HealthPartners/GHI

Blood Collection and Specimen Processing Procedure (Phlebotomy)	**Attachments** ☐ Yes ☒ No
Key words Phlebotomy, Blood Collection, Blood draw, Specimen Collection, Venipuncture, Capillary, Heelstick, Fingerstick	**GHP-PC-CLINIC LAB-Procedures-Blood Collection v. 07-2009**
Category Provision of Care	**Effective Date November 2014**
Manual Clinic Laboratory Procedure Manual	**Last Review Date November 2014**
Issued By Clinic Laboratory Administration	**Next Review Date November 2015**
Applicable Clinic Laboratory Staff, W@W staff	**Origination Date September 1985**
	Retired Date
Level of Complexity Waived	**Approved Date September 1985**
Review Responsibility Laboratory Technical Consultants	**Contact** Laboratory Technical Consultants
APPROVAL(S) Laboratory Medical Director	

PURPOSE/PRINCIPLE

The purpose of blood collection is to obtain adequate blood specimens by venipuncture or microtechnique for diagnostic laboratory testing.

POLICY

Laboratory Staff collecting blood specimens will follow the approved techniques for specimen collection outlined in this procedure.

HealthPartners family of care uses single-use needle and devices for all phlebotomy and blood collection procedures. Should it be necessary to re-stick a patient, a new, single-use needle or device will be used.

HealthPartners Medical Group and Clinics **will not accept** blood specimens or cultures (from sources not traditionally collected by patients) for testing that are brought in or collected by patients or family members.

Lab Staff is allowed to assist care unit staff in finding needle placement for IV starts, but cannot infuse.

Specimen:
The type of blood tubes needed is accessible via the Central Lab Catalog, Central Lab Help Line at 952-833-1800, the computer in function MIQ, on the patient labels generated by the computer after the lab order is entered in RE, or in the reference laboratory specimen collection catalogs.

It is recommended that venipunctures be performed on patients 5 years of age or older. Venipuncture technique should be used when collecting more than one ml of whole blood.

Reagents/Materials:

Gloves (latex-free)	Sharps Container	Armrest
Eclipse Safety Needles	Alcohol Preps	Gauze
Butterfly Needles	Band-Aids	Lancets
Disposable Vacutainer Holder	Tape	Syringes
Blood Collection Tubes	Tourniquet	Microtainer Tubes

Latex Intolerance Notice
When a patient states that they are latex intolerant (allergic), the phlebotomist must wear vinyl or nitrile gloves. A latex free tourniquet or blood pressure cuff must be used in place of the latex tourniquet. Apply tourniquet over the patients clothing or use a towel as a barrier to the skin (rubber contains latex too!). When using the blood pressure cuff, inflate pressure to 40 mm).

PROCEDURES

Procedure for a Venipuncture:

1. Greet the patient in a friendly, professional manner using approved scripting:

   Greet the Patient:
   Good Morning (afternoon, evening), Welcome to the lab, how may I help you?

   Introduce yourself and what you are going to do:
   Hello, I'm _____, one of the lab staff. I'm going to draw your blood today.

   When you are finished ask:
   Is there anything else I can do for you today?

   Note: Well At Work and Quick Clinics do not need to use the scripting as they are the provider treating the patient as well as the person performing the procedure.

2. When calling the patient to the drawing area, use his/her first name and first initial of the last name.

3. Verify identification of the patient. Ask the patient to verify that the name and date of birth on the labels is in fact theirs and ask the patient to state their date of birth.

