	2 mL	M	2 weeks	LAB	HBCM	HBCM	Active viral replication and high infectivity. If transported, separate serum from clot and send serum. 2-8°C if sending within 72 hours or Freeze at -20˚C.
Hepatitis B e Antibody (anti-Hbe)	Blood	Red or GOLD	2 mL	M	2 weeks	LAB	HBEAB	HBEAB	Reduced viral replication and infectivity. If transported, separate serum from clot and send serum. 2-8°C if sending within 72 hours or Freeze at -20˚C.
Hepatitis B e Antigen (Hbe antigen)	Blood	Red or GOLD	2 mL	M	2 weeks	LAB	HBE	HBE	Active viral replication and high infectivity. If transported, separate serum from clot and send serum. 2-8°C if sending within 72 hours or Freeze at -20˚C.
Hepatitis B Genotype	Blood	Lavender	4 mL x 2	M	4 weeks			HBVTYPE	Deliver immediately. Plasma must be removed from cells within 6 hours of collection and frozen at -70°C. If transported, send plasma frozen **on dry ice**. Referred.
Hepatitis B PCR	Blood	Lavender	4 mL x 2	M	4 weeks	LAB	HEPBPCR	PCRHBV	Deliver immediately. Plasma must be removed from cells within 6 hours of collection and frozen at -70°C. If transported, send plasma frozen **on dry ice**. Referred.
Hepatitis B Surface Antibody (anti-HBS)	Blood	Red or GOLD	2 mL	M	48 hours	LAB	HBAB	HBAB	Recovery from hepatitis B infection, or immunization. If transported, separate serum from clot and send serum. 2-8°C if sending within 72 hours or Freeze at -20˚C.

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Hepatitis B Surface Antigen (HBsAg)	Blood	Red or GOLD	2 mL	M	48 hours	LAB	HBS	HBS	Current or acute infection. Specimen must be delivered to lab within 6 hrs; If transported, separate serum from clot and send serum. 2-8°C if sending within 72 hours or Freeze at -20˚C.
Hepatitis B Viral Load	Blood	Lavender	4 mL x 2	M	2 weeks	LAB	HBVLOAD	HBVLOAD	Deliver immediately. Plasma must be removed from cells within 6 hours of collection and frozen at -70°C. If transported, send plasma frozen **on dry ice**. Referred.
Hepatitis C (anti-HCV)	Blood	Red or GOLD	2 mL	M	48 hours	LAB	HCV	HCV	Past or present infection with hepatitis C. If transported, separate serum from clot and send serum. 2-8°C if sending within 72 hours or Freeze at -20˚C.
Hepatitis C Genotype	Blood	Lavender x 3	3 mL x 3	M	3 weeks	LAB	HCVTYPE	HCVTYPE	Deliver immediately. Specimen must be delivered to the lab within 6 hours; otherwise specimen must be centrifuged at 1100 g for 20 minutes, separate plasma from cells immediately and store at -70 ºC. Can use same specimen as Viral Load. If transported, send plasma frozen **on dry ice**. Referred.
Hepatitis C PCR									Test no longer available. Order Hepatitis C Viral Load.
Hepatitis C Viral Load	Blood	Lavender x 3 (Serum*)	3 mL x 3 3 mL	M	10 days	LAB	HCVLOAD	HCVLOAD	EDTA plasma preferred: Deliver immediately. Specimen must be delivered to the lab within 6 hours; otherwise specimen must be centrifuged at 1100 g for 20 minutes, separate plasma from cells immediately and store at -70 ºC. If transported, send plasma frozen **on dry ice**. Referred. (*Serum: Not the preferred sample type but can be used if needed. Processed as above.)
Hepatitis C NS3 Q80K	Blood	Lavender x 2	3 mL x 2	M	2 weeks			PCRMISC	Deliver immediately. Specimen must be delivered to the lab within 6 hours; otherwise specimen must be centrifuged at 1100 g for 20 minutes, separate plasma from cells immediately into 2 aliquots (minimum 1.2 mLs plasma) and store at -70 ºC. If transported, send plasma frozen **on dry ice**. Referred
Hepatitis D (Delta Antibody) (anti-HD)	Blood	Red or GOLD	5 mL	M	4 weeks	LAB	HD	HD	Infection with hepatitis D. Only occurs in the presence of HBsAg. If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C. Referred.
Hepatitis: Health Care Worker Post-Exposure	Blood	Red or GOLD	5 mL	M	48 hours	LAB	NEEDLE EXP	NEEDLE EXP	Includes: HBAB, HBS, HBC, HCV, HIV. Specimens must be delivered to lab within 2 hrs; otherwise centrifuge specimen within 2 hours of collection. Remove serum immediately and store at 4ºC.
Hepatitis: Health Care Worker Post-Exposure (High Risk Source)	Blood	Red or GOLD Lavender Light Green	5 mL x 2 3mL 5mL	M & H &C	48 hours	LAB	NEEDLE PEP	NEEDLE PEP	Includes: HBAB, HBS, HBC, HCV, HIV and Chemistry: ALP,CBC,UREA,Creatinine,Electrolytes, Total Bilirubin. Specimens must be delivered to lab within 2 hrs; otherwise centrifuge specimen within 2 hours of collection. Remove serum immediately and store at 4ºC.

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Hepatitis : Post-Exposure Patient/Inoculum	Blood	Red or GOLD	5 mL	M	48 hours	LAB	NEEDLE SC	NEEDLE SC	Includes: HBS, HCV and HIV If transported, separate serum from clot and send serum. 2-8°C if sending within 72 hours or Freeze at -20˚C.
Hepatitis: Post-Exposure 6 weeks, Not immune to Hepatitis B	Blood	Red or GOLD And lavender	5 mL 3 mL	M	48 hours 10 days (viral load)			NEEDLEPOST6WK**NI**	Includes: HBS, HBC, HBAB, HCV VIRAL LOAD Specimen must be delivered to lab within 2 hrs; otherwise centrifuge specimen within 2 hours of collection, remove serum immediately and store at 4ºC.
Hepatitis: Post-Exposure 6 weeks, Immune to Hepatitis B	Blood	Red or GOLD And lavender	5 mL 3 mL	M	48 hours 10 days (viral load)			NEEDLEPOST6WK**I**	Includes: HIV, HCV VIRAL LOAD Specimen must be delivered to lab within 2 hrs; otherwise centrifuge within 2 hours of collection, remove serum immediately and store at 4ºC.
Hepatitis: Post-Exposure 3and 6 months, Immune to Hepatitis B	Blood	Red or GOLD	5 mL	M	48 hours			NEEDLEPOS3&6MI	Includes: HCV, HIV Specimen must be delivered to lab within 2 hrs; otherwise centrifuge within 2 hours of collection, remove serum immediately and store at 4ºC.
Hepatitis: Post-Exposure 3 and 6 months, Not Immune to Hepatitis B	Blood	Red or GOLD	5 mL	M	48 hours			NEEDLEPOS3&6M**NI**	Includes: HBS, HBAB, HCV, HIV Specimen must be delivered to lab within 2 hrs; otherwise centrifuge within 2 hours of collection, remove serum immediately and store at 4ºC.
Herpes IgG- type 1 & 2	Blood	Red or Gold	5mL	M	10 days	LAB	HERPAB	HERPAB	Specimen will be tested for HSV IgG type 1 and type 2 as of June 14, 2019 If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C. Referred.
Herpes IgM	Blood	Red or GOLD	5 mL	M	10 days	LAB	HERPM	HERPM	No longer available as of June 14, 2019.
Herpes Simplex PCR	Swab	Viral Transport Swab		M	72 hours	LAB	HERPPCR	HERPPCR	Swab vesicle fluid. Referred. UTM transport media available from Microbiology. Specimen stored at 2-8°C. If transported, store at 2-8°C if sending same day or Freeze at -70˚C *Note: Both HSV and VZ PCR are performed and reported together when ordered
Herpes Zoster IgG (Varciella)	Blood	Red or GOLD	5 mL	M	7 days	LAB	VZ	VZG	Previous infection/immune status. If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C. Referred.
Herpes Zoster IgM (Varciella)	Blood	Red or GOLD	5 mL	M	10 days	LAB	VZM	VZM	Recent infection If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C. Referred.
Histamine	Blood	Lavender, on ice after draw	4 mL	C	15 Days	LAB	HIST	HIST	Collect sample and place on ice, deliver to Chemistry immediately. If transported, **separate at 4°C within 20 minutes of collection and freeze immediately.** Referred – 1.0 mL frozen.

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Histoplasmosis Serology	Blood	Red or GOLD	5 mL	M	2 weeks	LAB	HISTAB	HISTAB	If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C. Referred.
Histoplasma Urine Antigen	Urine	Sterile Screw-cap jar	5 mL	M	1 week	MIC	HISTUR	HISTUR	Refrigerate specimen.
HIT (Heparin Induced Thrombocytopenia	Blood	Red and Blue	2X6 mL and 3X2.7 mL	H	Stat <24 hours Routine 5 Days	LAB	AHEP	AHEP	Refer to Anti-Heparin Antibody (AHEP)
Hitachi 12 Profile	Blood	Light Green	1 mL	C	< 24 Hours	LAB	HIT	HIT	Specimen must be delivered to the lab within 2 hours; otherwise, centrifuge specimen within 2 hours of collection, store upright in original tube at 4ºC. If specimen will not be assayed within 18 hours plasma must be transferred to an aliquot tube following centrifugation and stored at 4ºC. 8 hour fast preferred. When this is not possible, it should be noted on requisition. Avoid hemolysis. This is a **health screening profile** and includes: Glucose, Creatinine, Urate, Calcium, Alkaline Phosphatase, LDH, Cholesterol, Total Protein, ALT, Sodium, Potassium and Chloride.
HIV =>18 months old	Blood	Red or GOLD	5 mL	M	48 hours	LAB	HIV	HIV	Screening test for HIV p24 Antigen and Antibody Type 1 and 2 infection. If transported, separate serum from clot and send serum. 2-8°C if sending within 72 hours or Freeze at -20˚C. <18 months old order HIVPCR
HIV Genotype	Blood	Lavender x 2	3 mL x 2	M	4 weeks	LAB	HIVGENE	HIVGENE	If transported, separate plasma and send frozen on dry ice. Referred.
HIV PCR (Neonates only) <18 months old	Blood	Lavender x 1	3 mL x 1	M	2 weeks	LAB	HIVPCR	PCRHIV	Draw blood on Monday to Wednesday only. Deliver immediately. If transported, draw blood just before shipping and send Whole Blood. Do not freeze. Referred.
HIV Viral Load	Blood	Lavender x 2	3 mL x 2	M	10 days	LAB	HIVVLOAD	HIVLOAD	Deliver immediately. Specimen must be delivered to the lab within 6 hours; otherwise specimen must be centrifuged at 1100 g for 20 minutes, separate plasma from cells immediately and store at -70 ºC. If transported, send plasma frozen **on dry ice**. Referred.
HLA Antibody Testing (Cytotoxic Antibodies) (Transplant Antibodies)	Blood	Red	7 mL	C	5 days	LAB	TRANSBBK	TR	A Nova Scotia Health Authority Histocompatibility Laboratory requisition must be completed by the ordering site and it must be signed by the phlebotomist. These requisitions are available from the website of the reference laboratory (Tissue Typing (HLA) Service | Nova Scotia Health Authority - Corporate (nshealth.ca)). Serum must be separated from the cells within 2 hours of collection and stored at 4ºC. Referred.

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HLA B27	Blood	Lavender	4 mL x 2	I	14 Days	LAB	HLAB27	HLAB27	**Draw Monday-Thursday before 1200 hrs.** Maintain at **Room Temperature:** the blood **MUST NOT** be chilled. **Specimens must be delivered to the DECRH Haematology lab before 1300 hrs on the day of collection.** Mark box "**STAT LAB-FLOW CYTOMETRY".** If specimens cannot be transported for receipt @ DECRH before 1300 hrs, they can be sent directly to SJRH by Maritime Bus or Purolator. Please notify DECRH Haematology-Flow Cytometry when referring samples directly to SJRH.
HLA B5701	Blood	Lavender x 1		M	3 weeks	LAB	HLAB5701	HLAB5701	If transported store at 2-8°C if sending same day or Freeze at -70˚C. Referred.
HLA Crossmatch*	Blood	4 Yellow (ACD) and 1 Red	6 mL x 4 and 6 mL x 1	C	45 Days	LAB	LYMXM	LYMPH-XM or HLA-XM	Draw Monday – Wednesday morning only. Must arrive at DECRH lab on same day of collection. DO NOT centrifuge tubes. Store and send at room temperature. A Nova Scotia Health Authority Histocompatibility Laboratory requisition must be completed by the ordering site and it must be signed by the phlebotomist. These requisitions are available from the website of the reference laboratory (Tissue Typing (HLA) Service | Nova Scotia Health Authority - Corporate (nshealth.ca)). Referred. * Transplant coordinator at SJRH arranges appointments.
HLA DQB1-0201	Blood	Lavender x 2	4mL x 2	C	14 Days	LAB	HLADQ	HLADQ	Specimens can be collected Monday – Friday and should arrive at DECRH lab within 24 hours of collection. DO NOT centrifuge tubes. Store and send at room temperature. A Nova Scotia Health Authority Histocompatibility Laboratory requisition must be completed by the ordering site and it must be signed by the phlebotomist. These requisitions are available from the website of the reference laboratory (Tissue Typing (HLA) Service | Nova Scotia Health Authority - Corporate (nshealth.ca)). Referred.
HLADQ2DQ8	Blood	Lavender x 2	4mL x 2	C	14 Days	LAB	HLADQ2DQ8	HLADQ2DQ8	Specimens can be collected Monday – Friday and should arrive at DECRH lab within 24 hours of collection. DO NOT centrifuge tubes. Store and send at room temperature. A Nova Scotia Health Authority Histocompatibility Laboratory requisition must be completed by the ordering site and it must be signed by the phlebotomist. These requisitions are available from the website of the reference laboratory (Tissue Typing (HLA) Service | Nova Scotia Health Authority - Corporate (nshealth.ca)). Referred.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
HLA Typing	Blood	Lavender x 2	4 mL x 2	C	14 Days	LAB	HLA-DR or HLACOMP	HLA-DR or HLACOMP	Specimens may be collected Monday – Friday. Store and send at room temperature. A Nova Scotia Health Authority Histocompatibility Laboratory requisition must be completed by the ordering site and it must be signed by the phlebotomist. These requisitions are available from the website of the reference laboratory (Tissue Typing (HLA) Service | Nova Scotia Health Authority - Corporate (nshealth.ca)). Referred – Whole blood.
Homocysteine	Blood	Lavender (pre-chilled)	4 mL	C	8 Days	LAB	HOMOCYSTE	HOMOCYSTE	Collection following 8 hour fast is preferred but not mandatory. Collect in chilled tube and place on ice. Deliver on ice to Lab immediately. If transported, separate plasma within 60 minutes of collection. Store and transport at 4 ºC. (Plasma stability - Frozen (preferred): 10 months; refrigerated (Acceptable): 4 weeks. If not received at DECRH within 48 hours of collection plasma should be frozen.
Homocystine	Urine								Test no longer available
Homogentisic Acid									Test no longer available.
Homovanillic Acid	Urine	Large plastic bottle with HCL	Complete 24 hr output	C	15 Days	LAB	HVA	HVA	Collect over 25 mL of 6N HCL. The final pH must be maintained from 1-5. If sent from Health Centre or other outside collection site, please refer entire collection in original container. **Ensure start date/time and end date/time are recorded on the label.** If sent from hospital laboratory state 24h volume and send 10 mL aliquot after adjusting pH to <3 with HCl if needed. Referred - 10 mL urine aliquot
HTLV I/II	Blood	Red or GOLD	5 mL	M	10 days	LAB	HTLV	HTLV I	If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C. Referred.
HTLV I/II PCR	Blood	Lavender x 2	3 mL x 2	M	3 weeks	LAB	HTLVPCR	PCRHTLV	Draw blood on Monday to Wednesday only. Deliver immediately. If transported, draw blood just before shipping and send Whole Blood. Do not freeze. Referred.
Humira™ (adalimumab)	Blood	Red	6 mL	C	20 Days	LAB	ADAL	ADAL	Refer to Adalimumab
Hydromorphone (Dilaudid)	a) Urine b) Blood	Screw-cap jar Lavender x 2	1 mL 4 mL x 2	C C	20 Days 20 Days	LAB	URINE-DILA DILAUDID	DILA-U DILA	a) Random specimen. Referred. b) Deliver to Chemistry immediately. Separate plasma ASAP. Referred - 2 mL plasma
Ibuprofen (Motrin)	Blood	Red	6 mL	C	5 Days	LAB	IBU	IBU	Specimen must be delivered to the lab within 2 hours; otherwise, serum must be separated from the cells within 2 hours of collection and stored at 4ºC. Referred - 1 mL serum frozen

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
IgA	Blood	Light Green	1 mL	C	< 24 Hours	LAB	IGA	IGA	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC.
IgD	Blood	GOLD	5 mL	C	20 Days	LAB	IGD	IGD	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Indicate date of birth. Referred - 1 mL Serum frozen
IgE	Blood	GOLD	5 mL	C	24-48 Hours	LAB	IGE	IGE	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Referred – 1 mL serum.
IgG	Blood	Light Green	1 mL	C	< 24 Hours	LAB	IGG	IGG	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. This is not the order for viral investigation. See specific virus.
IgG-CSF	Spinal Fluid	Sterile Container		C	24-48 Hours	LAB		IGG-CSF	Specimen must be delivered to lab immediately. If transported centrifuge specimen; separate, store and ship supernatant at 4ºC. Freeze supernatant if it will not reach DECRH within 48 hours. Please note if oligoclonal banding is requested IgG-CSF is included.
IgG Subclasses	Blood	GOLD	5 mL	C	10 Days	LAB	IGGSUB	IGGSUB	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. IgG Sublclasses includes IgG1, IgG2, IgG3 and IgG4. Please ensure request is not being confused with immunoglobulins. Referred - 1 mL Serum
IgM	Blood	Light Green	1 mL	C	< 24 Hours	LAB	IGM	IGM	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. This is not the order for viral investigation. See specific virus.
IGRA	See Interferon Gamma Release Assay for Latent TB								
Imipramine (Tofranil)	Blood	Red X 2	6 mL X 2	C	10 Days	LAB	IMIP	IMIP	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Collect within 1 hour prior to next dose or at least 12 hours after last dose. Referred – 3 mL serum.
Immune Complexes									Refer to C1Q Binding Assay
Immuno Protein C	Blood	Blue x 2 (Sodium Citrate)	2.7 mL x 2	C	9 Days	LAB	IPC	IPC	Deliver to Chemistry immediately. Separate plasma ASAP and centrifuge plasma a second time. Freeze in 2 aliquots at -70°C ASAP. Referred - 2 aliquots Plasma frozen

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Immunocompetence Profile	Blood	Lavender x 2	3 mL x 2	I	Stat 24 hr Routine 7 days	LAB	ICP	ICP	**Draw Monday-Thursday before 1100 hrs**. Maintain at **Room Temperature** – specimen **must not** be chilled. **Specimens must be delivered to the DECRH Haematology lab before 1200 hrs on the day of collection.** Mark box "**STAT LAB-FLOW CYTOMETRY".** **HDSJ & URVH** specimens are to be sent directly to TMH by Maritime Bus or Purolator. Please notify DECRH Haematology-Flow Cytometry when referring samples directly to The Moncton Hospital
Immunoelectrophoresis (Immunofixation)	a) Blood b) Urine c) Urine	GOLD Screw-cap jar Large plastic bottle	2 mL 30 mL Complete 24 hr output	C C C	7 Days 7 Days 7 Days	LAB	IEP IEP-U IFE-U	IFE IFE-U IFE-U	a) Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. b) Random collection c) If sent from Health Centre or other outside collection site, please refer entire collection in original container. **Ensure start date/time and end date/time are recorded on the label.** If sent from hospital laboratory state 24h volume and send 30 mL aliquot. Please see Utilization rules
Immunofluorescent Antibody Screen (IFA Screen)									Test has been renamed. Please refer to cytoplasmic antibodies
Immunoglobulins (IgG, IgA, IgM)	Blood	Light Green	1 mL	C	< 24 Hours	LAB	IGGMA	IGGMA	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. This Profile includes: IgG, IgM and IgA. These tests may be ordered separately.
Immunophenotype-flow cytometry									**Please refer to Leukemia / Lymphoma Profile**
Incision Swab	Swab	Routine Swab		M	72 hours	MIC	INC	SUR	Swab **only** the infected area. Bacteria from the surrounding area prevent accurate interpretation of the results. Indicate source of swab. Specimen store at room temperature.
Influenza A+ B & Respiratory syncytial virus PCR	Naso-pharynx, Throat/Nose	Must be collected in UTM (Viral Transport Media)		M	48 hours (seasonal)	MIC	INFLU	INFA	Contact the Microbiology Department for UTM collection containers. Specimen stored at 2-8°C. *Testing performed as part of a rapid screen will only be available daily 0700-2200

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Insect (not a tick)	Insect	Screw-cap jar		M	48 hours	MIC	INS	INS	Place a few drops of water in the jar. Specimen stored at room temperature.
Insect -tick	Tick	Screw-cap jar		M	48 hours	LAB	TICK	TICK	Place a few drops of water in the jar. Specimen stored at room temperature. See tick requisition HHN-1218
Insulin	Blood	GOLD	5 mL	C	24-48 Hours	LAB	INSU	INS	8 hour fast preferred but not required. Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection and store at 4ºC. If the specimen will not arrive at DECH the same day as collected, separate and freeze. **There must be no hemolysis**. Samples should not be taken from patients receiving therapy with high biotin doses until at least 8 hrs following the last biotin administration. Referred - 1 mL Serum frozen
Insulin Antibodies	Blood	GOLD	5 mL	C	10 Days	LAB	INSAB	INSAB	Specimen must be delivered to lab immediately; otherwise, centrifuge specimen within 1 hr of collection, store upright at 4ºC. Fasting not required. Insulin does not need to be withheld. If serum aliquot will not reach DECRH within 72 hrs sample must be frozen. Referred - 1 mL serum frozen
Insulin like Growth Factor1 (Somatomedin C)	Blood	GOLD	5 mL	C	5 Days	LAB	IGF-1	SOMAT	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum and store 4ºC. If sample will not reach DECRH within 48 hours of collection sample must be frozen Referred – 1 mL Serum frozen
Insulin Tolerance Test				C					Call Medical Day Care at DECRH for testing information.
Insulin-like Growth Factor Binding Protein 3	Blood	GOLD	6 mL	C	20 Days	LAB	IGF-BP3	IGFBP3	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store, and send frozen. Referred – 1 mL Serum frozen
Interferon Gamma Release Assay for Latent TB (IGRA)	Blood	* Special 4 tube set in CIU		M	2 weeks		QUANTIFER	IGRA	Contact CIU for Monday –Thursday bookings. Referred. Patient information form no longer required.
Intra-uterine device (IUD)	IUD	IUD in sterile screw cap jar		M	14 days	MIC	IUD	IUD	Refrigerate until delivered to laboratory.
Intrinsic Factor Antibodies (Anti-Intrinsic Factor)	Blood	GOLD	5 mL	C	7 Days	LAB	AIFA	AIFA	Specimen should be collected following an 8 hr fast. Avoid B12 injections for 2 weeks prior to collection. Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, separate serum and store upright at 4ºC. Referred – 1.0 mL frozen Serum.

