


Specimen Handling

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APPLICABLE LABORATORY(S):

- North Carolina Baptist Hospital (NCBH)
- Lexington Medical Center (LMC)
- Davie Medical Center (DMC)
- Wilkes Medical Center (WMC)
- High Point Medical Center (HPMC)
- Westchester
- Clemmons

PURPOSE

The purpose of this procedure is to establish guidelines to maintain consistency in the processing of laboratory test requests and patient specimens. Specimen handling responsibility begins with the proper collection of the sample, through the testing phase when results are finalized and until the specimen is ultimately discarded. Specimen handling also includes the management of loop closure communications to physicians and health care teams when testing cannot be performed due to improper identification, shipping, collection containers or at any time that testing cannot be completed as requested.

SCOPE

This procedure applies to Central Processing Lab and Client Services team members.

DEFINITIONS

- A. Procedure: A process or method for accomplishing a specific task or objective.
- B. WFBH Lab System: Wake Forest Baptist Lab System is a health system that includes Wake Forest Baptist Medical Center and all affiliated organizations including Wake Forest University Health Sciences (WFUHS), North Carolina Baptist Hospital (NCBH), Lexington Medical Center (LMC), Davie Medical Center (DMC), Wilkes Medical Center (WMC), High Point Medical Center (HPMC), Lab at Westchester and Lab at Clemmons.
- C. CP: Central Processing
- D. CSF: Cerebral Spinal Fluid
- E. TDM: Therapeutic Drug Monitoring
- F. Path Lab Handbook: The Online Test Directory lists tests and services that are performed in-house with specimen requirements and special handling procedures.

SUPPLIES/MATERIALS

Use appropriate personal protective equipment (PPE) when handling biohazardous specimens.

PROCEDURE GUIDELINES

A. Specimen Handling

1. **Central Processing Services:** The Central Processing Laboratory responsibilities include the receipt, accessioning, processing, and distribution of most lab samples/orders received in the laboratory.
2. **Department of Pathology Lab Handbook:** The lab may provide a current list of test methods including performance specifications to clients upon request. The Pathology Lab Handbook Online Test Directory is accessible via the Wake Forest Baptist Health Intranet: <https://intranet.wakehealth.edu/Departments/Pathology/Handbook/>
3. **Specimen Transport:** Specimens may be transported to the Clinical Laboratory via the hospital pneumatic tube system.
 - a. Ordering locations without pneumatic tube are responsible for transporting samples to the laboratory.
 - b. The WFBMC Clinical Labs provide an on-campus courier who makes scheduled rounds in the hospital for onsite clinics and various other locations for pickup and delivery of samples to the lab.
 - c. It is recommended that irretrievable specimens be hand delivered to the laboratory, including but not limited to: CSF, body cavity fluids, joint fluids, blood gases, tissue, blood or urine cultures collected before antibiotic therapy, amniocentesis, cordocentesis, peak/trough TDM levels, and intravascular catheter tips for culture.
 - d. Hand delivered samples must be logged in the log book in Central Processing.
4. **Bloodborne Pathogens:** All samples transported to and received in the clinical laboratory should be handled according to standard precautions and bloodborne pathogen standards as outlined in the WFBH Blood and Body Fluid Exposure Control Plan and the Laboratory Safety Manual.
 - a. CSF samples with known or suspected Creutzfeldt-Jakob disease should be processed in a biosafety cabinet. Alert any staff that may be subsequently handling this sample.
5. **Specimen Processing Priority:**
 - a. Blood and body fluid samples received in the lab are processed upon receipt on a first come, first served basis with priority given to STAT orders.
 - b. **Red specimen bags:** STAT orders must be in a red STAT bag.
 - c. **Green specimen bags:** Pediatric oncology and Cancer Center samples should be sent in a green bag. Pediatric oncology CBC samples are considered STAT and should be taken directly to hematology.
 - d. **Blue specimen bags** from a Code Stroke Pevco carrier (and pager notifications) indicate a Code Stroke patient. These samples are always processed STAT and should be taken directly to hematology and Spin. Wrap Code Stroke specimen caps in red tape to identify them. Do not place Code Stroke specimens on the track.
 - e. **OR specimens** from Tube 104 or Tube 12 (OR Stat Lab) are always STAT. Scan and deliver immediately.
 - f. **Ammonia specimens** should be processed STAT and must remain on ice until centrifuged.