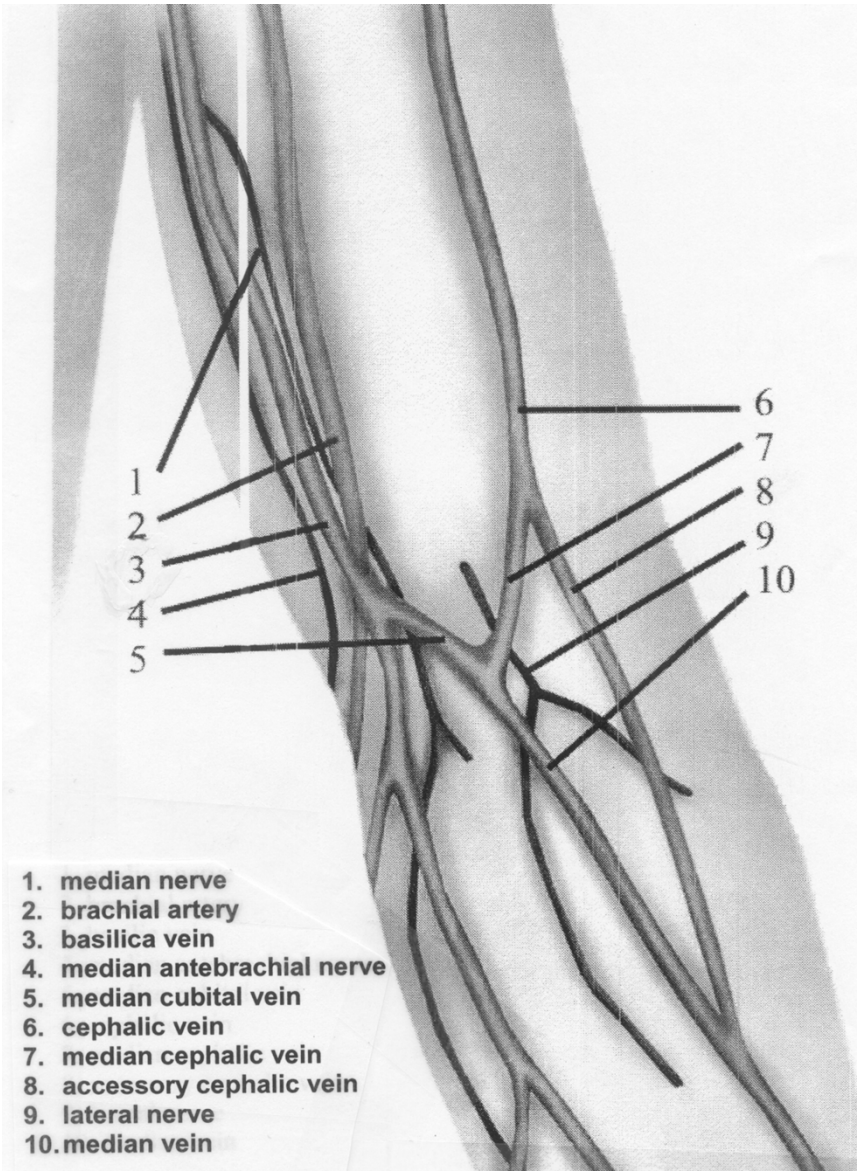
4. Position the patient. Observe the patient's behavior. If they seem anxious or state that they are uncomfortable with the procedure, offer the option to lie down. Be mindful that this can be a stressful occasion for some patients.

   a. Procedure for seating the patient
      The patient should be seated comfortably in a chair and should position his or her arm on an armrest, extending the arm so as to form a relatively straight line from the shoulder to the wrist. The arm is supported firmly by the armrest and should only be slightly bent at the elbow.

   b. Procedure for having the patient lie down
      The patient lies comfortably on his/her back. If additional support is needed, a pillow may be placed under the arm from which the specimen is to be drawn. The patient extends the arm so as to form a relatively straight line from the shoulder to the wrist.

5. Hands should be washed or sanitized between patients. Gloves may be worn when finding a vein but it is not required.

6. Assemble supplies for collecting the blood specimen.
7. Select a vein site. Place a tourniquet on the patient's arm, just above the bend in the elbow. Choose the vein that feels fullest. Ask the patient to make a fist which makes the veins more prominent and easier to enter. **Vigorous hand exercise pumping should be avoided because it may affect some test values.** Use the index finger to palpate and trace the path of the vein. Thrombosed veins lack resilience, feel cord-like, and roll easily. Feel firmly, but do not tap or rub finger lightly over skin because you may feel only small surface veins. Always feel for the median cubital vein first; it is usually bigger, anchored better, and bruises less. The cephalic vein (depending on size) is the second choice over the basilica vein, because it does not roll and bruise easily.