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Ionized Calcium	Blood	GOLD only (may be done on a blood gas specimen)	Full	C	< 24 Hours	LAB	ICA	ICA	Collect sample within 1 minute after applying tourniquet. Draw without stasis. Patient should do no forearm exercise (fist clinching) during blood collection. A small tube is sufficient volume, but the tube must be allowed to draw to complete vacuum. **Keep tube sealed until analysis**. Send to Chemistry ASAP and centrifuge specimen within 1 hour of collection. DO NOT remove stopper. Store at 4 °C. Send centrifuged, unopened tube on cold pack within 72 hours.
Iron	Blood	Light Green	1 mL	C	< 24 Hours	LAB	IRON	IRON	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. 8-hour fast is preferable, non-fasting specimens will be accepted. **Includes iron, iron binding capacity, transferrin, and transferrin saturation.**
Iron Binding Capacity, Total (TIBC)	Blood	Light Green	1 mL	C	< 24 Hours	LAB	TIBC	IRON	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC**. Includes Iron, iron binding capacity, transferrin, and transferrin saturation.** 8 hour fast is preferable, non-fasting specimens will be accepted.
Islet Cell Antibody (Anti-Pancreatic Islet)	Blood	GOLD	5 mL	C	12 Days	LAB	ICAB	ICAB	Specimen must be delivered to lab within 2 hrs.; otherwise, centrifuge specimen within 2 hrs. of collection. Store upright at 2-8°C. Referred - 1 mL Serum
Isopropyl Alcohol (Isopropanol) (Alcohol, Isopropyl)	Blood	Light Green	Full	C	< 24 Hours	LAB	TOXICALCEG	TOXICALCEG	Refer to Toxic Alcohol and Ethylene Glycol for instructions
IV Catheter tip	Tip	Tip in Sterile Screw-cap jar		M	72 hours	MIC	IV	IV	Deliver immediately to laboratory. If transported, send at. 2-8°C. Refrigerate.
Karyotyping (Chromosome Analysis)									Refer to Chromosome Analysis
Keppra™	Blood	Red	6mL	C	10 Days	LAB	KEPPRA	KEPPRA	Refer to Levetiracetam
Ketamine (Ketalar)	Urine	Screw-cap jar	5 mL	C	12 Days			KETA-U	Please note this is a “date rape” drug. Referred - 5 mL Urine aliquot
Ketones (see Beta-hydroxybutyrate)									Ketones no longer performed, refer to Beta-hydroxybutyrate
Kleihauer Betke	Blood	Lavender	3 mL	TM	Stat 1.5 hr Asap 2 hr Routine 24 hr		KB	BBKB PROFILE	**DO NOT** separate plasma from cells. If transported send within 24 hours at 2-8°C Only performed at the DECRH

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Lactic Acid (Lactate)	a) Blood b) Spinal Fluid c) Ice-Hep Sy	Gray (Pre-chilled) Sterile Screw-cap tube (Pre-chilled) Blood Gas collection kit	4 mL 0.5 mL 3 mL (minimum 1 mL)	C C C	STAT ≤45 Minutes Routine <24 Hours	LAB	LA LA-CSF LAC BG	LACTATE LA-CSF LAC BG	a) Avoid the use of a tourniquet. Place on ice and deliver to Chemistry within 10 minutes. The plasma must be removed within 15 minutes of collection. If plasma sample is to transported, store and send at 4ºC. b) Deliver tube # 1 of the three tubes collected immediately to Chemistry. If transported, send Spinal Fluid frozen. c) Collect blood in a heparinized syringe. Expel all air. Rotate to mix. Remove needle, cap syringe securely, label & place in crushed ice. To retain specimen label integrity, place specimen in a plastic bag prior to placing on ice. Deliver on ice to Chemistry immediately. The specimen must be analyzed within 30 minutes of collection.
Lactose Tolerance	Blood	Gray	4 mL for each specimen	C	< 24 Hours	LAB	LTT	LACTOSE	The patient must fast for 8 hour prior to and during the test. This order includes 0, 30, 45, 60 and 90 minute specimens. See Chemistry Section in this manual for additional information.
LAL Endotoxin	Water	Sterile Screw-cap jar	20 mL	M	24 hours	MIC	WATERLAL	LAL	Deliver **immediately to the laboratory**. If transported, send 2-8°C.
Lamictal (Lamotrigine)	Blood	Red	6 mL	C	8 Days	LAB	LAMI	LAMI	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Draw trough prior to next dose. Referred – 1.5 mL Serum
Largactil (Chlorpromazine)	Blood	Red	6 mL	C	13 Days	LAB	LARG	CPZ	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Draw trough prior to next dose. Referred – 1.5 mL Serum

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
LDH (Lactate Dehydrogenase)	a) Blood b) Body Fluid c) Spinal Fluid	Light Green Dark Green Sterile Screw-cap tube	1 mL 2 mL 0.5 mL	C C C	< 24 Hours < 24 Hours < 24 Hours	LAB	LDH LDH-F LDH-CSF	LDH LDH-F LDH-CSF	a) Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If specimen will not be assayed within 18 hours plasma must be transferred to an aliquot tube following centrifugation and stored at 4ºC. b) Invert tube several times to mix. Indicate origin of fluid. c) Deliver tube # 1 of the three tubes collected to Chemistry immediately.
Lead	a) Blood b) Urine	Royal Blue EDTA Heavy metal free large plastic bottle	6 mL Complete 24 hr output	C C	15 Days 15 Days	LAB	LEAD LEAD-24H	LEAD LEAD-24H	a) Do not centrifuge. Store and send cold. Referred - 6 mL Whole Blood b) Refer to Diet/Drug Restriction form HHN-0840 for patient restrictions. **Ensure start date/time and end date/time are recorded on the label.** If sent from Health Centre or other outside collection site, please refer entire collection in original container. If sent from hospital laboratory state 24h volume and send 10 mL aliquot. Referred
Legionella Culture: - Refer	Sputum or ET, bronchial wash or lavage, Pleural Fluid	Sterile Screw-cap jar		M	10 days	MIC	LEGR	LEGR	Deliver **immediately to the laboratory**. If transported, send 2-8°C. Referred.
Legionella: Urine antigen	Urine	Sterile Screw-cap jar	5 mL	M	48 Hours	MIC	LEGAG	LEGAG	Specimen is stored refrigerated. If transported, send at 2-8°C.
Leptospira PCR	Urine or Whole Blood	Sterile Screw-cap jar or EDTA	50 mL or 5 mL	M	3 weeks	LAB	PCRMISC	PCRMISC	Contact the Microbiology Laboratory before collection. Collect only on Monday-Wednesday. See below for serology.
Leptospira Serology	Blood	Red	2 mL	M	3-4 weeks	LAB	SEROL	SEROL	If transported, separate serum from clot and send serum. 2-8°c up to 3 days or >3 days freeze at -70˚C . Detection of IgM antibodies

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Leukemia/Lymphoma Profile	Blood	Lavender	4 mL	I	Stat 24 hr Routine 7 days	LAB	LPRO	FLOW-BLD	**Draw Monday-Thursday before 1200 hrs.** Maintain at **Room Temperature:** the blood **MUST NOT** be chilled**. Specimens must be delivered to the DECRH Haematology lab before 1300 hrs on the day of collection.** Mark box "**STAT LAB-FLOW CYTOMETRY".** **Satellite Sites - Send 3 unstained smears (2 for DECRH and 1 for SJRH) with specimen, CBC results and requisition** If specimens cannot be transported for receipt @ DECRH before 1300 hrs: Send directly to SJRH by Maritime Bus or Purolator. Please notify DECRH Haematology-Flow Cytometry when referring samples directly to SJRH.
Leukocyte Acid Phosphatase									Test no longer available
Leukocyte Alkaline Phosphatase									Test no longer available
Levetiracetam	Blood	Red	6 mL	C	10 Days	LAB	KEPPRA	KEPPRA	Draw trough specimen prior to next dose. Specimen must be delivered to the lab within 2 hours; otherwise, serum must be separated from the cells within 2 hours of collection and stored at 4 ºC. If sample will not reach DECRH within 48 hours aliquot must be frozen. Referred - 1 mL serum frozen.
LHRH Stimulation Test				C	24-48 hours				Call Medical Day Care at DECRH for testing information.
Librium (Chlordiazepoxide)	Blood	Red	6 mL	C	12 Days	LAB	LIB	CDZ	Refer to Chlordiazepoxide
Lice	Lice	Sterile Screw-cap jar		M	48 hours	MIC	INS	INS	Place a few drops of water in the jar. Specimen stored at room temperature.
Lipase	Blood	Light Green	1 mL	C	4 days	LAB	LIP	LIP	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC.
Lipid Emulsion Test	**Testing no longer performed as of June 20, 2019**								
Lipid Profile	Blood	Light Green	1 mL	C	< 24 Hours	LAB	LIPIDP	LIPIDP	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. 12-14 hour fast required. This profile includes: Cholesterol, Triglyceride, HDL Cholesterol, Chol/HDL ratio and LDL Cholesterol (calculated). Please see Utilization rules

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Lipoprotein (a)	Blood	Gold	5 mL	C	7 days	LAB	LPA	LPA	Specimen must be delivered to lab within 4 hrs; otherwise, centrifuge specimen within 4 hr of collection, separate and store at 4°C. Referred: 1 mL serum refrigerated
Liquid Biopsy NGS (Georges Dumont)	Blood	Lavender	5 x 4 mL	C		LAB		LBGDH	Draw blood on Monday to Thursday, mornings preferable. Friday may be acceptable in special circumstances call DECRH Laboratory prior to Friday collections. **A properly completed requisition and a consent form signed by the patient MUST arrive with, or in advance of, the specimen.** Requisition available from Chemistry. Store and ship at Room Temperature. Referred - Plasma
Liquid Biopsy NGS (Mayo Laboratories)	Blood	Streck Tubes	2 x 10 mL	C		LAB		LBMAYO	Draw blood on Monday to Thursday, mornings preferable. Friday may be acceptable in special circumstances call DECRH Laboratory prior to Friday collections. **A properly completed requisition and a consent form signed by the patient MUST arrive with, or in advance of, the specimen.** Requisition and special tubes available from Chemistry. Store and ship at Room Temperature. Referred – Whole blood
Lithium	Blood	Red	1 mL	C	< 24 Hours	LAB	LI	LI	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Avoid Hemolysis. Draw 12 hours after last dose. Do not collect in tubes containing Lithium Heparin. See Chemistry Section in this manual for additional information.
Liver Kidney Microsomal Antibody	Blood	GOLD	5 mL	C	15 Days	LAB	LIVERKIDNY	LKM AB	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Referred – 1.5 mL Serum
Living Donor Serology Screen	Blood	Red or GOLD	5 mL	M	7-10 days	LAB	LDSEROL	LDSEROSCREEN	Specimen must be delivered to lab within 6 hrs; If transported, separate serum from clot and send serum. 2-8°C if sending within 72 hours or Freeze at -20˚C. Referred
Living Donor Urine 24 hr (blood and 24 hr urine are both required for testing)	Blood and Urine	Light Green and Large plastic bottle	1 mL 24 hr output	C	< 24 Hours	LAB	LDURINE24H	LDURINE24H	A blood sample is collected at a convenient time immediately before, during or immediately following the 24-hour urine collection. Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection and store upright at 4ºC. For DECRH out-patients, the blood collection should be booked through CIU. The **patient's height** and **current weight** must be noted on the requisition. At least 24 hours must have elapsed after injection of IVP before urine collection is started. Profile includes creatinine clearance, albumin-creatinine ratio, and total protein 24hr. If transported, send plasma (for Creatinine) and if sent from Health Centre or other outside collection site, please refer entire urine collection in original container. If sent from hospital laboratory state 24h volume and send 10 mL aliquot. **Ensure start date/time and end date/time are recorded on the label.**

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Long Chain Fatty Acids	Blood	GOLD	5 mL	C	20 Days	LAB	LCFA	LCFA	8 hour fast required. Deliver to Chemistry immediately. Separate serum from clot and freeze ASAP. Referred – 1.5 mL Serum frozen
Lorazepam (Ativan)	Blood	Red	6 mL	C	12 Days	LAB	LOR	LOR	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Draw trough prior to next dose. Referred – 2 mL Serum preferably (minimum 0.6 mL)
Ludiomil (Maprotiline)	Blood	2 x Red	6 mL	C	10 Days	LAB	MAP	MAP	Draw prior to AM dose or 10-12 hours after last dose. Deliver to Chemistry immediately. Separate serum from clot ASAP. Referred – 3.0 mL Serum

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Lupus Inhibitor Profile Includes: - Anti-Cardiolipin Antibody (ACA) - Prothrombin Time (PT/INR) - Activated Partial Thromboplastin time (APTT) - 50:50 Mix - Lupus Inhibitor Screen (DVVT) - Platelet Neutralization Procedure (PNP)	Blood Blood	Gold or Red and Blue Sodium Citrate	5 mL and 2.7mL x3 Exactly Etched line is the minimum fill volume	H H	21 days	LAB	LUP	LUP LUP	**Avoid hemolysis.** Separate serum within 2 hours of collection. If specimen cannot be transported to DECRH within 24 hours of collection, centrifuge and separate serum as follows: **Red or Gold-** If transported**, Gold tube only requires one spin. Red tube requires two spins** to ensure no red cells are left in the serum. • **1st spin:** Spin specimens in the centrifuge, after 1st spin is complete, remove tubes from centrifuge and transfer 1st spin serum to a separate labeled 12x75 plastic tube. • **2nd spin**: Cap the labelled 12x75 tubes and re-spin serum, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting button at bottom of tube. • Remove serum, leaving sediment in bottom of tube. Transfer directly to labeled 12x75 plastic tube. • Send 1 aliquot of 0.5 – 1.0 mL at 4°C **Blue x 3** - Deliver to the lab within 2 hours of collection. If transported, separate plasma within 30 minutes then centrifuge plasma a second time to achieve platelet poor plasma (count < 10) must be achieved with the following procedure: 5. **1st spin**: Spin specimens in the centrifuge, after 1st spin is complete, remove blue tubes from centrifuge and transfer 1st spin plasma to a separate labeled 12x75 plastic tube. 6. **2nd spin**: Cap the 12x75 tubes and re-spin plasma, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting platelets at bottom of tube. 7. Carefully remove platelet poor plasma, leaving sediment (containing platelets) in bottom of tube. Transfer directly to labeled 12x75 plastic tube for the platelet count. Perform and record plt count on label if applicable. 8. Send frozen in 3 aliquots of 1.5-2 mL each. Referred
Luteinizing Hormone (LH)	Blood	Light Green	1 mL	C	<24 Hours	LAB	LH	LH	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If transported, serum must be sent frozen if not received at DECRH within 48 hours of collection.

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Lyme Serology (IgG/IgM)	Blood	Red or GOLD	5 mL	M	7 days	LAB	LYME	LYME	Deliver **immediately to the laboratory**. If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C.
Lysozyme (Muramidase)	Blood	Lavender	2x3mL	C	10 Days	LAB	LYS	LYS	Specimens must be delivered to the lab within 2 hours; otherwise, plasma must be separated from the cells within 2 hours of collection. Store and send frozen. Referred – 2 mL serum frozen
Macroprolactin	Blood	Gold	7 mL	C	15 Days	LAB	MACROPROL	MACROPROL	Specimen must be delivered to the lab within 2 hours; otherwise, serum must be separated from the cells within 2 hours of collection into 2 separate aliquots. Store and send frozen. Referred - 2 mL serum frozen in 2 aliquots
Magnesium	a) Blood b) Urine	Light Green Large plastic bottle	1 mL Complete 24 hr output	C C	< 24 Hours < 24 Hours	LAB	MG MG-24H	MG MG-24h	a) Specimen must be delivered to lab within 2 hours; otherwise, centrifuge specimen within 2 hours of collection, store upright at 4ºC. b) **Ensure start date/time and end date/time are recorded on the label.** If sent from Health Centre or other outside collection site, please refer entire collection in original container. If sent from hospital laboratory state 24h volume and send 10 mL aliquot.
Malarial Parasites	Blood	Lavender	3 mL	H	Rapid Test 1 hr Smears < 4 hours	LAB	MAL	MAL	Preferred sample collection - during fever. Mandatory info required on req: Recent travel outside Canada, including country; Is testing for travel or screening (including pre-employment)? Deliver to the lab **immediately** at room temperature
Manganese	Blood	Royal Blue EDTA	6 mL	C	15 Days	LAB	MANG	MANG	Do not centrifuge. Store and send cold. Referred - 6 mL whole blood referred. There must be **no hemolysis**
Maprotiline (Ludiomil)	Blood	2 x Red	6 mL	C	10 Days	LAB	MAP	MAP	Draw prior to AM dose or 10-12 hours after last dose. Deliver to Chemistry immediately. Separate serum from clot ASAP. Referred – 3.0 mL Serum
Maternal Serum Screen (Alpha Fetoprotein, Maternal)	Blood	Gold or red	7 mL	C					Refer to Enhanced First Trimester Screening (eFTS) or Second Trimester Screening (STS). General practitioners will refer to Second Trimester Screening (STS) only. **eFTS is available through referral to Maternal Fetal Medicine unit only.**
MDR Acinetobacter baumannii screen	Swab	Routine Swab	n/a	M	48 hours	MIC	MDR-AB	MDR-AB	Indicate site from which specimen was collected. Specimen stored at room temperature.

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Measles PCR Urine	Urine	Sterile container	50 ml minimum urine	M	7 days	LAB	MEASPCR (choose source)	MEASPCR (choose source)	Urine must be received in the lab within 24 hours. Centrifuge at 500G for 15 minutes and resuspend the sediment in 2 ml of Viral Transport Media (UTM). Freeze at -70˚C and send on dry ice. Referred.
Measles PCR swabs	Throat, NPA	Viral Transport Media (UTM)		M	7 days	LAB	MEASPCR (choose source)	MEASPCR (choose source)	Stored refrigerated. If transported, 2-8°C if sending same day or Freeze at -70˚C. Referred.
Measles Screen (Red Rash Screen)	Blood	Red or GOLD	5 mL	M	7 days			MEAS	Includes serology for IgM antibodies to Measles, Rubella, and Parvovirus. Collect on or after 3rd day after onset of rash. Include dates of onset of fever and rash on requisition. If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C. Referred - Measles IgM and Parvovirus.
Measles Serology IgG	Blood	Red or GOLD	5 mL	M	7 days	LAB	MEASG	MEASG	(Previous infection / Immune Status) If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C. Referred.
Measles Serology IgM	Blood	Red or GOLD	5 mL	M	7 days	LAB	MEASM	MEASM	(Recent Infection) If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C. Referred.
Mellaril (Thioradzine)	Blood	Red	6 mL	C	7 Days			THIOR	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Referred – 1.5 mL Serum
Meperidine (Demerol)	a) Blood b) Urine	Red Screw-cap jar	6 mL 10 mL	C C	11 Days	LAB	MEP-B MEP-U	MEP-B MEP-U	a) Specimen must be delivered to the lab within 2 hours; otherwise, centrifuge specimen, remove serum within 2 hours of collection and store at 4ºC. Referred – 1.5 mL Serum b) Referred - 10 mL Urine aliquot
Meprobamate (Equanil)	a) Blood b) Urine	Red Screw-cap jar	6 mL 5 mL	C C	8 Days	LAB	MEPRO-B MEPRO-U	MEPRO-B MEPRO-U	a) Specimen must be delivered to lab within 2 hours; otherwise, centrifuge specimen, remove serum within 2 hours of collection and store at 4ºC. Referred – 3 mL Serum. b) Referred - 5 mL Urine aliquot

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Mercury	a) Blood b) Urine	Royal Blue EDTA Heavy metal free large plastic bottle	6 mL Complete 24 hr output	C C	15 Days	LAB	MER MER-24H	MER MER-24H	a) Do not centrifuge. Store and send cold. Referred - 6 mL Whole Blood b) Refer to Diet/Drug Restriction form HHN-0840 for patient restrictions. **Ensure start date/time and end date/time are recorded on the label.** If sent from Health Centre or other outside collection site, please refer entire collection in original container. If sent from hospital laboratory state 24h volume and send 10 mL aliquot. Referred
Metabolic Newborn Screen	Blood	Blood Blotter		C	14 Days	LAB	MNS	MNS	Draw blood by heel stick and thoroughly saturate the 4 areas on the blood blotter. Fill out attached Newborn Screening Card. Referred - allow blotter to dry for 3 hours and send at Room Temperature.
Metabolic Screen	Urine	Screw-cap jar	5 mL	C	14 Days	LAB	METAB	AA-S	Early morning specimen. Deliver to Chemistry immediately. For interpretation, provide date of birth, special diet and clinical indicators. Referred - 5 mL Urine aliquot frozen
Metanephrines	a) Blood b) Urine	Lavender Large plastic bottle with HCl	4 mL Complete 24-hour output	C C	15 Days 15 Days	LAB	META META-24H	META META-24H	a) **8-hour fast recommended.** Patient should abstain from smoking tobacco for at least 4 hours prior to collection. Patient should be at rest in supine position during collection. If epi pen has been given patient should wait 24 hours before collection. **Patient preparation instructions are recommendations only and are not mandatory.** Specimen must be delivered to lab within 2 hours; otherwise centrifuge within 2 hours of collection, remove plasma and freeze. Referred – 1 mL plasma frozen. b) Refer to Diet/Drug Restriction form HHN-0840 for patient restrictions. Collect urine in a container with 25 mL of 6N HCl. **Specimen must be refrigerated during collection. Ensure start date/time and end date/time are recorded on the label.** The final pH must be maintained from 2-4. If sent from Health Centre or other outside collection site, please refer entire collection in original container. If sent from hospital laboratory state 24h volume and send 10 mL aliquot. Referred – 10 mL aliquot.
Methadone Quantitative Profile									Test no longer available
Methadone Metabolite	Urine	Screw-cap jar	5 mL	C	< 24 Hours	LAB	URINE-MET1	DRUG-METH or EDDP	Random specimen. This is a semi-quantitative test. If transported, urine must be sent frozen if not received at DECRH within 48 hours of collection.
Methamphetamine	Urine	Screw-cap jar	5 mL	C	< 24 Hours	LAB	URINE-MAMP	METAMP	Random specimen. This is a qualitative result.
Methemalbumin									Test no longer routinely available

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Methemoglobin	Blood	Dark Green or Blood Gas syringe	2 mL or 1 mL	C	< 24 Hours	LAB	METHB BG	METHB	Dark Green tube - Do not centrifuge. Blood Gas syringe - Deliver on ice to Chemistry immediately. Capillary - call Chemistry regarding this order
Methotrexate	Blood	Red	6 mL	C	5 Days	LAB	METHX	METHX	**Protect from light**. Specimen must be delivered to lab within 2 hours; otherwise, centrifuge specimen within 2 hours of collection, remove serum immediately and store at 4ºC. Indicate date and time of last medication. Referred - 2 mL Serum (pediatric min 0.5 ml)
Methsuximide (Celontin)									Test no longer routinely available
Methyl Alcohol (Methanol) Alcohol, Methyl)	Blood	Light Green	Full	C	< 24 Hours	LAB	TOXICALCEG	TOXICALCEG	Refer to Toxic Alcohol and Ethylene Glycol for instructions.
Methylmalonic Acid	a) Blood b) Urine	Dark Green Screw-cap jar	4 mL x 1 10 mL	C C	7 Days 7 Days	LAB	METHYLMA METHYLMAU	METHYLMA METHYLMA-U	a) Specimen must be delivered to lab within 2 hours; otherwise, centrifuge specimen within 2 hours of collection, remove plasma immediately and store 4ºC. Referred – 1.5 mL Plasma frozen. b) Instruct patient to collect second void following overnight fast. Deliver to Chemistry immediately. Freeze urine ASAP. Referred - 4 mL Urine aliquot frozen.
Methylphenidate (Ritalin)	a) Blood b) Urine	Red Screw-cap jar	6 mL 10 mL	C C	15 Days 15 Days	LAB	METHY METHY-U	METHY METHY-U	a) Specimen must be delivered to the lab immediately. Centrifuge specimen and freeze serum ASAP. Referred - 2 mL serum frozen b) Random urine specimen. Referred - 10 mL aliquot
Microalbumin									Refer to Albumin/creatinine ratio
Microfilariae	Blood	Red	4 mL	M	2 weeks	LAB	SEROL	SEROL	If transported, separate serum from clot and send serum. 2-8°C same day
Microscopic Examination	a) Body Fluid b) Urine	Dark Green Screw-cap jar	2 mL 15 mL	C C	<24 Hours <24 hours	LAB	CRYS-F U/A	CRYS-F U/A	a) Invert tube several times to mix. Indicate origin of fluid. b) Random specimen. Included with routine urinalysis on special request. If transported, the laboratory must receive the specimen within 4 hours of collection.

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Miscellaneous Culture	Swab	Routine Swab		M			MISC	MISC	For use if the correct test cannot be found. **Sufficient information must be supplied to enable the laboratory to re-order the specimen correctly**. Specimen stored at room temperature.
Mixing Studies	Blood	Blue (Sodium Citrate) x 2	2.7mL x2 Exactly Etched line is the minimum fill volume	H	21days	LAB	MIX	MIXING STUDIES	Deliver to the lab within 2 hours of collection. If transported, platelet poor plasma (count < 10) must be achieved with the following procedure: 1. **1st spin**: Spin specimens in the centrifuge, after 1st spin is complete, remove blue tubes from centrifuge and transfer 1st spin plasma to a separate labeled 12x75 plastic tube. 2. **2nd spin**: Cap the 12x75 tubes and re-spin plasma, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting platelets at bottom of tube. 3. Carefully remove platelet poor plasma, leaving sediment (containing platelets) in bottom of tube. Transfer directly to labeled 12x75 plastic tube for the platelet count. Perform and record plt count on label if applicable. 4. Send frozen in 2 aliquots of 2 mL each. Referred
MMR testing on Cytology samples	Body fluid or fine needle aspiration	1-CytoLyt container 1-Tissu-Fix container	See collection - pg. 101	CY	Variable, complexity dependent	Nil	Cannot be ordered through Meditech OE	Nil	See collection instructions, page 101
Mogadon (Nitrazepam)	Blood	Red X 2	6 mL	C	12 Days	LAB	NITRAZ	NITRAZ	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum and freeze immediately. Store and send frozen. Draw trough prior to next dose. Referred – 3 mL Serum frozen
Mononucleosis Test	Blood	Red	6 mL	H	Stat 4 hr Routine 24 hr	LAB	MONO	MONOTEST	Avoid hemolysis. Separate serum within 2 hours of collection. If specimen cannot be transported to DECRH within 24 hours, centrifuge serum a second time and send serum frozen in 2 aliquots.
Morphine	Urine	Screw-cap jar	5 mL	C	< 24 Hours	LAB	URINE-OPIA	OPIATE-U	Random specimen. This is a semi-quantitative test. If transported, urine must be sent frozen if not received at DECRH within 48 hours of collection.

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Motrin (Ibuprofen)	Blood	Red	6 mL	C	5 Days	LAB	MOT	IBU	Specimen must be delivered to the lab within 2 hours; otherwise, serum must be separated from the cells within 2 hours of collection and stored at 4ºC. Referred - 1 mL serum
Mouth & Gum	Swab	Routine Swab		M	24 hours	MIC	MG	MG	Specimen stored at room temperature.
MRSA	Swab	Routine Swab		M	48 hours	MIC	MRSA	MRSA	Indicate site from which specimen was collected. Specimen stored at room temperature.
Mucin	Synovial fluid	Red	2 mL	C	24 Hours	LAB	MUCIN	MUCIN	
Mucopolysaccharides Quantitative	Urine	Screw-cap jar	2 mL	C	12 Days	LAB	MUCOPOLY	MUCOPOLY	Random urine. Early morning preferred. Do not administer low-molecular weight heparin before collection. Store and send refrigerated. Referred - 2 mL aliquot
Mumps PCR + Genotyping	Saliva Urine Buccal/Throat Swab CSF	Viral Transport Swab Sterile Screw-cap jar Viral Transport Swab Sterile Tube	1 mL 50 mL 0.5 mL	M M M M	8 days	MIC	MUMPCR	MUMPCR	Collect 9 days pre-onset to 14 days post onset. Mix with equal parts of viral transport medium. Refrigerate and deliver to Microbiology within 24 hours. If transported, send at 2-8°C if sending same day or Freeze at -70˚C. Referred. Collect within 14 days post onset. Refrigerate and deliver to Microbiology within 24 hours. If specimen cannot be delivered to Microbiology within 24 hours, it must be processed by centrifuging at 2500 x g for 15 minutes, resuspending the sediment in 2 mL of viral transport medium and freezing. Referred. If specimen cannot be delivered to Microbiology within 24 hours, specimen must be frozen at -70˚C If specimen cannot be delivered to Microbiology within 24 hours, specimen must be frozen at -70˚C
Mumps Serology (IgG)	Blood	Red or GOLD	5 mL	M	10 days	LAB	MUMPSIGG	MUMPSIGG	Test is for immune status only. If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C. Referred.
Mumps Serology (IgM)	Blood	Red or GOLD	5 mL	M	10 days	LAB	MUMPSIGM	MUMPSIGM	Test is for acute infection only. If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C. Referred.

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Muramidase (Lysozyme)	Blood	Lavender x 2	4 mL x 2	C	10 Days	LAB	LYS	LYS	Specimen must be delivered to the lab within 2 hours; otherwise, plasma must be separated from the cells within 2 hours of collection. Store and send frozen. Referred - 2 mL Plasma frozen
MuSK Antibody	Blood	Red	6 mL	C	12 Days	LAB	MUSK AB	MUSK AB	Specimen must be delivered to the lab within 2 hours; otherwise, centrifuge specimen within 2 hrs of collection, remove serum immediately. Store and send serum at 4ºC. **Testing can only be ordered by a neurologist.** Referred – 1.5 mL Serum Frozen.
Mycophenylic Acid (Cellcept)	Blood	Lavender	4 mL	C	12 Days	LAB	MYCOP	MYCOP	Specimen must be delivered to the lab within 2 hours; otherwise, plasma must be separated from the cells within 2 hours of collection and stored at 4ºC. Referred – 1 mL Plasma frozen
Mycoplasma pneumoniae	Sputum								Test no longer available. See Mycoplasma PCR.
Mycoplasma Serology (IgM)									Testing is no longer available. See Mycoplasma PCR
Mycoplasma pneumoniae PCR	Throat, NPA or Throat	Viral Transport media (UTM)		M	8 days	MIC	MYCOPCR	MYCOPCR	Specimen may be refrigerated for 48 hours if not delivered immediately. If transported, 2-8°C if sending same day or Freeze at -70˚C. Referred.
Mycoplasma genitalium PCR	Vaginal/ Cervical/ Urethral/ Rectal Swab urine	Swabs- UTM Viral transport medium or Cobas PCR media sterile container or Cobas PCR media	10-50 mL	M	2 weeks	MIC	MYCOSW MYCONONSW	MYCOSW MYCONONSW	Viral transport medium available from Microbiology. Freeze at -70°C after collection. If transported, send **on dry ice**. Referred. Urine submissions should arrive in lab same day and will be transferred to Cobas PCR media. Transport at 2-30 °C. Referred.
Myelin Associated Glycoptotein IgM Antibody (Anti-MAG)	Blood	Red	6 mL	C	14 Days	LAB	MYEGLYCO	ANTIMAG	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen, separate and store at 4ºC. Sample is stable for 7 days at 4ºC. Referred - 2 mL serum frozen

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Myelin Basic Protein	Spinal Fluid	Sterile Screw-cap tube	2 mL	C	33 Days	LAB	MYELIN	MYELIN	Deliver tube # 1 of the three tubes collected to Chemistry immediately. Referred - 2 ml Spinal Fluid
Myoglobin	Urine	Screw-cap jar	10 mL	C	< 24 Hours	LAB	MYOG-U	MYOG-U	First morning or fresh random specimen. If transported, adjust sample pH to 8.0 - 8.5 with 2.5N NaOH within 2 hours of collection. If sample cannot be tested within 2 hours of collection alkalized sample needs to be frozen.
Mysoline (Primidone)	Blood	Red	6 mL	C	10 Days	LAB	PRIM	PRIM	Drawn as trough specimen before next dose if monitoring therapy. Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Referred – 0.5 mL Serum
N-Acetylprocainamide (Procainamide) (Pronestyl)	Blood	Red	6 mL	C	12 Days	LAB	PROCAM	PROCAM	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum and store at 4ºC. Referred - 0.5 mL Serum frozen
Nails: Fungus	Nail Scrapings	Sterile Screw-cap jar		M	smear 3 days final 4 weeks	MIC	MYC	MYC	Specimen stored at room temperature.
Neonatal: Ear	Swab	Routine Swab		M	72 hours	MIC	EARN	EARNEO	Specimen stored at room temperature.
Neonatal: Rectal	Swab	Routine Swab		M	72 hours	MIC	RECN	RECNEO	Specimen stored at room temperature.
Neonatal: Throat	Swab	Routine Swab		M	72 hours	MIC	TSN	TSNEO	Specimen stored at room temperature.
Neonatal: Umbilical	Swab	Routine Swab		M	72 hours	MIC	UMBNEOTSN	UMBNEO	Specimen stored at room temperature.
Neonate: Endotracheal secretions	Secretions	Sterile Screw-cap jar		M	72 hours	MIC	ETT	ETT	Deliver immediately to the laboratory. Specimen refrigerated.
Neurofilament Light Chains	Blood	Gold	6 mL	C	10 days	LAB	NFL	NFL	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum and store at 4ºC. Please see Utilization rules.

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Neuromyelitis Optica Antibodies	Blood	Gold	6 mL	C	14 Days	LAB	NMO AB	NMO AB	This profile includes anti-aquaporin 4 (anti-AQU4) and anti-myelin oligodendrocyte glycoproteins (anti-MOG) and is intended to be ordered by specialists. Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Referred - 1 mL serum
Neurontin (Gabapentin)	Blood	Red	6 mL	C	11 Days	LAB	GABAP	GABAP	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Draw trough specimen prior to next dose. Referred – 1 mL Serum frozen
Newborn Screen, Metabolic	Blood	Blood Blotter		C	14 Days	LAB	MNS	MNS	Draw blood by heel stick and thoroughly saturate the 4 areas on the blood blotter. Fill out attached Newborn Screening Card. Referred - allow blotter to dry for 3 hours and send at Room Temperature.
NGS panel on Cytology samples	Body fluid or fine needle aspiration	1-CytoLyt container 1-Tissu-Fix container	See collection - pg. 101	CY	Variable, complexity dependent	Nil	Cannot be ordered through Meditech OE	Nil	This is a referred-out test.
Nitrazepam (Mogadon)	Blood	Red X 2	6 mL	C	11 Days	LAB	NITRAZ	NITRAZ	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum and freeze immediately. Store and send frozen. Draw trough prior to next dose. Referred – 3 mL Serum frozen
Non- Fasting LIPID Profile	Blood	Light Green	1 mL	C	< 24 Hours	LAB	NONLIP	NONLIP	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Fasting not required. This profile includes: Cholesterol, TRIG(non fasting), HDL Cholesterol, Chol/HDL ratio, and Non HDL Cholesterol (calculated). Please see Utilization rules