The bend of the elbow (antecubital) is the best place to make a puncture. When this is not possible other sites include the surface of the forearm, wrist area above the thumb, lateral side of the wrist, knuckle of the thumb or index finger, back of the hand, and back of the lower arm. If a “good” vein cannot be found, try the following:

- Try the other arm unless instructed otherwise
- Ask the patient to make a fist again
- Apply the tourniquet, remembering that the tourniquet should never be left on the arm for more than 1 minute
- Massage the arm from wrist to elbow

- Tap a few times at the vein site with your index finger
- Apply heat to the vein site
- Lower the arm over the bedside or venipuncture chair

NOTES:

- ***The basilica vein is close to nerves which can cause pain and severe injury if nicked. Be careful to draw towards the elbow area (not higher up on the arm) if using this vein.***
- ***NEVER draw mastectomy patients on that side unless given a physicians' permission.***
- ***Sites other than antecubital, posterior side of the hand, or lateral side of the wrist should be avoided.***
- ***In rare situations, blood may need to be obtained through the veins in the feet. This is considered a site of last resort and the provider should be notified before venipuncture is performed.***
- ***If a patient faints or experiences another type of adverse reaction, page for nursing staff assistance immediately.***

8. Once the vein to be used has been identified, release the tourniquet !!!

9. If gloves are not worn when finding a vein, Put on gloves ***in view of the patient.***

10. Using an clean alcohol prep, cleanse the area by moving the pad in a circular motion from the center of the vein site outward. The area must be allowed to dry. NEVER touch the skin after the site is cleansed unless you have prepped your gloved finger. Discard the used alcohol prep.

    NOTE: Cleaning and prepping the area for collection of a blood culture is different then listed in step 8. Please refer to the Blood Culture Procedure for specifics.

11. Use of a disposable vacutainer holder is required. Thread the needle onto the vacutainer holder.

12. Inspect the needle, syringe or evacuated tube before performing the venipuncture. Rotate the safety shield back. The cover of the safety needle must not be removed until the phlebotomist is ready to draw blood, thus avoiding needle contamination. If the needle touches anything but the sterile site, it must be changed.

13. **Reapply the tourniquet. Do NOT repalpate the site to be used unless the glove is disinfected with an alcohol wipe also.**

14. Perform the venipuncture.
    a. Evacuated tube method
    The phlebotomist should grasp the patient's arm firmly, using the thumb to draw the skin taut. The needle should be inserted into the vein quickly and smoothly with the bevel of the needle upward at a 15 degree angle. One hand should hold the evacuated tube while the other depresses the tube to the end of the holder. The angle of insertion should be as low as possible to prevent going through the vein entirely. This will cause bleeding inside the arm.

    The tube should be filled until the vacuum is exhausted and the blood flow ceases, thus ensuring a correct ration of anticoagulant to blood. If more than one tube type is needed, the following order in drawing should be followed:
    1. Blood culture
    2. Blue top (citrate)
    3. Serum separator Gel Red top/ Gold top/ Speckled red top
    4. Green top (heparin)/Green top plasma separator
    5. Purple top (EDTA)
    6. Grey top (fluoride)

After drawing each tube, mix by gently inverting the tube at least ten times. Gentle inversion will avoid hemolysis. Never shake a tube of blood after collecting a blood specimen.

Occasionally a faulty tube will have no vacuum. If a tube is not filling and the needle is inside the vein, another tube should be used. If a tube starts to fill but then stops, the needle should be moved slightly forward or backward, NEVER side to side. This can cause severe pain and injury to nerves. Usually this adjustment will increase the flow. The needle can then be rotated half a turn, and the tourniquet, which may have been applied too tightly, is loosened.