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Norepinephrine (included with Catecholamines)	a) Blood	Lavender x 2 (pre-chilled)	4 mL x 2	C	15 Days	LAB	CATECH	CATECH	a) Patient must be supine for at least 30 minutes prior to and during collection. Patient must refrain from eating, using tobacco and drinking caffeinated beverages for at least 4 hours prior to collection. Catechol drugs may interfere, including alpha methyldopa, alpha-methyl-para-tyrosine, isoproteronal, dobutamine and carbidopa. Collect in pre-chilled tube, place on ice and deliver to laboratory immediately. If transported, separate plasma within 60 minutes using a cold centrifuge and freeze. Referred - 2 mL Plasma frozen.
	b) Urine	Large plastic bottle with HCL	Complete 24 hour output	C	15 Days		CAT-24H	CAT-24H	b) See patient Diet/Drug Restriction form HHN-0840 Collect urine in a container with 25 mL of 6N HCl. **Ensure start date/time and end date/time are recorded on the label.** The final pH must be maintained from 2-4. Restrict caffeine, nicotine and alcohol 24 h prior to collection. Discontinue Methyldopa (Aldomet) at least 5 days prior to collection. Other drugs usually do not interfere with this assay. If sent from Health Centre or other outside collection site, please refer entire collection in original container. If sent from hospital laboratory state 24h volume and send 25 mL aliquot. Referred – 25 mL aliquot.
Norpace (Rythmodan) (Disopyramide)	Blood	Dark Green	6 mL	C	12 Days	LAB	DISO	DISO	Specimen must be delivered to the lab within 2 hours; otherwise, plasma must be separated from the cells within 2 hours of collection and stored at 4ºC. Referred - 1 mL Plasma
Nortriptyline (Aventyl)	Blood	Red	6 mL	C	10 Days	LAB	NORT	NORT	Collect within 1 hour prior to next dose or at least 12 hours after last dose. Deliver to the lab immediately. Separate serum from clot ASAP, store and send at 4ºC. Referred – 3 mL Serum
Nose	Swab	Routine Swab		M	72 hours	MIC	NOSE	NOSE	Specimen stored at room temperature.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Novel Influenza	a) Blood b) NPA x 3 c) Nasal Swab x 3 d) Nasal Washings x 3 e) Throat x 3 f) Sputum x 3 g) Stool x 3 h) Conjunctival Swab x 3	Red x 2 Lavender x 2 Viral Transport Medium Viral Transport Medium Viral Transport Medium Viral Transport Medium Viral Transport Medium Viral Transport Medium Viral Transport Medium Viral Transport Medium	7 mL x 2 3 mL x 2	M M M M M M M M		MIC	Order Set: R.NOVEL	NOVEL GROUP	Call Microbiology prior to collection. Indicate on the requisition the date of onset, or of contact with a known case. **DO NOT use the pneumatic tube system for transporting these specimens.** Red Tubes: Acute and Convalescent Stool Specimens: Collect only with GI symptoms If transported: Red tubes - separate serum from clot and send serum; Lavender tubes - send Whole Blood. Referred.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Occult Blood	a) Feces	Occult blood cards		C	< 96 Hours	LAB	OB-FE	OCC-FE	a) To ensure accurate test results, follow the diet below: Foods to Eat Well cooked pork, poultry and fish Any cooked fruit and vegetables except those listed in next column. High fiber foods e.g. whole wheat bread, bran cereal, popcorn. Food and Drugs to Avoid 7 days prior to and during test period: Aspirin and non-steroidal anti-inflammatory drugs. 72 hours prior to and during test period: Vitamin C in excess of 250 mg/day. 48 hours prior to and during test period: Red meat (beef, lamb) including processed meats and liver. Raw fruits and vegetables especially, radish, parsnip, turnip, horseradish, broccoli, cauliflower, cantaloupe and melon. **Sample must have been applied at least 72 hours prior to testing. Sample cards must be tested within 14 days of applying specimen.**
	b) Gastric	Screw-cap jar	1 mL	C	< 24 Hours		OB-G	OCC-G	b) Gastric Contents
	c) Urine	Screw-cap jar	5 mL	C	< 24 Hours		U/A	U/A	c) Random specimen. Included with routine urinalysis.
Oligoclonal Banding	Spinal Fluid And Blood	Sterile Screw-cap tube and GOLD	2 mL and 2 mL	C	7 Days	LAB	OLIGO	OLIGO	Both Spinal fluid and blood specimens are required. Spinal Fluid - deliver tube # 1 to Chemistry immediately. If transported, centrifuge CSF and remove supernatant. Blood Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If transported, serum and CSF supernatant must be sent frozen if not received at DECRH within 48 hours of collection.
Oligosaccharides	Urine	Screw-cap jar	1 mL	C	15 Days	LAB	OLIG	OLIG	Random urine. Referred - 1 mL Urine frozen
Opiates	Urine	Screw-cap jar	5 mL	C	< 24 Hours	LAB	URINE-OPIA	OPIATE-U	Random specimen. This is a semi-quantitative test. If transported, urine must be sent frozen if not received at DECRH within 48 hours of collection.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Organic Acids	Urine	Screw-cap jar	10 mL (minimum 5 mL)	C	26 Days	LAB	ORG	ORG	Early AM specimen preferred. Indicate age and clinical diagnosis. Store and send at 4ºC. (minimum volume 5 mL) Referred - 10 mL Urine aliquot frozen
Osmolality	a) Blood b) Urine	GOLD Screw-cap jar	1 mL 2 mL	C C	STAT ≤45 Minutes Routine <24 Hours	LAB	OSMO OSMO-U	OSMO OSMO-U	a) Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. This test is also part of a Drug Toxic Panel (DRUG-TOX). b) Random specimen
Osmotic Fragility (ERC Fragility)									Test not available. See EMA (Eosin-5-maleimide) for replacement test for Hereditary Spherocytosis
Osteocalcin	Blood	GOLD	5 mL	C	18 Days	LAB	OSTEO	OSTEO	Deliver to Chemistry immediately. Separate serum from clot and freeze within 1 hour of collection. Referred – 1 mL Serum frozen
Ova & Parasites	Stool	SAF		M	5 days	MIC	OPSCREEN	OPSCREEN	Fill the container about 1/3 full, screw cap on tightly. Specimens should be no less than the size of a quarter. Mix specimen and SAF fixative well. Parasites may be passed intermittently. If symptoms persist after a negative result, send another specimen. See Form HHN-0448 for patient collection instructions Specimen stored at room temperature.
Ovarian Antibodies (Anti-Ovarian Antibodies)	Blood	GOLD	5 mL	C	35 Days		ANTIOVA	ANTIOVA	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store and send at 4ºC. Referred - 1 mL Serum
Oxalate	Urine	Large plastic bottle	Complete 24 hr output	C	10 Days	LAB	OXA-24H	OXA-24H	Refer to Diet/Drug Restriction form HHN-0840 for patient restrictions. Full 24-hour collection in plain jug(s). If sent from Health Centre or other outside collection site, please refer entire collection in original container on ice pack. **Ensure start date/time and end date/time are recorded on the label.** If sent from hospital laboratory enter 24h volume, start date/time, end date/time and pH of aliquot. (Final pH should be 4.5-8.0) **Referred 10 mL aliquot.**
Oxazepam (Serax)	Blood	Red	6 mL	C	15 Days	LAB	OXAP	OXAP	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Referred – 2 mL Serum

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Oxcarbazepine Metabolite (Trileptal)	Blood	Red	1 mL	C	10 days	LAB	OXCARBAZEPINE	OXCARBAZEPINE	Immediately after collection place tube on wet ice and deliver to lab as soon as possible. Specimen must be centrifuged and frozen within 2 hours of collection. Referred
Oxycodone (Oxycontin)	Urine	Screw-cap jar	5 mL	C	< 24 Hours	LAB	URINE-OXYC	OXY-U	Random Specimen. This is a semi-quantitative test.
Pancreatic Amylase	Blood	Light Green	1 mL	C	STAT ≤45 minutes Routine < 24 Hours	LAB	P-AMYL	P-AMYL	Please initiate routine testing for pancreatitis by choosing lipase. Pancreatic Amylase is only done by special request. Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, store upright at 4ºC.
Panel 1 - Chlorinated (Organochlorine) Pesticides									Test no longer available
Panel 4 A - Combined Volatile Solvents									Test no longer available
Panel 6 - Aliphatic Volatile Solvents									Test no longer available
Panel 7 - Chlorophenoxy (Phenoxy Acid) Herbicides									Test no longer available
Parathyroid Hormone (Intact)	Blood	Lavender	4 mL	C	< 24 Hours	LAB	PTH	PTH	Deliver to the lab immediately; otherwise, every effort should be made to have plasma separated from the cells within 2 hours of collection, samples not separated within 4 hours are rejected. If transported, plasma must be frozen if not received at DECRH within 72 hours of collection. Plasma is the preferred sample type. Serum is acceptable but if used it must be separated from the cells immediately.
Parathyroid Hormone Related Protein	Blood	Lavender (pre-chilled)	4 mL	C	7 Days	LAB	PTHPROTEIN	PTH-RP	Collect in pre-chilled tube, place specimen on ice and deliver immediately to Chemistry lab. If transported, centrifuge specimen in a refrigerated centrifuge. Aliquot plasma into a 13x75 aliquot tube vial and freeze. Referred – 1 mL plasma frozen

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Parvovirus Serology IgG (Fifth Disease)	Blood	Red or GOLD	5 mL	M	7 days	LAB	PARVO IGG	PARVOG	(Previous/ Post infection) If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C. Referred.
Parvovirus Serology IgM (Fifth Disease)	Blood	Red or GOLD	5 mL	M	7 days	LAB	PARVO IGM	PARVOM	(Recent infection) If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C. Referred.
PCR-Syphilis (Microbiology)	Blood	Lavender	4 mL	M	3 weeks	LAB	SYPHPCR	SYPHPCR	**DO NOT centrifuge.** If specimen is not collected at DECRH, freeze whole blood at -70°C and send on Dry Ice. Referred to National Microbiology Lab.
PD-L1 testing on Cytology samples	Pleural fluid	1-CytoLyt container 1-Tissu-Fix container	See collection - pg. 100	CY	Variable, complexity dependent	Nil	Cannot be ordered through Meditech OE	Nil	This is a referred-out test.
Peritonsillar Abscess	Swab	Routine Swab		M	1 week			PERITONS	Specimen stored at room temperature.
Pertofrane (Desipramine)	Blood	Red	6 mL	C	10 Days	LAB	DESIP	DESIP	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Collect within 1 hour prior to next dose or at least 12 hours after last dose. Referred – 3 mL serum.
Pertussis	Nasopharyngeal Aspirate Nasopharyngeal Swab (preferred sample)	UTM- Viral Transport Media		M	2 days	MIC	PER	PERPCR (or PER)	Use #5 (French) plastic catheter with syringe attached. Obstruct side with thumb or finger and draw mucous into the catheter by applying suction through the syringe. Enclose catheter, or catheter with syringe attached, in sterile container. Deliver **immediately**. If transported, send in *NUNC* tube at 2-8°C if sending same day or Freeze at -70˚C. For swab collection, please contact the Microbiology Laboratory for UTM. If transported, send at 2-8°C if sending same day or Freeze at -70˚C. Specimen will be referred to Moncton in most cases.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
PH	a) Blood b) Urine c) Body Fluid	Heparinized Syringe Screw-cap jar Heparinized Syringe	1 mL or 4 mL 2 mL 1 mL	C C C	< 24 Hours < 24 Hours < 24 Hours	LAB	PH-B PH-U PH-F	PH-B PH-U PH-F	a) Arterial heparinized syringe sample as for Blood Gas or heparinized syringe as for Venous Blood Gas. Deliver on ice to Chemistry immediately. The specimen must be analyzed within 1 hour of collection. b) Fresh random specimen c) Collect anaerobically in heparinized syringe. Expel all bubbles. Remove needle and cap end of syringe. Place on ice and deliver to Chemistry immediately. Indicate origin of fluid. **pH feces no longer performed as of June 20, 2019**
Pharmacy Fluid	Fluid	FAN (Green) Blood Culture Bottle	8-10 mL	M	5 days	MIC	PHAR	PHARM	Store at room temperature.
Phenobarbital	Blood	Red	1 mL	C	< 24 Hours	LAB	PHENO	PHENO	Specimen must be delivered to the lab within 2 hours; otherwise, centrifuge specimen, remove serum within 2 hours of collection and store at 4ºC. Draw immediately prior to next dose. If transported, serum must be sent frozen if not received at DECRH within 48 hours of collection. See Chemistry Section in this manual for additional information.
Phenylalanine	a) Blood b) Blood	Dark Green Blood Blotter	4 mL 2 spots	C C	23 Days 23 Days	LAB	PHE BLOOD PHEBLOTTER	PHE BLOOD PHEBLOTTER	a) Deliver to Chemistry immediately. Separate and freeze plasma within 2 hours of collection. Sample must be accompanied by completed Biochemical Genetics Testing RequisitionFinal.pdf Referred - 2 mL Plasma frozen b) For known PKU patients, draw blood by finger stick or heel stick and thoroughly saturate the 2 PKU areas on the blood blotter. Sample must be accompanied by completed Biochemical Genetics Testing RequisitionFinal.pdf Referred - allow blotter to dry for 3 hours and send at Room Temperature.
Phenytoin (Dilantin)	Blood	Red	1 mL	C	< 24 Hours	LAB	PTN	PTN	Specimen must be delivered to the lab within 2 hours; otherwise, specimen must be centrifuged, and serum removed within 2 hours of collection and stored at 4ºC. Draw immediately prior to next dose. If transported, serum must be sent frozen if not received at DECRH within 48 hours of collection. See Chemistry Section in this manual for additional information.
Phospholipase A2 Receptor (Monitoring)	Blood	Gold	1 mL	C	10 Days	LAB	PLA2R	PLA2R	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Referred 2 mL Serum

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Phosphorus (Phosphate)	a) Blood b) Urine	Light Green Large plastic bottle	1 mL Complete 24 hr output	C	< 24 Hours < 24 Hours	LAB	PHOS PHOS-24H	PHOS PHOS-24H	a) Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If specimen will not be assayed within 24 hours plasma must be transferred to an aliquot tube following centrifugation and stored at 4ºC. b) **Ensure start date/time and end date/time are recorded on the label.** If sent from Health Centre or other outside collection site, please refer entire collection in original container. If sent from hospital laboratory state 24h volume and send 10 mL aliquot.
Phospho-Tau 217	Blood	Lavender	4 mL	C		LAB	PTAU217	PTAU217	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove plasma and store at 4ºC. Please see Utilization rules for testing restrictions. Referred – 2.0 mL plasma frozen
Phytanic Acid	Blood	Red	5 mL	C	35 Days	LAB		PHYTANIC	Fasting specimen preferred. Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, remove serum and freeze. Referred – 0.5 mL Serum frozen
Pilonidal Abscess	Swab	Routine Swab		M	72 hours	MIC	PIL	PIL	Store at room temperature.
Pinworm		Pinworm paddle		M	48 hours	MIC	PW	PW	Collection device available from DECRH Stores. Apply sticky side of paddle to anal surface. Replace paddle in tube and send to laboratory. **Scotch-tape smears are not acceptable**. Specimen should be collected in the morning prior to toilet or washing. See Form HHN-0763 for patient collection instructions Store at room temperature.
Placental Growth Factor (PlGF)	Blood	Gold	5 mL	C	<8 hours	LAB	PLGF	PLGF	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum and store 4ºC. If sample will not reach DECRH within 48 hours of collection sample must be frozen.
Plasma Hemoglobin	Blood	Dark Green	6 mL	C	10 Days	LAB	PLHGB	PLHGB	Deliver to Chemistry immediately. Separate plasma ASAP. Avoid hemolysis. Referred - 1 mL Plasma
Plasminogen	Blood	Blue (Sodium Citrate)	2.7 mL	C	12 Days	LAB	PLASMINO	PLASMINO	Deliver to Chemistry immediately. Separate and freeze plasma ASAP. Referred - 0.5 mL Plasma frozen
Platelet Aggregation	Blood								Test no longer performed at DECRH

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Platelet Function Screen	Blood	Blue x 2	2.7 mL	H	Stat 1 hr Routine 24 hr	LAB	PFS	PFS	**Specimen must be drawn using a 21 or larger gauge needle.** Do **not** centrifuge. Place a red sticker on top of tube. If transported, specimen must be received at DECRH or URVH within 4 hours of collection. Transport at Room Temperature. **Do not send in Pneumatic Tube System**
Platelet-Associated Antibodies									Test no longer available.
Pleural Fluid	Fluid	Sterile screw-cap jar		M					See *Body Fluid*
Pneumococcal antigen	CSF Urine	Sterile container		M	48 hours	MIC	PNEUAG	PNEUAG	Specimen is stored refrigerated. If transported, send at 2-8°C.
Pneumocystis	Bronchoalveo-lar lavage **only**	Sterile screw-cap jar		M	72 hours	MIC	PCR-SPEC	PCR-SPEC	Please enter "Pneumocystis PCR" in the comment section of the request. Deliver to laboratory immediately. If transported, send at 2-8°C. Referred.
PNH (Paroxysmal Nocturnal Hemoglobinuria)	Blood	Lavender	4 mL X 2	H	7 days	LAB	PNH	PNH	**Draw Monday-Thursday before 1100 hrs**. **Specimens must be delivered to the DECRH Haematology lab before 1200 hrs on the day of collection.** If transported, send refrigerated at 2-8°C. Mark box "**STAT LAB-FLOW CYTOMETRY".** **HDSJ & URVH** speicmens are to be sent directly to TMH by Maritime Bus or Purolator. Please notify DECRH Haematology-Flow Cytometry when referring samples directly to The Moncton Hospital

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Porphobilinogen	a) Random Urine	Screw cap jar	20 mL	C	7 days		PBG	PBG	a) **Protect specimen from light.** Specimen must be labeled inside and outside the light-protecting wrap**. Specimen must be kept cool following collection and delivered to lab as soon as possible**. If not to be received at DECRH within 48 hours of collection, **freeze** a 20 mL aliquot as soon as possible (protect from light). **Note: Order includes Delta Aminolevulinic Acid (DALA)** Referred - 20 mL Urine aliquot frozen
	b) 24 Hr Urine	Large plastic bottle	Complete 24 hour output	C	7 days	LAB	PBG-24H	PBG-24H	b) **Protect specimen from light**. Specimen must be labeled inside and outside the light-protecting wrap. **Specimen must be refrigerated during collection and delivered to lab as soon as possible**. If sent from Health Centre or other outside collection site, please refer entire collection in original container. **Ensure start date/time and end date/time are recorded on the label.** If sent from hospital laboratory state 24h volume and send 20 mL aliquot frozen. **Note: Order includes Delta Aminolevulinic Acid (DALA)** Referred - 20 mL Urine aliquot frozen
Porphobilinogen Deaminase (Uro-1-Synthetase)	Blood	Dark Green	6 mL	C	7 Days	LAB	URO	URO	Specimen must be delivered to lab within 2 hrs of collection. Store and send whole blood at 4ºC. Do not separate. Include a list of medications the patient is currently taking. Referred - whole blood refrigerated

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Porphyrins (quantitative tests include coproporphyrins and uroporphyrins)	a) Blood	Lavender	3 mL	C	16 Days		PP-QUAN-B	PP-QUAN-B or POR-QUANT-B	a) Protect from light. Do not centrifuge. Quantitative test. Hematocrit result must be provided. An extra EDTA will need to be submitted if no CBC being done. Referred - 2 mL Whole Blood
	b) Urine	Screw-cap jar	20 mL	C	13 Days		PP-U	PP-U or POR-U	b) Fresh random specimen. **Protect from light. Specimen must be kept cool following collection and delivered to lab as soon as possible.** pH should be adjusted with anhydrous Sodium Carbonate immediately following collection. Final pH should be 7 to 10. Quantitation may only be done if preliminary screen is positive. Store and send frozen. Referred - 20 mL Urine aliquot frozen
	c) Urine	Large plastic bottle with Anhydrous Sodium Carbonate	Complete 24-hr output	C	13 Days	LAB	PP-24H	PP-24H or POR-24H	c**) Protect from light.** Collect over 5g of Anhydrous Sodium Carbonate. **Specimen must be refrigerated during collection.** Quantitation may only be done if preliminary serum is positive. Final pH should be 7 to 10. **Ensure start date/time and end date/time are recorded on the label.** If sent from Health Centre or other outside collection site, please refer entire collection in original container. If sent from hospital laboratory state 24h volume and send 20 mL aliquot frozen. Referred – 20 mL Urine aliquot frozen
	d) Feces	Screw-cap jar	50 g	C	13 Days		PP-QUAN-FE	PP-QUAN-FE or PORPHYRIN-FECES	d) Random specimen. Protect from light. Quantitative test. Referred - 50 g Feces frozen

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Potassium	a) Blood b) Feces c) Urine d) Urine	Light Green Large plastic bottle Screw-cap jar	1 mL Complete 24 hr output 5 mL	C C C	STAT ≤45 Minutes Routine <24 Hours	LAB	POT K-24H K-R	K K-24H K-R	a) Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Part of an electrolyte (LYTE or ISE) profile. If specimen will not be assayed within 24 hours plasma must be transferred to an aliquot tube following centrifugation and stored at 4ºC. b) Test not available. c) **Ensure start date/time and end date/time are recorded on the label.** If sent from Health Centre or other outside collection site, please refer entire collection in original container. If sent from hospital laboratory state 24h volume and send 10 mL aliquot. Part of a 24 hour urine electrolyte (LYTE-24H) profile. If output per day is not required, a random specimen is acceptable. d) Random specimen. Part of a random urine electrolyte (LYTE-U) profile.
Prealbumin	Blood	GOLD	1 mL	C	< 24 Hours	LAB	PA	PA	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If transported, serum must be sent frozen if not received at DECRH within 72 hours of collection.
Prekallikrein (Fletcher Factor)	Blood	Blue x 2 (Sodium Citrate)	2.7 mL x 2	C	25 Days	LAB	PKK	PKK	Deliver to the lab immediately. If transported, platelet poor plasma (count < 10) must be achieved with the following procedure: 1. 1st spin: Spin specimens in the centrifuge, after 1st spin is complete, remove blue tubes from centrifuge and transfer 1st spin plasma to a separate labeled 12x75 plastic tube. 2. 2nd spin: Cap the 12x75 tubes and re-spin plasma, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting platelets at bottom of tube. 3. Carefully remove platelet poor plasma, leaving sediment (containing platelets) in bottom of tube. Transfer directly to labeled 12x75 plastic tube for the platelet count. Perform and record plt count on label if applicable. 4. Send frozen in 2 aliquots of 1 mL each. Referred

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Prenatal Blood Group and Antibody Screen	Blood	Pink	6 mL	TM	96 hr	LAB	PRENAT	PN	**DO NOT** separate plasma from cells. If transported send within 24 hours at 2-8°C
Pre-Natal Serology Do not use, each test MUST be ordered individually	Blood	Red or GOLD	5 mL	M	48 hours			NAT	Refer to individual tests: PN, NAT (includes: Syphilis, HBC, HBS, Rubella IgG, HIV) and CBC
Primidone (Mysoline)	Blood	Red	6 mL	C	10 Days	LAB	PRIM	PRIM	Drawn as trough specimen before next dose if monitoring therapy. Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Referred – 0.5 mL Serum
Pro BNP (BNP)	Blood	Light Green	1 mL	C	< 24 Hours	LAB	BNP	PRO BNP	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Please see Utilization rules
Procainamide (Pronestyl) (N-Acetylprocainamide)	Blood	Red	6 mL	C	12 Days	LAB	PROCAM	PROCAM	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum and store at 4ºC. Referred - 0.5 mL Serum frozen
Procalcitonin	Blood	Gold	1 mL	C	4 Days	LAB	PROCAL	PROCAL	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If transported, serum must be sent frozen if not received at DECRH within 48 hours of collection.
Progesterone	Blood	Light Green	1 mL	C	< 24 Hours	LAB	PROG	PROG	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If transported, plasma must be sent frozen if not received at DECRH within 48 hours of collection.
Prolactin	Blood	Light Green	1 mL	C	< 24 Hours	LAB	PROL	PROL	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If transported, plasma must be sent frozen if not received at DECRH within 48 hours of collection.
Proliferating Cell Nuclear Antigen	Blood	GOLD	5 mL	C	20 Days	LAB	PCNA	PCNA	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, remove serum and store at 4ºC. Referred - 1 mL Serum frozen
Pronestyl (Procainamide) (N-Acetylprocainamide)	Blood	Red	6 mL	C	12 Days	LAB	PROCAM	PROCAM	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum and store at 4ºC. Referred - 0.5 mL Serum frozen
Propafenone (Rythmol)	Blood	Red	6 mL	C	10 Days	LAB	RYTHMOL	PROPAF	Collect trough specimen just prior to next dose. Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Referred – 1.5 mL Serum

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Properdin B									Test no longer available.
Propylene glycol	Blood	Light Green	Full	C	<24 Hours	LAB	TOXICALCEG	TOXICALCEG	Refer to Toxic Alcohol and Ethylene Glycol for instructions.
Prostate Specific Antigen (PSA)	Blood	Light Green	1 mL	C	< 24 Hours	LAB	PSA	PSA	Specimen must be delivered to lab within 2 hours; otherwise, centrifuge specimen within 2 hours of collection, store upright at 4ºC. If transported, plasma must be sent frozen if not received at DECRH within 5 days of collection.
Prostate Specific Antigen - Free (Free PSA)	Blood	Gold	1 mL	C	24-48 Hours	LAB	FPSA	FPSA	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If a red tube is used, remove serum immediately. If transported, serum must be sent frozen if not received at DECRH within 5 days of collection. Free PSA will only be done if the total PSA is greater than 4.0 but less than 10μg/L. Referred – 1.0 mL serum.
Prostatic massage		Sterile screw-cap jar		M	48 hours	MIC	PRO	PRO	Pre and Post specimens. Deliver to laboratory immediately. If transported, send at. 2-8°C
Protein C	Blood	Blue (Sodium Citrate)	2.7mL x2 Exactly Etched line is the minimum fill volume	H	21 days	LAB	PROTC	PROC	Testing must be ordered by or in consultation with clinicians in the Internal Medicine Group. Patient must be off oral anticoagulants for 2 weeks prior to collection. Deliver to the lab within 2 hours of collection. If transported, platelet poor plasma (count < 10) must be achieved with the following procedure: 20. **1st spin**: Spin specimens in the centrifuge, after 1st spin is complete, remove blue tubes from centrifuge and transfer 1st spin plasma to a separate labeled 12x75 plastic tube. 21. **2nd spin**: Cap the 12x75 tubes and re-spin plasma, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting platelets at bottom of tube. 22. Carefully remove platelet poor plasma, leaving sediment (containing platelets) in bottom of tube. Transfer directly to labeled 12x75 plastic tube for the platelet count. Perform and record plt count on label if applicable. 23. Send frozen in 1 aliquot of 2 mL. Referred

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Protein Electrophoresis	a) Blood b) Spinal Fluid c)) Urine d) Urine	GOLD Screw-cap jar Large plastic bottle	2 mL 30 mL Complete 24 hr output	C C C C	7 Days 7 Days 7 Days 7 Days	LAB	PE PE-U PE-U 24H	PE PE-U PE-U 24H	a) Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Total Protein included. b) See Oligoclonal Banding c) Random specimen d) **Ensure start date/time and end date/time are recorded on the label.** If sent from Health Centre or other outside collection site, please refer entire collection in original container. If sent from hospital laboratory state 24h volume and send 30 mL aliquot. Please see Utilization rules
Protein S	Blood	Blue (Sodium Citrate)	2.7mL x2 Exactly Etched line is the minimum fill volume	H	21 days	LAB	PROTS	PROS	Testing must be ordered by or in consultation with clinicians in the Internal Medicine Group. Patient must be off oral anticoagulants for 2 weeks prior to collection. Deliver to the lab within 2 hours of collection. If transported, platelet poor plasma (count < 10) must be achieved with the following procedure: 1. **1st spin**: Spin specimens in the centrifuge, after 1st spin is complete, remove blue tubes from centrifuge and transfer 1st spin plasma to a separate labeled 12x75 plastic tube. 2. **2nd spin**: Cap the 12x75 tubes and re-spin plasma, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting platelets at bottom of tube. 3. Carefully remove platelet poor plasma, leaving sediment (containing platelets) in bottom of tube. Transfer directly to labeled 12x75 plastic tube for the platelet count. Perform and record plt count on label if applicable. 4. Send frozen in 1 aliquot of 2 mL. Referred

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Protein, Total	a) Blood	Light Green	1 mL	C	STAT ≤45 Minutes Routine <24 Hours	LAB	PROT	TP	a) Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC.
	b) Body Fluid	Dark Green	2 mL	C			PROT-F	TP-F	b) Invert tube several times to mix. Indicate origin of fluid.
	c) Spinal Fluid	Sterile Screw-cap tube.	0.5 mL	C			PROT-CSF	TP-CSF	c) Deliver tube # 1 of the three tubes collected to Chemistry immediately. d) Random specimen.
	d) Urine	Screw-cap jar	10 mL	C			PROT-U	PRO-U	e) **Ensure start date/time and end date/time are recorded on the label.**
	e) Urine	Large plastic bottle	Complete 24 hr output	C			PROT-24H	TP-24H	If sent from Health Centre or other outside collection site, please refer entire collection in original container. If sent from hospital laboratory state 24h volume and send 10 mL aliquot.
Protein/Creatinine Ratio	Urine	Screw-cap jar	5 mL	C	< 24 Hours	LAB	PRCR RATIO	PRO-CR RATIO	Random specimen
Prothrombin Gene Mutation	Blood	Lavender	3 mL	H	2 – 3 weeks	LAB	PGM	PGM	Testing must be ordered by or in consultation with clinicians in the Internal Medicine Group. Lavender Tube - If transported, do **not** centrifuge. Store and transport at 4ºC. Referred. Ordered as a group reflex with Factor V Leiden Mutation
Prothrombin Time	Blood	Blue (Sodium Citrate)	2.7 mL Exactly Etched line is the minimum fill volume	H	Stat 1 hr Routine 24 hr	LAB	PT	PT	Deliver to the lab same day as collected. If transported, maintain at room temperature.
Protriptyline	Blood	Red	6 mL	C	10 Days	LAB	PROTR	PROTR	Draw prior to AM dose or 10-12 hours after last dose. Deliver to Chemistry immediately. Separate serum from clot ASAP. Referred – 1.5 mL Serum
Prozac (Fluoxetine)	Blood	Red	6 mL	C	8 Days	LAB	PROZ	FLUOX	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Draw trough prior to next dose. Referred - 1 mL Serum

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
PSA (Prostate Specific Antigen)	Blood	Light Green	1 mL	C	< 24 Hours	LAB	PSA	PSA	Specimen must be delivered to lab within 2 hours; otherwise, centrifuge specimen within 2 hours of collection, store upright at 4ºC. If transported, plasma must be sent frozen if not received at DECRH within 5 days of collection.
Pseudocholinesterase (Cholinesterase)	Blood	GOLD	1 mL	C	7 Days	LAB	PSEUDO	PSEUDO	Specimen must be delivered to lab within 2 hours; otherwise, centrifuge specimen within 2 hours of collection, store at 4ºC. Collect blood at least 24 hours following surgery involving the administration of succinylcholine. Referred - 2 mL Serum
Pseudocholinesterase Phenotyping (Cholinesterase Phenotyping)	Blood	GOLD	5 mL	C	15 Days	LAB	PSEUDOPHEN	PSEUDOPHEN	Specimen must be delivered to lab within 2 hours; otherwise, centrifuge specimen within 2 hours of collection, store upright at 4ºC. Collect blood at least 24 hours following surgery involving the administration of succinylcholine. Referred – 1.5 mL Serum
Pyruvate (includes Lactate and Lactate/Pyruvate ratio)	Blood	Dark Green (on ice)	2 mL	C	10 Days	LAB	PYR	PYR	Collect at minimum 1 mL blood in Na Heparin tube and place tube on ice. Transport or send to DECRH Laboratory immediately on ice. Do not centrifuge. **Whole blood sample must arrive in the Laboratory within 20 minutes of collection and receiving staff must be notified prior to sending or on arrival.** Patient will need to be collected at DECRH facility if no means available to ensure refrigerated sample will arrive within 20 minutes of collection. Referred – 0.5 mL clear Supernatant frozen
Pyruvate Kinase	Blood	Lavender x 2	3 mL x 2	C	11 Days	LAB	PK	PK	Draw blood on Monday to Wednesday only. Blood transfusion within the last 3 months invalidates test results. Do not centrifuge. Referred - 5 mL Whole Blood
Q-Fever (Coxiella Burnetti)	Blood	Red or GOLD	5 mL	M	2 weeks	LAB	QF	QF	If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C. Referred.
Quinidine	Blood	Red	6 mL	C	9 Days	LAB	QUIN	QUIN	Specimen must be delivered to the lab within 2 hours; otherwise, specimen must be centrifuged, and serum removed within 2 hours of collection and stored at 4ºC. Draw immediately prior to next dose. See Chemistry Section in this manual for additional information. Referred - 1 mL Serum
Rabies Serology	Blood	Red or GOLD	5 mL	M	4 weeks	LAB	RAB	RAB	If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C. Referred.
Rapamycin (Sirolimus)	Blood	Lavender	4 mL	C	11 Days	LAB	RAPAMYCIN	RAPA	Store and ship specimen at 4ºC. **If specimen will not reach DECRH within 72 hrs, mix and transfer whole blood sample to 1 13x75 aliquot tube and freeze.** Referred - Whole Blood frozen

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Rape Drugs (Date Rape Drugs)	Urine	Screw-cap jar	10 mL	C	7 Days	LAB		DATE RAPE DRUGS	This profile includes Rohypnol (Flunitrazepam) and GHB (Gamma Hydroybutyrate). The sample is valid only if collected within 8 hours of suspected ingestion. Referred - 10 mL urine aliquot
Rast (Allergy Test)	Blood	GOLD	5 mL	C	16 Days	LAB	RAST	RAST	Specimen must be delivered to lab within 2 hours; otherwise, centrifuge specimen within 2 hours of collection, store upright at 4ºC. Specify antigen(s) to be tested. Referred - 2 mL frozen
Rectal: C&S	Swab	Routine Swab		M	72 hours	MIC	REC	REC	Indicate whether diagnosis is diarrhoea or abscess. Specimen stored at room temperature.
Rectal: GC	Swab	Routine Swab		M	72 hours	MIC	GCR	GCR	PCR Testing also available (see Chlamydia trachomatis/ Neisseria gonorrheae PCR: Rectal) Specimen stored at room temperature.
Reducing Substances	a) Feces b) Urine	Screw-cap jar Screw-cap jar	2 mL 1 mL	C C		LAB		REDU-FE REDU-U	a) Test no longer available b) Test no longer available
Renin	Blood	Lavender (pre-chilled)	4 mL	C	10 Days	LAB	RENIN	RENIN	Patient should be in a **seated position for 15 minutes prior to collection**. Draw time preferably no later than 10 am. Collect in pre-chilled tube, place specimen on ice and deliver immediately to Chemistry lab. If transported, centrifuge specimen in a refrigerated centrifuge. Use of pre-chilled carriers is acceptable if there is no access to refrigerated centrifuge. Aliquot plasma into 1 13x75 aliquot tube and freeze. If Aldosterone and Renin are both ordered, an Aldosterone/Renin ratio will also be reported. Referred – 2 mL Plasma frozen.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Reptilase	Blood	Blue (Sodium Citrate)	2.7 mL Exactly Etched line is the minimum fill volume	H	21 days	LAB	REPT	REPT	Deliver to the lab within 2 hours of collection. If transported, platelet poor plasma (count < 10) must be achieved with the following procedure: 1. **1st spin**: Spin specimens in the centrifuge, after 1st spin is complete, remove blue tubes from centrifuge and transfer 1st spin plasma to a separate labeled 12x75 plastic tube. 2. **2nd spin**: Cap the 12x75 tubes and re-spin plasma, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting platelets at bottom of tube. 3. Carefully remove platelet poor plasma, leaving sediment (containing platelets) in bottom of tube. Transfer directly to labeled 12x75 plastic tube for the platelet count. Perform and record plt count on label if applicable. 4. Send frozen in 1 aliquot of 2 mL. Referred
RSV (Respiratory Syncytial Virus)	Nasopharyngeal SWAB	Must be collected in UTM (Viral Transport Media)		M	24 hours	MIC	RSV	RSV	If transported, store at 4°C. Results include RSV and influenza A & B. Testing availability daily 0700-2200.
Restoril (Temazepam)									Test no longer available
Reticulocyte Counts	Blood	Lavender	3 mL	H	72 hr			RET	**Mix by inverting gently 8-10 times.** Deliver to the lab within 4 hours of collection. If transported, the specimen must be maintained at 2-8°C and received at DECRH within 48 hours of collection.
Rh Immune Globulin Eligibility	Blood	Pink	6 mL	TM	24 hr		RH	RHIG	To determine the eligibility of Rh Negative women to receive Rh Immune Globulin. **DO NOT** separate plasma from cells. If transported send within 24 hours at 2-8°C
Rheumatoid Factor	Blood	Light Green	1 mL	C	< 24 Hours	LAB	RHEU	RF	Specimen must be delivered to lab within 2 hours; otherwise, centrifuge specimen within 2 hours of collection, store upright at 4ºC.

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Ritalin (Methylphenidate)	a) Blood b) Urine	Red Screw-cap jar	6 mL 10 mL	C C	15 Days 15 Days	LAB	RIT METHY-U	METHY METHY-U	a) Specimen must be delivered to the lab immediately. Centrifuge specimen and freeze serum ASAP. Referred - 2 mL serum frozen b) Random urine specimen. Referred - 10 mL aliquot
Rivotril (Clonazepam)	Blood	Red x 2	6 mL x 2	C	12 Days	LAB	RIV	CLON	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Draw trough prior to next dose. DO NOT confuse this drug with Clobazam. Referred – 3 mL Serum frozen
Rohypnol (Flunitrazepam)	Urine	Screw-cap jar	5 mL	C	7 Days	LAB		FLUNIT-U	Please note this is part of the "Date Rape Drugs" profile. This test is referred as a Benzodiazepine ID profile. Presence or absence of Flunitrazepam will be reported along with other detectable benzodiazepines. Referred - 5 mL Urine
Rotavirus / Adenovirus				M					Test no longer available
RPR Titre	Blood	Red or GOLD	5 mL	M	48 hours	LAB	RPRT	RPRT	If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C. Referred.
Rubella Serology IgG	Blood	Red or GOLD	5 mL	M	48 hours	LAB	RUB	RUB	(Immune Status) If transported, separate serum from clot and send serum. 2-8°C if sending within 72 hours or Freeze at -20˚C.
Rubella Serology IgM	Blood	Red or GOLD	5 mL	M	5 days	LAB	RUBM	RUBM	(Recent Infection). **Includes Rubella IgG** If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C. Referred.
Rythmodan (Disopyramide) (Norpace)	Blood	Dark Green	6 mL	C	12 Days	LAB	DISO	DISO	Specimen must be delivered to the lab within 2 hours; otherwise, plasma must be separated from the cells within 2 hours of collection and stored at 4ºC. Referred - 1 mL Plasma
Rythmol (Propafenone)	Blood	Red	6 mL	C	10 Days	LAB	RYTHMOL	PROPAF	Collect trough specimen just prior to next dose. Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Referred – 1.5 mL Serum

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Salicylate (ASA)	Blood	Red	1 mL	C	< 24 Hours	LAB	SAL	SAL	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Avoid Hemolysis. If transported, serum must be sent frozen if not received at DECRH within 48 hours of collection. This test is also part of a Drug Toxic Panel (DRUG-TOX).
Saline Suppression Test	Blood			C		LAB			See Chemistry Section in this manual for additional information.
Salmonella	Stool	Enteric Transport Medium		M	72 hours	MIC	STOOL	STOOL	Collect only one specimen. If it is negative and the symptoms continue, two more may be collected on separate days. Formed stool should be the size of a quarter. Liquid stool should be equal to the amount of the transport medium in the jar. **Routine culture includes Salmonella, Shigella, Yersinia, Campylobacter and E. coli**. If patient has eaten seafood, also order Vibrio Culture (VIB). See Form HHN-0448 for patient collection instructions Specimen stored at room temperature.
SARS Serology (Severe Acute Respiratory Syndrome)	Blood	Red or GOLD x 1 and Lavender x 2	5 mL and 4 mL x 2	M	2 weeks			SARS	Call Microbiology prior to collection. Indicate on the requisition the date of onset, or of contact with a known case. If transported: Red tube - If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C. Referred. Lavender tube - send Whole Blood. Referred.
SARS: Nasopharyngeal aspirate	NPA	Suction container	2 mL	M	2 weeks	MIC	SARSNPA	SARSNPA	Call Microbiology before collection. Deliver **immediately**. Referred.
SARS: Stool	Stool	Sterile Screw-cap jar		M	2 weeks	MIC	SARGOLDOOL	SARGOLDOOL	Call Microbiology prior to collection. Deliver **immediately**. Referred. See Form HHN-0448 for patient collection instructions Specimen stored at 2-8 ºC
SARS: Throat	Throat Swab	Viral Transport Swab		M	2 weeks	MIC	SARSTS	SARSTS	Call Microbiology before collection. Deliver **immediately**. Swab with viral transport medium available from Microbiology. Referred.
SARS: Urine	Urine	Sterile Screw-cap jar	5 mL	M	2 weeks	MIC	SARSUR	SARSUR	Call Microbiology before collection. Deliver **immediately**. Referred.
Scabies	Skin Scrapings	Glass slides		M	48 hours	MIC	SCAB	SCAB	Collect scrapings in mineral oil onto a glass slide; cover with second slide and seal with **surgical** tape around all four edges. Specimen stored at room temperature.
Schistosoma	Urine	Sterile Screw-cap jar	10 mL	M	24 hours	MIC	SCHIST	SCHIST	Collect between 1000-1400 hours, after vigorous exercise. Specimen stored at 2-8 ºC