Probing is not recommended because it is painful to the patient. If none of these procedures are helpful the needle should be removed and an alternate site used.

IF A PATIENT EXPERIENCES PAIN AWAY FROM THE VENIPUNCTURE SITES, STOP IMMEDIATELY!! TINGLING, BURNING OR PAIN CAN INDICATE A NERVE HAS BEEN TOUCHED.

b. Syringe Method

A syringe and needle should be used to collect blood from patients with more difficult veins. If the puncture has been made and the blood is not flowing, the phlebotomist should determine if he or she is pulling too hard on the plunger and collapsing the vein. Exercise the plunger of the syringe in the barrel. Return the plunger all the way to the end of the barrel (by the needle). This provides a smooth working syringe and eliminates the possibility of injecting air into the patient. The needle should be drawn back while the plunger is being pulled slightly. The phlebotomist must make sure the bevel is covered by the skin. With the syringe in one hand, the phlebotomist uses the index finger of the other hand to feel for the vein. After the vein is relocated, the finger is kept gently on the vein and the needle guided to that point. The phlebotomist then pulls gently on the plunger. As soon as the blood starts to flow into the syringe, the needle should not be moved.

Note: To transfer venous blood collected by a syringe method into the appropriate tubes or culture bottle, a Blood Transfer Device must be used. The use of a needle to transfer blood into tubes or culture bottles is strictly prohibited.

c. Other Methods

A winged infusion set (butterfly assembly) with leur adapters can be used instead of a syringe and needle for very difficult veins. The winged collection set is a "closed" system. Blood flows from the vein through the set directly into the evacuated tube or syringe. When using a winged infusion set and a coagulation tube is the first tube to be drawn, use another blue top tube as a primer. Apply the discard tube just long enough so that the tubing of the butterfly set is primed with blood. By filling the tubing with blood the vacuum of the citrate tube is not partially exhausted with air in the line, which could result in under-filling of the tube.

15. The tourniquet is released after the blood is drawn and the patient has opened his or her hand. Releasing the tourniquet allows for normal blood circulation and a reduction in the amount of bleeding at the venipuncture site. The tube is released from the vacutainer holder. Then the needle is removed form the patient's arm by folding a gauze pad over the needle and removing it.
Once the needle is removed, firmly lock the safety shield in place. The gauze pad should be held firmly over the venipuncture site.

16. Tubes containing anticoagulant or separating gel must be mixed immediately by gentle inversion 10 times.

17. All tubes must be labeled with the computer generated label in view of the patient. In the absence of computer labels, label tube with patient first and last name, date of birth and the date. See the Patient Identification and Labeling Procedure about reviewing the specimen labels with the patient prior to collecting the specimens.

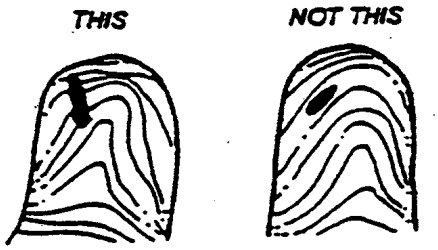
Note: Tech ID Codes are required on all Blood Bank specimen tubes. Tech ID Codes are not needed on other blood tubes for other testing.

18. Dispose of contaminated needle and vacutainer holder as one unit, into the Sharps container.
19. Care for the patient by checking the puncture site for bleeding. Apply vigorous pressure until bleeding stops. ***Before*** applying tape or band-aid, lift the gauze and observe for continued surface bleeding, and for 5-10 seconds longer to make sure there is no hematoma developing. If bleeding continues, pressure should be applied until a second check confirms bleeding has discontinued. Cover puncture site with a Band-Aid or gauze and tape. Instruct the patient to leave the bandage in place for at least 15 minutes. Compression nerve injuries can occur when a hematoma forms and exerts pressure on delicate nerves. Always verify bleeding has stopped before bandaging.
20. Deliver specimens to appropriate area.

Procedure for Finger Puncture

1. Follow steps 1-5 for venipuncture procedure.
2. Choose a finger that is not cold, cyanotic, or swollen. If possible, the stick should be at the tip of the third of the nondominant hand.
3. Gently massage the finger five or six times from base to tip to aid blood flow.
4. With an alcohol swab, cleanse the ball of the finger. Allow to air dry.

   For lead testing, the hands must be thoroughly washed with soap and water to prevent contamination.
5. Prepare Lancet device.
6. Position the lancet and activate the lancet device.
7. The cut should be made across the fingerprints to produce a large, round drop of blood.



8. Wipe the first drop of blood away with a clean gauze and then discard.
9. Gently massage the finger from base to tip to obtain the proper amount of blood for the tests
10. Additive microtainer tubes must be mixed by gentle inversion 10 times immediately after collection.
11. With a clean gauze, apply pressure until bleeding stops.
12. The order of draw is changed with microtainer tubes. The EDTA should always be filled first to prevent clotting.

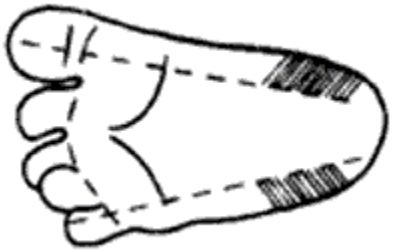
NOTES:

- ***For pediatric patients, band-aids are offered only upon request by the parent due to the potential choking hazard.***
- ***If the patient's fingers are cold, warm the fingers in a warm cup of water for 30 seconds***

- ***A free-flowing puncture is essential for accurate test results. Do not use excessive squeezing to obtain blood. This will cause contamination with tissue fluids.***
- ***If platelets are ordered, obtain this specimen first.***

Procedure for Heel Puncture:

1. Follow steps 1-5 for the Venipuncture procedure.
2. Choose a site for the heel puncture on the most medial and lateral portion of the plantar surface (see diagram - shaded area).
3. Cleanse the area with an alcohol swab. Allow to air dry.
4. Remove the lancet from its protective paper without touching the tip.
5. Hold the patient's heel firmly with one hand and make a swift puncture with the lancet no deeper than 2.4 mm to avoid hitting bone.
6. Wipe the first drop of blood away with a clean gauze and then discard.
7. Gently massage the heel to obtain the proper amount of blood for the tests requested.
8. With clean gauze, apply pressure until bleeding stops.



NOTES:

- ***Do not perform punctures on the positive curvature of the heel***
- ***Do not perform punctures in the arch area of the foot***
- ***Do not perform punctures through previous puncture sites or bruised areas***
- ***For pediatric patients, band-aids are offered only upon request by the parent due to the potential choking hazard.***

Processing of Serum/Plasma Separator Tubes:

1. The tube contains a silicone barrier gel with a specific gravity intermediate to serum and the cell clot. Tubes should be stored at room temperature. Temperatures over 25ºC (77ºF) can cause gel breakdown and subsequent test interference.

2. After drawing, gently invert the tube 5-10 times to activate the clotting mechanism.

3. Allow the sample to clot in a vertical position 15-20 minutes but should be spun no longer then 30 minutes after collection. All plasma separator tubes can be spun immediately after collection.

4. Spin tubes for 10 minutes at 2700 RPM. If blood does not separate well, transfer the serum to a clean tube, centrifuge, and pour off serum. **Do not spin a serum separator tube more than once.**

5. Store vertically at 4ºC. Pour off serum specimens that require transfer and freeze appropriate samples (refer to Central Laboratory Testing Schedule).

Quick Clot (Thrombin) Tubes

- The tube contains a small amount of thrombin, which quickens clotting.
- Use these tubes only when time is a consideration.
- Use these tubes ONLY for chemistry tests and thyroid tests. There is no data available yet as to their use with other tests.