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Schistosoma serology	Blood	Red or GOLD	5 mL	M	4 weeks	LAB		STRON SCHIST	Includes Strongyloides serology
Second Trimester Prenatal Screen (STS)	Blood	Gold or Red	6 mL	C	7 days	LAB	MATERNSTS	STS	Specimen must be delivered to the lab within 2 hours; otherwise, serum must be separated from the cells within 2 hours of collection and stored at 4ºC. If transported, serum must be frozen if not received at DECRH within 8 days of collection. Pregnancy should be at least 14 weeks and no more than 20 weeks, 6 days gestation for interpretation of results. **A properly completed Prenatal Screening Requisition Form MUST arrive with the specimen**. When feasible patient current weight in kg must be added to the requisition. (Weight that may be recorded by physician office may not be current weight at time of collection) Referred Links for helpful information: NB Perinatal Health Program - Horizon Health Network (horizonnb.ca) Laboratories | North York General Hospital (nygh.on.ca)
Secretin				C	13 Days	LAB		SEC	Consult Clinical Chemist before ordering this test.
Sedimentation Rate	Blood	Lavender	4 mL Minimum 1.5 mL	H	Stat 4 hr Routine 24 hr	LAB	ESR	ESR	Deliver to the lab at room temperature within 4 hours of collection. If unable to be tested within 4 hours of collection, the specimen must be maintained at 2-8°C and received in lab within 24 hours of collection. Patient label must be placed lengthwise, over the vacutainer label to allow a minimum 5mm unobstructed window of blood If both ESR and CRP are ordered together, only the CRP will be performed. See Utilization Rules Section. Please see Utilization rules
Selenium	Blood	Royal Blue EDTA	6 mL	C	15 Days	LAB	SEL	SEL	Do not centrifuge. Store and send cold in original tube. Referred - 6 mL whole blood
Semen	Semen	Sterile Screw-cap jar		M	72 hours	MIC	SEM	SEM	Deliver immediately to the laboratory. Specimen stored at room temperature.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Semen Analysis for FERTILITY	Semen	Sterile Screw-cap jar	Complete Ejaculate	TM	5 hr	LAB	SEMFERT	SEMFERT	**Test is performed only on Tuesday and Wednesday at DECRH or URVH facilities (excluding holidays). The appointment must be booked:** ● At DECRH patient to call the Transfusion Medicine Lab at 506-452-5454 ● At URVH patient to call the Main Laboratory at 506-375-xxxx It is recommended that the semen sample be collected following a three-day period of abstinence. The specimen must be collected in the wide-mouth clean plastic container provided. This container and instructions are available from Sample Collection department at DECRH or Lab at URVH. The specimen must not be collected in a condom because of the presence of contaminating starch grains or lubricant, which may be spermicidal. When transporting specimens, certain precautions are necessary: 1) The specimen must be received within 1 hour of collection. 2) It is essential that the semen specimen be maintained at room temp and not be subjected to extreme temperatures during delivery to the laboratory. **Date and Time of collection must be on the requisition and specimen label**. This test is for Fertility, order SEMVAS for Post vasectomy analysis.
Semen Analysis POST VASECTOMY	Semen	Sterile Screw-cap jar	Complete Ejaculate	TM	5 hr	LAB	SEMVAS	SEMVAS	**Test is performed only on Tuesday and Wednesday at DECRH or URVH facilities (excluding holidays). The appointment must be booked:** ● At DECRH patient to call the Transfusion Medicine Lab at 506-452-5454 ● At URVH patient to call the Main Laboratory at 506-375-xxxx It is recommended that the semen sample be collected following a three-day period of abstinence. The specimen must be collected in the wide-mouth clean plastic container provided. This container and instructions are available from Sample Collection department at DECRH or Lab at URVH. The specimen must not be collected in a condom because of the presence of contaminating starch grains or lubricant, which may be spermicidal. When transporting specimens, certain precautions are necessary: 1) The specimen must be received within 1 hour of collection. 2) It is essential that the semen specimen be maintained at room temp and not be subjected to extreme temperatures during delivery to the laboratory. **Date and Time of collection must be on the requisition and specimen label**. This test is for Post vasectomy, order SEMFERT for fertility analysis
Serax (Oxazepam)	Blood	Red	6 mL	C	15 Days	LAB	SERAXDRUG	OXAP	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Referred – 2 mL Serum

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Serology - Test Not Listed in Manual	Blood	Red or GOLD	5 mL	M	Test dependent	LAB	SEROL	SEROL	**Call Microbiology before ordering**. Indicate antibody to be tested. If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C. Referred.
Serotonin	Blood	GOLD	5 mL	C	8 Days	LAB	SERO	SERO	Deliver to Chemistry immediately. Serotonin may be increased by diet or released by medications. Medications that may affect serotonin include lithium, monoamine oxidase inhibitors, methyldopa, morphine and reserpine. Separate and freeze serum ASAP. Referred – 2.5 mL Serum frozen
Sertraline (Zoloft)	Blood	Red	6 mL	C	10 Days	LAB	ZOLOFT	ZOLOFT	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Patient should be on the drug for at least 1 week prior to testing. Draw trough prior to next dose. Referred - 1 mL Serum
Sex Hormone Binding Globulin	Blood	Light Green	1 mL	C	<24 Hours	LAB	SEXHORMONE	SEXHBG	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC.
SGOT (AST, Aspartate Aminotransferase)	Blood	Light Green	1 mL	C	< 24 Hours	LAB	AST	AST	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Please see Utilization rules
SGPT (ALT, Alanine Amino Transferase)	Blood	Light Green	1 mL	C	< 24 Hours	LAB	ALT	ALT	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Avoid hemolysis.
Shake Test									Test no longer available
Shigella	Stool	Enteric Transport Medium		M	72 hours	MIC	STOOL	STOOL	Collect only one specimen. If it is negative and the symptoms continue, two more may be collected on separate days. Formed stool should be the size of a quarter. Liquid stool should be equal to the amount of the transport medium in the jar. **Routine culture includes Salmonella, Shigella, Yersinia, Campylobacter and E. coli**. If patient has eaten seafood, also order Vibrio Culture (VIB). See HHN-0448 for collection instructions. Specimen stored at room temperature.
Sickle Cell Screen	Blood	Lavender	3 mL	H	Stat 1 hr Routine 45 days		SICELL	SICELL	**Mix by inverting gently 8-10 times.** Deliver to the lab within 4 hours of collection. If transported, the specimen must be received at DECRH the same day as collected.

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Sinequan (Doxepin)	a) Blood b) Urine	Red Screw-cap jar	6 mL 10 mL	C C	10 Days 10 Days	LAB	DOX DRUGSC1	DOX DRUGSC1	a) Draw trough specimen 1 hour prior to next dose, or at least 12 hours post dose. Deliver to Chemistry immediately. Separate serum from clot ASAP. Referred – 3 mL Serum b) Part of Drug Screen, General (DRUGSC1). Specify screening for Sinequan. Referred - 10 mL Urine aliquot
Sinus (Nasal)	Swab	Routine Swab		M	72 hours	MIC	SIN	SIN	Specimen stored at room temperature.
Sirolimus (Rapamycin)	Blood	Lavender	4 mL	C	11 Days	LAB	RAPAMYCIN	RAPA	Store and ship specimen at 4ºC. **If specimen will not reach DECRH within 72 hrs, mix and transfer whole blood sample to 1 13x75 aliquot tube and freeze.** Referred - Whole Blood frozen
Skin Antibodies (Epidermal Antibodies)	Blood	GOLD X 2	5 mL x 2	C	12 Days	LAB	ANTIEP	ANTIEPID	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store and send at 4ºC. Assay includes both pemphigus and basement membrane zone antibodies. Referred - 3 mL Serum
Skin: C&S	Swab	Routine Swab		M	72 hours	MIC	SKIN	WOUND	Swab **only** the infected area. Bacteria from the surrounding area prevent accurate interpretation of the results. Indicate source of swab. Specimen stored at room temperature.
Skin: Fungus	Skin Scrapings	Sterile Screw-cap jar		M	4 weeks	MIC	MYC	MYC	Indicate source of specimen. Skin should be cleansed with an antiseptic before collection of skin scrapings. Specimen stored at room temperature.
Smear (Gonorrhoea)				M					No longer available see Chlamydia trachomatis Neisseria gonorrheae PCR or Gonorrheae

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Sodium	a) Blood b) Feces c) Urine d) Urine	Light Green Large plastic bottle Screw-cap jar	1 mL Complete 24 hr output 5 mL	C	STAT ≤45 Minutes Routine <24 Hours	LAB	NA NA-24H NA-R	NA NA-24H NA-R	a) Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Part of an electrolyte (LYTE or ISE) profile. b) Test not available. c) **Ensure start date/time and end date/time are recorded on the label.** If sent from Health Centre or other outside collection site, please refer entire collection in original container. If sent from hospital laboratory state 24h volume and send 10 mL aliquot. Part of a 24 hour urine electrolyte (LYTE-24H) profile. If output per day is not required, a random specimen is acceptable. d) Random specimen. Part of a random urine electrolyte (LYTE-U) profile.
Soluble Liver Antigen Antibodies (Cytokeratin Antibodies)	Blood	GOLD	5 mL	C	15 Days	LAB	SOLIVERAB	S-LIVER AB	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, store and send at 4ºC. Referred - 1 mL Serum frozen
Somatomedin C (Insulin like Growth Factor1)	Blood	GOLD	5 mL	C	5 Days	LAB	SOMAT	SOMAT	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum and store 4ºC. If sample will not reach DECRH within 48 hours of collection sample must be frozen Referred – 1 mL Serum frozen
Specific Gravity	a) Body Fluid b) Urine	Screw-cap jar Screw-cap jar	1 mL 1 mL	C C	< 24 Hours < 24 Hours	LAB	SG-F SG	SG-F USG	a) Indicate origin of fluid. b) Random specimen
Spinal Fluid Cell Count	Spinal Fluid	Sterile Screw-cap tube	2 - 3 mL	H	Stat 1 hr Routine 4 hr			SF	Tube # 3 must be delivered to Haematology immediately as cells disintegrate rapidly. Cell count must be performed within 30 minutes of collection therefore specimens CANNOT be transported between facilities.
Spinal Fluid Tubes	Spinal fluid	Sterile Screw-cap tubes							# 1 Chemistry, # 2 Microbiology, # 3 Haematology, # 4 Cytology
Spinal Fluid: C&S	Spinal Fluid	Sterile tube	1 mL	M	72 hours	MIC	CSF	CSF	Deliver tube # 2 of the 3 tubes collected **immediately**. Any amount of CSF sent will be processed.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Spinal Fluid: C&S For transport to DECRH	Spinal Fluid	Paediatric (Yellow) or FAN (green) Blood Culture Bottle + Sterile Screw-cap tube		M	5 days	MIC	CSF	CSF + CSFB	Aseptically transfer 0.5 mL or half the volume of the CSF to a blood culture bottle. ***HOLD* the bottle at Room Temperature until delivered. Refrigerate the remaining portion of the sample and send on cold pack.**
Spinal Fluid: TB	Spinal Fluid	Sterile Screw-cap tube or jar	1.2 ml	M	smear 3 days final 8 weeks	MIC	AFB	TBC	Specimen stored at 2-8 ºC. Referred.
Spinal Fluid: Viral PCR	Spinal Fluid	Sterile Screw-cap tube or jar	1 mL	M	4 days	MIC	CSFPCR	CSFPCR	Deliver **immediately**. Please indicate which virus requested. (For Herpes & VZ viral PCR see Spinal Fluid: Herpes & VZ PCR) Note if ordering Syphilis, syphilis serology is also required for testing to be done. If transported, send frozen in *NUNC* tube on dry ice. Referred.
Spinal Fluid: Herpes & VZ viral PCR	Spinal Fluid	Sterile Screw-cap tube or jar	1 mL	M	4 days	LAB	CSFHERPVZ	CSFHERPVZ	Deliver **immediately**. Same specimen can be used for this and other spinal fluid viral PCR requests. Referred.
Spinal Fluid: Virus Culture	Spinal Fluid	No longer available see Spinal Fluid: Viral PCR							
Spinal Fluid: Yeast	Spinal Fluid	Sterile tube	1 mL	M	smear 3 days final 4 weeks	MIC	MYC	MYC	Deliver **immediately**. Same specimen may be used for C&S and Yeast.
Sputum: Mycoplasma + Chlamydia	Sputum	Sterile Screw-cap jar		M	2 WEEKS	MIC	CP	MYCOSPU	Testing combined with *Mycoplasma pneumoniae, Chlamydia pneumoniae* and *Chlamydia psittaci*. Referred. See Form HHN-0452 for patient collection instructions
Sputum: C&S	Sputum	Sterile Screw-cap jar		M	72 hours	MIC	SPU	SPUT	Ensure the specimen is mucoid or purulent sputum and not saliva. Unsatisfactory specimens cannot be processed. See Form HHN-0452 for patient collection instructions. Please see Utilization rules Specimen stored at 2-8 ºC.
Sputum: Eosinophils	Sputum	Screw-cap jar							Test moved to Haematology. See Eosinophils - Respiratory
Sputum: Fungus	Sputum	Sterile Screw-cap jar		M	smear 3 days Final 4 weeks	MIC	MYC	MYC	See Form HHN-0452 for patient collection instructions Specimen stored at 2-8 ºC. Referred.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Sputum: Legionella	Sputum	Sterile Screw-cap jar		M	10 days	MIC	LEG	LEG	Referred. See Form HHN-0452 for patient collection instructions Specimen stored at 2-8 ºC. Referred.
Sputum: TB	Sputum	Sterile Screw-cap jar		M	smear 3 days 8 weeks	MIC	AFB	TBC	Referred. See Form HHN-0452 for patient collection instructions Specimen stored at 2-8 ºC. Referred. Please see Utilization rules
Stoma Culture	Swab	Routine Swab		M	72 hours	MIC	STOMA	STOMA	Specimen stored at room temperature.
Stone Analysis (Calculus Analysis)	a) Gall stone b) Renal stone c) Salivary stone d) Stone of other source	Screw-cap jar Screw-cap jar Screw-cap jar Screw-cap jar	Total stone Total stone Total stone Total stone	C	7 Days 7 Days 7 Days 7 Days	LAB	STONE-G STONE-R STONE-SAL STONE-O	STONE-G STONE-RENAL STONE-SAL STONE-O	a) Indicate origin b). Indicate origin c). Indicate origin d) Indicate origin
Stool: Coxsackie/Enterovirus	Stool	Sterile Screw-cap jar		M	4 days	MIC	STOOLCOX	STOCOX	To detect a **systemic** viral infection. Specify if a particular virus is suspected. Referred testing length is 3 weeks. See Form HHN-0448 for patient collection instructions Specimen stored at 2-8 ºC. Referred.
Stool: C difficile	Stool	Sterile Screw-cap jar		M	48 hours	MIC	CDIF	CDIF	Only liquid or unformed stool specimens are suitable. Specimen should be delivered within 2 hours or stored at 4ºC.Collect only one specimen per day. See Form HHN-0448 for patient collection instructions. Please see Utilization rules Specimen stored at 2-8 ºC. Referred.
Stool: Cryptosporidium	Stool	Screw-cap jar with SAF Fixative		M	72 hours	MIC	CRYP	CRYP	Fill the container about 1/3 full, screw cap on tightly. Specimens should be no less than the size of a quarter. Mix specimen and SAF fixative well. Parasites may be passed intermittently. If symptoms persist after a negative result, send another specimen. See Form HHN-0448 for patient collection instructions Specimen stored at room temperature.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Stool: Culture	Stool	Enteric Transport Medium		M	72 hours	MIC	STOOL	STOOL	Collect only one specimen. If it is negative and the symptoms continue, two more may be collected on separate days. Formed stool should be the size of a quarter. Liquid stool should be equal to the amount of the transport medium in the jar. **Routine culture includes Salmonella, Shigella, Yersinia, Campylobacter and E. coli**. If patient has eaten seafood, also order Vibrio Culture (VIB). See Form HHN-0448 for patient collection instructions. Please see Utilization rules Specimen stored at room temperature.
Stool: Eosinophils					72 hours				Test no longer available.
Stool Viral PCR: (Norovirus, Astrovirus, Rotavirus, Adenovirus and Sapovirus)	Stool	Sterile Screw-cap jar		M	72 hours	MIC	STOOLVIRUS	STOOL VIRAL PCR	Generally involved in **outbreaks** of gastroenteritis. Referred. See Form HHN-0448 for patient collection instructions Specimen stored at 2-8 ºC. Referred. **Includes:** Norovirus, Astrovirus, Rotavirus, Adenovirus and Sapovirus.
Stool: Ova & Parasites	Stool	SAF		M	72 hours	MIC	OP	OPSCREEN	Fill the container about 1/3 full, screw cap on tightly. Specimens should be no less than the size of a quarter. Mix specimen and SAF fixative well. Parasites may be passed intermittently. If symptoms persist after a negative result, send another specimen. See Form HHN-0448 for patient collection instructions Specimen stored at room temperature. Please see Utilization rules.
Stool: Rotavirus/Adenovirus				M					Test no longer available. See Stool Viral PCR (Norwalk).
Stool: TB	Stool	Sterile Screw-cap jar		M	smear 3 days 8 weeks	MIC	AFB	TBC	**Must contact Microbiology before collecting.** Test performed only on immunocompromised or HIV positive patients. Referred. See Form HHN-0448 for patient collection instructions Specimen stored at 2-8 ºC. Referred.
Stool: White Blood Cells (WBC)									Test no longer available.
Strongyloides Serology	Blood	Red or GOLD	5 mL	M	4 weeks	LAB		STRON SCHIST	Includes Schistosoma serology
Suboxone	Urine	Screw-cap jar	5 mL	C	< 24 Hours	LAB	URINE-SUB	SUBOXONE	Random specimen. This is a semi-quantitative test. If transported, urine must be sent frozen if not received at DECRH within 48 hours of collection.
Sugar Chromatography	Urine	Screw-cap jar	1 mL	C	20 Days	LAB	SUGCHROM-U	SUGCHROM-U	Random urine. Store and send frozen. Referred - 1 mL Urine frozen

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Sulfamethoxazole (Bactrim)	Blood	Red	6 mL	C	7 Days	LAB	BACT	SULFAM	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Serum for a peak level should be drawn 60 minutes after dose. Referred - 1 mL Serum frozen
Sulfate Urine	Urine	Large Plastic Bottle	Complete 24 hr collection	C	7 Days	LAB	SULFATE-24H		Sample containers must be kept refrigerated during collection, storage, and transport. **Ensure start date/time and end date/time are recorded on the label.** If sent from Health Centre or other outside collection site, please refer entire collection in original container at 4ºC. If sent from hospital laboratory record 24h volume and send 5 mL aliquot. Referred – 5 mL frozen
Surgical Swab	Swab	Routine Swab		M	72 hours	MIC	INC	SUR	Swab **only** the infected area. Bacteria from the surrounding area prevent accurate interpretation of the results. Indicate source of swab. Specimen stored at room temperature.
Surmontil (Trimipramine)	Blood	Red X 2	6 mL X 2	C	10 Days	LAB	TRIM	TRIM	Deliver to Chemistry immediately. Collect trough specimen within 1 hour prior to next dose or at least 12 hours after last dose. Separate serum from clot ASAP. Referred – 3 mL Serum
Suspected Measles Screen	Blood	Red or GOLD	5 mL	M	5 days			MEAS	Includes serology for IgM antibodies to Measles, Rubella, and Parvovirus. Collect on or after 3rd day after onset of rash. Include dates of onset of fever and rash on requisition. If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C. Referred - Measles IgM and Parvovirus.
Sweat Chloride	Sweat			C	<24 Hours	LAB	SWEAT	CL -SWEAT	The DECRH Chemistry staff collects all sweat specimens. In-patient requests are performed Monday to Friday until 1400 hours. Out-patient appointments should be made for 0900 - 1100 hours Tuesday or Friday.
Syphilis Screen: Serology	Blood	Red or GOLD	5 mL	M	48 hours	LAB	SYPH	SYPH	If transported, separate serum from clot and send serum. 2-8°C if sending within 72 hours or Freeze at -20˚C.
Syphilis Screen: Spinal fluid									Test no longer available. However, refer to **Spinal Fluid: Viral PCR** test in this manual, order **CSFPCR**. Indicate which virus is requested.
T3, Free	Blood	Light Green	1 mL	C	< 24 Hours	LAB	FT3	FT3	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. TSH is the preferred screening test. If TSH result is outside reference range, a Free T4 is performed. If TSH is < 0.1 mU/L and Free T4 is normal, a Free T3 is performed. If transported, serum must be sent frozen if not received at DECRH within 48 hours of collection.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
T4 (Thyroxine), Free	Blood	Light Green	1 mL	C	< 24 Hours	LAB	FT4	FT4	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. TSH is the preferred screening test. If TSH result is outside reference range, a Free T4 is performed. If TSH is < 0.1 mU/L and Free T4 is normal, a Free T3 is performed. If transported, serum must be sent frozen if not received at DECRH within 48 hours of collection.
T4/T8 Ratio									**Please refer to Immunocompetence Profile**
Tacrolimus (FK 506)	Blood	Lavender	4 mL	C	4 Days	LAB	TACRO	FK506	Draw trough prior to next dose. Do not centrifuge. If transported, send as whole blood at 4ºC.
TB Culture				M					See individual specimen type.
Tegretol (Carbamazepine)	Blood	Red	1 mL	C	< 24 Hours	LAB	TEG	CARB	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Draw trough immediately prior to next dose. If transported, serum must be sent frozen if not received at DECRH within 48 hours of collection. See Chemistry Section in this manual for additional information.
Temazepam (Restoril)									Test no longer available
Testosterone	Blood	Light Green	1 mL	C	< 24 Hours	LAB	TEST	TEST	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If transported, plasma must be sent frozen if not received at DECRH within 48 hours of collection.
Testosterone, Bioavailable	Blood	Light Green	1 mL	C	<24 Hours	LAB	TESTOSTB	TESTB	**Note: This is a calculated result and includes testing for total testosterone and sex hormone binding globulin and a second calculated result; free testosterone**. Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If transported, plasma must be sent frozen if not received at DECRH within 48 hours of collection.
Testosterone, Free	Blood	Light Green	1 mL	C	<24 Hours	LAB	TESTOSTB	TESTB	**Note: This is a calculated result that is part of the order for bioavailable testosterone and includes testing for total testosterone and sex hormone binding globulin**. Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If transported, plasma must be sent frozen if not received at DECRH within 48 hours of collection

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
THC (Tetrahydrocannabinoids)	Urine	Screw-cap jar	5 mL	C	< 24 Hours	LAB	URINE-CANN	THC-U	Random specimen. This is a semi-quantitative test. If transported, urine must be sent frozen if not received at DECRH within 48 hours of collection.
Theophylline (Aminophylline)	Blood	Red	1 mL	C	< 24 Hours	LAB	THEO	THEO	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. If transported, serum must be sent frozen if not received at DECRH within 48 hours of collection. **Oral - sustained release:** Twice daily products: draw peak about 4 hours after dose. Once daily products: draw peak about 10 hours after dose. Consult individual product monographs. Draw trough immediately prior to dose. **Liquid and plain uncoated tablets:** Draw peak 1-2 hours after liquid dose or 2 hours after tablet dose. Draw trough immediately prior to dose. **IV loading dose:** Draw 30 minutes after an IV loading dose. **Followed by IV continuous infusion:** Draw 24-48 hours after the beginning of the maintenance infusion. See Chemistry Section in this manual for additional information.
Thiamine (Vitamin B1)	Blood	Lavender	4 mL	C	7 Days	LAB	THIA	THIA	Collect following 12 hour fast. Protect from light. Deliver to Chemistry immediately. If transporting mix specimen and transfer whole blood to a 13x75 aliquot tube, store and ship protected from light at 4ºC. Specimen must be frozen if not arriving at DECRH same day of collection. Referred - 2 mL Whole Blood - frozen
Thiocyanate	Blood	Red	6 mL	C	7 Days	LAB	THIO	THIO	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Referred - 3 mL Serum at 4ºC.
Thiopurine Metabolites	Blood	Lavender	4 mL	C		LAB	THIOPURINE	THIOPURINE	Store and ship specimen at 4ºC. **Maintain in original container and do not separate.** Referred - Whole blood refrigerated
Thioridazine (Mellaril)	Blood	Red	6 mL	C	15 Days	LAB		THIOR	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Referred – 1.5 mL Serum
Throat	Swab	Routine Swab		M	24- 48 hour	MIC	THROAT	TS	Cultured for Beta Haemolytic Streptococcus (Groups A, C, G) and Arcanobacterium haemolyticum only. Specimen stored at room temperature.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Throat Special Culture	Swab	Routine Swab		M	48 hours	MIC	THRSP	TSC	For use in the **unusual** cases where other organisms are suspected of causing pharyngitis. Specimen stored at room temperature.
Throat: GC	Swab	Routine Swab		M	72 hours	MIC	TGC	GCT	PCR testing available (see Chlamydia trachomatis/ Neisseria gonorrheae PCR:Throat) Specimen stored at room temperature.
Throat: Virus	Swab	Viral Transport Swab		M					See specific virus.
Throat: Yeast	Swab	Routine Swab		M	72 hours	MIC	TSY	TSY	Specimen stored at room temperature.
Thrombin Time	Blood	Blue (Sodium Citrate)	2.7 mL Exactly Etched line is the minimum fill volume	H	21 Days	LAB	TT	TT	Deliver to the lab within 2 hours of collection. If transported, platelet poor plasma (count < 10) must be achieved with the following procedure: 1. **1st spin**: Spin specimens in the centrifuge, after 1st spin is complete, remove blue tubes from centrifuge and transfer 1st spin plasma to a separate labeled 12x75 plastic tube. 2. **2nd spin**: Cap the 12x75 tubes and re-spin plasma, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting platelets at bottom of tube. 3. Carefully remove platelet poor plasma, leaving sediment (containing platelets) in bottom of tube. Transfer directly to labeled 12x75 plastic tube for the platelet count. Perform and record plt count on label if applicable. 4. Send frozen in 1 aliquot of 2 mL. Referred
Thrombophilia Screen									Profile no longer available
Thyroglobulin	Blood	GOLD	5 mL	C	14 Days	LAB	THYRO	THYRO	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, remove serum, and store at 4ºC. If transported, serum must be aliquoted and frozen if not received at DECRH within 48 hours of collection. ANTI-TG testing will also be performed as part of Thyroglobulin request. Referred – 1.5 mL Serum-frozen.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Thyroid Stimulating Hormone (TSH)	Blood	Light Green	1 mL	C	<24 Hours	LAB	TSH	TSH	Refer to TSH (Thyroid Stimulating Hormone)
Thyroid Receptor Antibody	Blood	GOLD	5 mL	C	13 Days	LAB	TRAB	TRAB	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, remove serum, and store at 4ºC. If transported, serum must be sent frozen if not received at DECRH within 48 hours of collection. Indicate thyroid status of patient including presence of exophthalmos. See Chemistry Section in this manual for additional information. Referred - 1 mL serum frozen.
Thyrotropin Releasing Hormone (TRH) Stimulation Test	Blood	Light Green	1 mL each	C	24-48 Hours	LAB	TRH	TRH	See Chemistry Section in this manual for additional information.
Thyroxine Binding Globulin	Blood	GOLD	5 mL	C	5 Days	LAB	TBG	TBG	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, remove serum and store at 4ºC. If transported, freeze serum if not received at DECH within 24 hours. Referred - 1 mL Serum
Tick Identification	Tick	Sterile Screw-cap jar		M	48 hours	MIC	INSTICK	INSTICK	Place a few drops of water in the jar. Specimen stored at room temperature. See tick requisition HHN-1218
Tissue: C&S	Tissue	Sterile Screw-cap jar		M	72 hours	MIC	TIS	TIS	Deliver **immediately**. If transported store at 2-8 ºC
Tissue Transglutaminase	Blood	Red	7 mL	H	21 days	LAB	CELIAC	CELIAC	Refer to Celiac Profile
Tissue: TB	Tissue	Sterile Screw-cap jar		M	smear 3 days Final 8 weeks	MIC	AFB	TBC	Deliver **immediately**. If transported store at 2-8 ºC Referred.
Tobramycin	Blood	Red	1 mL	C	< 24 Hours	LAB	TOB	TOB	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Order includes trough and peak specimens. Draw trough 5-30 minutes prior to next dose. Draw peak: 1 hour after IM dose or 15-30 minutes after completion of a traditional IV infusion. For an extended interval infusion and once daily dosing regimen consult pharmacy. If transported, serum must be refrigerated within 8 hours and must be sent frozen if not received at DECRH within 48 hours of collection. See Chemistry Section in this manual for additional information.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Tobramycin - Random	Blood	Red	1 mL	C	< 24 Hours	LAB	TOB-R	TOB-R	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. If transported, serum must be refrigerated within 8 hours and must be sent frozen if not received at DECRH within 48 hours of collection. See Chemistry Section in this manual for additional information.
Tobramycin - Trough	Blood	Red	1 mL	C	< 24 Hours	LAB	TOB-T	TOB-T	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Draw trough 30 minutes prior to next dose. If transported, serum must be refrigerated within 8 hours and must be sent frozen if not received at DECRH within 48 hours of collection. See Chemistry Section in this manual for additional information.
Tofranil (Imipramine)	Blood	Red X 2	6 mL X 2	C	10 Days	LAB	TOF	IMIP	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Collect within 1 hour prior to next dose or at least 12 hours after last dose. Referred – 3 mL serum.
Tongue	Swab	Routine Swab		M	48 hours	MIC	MG	MG	Specimen stored at room temperature.
Tonsillar Abscess	Swab	Routine Swab		M	14 days			PERITONS	Specimen stored at room temperature.
Topiramate (Topamax)	Blood	Red	6 mL	C	12 Days	LAB	TOPIRAMATE	TOP	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Referred - 2 mL Serum frozen
TORCH Serology (on infants)	Blood	Red or GOLD	5 mL	M	10 days	LAB	TORCH	TORCH	This includes the following tests: CMV IgG, CMV IgM, Toxoplasmosis IgG, Toxoplasmosis IgM, Herpes IgG, Herpes IgM, Rubella IgG and Rubella IgM. If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C. Referred.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Toxic Alcohol and Ethylene Glycol	Blood	Light green	6 mL	C		LAB	TOXICALCEG	TOXICALCEG	Do not use any type of alcohol to disinfect skin. The tube must be allowed to draw to complete full vacuum. Profile includes acetone, methyl alcohol, ethyl alcohol, iso-propyl alcohol, propylene glycol and ethylene glycol. **Note yellow, red, grey, lavender, and Barricor tubes are also acceptable**. The tube must be allowed to draw to complete vacuum. Invert tube several times to mix. **Keep tube sealed until analysis.** If transported, do not centrifuge. Serum osmolality, Glucose, Urea and Sodium (2 mL blood in a yellow or red tube is required) should also be requested as these results may assist with interpretation. **Sample can be stored and shipped at room temperature if it will reach DECRH within 48 hours, otherwise sample will need to be stored and shipped refrigerated.**
Toxic Panel, Drug (Drug Toxic Panel)	Blood	Red, Gold and Gray	6 mL red and gold and Full gray	C	STAT ≤45 Minutes Routine <24 Hours	LAB	DRUGTOX	TOXI-PANEL or DRUG-TOX	Both red and gold tubes must be delivered to the lab within 2 hours; otherwise, centrifuge specimen, remove serum within 2 hours of collection and store at 4ºC. If transported, serum must be sent frozen if not received at DECRH within 48 hours of collection. Panel includes quantitative tests for Acetaminophen, Ethyl Alcohol, Salicylate, and Osmolality. These tests may be ordered individually. **Gray tube for Ethyl Alcohol:** Do not use any type of alcohol to disinfect skin. The tube must be allowed to draw to complete vacuum. Invert tube several times to mix. **Keep tube sealed until analysis**. Medico legal specimens should be delivered directly to a police officer, not to the laboratory. If transported, do not centrifuge. See Chemistry Section in this manual for additional information.
Toxoplasmosis IgG Avidity	Blood	Red or GOLD	5 mL	M	3 weeks			TOXGAV	If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C. Referred.
Toxoplasmosis IgG	Blood	Red or GOLD	5 mL	M	1 week	LAB	TOXG	TOXG	(Immune Status) If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C. Referred.
Toxoplasmosis IgM	Blood	Red or GOLD	5 mL	M	1 week	LAB	TOXM	TOXM	(Recent Infection) If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C. Referred.
TPMT (Thiopurine Methyltransferase) Genotyping	Blood	Lavender	3 mL	C	20 days	LAB	TPMTGENO	TPMTGENO	Do not separate. Store and ship specimens in original container at Room Temperature. Sample stable for 7 days. Referred - Whole Blood

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
TPPA (Treponema Pallidum Particle Agglutination) (Confirmation Test)	Blood	Red or GOLD	5 mL	M	1 week	LAB	TPPA	TPPA	The **laboratory orders** this test automatically, if the syphilis screening test is positive. Referred.
Transferrin	Blood	Light green	1 mL	C	< 24 Hours	LAB	IRON	TRANS	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Includes Iron, TIBC and Transferrin Saturation. 8 hour fast is preferable, non-fasting specimens will be accepted.
Transfusion Reaction Investigation	Blood and Urine	Pink Screw-cap jar	6 mL 15 mL	TM C	1 hr		TRI U/A	TRI U/A	It is the responsibility of the nursing unit to return the unit of blood to Transfusion Medicine following a transfusion reaction. A new specimen of blood must be collected immediately. A Direct Antiglobulin Test will be performed and, if indicated, the specimen will be checked for antibodies. A Urinalysis on the patient will be performed as well; stipulate that it is required for a transfusion reaction. A culture on the contents of the returned bag is performed, if necessary. Please see instructions on the transfusion reaction form. All questions under clinical report section of reaction form must be answered. Physician or a designate must sign the reaction form. **An Incident Report (HIRS) must be filed out by the nursing unit as soon as possible.**
Transplant Antibodies (HLA Antibody Testing) (Cytotoxic Antibodies)	Blood	Red	7 mL	C	5 Days	LAB	TRANSBBK	TR	A Nova Scotia Health Authority Histocompatibility Laboratory requisition must be completed by the ordering site and it must be signed by the phlebotomist. These requisitions are available from the website of the reference laboratory (www.cdha.nshealth.ca/programsandservices/). Serum must be separated from the cells within 2 hours of collection and stored at 4ºC. Referred.
Trazodone (Desyrel)	Blood	Red	6 mL	C	13 Days	LAB	TRAZ	TRAZ	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Collect trough specimen prior to next dose after steady state (2 days or more after commencement of therapy) Referred – 1.5 mL serum.
TRH (Thyrotropin Releasing Hormone Stimulation Test	Blood	Light Green	1 mL each	C	24-48 hours	LAB	TRH	TRH	See Chemistry Section in this manual for additional information.
Trichinella Serology	Blood	Red	4 mL	M	2 weeks	LAB	SEROL	SEROL	If transported, separate serum from clot and send serum. 2-8°C same day
Trichomonas vaginalis	Swab	Routine Swab		M	24 hours	MIC	TRICH	TRICH	Deliver **immediately**. May be stored at 4°C for up to 36 hours.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Trichomonas vaginalis PCR	Vaginal/ Cervical/ Urethral/ Swab Urine	Swab in Cobas PCR media Screw cap jar	10-50 mL first void sample	M	2 weeks	MIC	TRICHPCR	TRICHPCR	Transport sample to lab at 2-30 ºC. Referred. Note:Swab collections - Trich PCR can be added to same order as M.genitalium **if swab was collected in Cobas PCR media.** Urines – Lab will transfer to Cobas media and store/ship at 4 ºC
Triglycerides	Blood	Light Green	1 mL	C	< 24 Hours	LAB	TRIG	TRIG	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. 12-14 hour fast required. This test should not be done within 3 months of myocardial infarction, surgery or similar trauma.
Trileptal	Blood	Red	1mL	C					Refer to Oxcarbazeoine Metabolite
Trimipramine (Surmontil)	Blood	Red X 2	6 mL X 2	C	10 Days	LAB	TRIM	TRIM	Deliver to Chemistry immediately. Collect trough specimen within 1 hour prior to next dose or at least 12 hours after last dose. Separate serum from clot ASAP. Referred – 3 mL Serum
Triple Bolis Test				C	15 Days				Call Medical Day Care at DECRH for testing information.
Troponin T									This test is no longer available. Replace with hs-cTnT
Troponin T High Sensitivity	Blood	Light Green	1 mL	C	STAT ≤45 minutes Routine < 24 Hours	LAB	TROPTHS	hs-cTnT or TROPT	Specimen must be delivered to lab within 2 hours; otherwise, centrifuge specimen within 2 hours of collection, store upright at 4ºC. Serial sampling is recommended at time 0, 3 hours and 6 hours after presentation.
TRP (Tubular Reabsorption of Phosphate)	Blood and Urine	Light Green and Large plastic Bottle	1 mL and Complete 24 hr output	C C	<24 Hours	LAB	TRP TRP	TRP TRP	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Collect the blood sample at a convenient time during the urine collection period. **Ensure start date/time and end date/time are recorded on the label.** If transported, send 10 mL aliquot.
Trypsin (Trypsinogen)	Blood	GOLD	6 mL	C	12 days	LAB	TRYP	TRYP	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. **If specimen will not reach DECRH within 24 hrs of collection specimen must be frozen.** Referred - 1 mL Serum frozen (pediatric min 0.3 mL Serum)

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Tryptase	Blood	GOLD	5 mL	C	6 days	LAB	TRYPT	TRYPT	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, remove serum, store at 4ºC. Collect specimen 30-180 minutes post allergic reaction. Collect anytime to assess systemic mastocytosis or mast cell activation syndrome. Referred - 1 mL Serum frozen
TSH (Thyroid Stimulating Hormone)	Blood	Light Green	1 mL	C	< 24 Hours	LAB	TSH	TSH	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If TSH result is outside reference range, a Free T4 is performed. If TSH is < 0.1 mU/L and Free T4 is normal, a Free T3 is performed. If transported, serum must be sent frozen if not received at DECRH within 48 hours of collection. Please see Utilization rules.
TSH Pregnancy	Blood	Light Green	4 mL	C	24-48 hrs	LAB	TSHPREG	TSHPREG	**Test is used to assess subclinical hypothyroidism in the pregnant population and is reserved for those pateints only.** TSH Pregnancy includes an order for a TSH and an anti-TPO (anti thyroperoxidase). The TSH is resulted first. The Anti-TPO will only be referred depending on results of TSH and previous history of anti-TPO. Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove plasma, and store at 4ºC.
Tyrosine	a) Blood b) Urine	Dark Green Screw-cap jar	4 mL 10 mL	C C	20 Days 20 Days	LAB	TYRO	TYRO Call Chemistry	a) Deliver to Chemistry immediately. Separate and freeze plasma within 2 hours of collection. Sample must be accompanied by completed Biochemical Genetics Testing RequisitionFinal.pdf. Referred - 0.5 mL Plasma frozen b) Random specimen. Sample must be accompanied by completed Biochemical Genetics Testing RequisitionFinal.pdf. Referred - 10 mL Urine frozen
Ulcer	Swab	Routine Swab		M	72 hours	MIC	WOUND	ULC	Specimen stored at room temperature.
Urea (BUN)	a) Blood b) Urine c)Urine	Light Green Large plastic bottle Screw-cap jar	1 mL Complete 24 hr output 2 mL	C C C	< 24 Hours	LAB	UREA UREA-24H	BUN UREA-24H UREA-UR	a) Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. b) **Ensure start date/time and end date/time are recorded on the label.** If sent from Health Centre or other outside collection site, please refer entire collection in original container. If sent from hospital laboratory state 24h volume and send 10 mL aliquot. c) Random specimen Please see Utilization rules