White Bear & Arden Hills Clinic Procedure for Children Under 2 Years of Age –Patients from North Surburban

1. NSFP will order the tests in the laboratory information system.

2. Patient will be instructed to go to HP clinic (either AH or WBL)

3. NSFP staff will call the HPMG clinic with the patient information including the following:
   a. Patient Name
   b. HP medical record number
   c. Tests ordered and their access

   Arden Hills lab: 651-523-8536
   White Bear Lake lab: 651-653-2136

4. HP lab will print labels and draw the patient

5. HP lab will track the NSFP specimens on a STAT track list

6. Specimens will be sent in the HP clinic box to Central lab in the regularly scheduled reroute

PROCEDURE NOTES

1. *Nursing staff performs blood collection from indwelling catheters (e.g. Hickman). Laboratory staff should not attempt to collect the sample from the line, however, lab staff may be asked to be available during the collection to transfer blood into proper tubes for processing.*
2. *Requests for arterial punctures should be referred to the hospital.*
3. *General Guidelines for Pediatric Blood Collection:*

   a. *In newborns to 6 mo. the recommended site for microsampling is the heel.*

   b. *In toddlers 6 mo. to 18 mo. the recommended site for microsampling is the great toe.*

   c. *In children over 18 mo. the recommended site for microsampling is the ring or long finger.*

   d. *In instances, which require a venipuncture, the preferred site is the arm.*

   e. *Pacifiers should not be placed in the child's mouth during the collection procedure. The child may gag if crying.*

   f. *Do not place Band-Aids on veinpuncture sites for children < 2 years of age. The child may ingest the Band-Aid or choke. Hold the child's finger/arm until the bleeding stops; parents may do this.*

4. *In the event that a large hematoma develops, treat the hematoma area by applying ice for 10-15 minutes. This will reduce the swelling in the area. The patient should repeat the ice application at home. If necessary, have patient see his/her provider.*

5. *New collection supplies must be used with each attempt. A maximum of two attempts should be made before enlisting assistance from a co-worker, if available.*

COMPUTER ENTRY

W@W staff do not enter results into the Laboratory Information System. Send information that is not entered into EPIC to Central Laboratory for entry into the Laboratory Information System.

REFERENCES

NCCLS Standards
Gaviza and Becan - McBride; Phlebotomy Handbook, Second Edition, 1989.
Davis, Thomas F, Ph.D.; Pediatric Blood Collection Handout
Smith, James, M.D.; Phlebotomy Inservice, Bloomington Clinic, January 1992.
AutoDrop Blood Needle Holder System package insert, 1996
Pronto Quick Release Needle Holder pack insert
Dennis Ernst; Center for Phlebotomy Education, COLA Symposium; May 2006
CLSI H3-A3: Procedure for the Collection of Diagnostic Blood Specimens by Venipuncture; Approved Standard-Fifth Edition
CLSI H4-A4: Procedures and Devices for the Collection of Diagnostic Capillary Blood Specimens; Approved Standard-Fifth Edition
CLSI H18-A3: Procedures for the Handling and Processing of Blood Specimens; Approved Guideline-Third Edition

RELATED DOCUMENTS

APPENDIXES

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IV. DEFINITIONS

V. COMPLIANCE

Failure to comply with this policy or the procedures may result in disciplinary action, up to and including termination.

VI. ATTACHMENTS

VII. OTHER RESOURCES

VII. ENDORSEMENT

Laboratory Administration

Computer Order and Entry

(W@W Clinics are exempt)

SPECIMEN PROCESSING: EXTRA TUBEs: BLOOD AND URINE

Misys Order Codes: BLDDR, UPROC, TUBE

EPIC Orders ONLY: EOTHR, ADDED, DAH

Misys Codes: ORDERING

Order BLDDR, UPROC, TUBE for specimens that clinic labs are processing or holding, but no reports will be received in lab or charted (Examples: insurance requests, JIC tubes, specimens sent but no results are received from ref lab, etc.)