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Urea Breath Test	Breath	Breath collection tubes	Fill tube	C	14 Days	LAB	UREABREATH	UBT	**Testing is restricted to gastroenterologists only after consultation with Medical Biochemist** Follow special collection instructions provided with collection kit. **Collection kit will only be ordered as needed, please inform Chemistry Send Out when order placed.** Patient may need to return for collection once kit arrives. Please see Utilization rules Referred
Urea Nitrogen Excretion	Urine	Large Plastic Bottle	Complete 24 hr output	C	<24 Hours	LAB	UREAEX	UNE	**Ensure start date/time and end date/time are recorded on the label.** If sent from Health Centre or other outside collection site, please refer entire collection in original container. If sent from hospital laboratory state 24h volume and send 10 mL aliquot.
Ureaplasma Culture				M					No longer available
Ureaplasma PCR				M					No longer available
Urethra	Swab	Routine Swab		M	72 hours	MIC	URETH	URETH	FOR DEFINITIVE IDENTIFICATION and SENSITIVITY TESTING ONLY see also Chlamydia Trachomatis / Gonorrhoeae PCR: Cervix / Urethra Specimen stored at room temperature.
Uric Acid (Urate)	a) Blood b) Urine c) Body Fluid	Light Green Large plastic bottle Dark Green	1 mL Complete 24 hr output 2 mL	C C C	< 24 Hours < 24 Hours < 24 Hours	LAB	UA UA-24H UA-F	UA UA-24H UA-F	a) Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. b) **Ensure start date/time and end date/time are recorded on the label.** If sent from Health Centre or other outside collection site, please refer entire collection in original container. If sent from hospital laboratory state 24h volume and send 10 mL aliquot, mix thoroughly to resuspend precipitated urates before aliquoting. c) Invert tube several times to mix. Indicate origin of fluid.
Urinalysis, Routine and Microscopic	Urine	Screw-cap jar	15 mL	C	STAT ≤1 Hour Routine <24 Hours	LAB	U/A	U/A	Random fresh specimen. Within the hospital setting, specimens must be delivered within 2 hours of collection. In a non-hospital setting, specimens must be immediately refrigerated and delivered as soon as possible. Samples being transported to a testing site should be sent with a cold pack.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Urine Culture: Catheter	Urine	Sterile Screw-cap jar	2 mL	M	24 hours	MIC	UR	UR	Indicate source as **catheter.** Indicate if indwelling catheter or In and Out Catheter. See above Section 5: **Urine Collection for Microbiology Testing** for catheter collection instructions. Specimen stored at 2-8 ºC.
Urine: Cytomegalovirus	Urine	Sterile Screw-cap jar	15 mL	M	7 days	MIC	CMVC	CMVC	Call Microbiology before collection. Must be delivered to laboratory immediately after voiding. Referred.
Urine: Eosinophils									Test no longer available.
Urine: GC				M					See Chlamydia Trachomatis / Gonorrhoeae: Urine. See Form HHN-0822 for patient collection instructions Specimen stored at 2-8 ºC.
Urine Culture: Routine	Urine	Sterile Screw-cap jar	2 mL	M	24 hours	MIC	UR	UR	See Form HHN-0822 for patient collection instructions Specimen stored at 2-8 ºC.
Urine: TB	Urine	Sterile Screw-cap jar	2 mL	M	8 weeks	MIC	AFB	TBC	Referred. See Form HHN-0822 for patient collection instructions Specimen stored at 2-8 ºC.
Urine: Yeast/fungus	Urine	Sterile Screw-cap jar	2 mL	M	72 hours	MIC	URY	URY	Includes routine culture. See Form HHN-0822 for patient collection instructions. Specimen stored at 2-8 ºC.
Uro-1-Synthetase (Porphobilinogen Deaminase)	Blood	Dark Green	6 mL	C	7 Days	LAB	URO	URO	Specimen must be delivered to lab within 2 hrs of collection. Store and send whole blood at 4ºC. Do not separate. Include a list of medications the patient is currently taking. Referred - whole blood refrigerated
Urobilinogen									Test not available.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Vaccine-Induced Prothrombic Immune Thrombocytopenia (VIPIT)	Blood	Red and Blue	2 X 6 mL and 2 X 2.7 mL	H	10 Days	LAB	VIPIT	VIPIT	Specimen must be delivered to lab within 1 hour; otherwise, centrifuge specimen within 1 hour, and separate serum/plasma. **Specimens must be double-spun, aliquoted and clearly marked plasma and serum.** If transported, platelet poor plasma (count < 10) must be achieved with the following procedure: 1. **1st spin**: Spin specimens in the centrifuge, after 1st spin is complete, remove blue tubes from centrifuge and transfer 1st spin plasma to a separate labeled 12x75 plastic tube. 2. **2nd spin**: Cap the 12x75 tubes and re-spin plasma, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting platelets at bottom of tube. 3. Carefully remove platelet poor plasma, leaving sediment (containing platelets) in bottom of tube. Transfer directly to labeled 12x75 plastic tube for the platelet count. Perform and record plt count on label. Freeze promptly. Send frozen: 3 aliquots of "clearly marked" plasma and 3 aliquots of "clearly marked" serum. Referred.
Vaginal (Bacterial Vaginosis & Yeast)	Swab	Routine Swab		M	48-72 hours	MIC	VAG	VAG	Do not fix smear if sending a smear but we do not require a smear to be sent. Specimen stored at room temperature.
Valium (Diazepam)	Blood	Red	6 mL	C	15 Days	LAB	DIAZ	DIAZ	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Referred – 1 mL Serum
Valproic Acid (Depakene)(Epival)	Blood	Red	1 mL	C	< 24 Hours	LAB	VALP	VALP	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Trough levels are generally measured. Draw trough immediately prior to next dose. If transported, serum must be sent frozen if not received at DECRH within 48 hours of collection. See Chemistry Section in this manual for additional information.
Vancomycin	Blood	Red	1 mL	C	< 24 Hours	LAB		VANCO	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Draw trough immediately prior to next dose. Refer to TABLE for more information. If transported, serum must be refrigerated within 8 hours and must be sent frozen if not received at DECRH within 48 hours of collection. See Chemistry Section in this manual for additional information

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Vancomycin - Random	Blood	Red	1 mL	C	< 24 Hours	LAB	VANCO-R	VANCO-R	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Draw trough immediately prior to next dose. Refer to TABLE for more information. If transported, serum must be refrigerated within 8 hours and must be sent frozen if not received at DECRH within 48 hours of collection. See Chemistry Section in this manual for additional information
Varicella zoster PCR	Swab	Viral Transport Swab		M	72 hours	LAB	VZPCR	VZPCR	Swab vesicle fluid. Indicate Varicella zoster on the request. Referred. UTM viral transport media available from Microbiology. If transported, send serum. 2-8°C if sending same day or Freeze at -70˚C. *Note: Both HSV and VZ PCR are performed and reported together when ordered
Varicella zoster IgG	Blood	Red or GOLD	5 mL	M	7 days	LAB	VZ	VZG	(Immune Status) If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C.
Varicella zoster IgM	Blood	Red or GOLD	5 mL	M	7 days	LAB	VZIGM	VZM	(Recent Infection). **Includes Varicella zoster IgG.** If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C. Referred.
Vascular Endothelial Growth Factor	Blood	Lavender	4 mL	C	10 days	LAB	VEGF	VEGF	Place sample on ice immediately after collection and deliver to lab within 2 hours. If not, sample must be centrifuged in a cold centrifuge and plasma frozen within 2 hours of collection. Referred
Vasoactive Intestinal Polypeptide	Blood	Lavender	4 mL	C	10 Days	LAB	VIP	VIP	Deliver to Chemistry immediately. 10-12 hour fast required. If transported, separate and freeze plasma immediately. Referred - 1 mL Plasma frozen
VDRL				M					See syphilis
Vibrio Culture	Stool	Enteric Transport Medium		M	72 hours	MIC	VIB	VIB	**Order when patient has eaten seafood.** See *Stool: Culture* for further comments. See Form HHN-0448 for patient collection instructions Specimen stored at room temperature
Viral Load: HCV	Blood	Lavender x 2	3 mL x 2	M	10 days	LAB	HCVLOAD	HCVLOAD	Deliver immediately. Specimen must be delivered to the lab within 6 hours; otherwise specimen must be centrifuged at 1100 g for 20 minutes, separate plasma from cells immediately and store at -70 ºC. If transported, send plasma frozen **on dry ice**. Referred.
Viral Load: HIV	Blood	Lavender x 2	3 mL x 2	M	10 days	LAB	HIVVLOAD	HIVLOAD	Deliver immediately. Specimen must be delivered to the lab within 6 hours; otherwise specimen must be centrifuged at 1100 g for 20 minutes, separate plasma from cells immediately and store at -70 ºC. If transported, send plasma frozen **on dry ice**. Referred.

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Viral Serology	Blood	Red or GOLD	5 mL	M	Test dependent	LAB	SEROL	SEROL	See under name of specific virus. Use this test only for viruses not listed. Enter the name of the virus on the requisition. If transported, separate serum from clot and send serum. 2-8°C if sending same day or Freeze at -70˚C.
Viscosity	Blood	Gold X 2	6 mL X 2	C	10 Days	LAB	VIS	VIS	Collect and separate at 37º C. Separate ASAP and refrigerate serum. If transported send serum at 4ºC. Referred - 6 mL Serum
Vitamin A	Blood	Red	6 mL	C	17 Days	LAB	VITA	VITA	Protect from light. Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC**. 10-12 hr fast is preferred., but not required. Avoid vitamin supplements for 24 hours.** Referred - 1 mL Serum frozen.
Vitamin B1 (Thiamine)	Blood	Lavender	4 mL	C	7 days	LAB	THIA	THIA	Collect following 12 hour fast. Protect from light. Deliver to Chemistry immediately. If transporting mix specimen and transfer whole blood to a 13x75 aliquot tube, store and ship protected from light at 4ºC. Specimen must be frozen if not arriving at DECRH same day of collection. Referred - 2 mL Whole Blood - frozen
Vitamin B12 (B12)	Blood	Light Green	1 mL	C	< 24 Hours	LAB	VIT B12	B12	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. If transported, plasma must be sent frozen if not received at DECRH within 48 hours of collection. Please see Utilization rules
Vitamin B6 (Pyridoxine)	Blood	Red	6 mL	C	15 Days	LAB	VITB6	VITB6	Protect from light. Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC**. 12-14 hr fast is preferred, but non-fasting acceptable. Avoid vitamin supplements for 24 hours.** Referred - 1 mL Serum frozen.
Vitamin C	Blood	Red	6 mL	C	15 Days	LAB	VITC	VITC	Protect from light. **12-14 hr fast is preferred, but non-fasting is acceptable. Avoid vitamin supplements for 24 hours.** Deliver to Chemistry immediately. Separate serum from cells and freeze ASAP. Referred - 2 mL serum frozen
Vitamin D (25-Hydroxy)	Blood	Light Green	1 mL	C	< 24 Hours	LAB	VIT D	VITD	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hr of collection, store upright at 4ºC. Used to assess Vitamin D nutritional status. If transported, plasma must be sent frozen if not received at DECH within 4 days of collection. Please see Utilization rules
Vitamin D (1, 25 Di-hydroxy)					12 Days				Testing only available after consultation with the Medical Biochemist

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Vitamin E	Blood	Red	5 mL	C	12 Days	LAB	VITE	VITE	Protect from light. Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. **12-14 hr fast is preferred, but non-fasting is acceptable. Avoid vitamin supplements for 24 hours.** Referred - 1 mL Serum frozen.
VMA	Urine	Large plastic bottle with HCL	Complete 24 hour output	C	15 Days	LAB	VMA-24H	VMA-24H	Refer to Diet/Drug Restriction form HHN-0840 for patient restrictions. Collect urine in a container with 25 mL of 6 mol/L (6N) HCl acid. **Specimen must be refrigerated during collection.** The final pH must be maintained at 2-4. **Ensure start date/time and end date/time are recorded on the label.** If sent from Health Centre or other outside collection site, please refer entire collection in original container. If sent from hospital laboratory state 24h volume and send 25 mL aliquot. Referred – 25 mL Urine
VMA - Spot Test									Test no longer available. Order VMA-24H
VNTR	Blood	Lavender x 2	4 mL x 2	C	22 Days	LAB	VNTR	VNTR	Whole blood. Store at 4ºC. Referred – Whole Blood
Vomitus				M					TEST NO LONGER AVAILABLE
Von Willebrand's Investigation Includes: - Von Willebrand Antigen - Von Willebrand Activity - Factor VIII (F8)	Blood	Blue (Sodium Citrate) x 4	2.7mL x4 Exactly in each tube Etched line is the minimum fill volume	H	1 – 2 weeks	LAB	VWI	VWI	**All specimens must be drawn using a 21 or larger gauge needle.** Deliver to the lab within 2 hours of collection. If transported, platelet poor plasma (count < 10) must be achieved with the following procedure: 1. **1st spin**: Spin specimens in the centrifuge, after 1st spin is complete, remove blue tubes from centrifuge and transfer 1st spin plasma to a separate labeled 12x75 plastic tube. 2. **2nd spin**: Cap the 12x75 tubes and re-spin plasma, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting platelets at bottom of tube. 3. Carefully remove platelet poor plasma, leaving sediment (containing platelets) in bottom of tube. Transfer directly to labeled 12x75 plastic tube for the platelet count. Perform and record plt count on label if applicable. 4. Send frozen in 3 aliquots of 2 mL each. Referred

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Von Willebrands Multimers	Blood	Blue (Sodium Citrate)	2.7 mL	C	35 Days	LAB	VWM	VWM	Deliver to the lab within 2 hours of collection. If transported, platelet poor plasma (count < 10) must be achieved with the following procedure: 24. **1st spin**: Spin specimens in the centrifuge, after 1st spin is complete, remove blue tubes from centrifuge and transfer 1st spin plasma to a separate labeled 12x75 plastic tube. 25. **2nd spin**: Cap the 12x75 tubes and re-spin plasma, after 2nd spin is complete, carefully remove tubes from centrifuge, without disrupting platelets at bottom of tube. 26. Carefully remove platelet poor plasma, leaving sediment (containing platelets) in bottom of tube. Transfer directly to labeled 12x75 plastic tube for the platelet count. Perform and record plt count on label if applicable. 27. Send frozen in 3 aliquots of 2 mL each. Referred
VRE	Swab	Routine Swab		M	48 hours	MIC	VRE	VRE	Peri-anal/rectal specimen. Screen for vancomycin-resistant Enterococcus Specimen stored at room temperature
Water Deprivation Test, Overnight	Blood and Urine			C		LAB			See Chemistry Section in this manual for additional information.
West Nile Virus Serology	Blood	Red or GOLD	5 mL	M	7 days	LAB	WESTNILE	WESTNILE	If transported, separate serum from clot and send serum and Freeze at -70˚C. Referred.
West Nile Virus: Spinal fluid	Spinal fluid	Sterile Screw-cap tube	1 mL	M	72 hours	LAB	WESTNILE CSF	WESTNILE CSF	Deliver to the lab immediately. Referred. If transporting Place minimum 0.5ml in NUNC tube. Freeze at -70°C.
Worm		Sterile Screw-cap jar		M	48 hours	MIC	WORM	WORM	Send worm in saline. Do not send in formalin. Specimen stored at room temperature
Wound Swab: Mycology	Swab	Routine Swab		M	smear 3 days final 4 weeks	MIC	MYC	MYC	Indicate source of specimen. Specimen stored at room temperature.
Wound Swab: C&S	Swab	Routine Swab		M	72 hours	MIC	WOUND	WOUND	Swab **only** the infected area. Bacteria from the surrounding area prevent accurate interpretation of the results. Indicate source of swab. Specimen stored at room temperature.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Xanax (Alprazolam)									Test no longer routinely available
Xylose Absorption	Blood	Red or GOLD	5 mL for each specimen	C	35 Days	LAB	XYLOSE	XYLOSE	Deliver to Chemistry immediately. Separate serum and freeze ASAP. Clearly identify the pre-dose and post-dose samples. Test protocol: Collect fasting (>8 h) pre-Xylose specimen. Administer p.o. 5g D-Xylose freshly dissolved in 250 mL water followed by another 250 mL of water. Collect second (post dose) specimen exactly 1 hour after ingestion. Referred - 2 mL serum per specimen frozen
Yersinia Culture	Stool	Enteric Transport Medium		M	72 hours	MIC	STOOL	STOOL	Collect only one specimen. If it is negative and the symptoms continue, two more may be collected on separate days. Formed stool should be the size of a quarter. Liquid stool should be equal to the amount of the transport medium in the jar. **Routine culture includes Salmonella, Shigella, Yersinia, Campylobacter and E. coli**. If patient has eaten seafood, also order Vibrio Culture (VIB). See Form HHN-0448 for patient collection instructions Specimen stored at room temperature.
Zarontin (Ethosuximide)	Blood	Red	6 mL	C	10 Days	LAB	ETHO	ETHO	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Draw trough within 1 hour prior to next dose or at least 12 hours after last dose. Referred - 0.5 mL Serum
Zika	Blood	Red or gold	6 ml	M	2-4 weeks	LAB	SEROL	SEROL	Must provide relevant travel history (place and dates) Must provide clinical history (i.e. symptoms if any, pregnancy status) Females who are asymptomatic and not pregnant will not be tested Males are not tested unless partner is pregnant If transported, separate serum from clot and send serum and Freeze at -70˚C.

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Test	Specimen	Container	Amount	Department	Turnaround Time	OE Category	OE Mnemonic	Lab Mnemonic	Collection/ Referral Instructions Unless otherwise specified below, blood tubes for centrifugation must be spun at 1300 g for 10 minutes (swing bucket rotor) or 15 minutes (fixed angle rotor)
Zinc	a) Blood b) Urine	Royal Blue EDTA Heavy metal free large plastic bottle	6 mL Complete 24 hour output	C C	15 Days 15 days	LAB	ZINC	ZINC ZINC-24H	a) Do not centrifuge. Store and send cold. Referred - 6 mL whole blood referred. b) Refer to Diet/Drug Restriction form HHN-0840 for patient restrictions. **Ensure start date/time and end date/time are recorded on the label.** If sent from Health Centre or other outside collection site, please refer entire collection in original container. If sent from hospital laboratory state 24h volume and send 10 mL aliquot. Referred – 10 mL Urine
Zinc Protoporphyrin	Blood	Royal Blue EDTA	6 mL	C	15 Days	LAB		ZPP	Do not centrifuge. Store and send at 4ºC. Draw blood on Monday to Wednesday only. Refer same day as collected. Referred - 6 mL Whole Blood
Zoloft (Sertraline)	Blood	Red	6 mL	C	10 Days	LAB	ZOLOFT	ZOLOFT	Specimen must be delivered to lab within 2 hrs; otherwise, centrifuge specimen within 2 hrs of collection, remove serum, store at 4ºC. Patient should be on the drug for at least 1 week prior to testing. Draw trough prior to next dose. Referred - 1 mL Serum

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Summary of changes in Version 56.0

Please note that page numbers are approximate, as saving the document as a pdf causes page content to shift

Page no.	Subject	Change
153	**Citrate-24hr**	pH not needed
217	**Oxalate-24hr**	pH should be between 4.5 and 8.0
190	**HERPES PCR**	changed order category to LAB (MOVING TO MEDINET). Note added that both HSV & VZV PCR one and reported together
254	**VZ PCR**	changed order category to LAB (MOVING TO MEDINET) Note added that both HSV & VZV PCR one and reported together
140	**FUNGAL BLOOD**	Updated collection container to Myco/F lytic bottle
144	**Calprotectin**	Sample to be refrigerated up to 3 days. Sample must be frozen within 72 hours of collection if not to be processed within that timeframe.
26	**Micro sample chart**	Updated Guide to the collection of samples for microbiological diagnosis of wounds, abscesses, tissue/bone, and body fluids. – removed the anaerobic swab as we no longer can order it
238	Spinal Fluid: Herpes & VZ viral PCR	Added new line and order mneumonic for this as it was moved to Medinet and can no longer be ordered in MIC module under CSFPCR
139	**Blood Gases – Central Line**	Added new profile for use mainly by ICU, orderable as **BG-CENTRAL**
139	**Blood Gases – Mixed Venous**	Added to LUM, has been available for some time, collected by pulmonary artery catheter (rare order)
254	**Vascular Endothelial Growth Factor**	New test added, orderable as **VEGF**
217	**Oxcarbazepine Metabolite**	New test added, orderable as **OXCARBAZEPINE**
249	**Trileptal**	Another name for oxcarbazepine metabolite (new test, above)
187	**Hgb Elect**	Added slide labelling instructions
211	**Neurofilament Light Chains**	New test added, orderable as **NFL**
220	**Phospho-Tau 217**	New test added, orderable as **PTAU217**
19	**Utilization Rules**	Updated for Phospho-Tau 217
117	**Acylcarnitine**	Required requisition added

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219	**Phenylalanine**	Required requisition added
251	**Tyrosine**	Required requisition added
118	**ADAMTS-13**	New orderable test in Meditech
171	**Enterovirus-oth**	Added new order mnemonic for enterovirus for swab sites (not stool/respiratory)
219	**Phospholipase A2 Receptor**	New orderable test in Meditech **(PLA2R)**
225	**Procalcitonin**	New orderable test in Meditech **(PROCAL)**
41	**Tube Table**	Added Barricor and removed tubes (not currently used on the line)
242	**Sulfatide Antibody**	Removed, testing no longer available. No recommended alternative
12	**HPV**	HPV requisition requirements added
111	**HPV**	Removed old HPV information, removed conventional Pap information. Added new HPV information
160	**HPV**	Removed collection information for conventional Pap Tests, added collection information for HPV.
161,162	**Cytology Containers**	Non-Gynecological samples are now placed in Blue topped containers, not pink.
123	**Liver biopsy**	Added to Test Table
198	**Iron-Tissue**	Removed from listing for Iron, tissue is referred through Anatomical Pathology
19	**Utilization Rules**	Rule added for neurofilament light chains
212	**Neurofilament Light Chains**	No longer referred, performed at DECRH site
43	**Oncology Profile (SJ Rad)**	DBIL removed from profile
196	**ICP**	Changed collection time and to arrive in lab time
222	**PNH**	Changed collection time and to arrive in lab time
24	**COLLECTION CONTAINER CHART**	Removed anaerobic swab and updated the blood culture bottle types (ano bottle changed to FN plus orange top)
219	**Pertussis PCR**	Will refer to GDH unless an outbreak is called. Testing can still be done at DECH if needed
69, 89	**Fetal disposition/autopsy**	Removed IWK Permission for Respectful Disposition of Remains form
278	**Sedimentation Rate**	Container change to 4.0mL EDTA. Sample stability at 2-8°C change from 12 hours to 24 hours. Add there must be a minimum 5mm gap in the label along the length of the tube
18, 19	**Utilization Rules**	Corrections made to align with LIS settings and existing guidelines

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