Misys Codes: RESULTING

WORKSHEET:

Function MEM Worksheet M_ _ (Misc)

RESPONSE:

CODE	NAME	RESPONSE
BLDDR	Spec Process Blood	• If insurance kit request: Enter PROCS (Processed). • If Cyclosporine, FK506 or other test kit and **no** report will come back to clinic lab: Free text name of test and -NORPT. Example: ;FK506-NORPT| (FK506 Special Handling, No Report to Follow)
UPROC	Spec Process Urine	Enter PROCS (Processed)
TUBE	Extra Tube JIC	Autoanswered with DRAWN (Drawn JIC)

Misys Codes: ADDITIONAL INFORMATION:

- BLDDR, UPROC and TUBE are suppressed tests, and will not print on reports or display in Epic. Tests will display in IQ, but not in I or INQ.
- Urine Drug screens for insurance physicals or pre-employment physicals requiring LEGAL screening are **not** collected at HP clinics at this time. These patients are referred to outside clinics. HP will collect NON-Legal drug screens.
- Blood drawn for bone marrow donors (relatives of possible transplant patients) are NOT entered in the computer. Draw blood and send to whatever reference lab requested the specimens.
- No billing is charged for BLDDR, UPROC or TUBE.

EPIC ORDER CODES

These order codes - DAH (4000), EOTHR (0382), ADDED (4300) - are used ONLY by providers placing orders in Epic. The additional electronic information is sent to lab staff who receive the interfaced lab orders from Epic into Misys.

Process ("done") these orders and receive in OER.

CODE	NAME	RESPONSE
DAH	Draw and Hold	Autoanswered with AVAIL (Specimen Available Based on Sample Stability)

- Provider may indicate possible additional tests in Epic comments.
- Lab staff will process/hold – much like a TUBE order (JIC) in Misys.
- Lab staff will receive DAH in OER.

CODE	NAME	RESPONSE
EOTHR	Epic Other Orders	Autoanswered with ATO (Additional Testing Ordered by Dr.)

- Provider will indicate unusual tests in Epic comments. Investigate.
- Lab staff will receive EOTHR in OER and order specific order code(s) in Misys.

CODE	NAME	RESPONSE
ADDED	Epic - Add On Orders	Autoanswered with: Additional Testing Ordered by Dr.

- Provider will indicate add on tests in Epic comments (Preferred method is for provider staff to call Central Lab or call clinic lab with add on requests.
- Lab staff will receive ADDED in OER and add specific order code(s) in Misys.
- If unable to perform, Lab staff will send credit to HP Central Laboratory.

EPIC Codes: ADDITIONAL INFORMATION:

- DAH, EOTHR and ADDED are not suppressed tests.
- Test order must be received in OER.
- Autoanswered result will file back into Epic, so Epic orders are "finaled" instead of remaining "in process".
- No billing is charged for DAH, EOTHR, ADDED orders.
- Additional hold tube codes can be used when additional tubes are drawn.
- These hold orders other than the BBHLD (BB Hold Tube Epic RH0030) are not available for ordering in Epic but are available to be ordered in SQ.
- When the hold tube is ordered in SQ, it will file back to the lab tab in Epic Chart Review so those looking in Epic will see that lab has an extra tube.
- The hold tubes auto-result with specific ETCs related to storage, such as this "Held in Chemistry sample rack for 7 days".

BBHLD – BB Hold Tube – Accepts Lavender or Pink tube types
CHOLD – Coag Hold Tube – Accepts Blue tube types
CSFHD – Spinal Fluid Hold Tube – Accepts CSF specimens C1,C2,C3 and C4
DGH – Dk Green NA Hep Hold – Accepts DG tubes
GGHLD – Green/Grey Hold – Accepts LG, and LI and MG tube types

GHT – Gold Hold Tube – Accepts GO and MS tube types
GYHLD – Grey Hold Tube – Accepts GY and YI tube types
LGH – Light Green Hold Tube – Accepts LG, LI and MG tube types
PUHLD – Purple Hold Tube – Accepts L, ML and PK tube types
RGHLD – Red/Grey Hold – Accepts RG tube type
URHLD – Urine Hold Tube – Accepts AU, UR and UT specimen types

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