- g. **Cryoglobulin specimens** (red top blood tube) are expected to arrive in the laboratory warm. If a cryoglobulin specimen arrives at room temperature within 1 hour of collection, it is acceptable.
 - i. Cryoglobulin specimens may arrive wrapped in a heel warmer or a warm glove. Scan the tube's label and place the specimen back into the warm glove or heel warmer.
 - ii. Hand deliver the specimen (kept warm in a bag) directly to the Spin bench. Place the bag in the tray of specimens to be centrifuged. Place a laminated Cryoglobulin sign in front of the bag to visually alert the Spin tech of the warm specimen. If able, verbally communicate to the Spin tech that you have delivered a Cryoglobulin specimen.
 - h. **TEG samples** are **unspun**, whole blood light blue top tubes with a short stability. Scan and deliver directly to hematology (CBC bench).
 - i. **Extra Blue** samples ordered by the provider are **unspun**, whole blood light blue top tubes. Scan and deliver directly to hematology (CBC bench).
 - j. **PFA, PLAG, RIPA, PAS** are **unspun**, whole blood light blue platelet tests. Deliver unspun, directly to coag bench.
 - k. **Platelet Inhibition, Plavix** and **Platelet Inhibition, Aspirin (both also called VerifyNow)** are **unspun Greiner light blue top tubes**. They must be hand delivered to the laboratory and cannot be sent through the tube system. Scan and deliver unspun directly to the coag bench.
 - l. **ROM (Amnisure)** specimens: scan and deliver stat to the body fluids rack.
6. **Specimen Receipt and Accessioning:** Specimen test requests received in the lab should be processed in Beaker. Exceptions not entered in Beaker include orders for Microbiology, Cytology, and Surgical Pathology. These tests/samples are received in the lab and forwarded to the respective test areas.
7. **Specimen Evaluation:** Specimens should be evaluated when received in Central Processing for the appropriate specimen type and integrity of the sample.
- a. **Specimen Integrity:** Leaking or broken specimens should be evaluated and discarded if they cannot be safely salvaged, or if the quality of the test results would be compromised.
 - b. **Specimen Types:** Specimen types are defined in Beaker for each test. Specimens must be evaluated prior to processing according to the defined test requirements. Ordering locations should be notified in the event a specimen does not meet the defined test type requirements. Each laboratory section may have additional specimen requirements.
- NOTE:** Sendouts should evaluate any referral testing that is sent in an unexpected tube type. They may be able to send to an alternate referral testing lab.
8. **Shared Specimens:**
- a. **HIV samples cannot be shared before testing unless approved by Dr. Palavecino.**
 - i. **Samples cannot be relabeled with an HIV label.** Multiple labels on an HIV sample are only acceptable if the original label was smudged/misaligned and needed to be reprinted.
 - ii. If one gold top tube comes labeled for testing other than HIV, with a separate HIV label in the bag: the HIV must be recollected.
 - iii. Samples for HIV testing must be in a primary tube. Aliquots are not acceptable.

- iv. If an outreach or outpatient location requests to add tests to an HIV sample, this is acceptable after HIV testing is completed.
 - v. Enter an RL6 for all events where an HIV test must be recollected or is requested to share. Refer to Incident/Credit Report procedure for documentation instructions.
 - vi. For outpatient samples, notify Laboratory Client Services of the inadequate specimen by sending an email to the lab specimen issues email list, lab_specimenissue_dl@wakehealth.edu, with the location code as the subject. Laboratory Client Services will then notify the ordering location that tests have been canceled. Laboratory Client Services will reply to the lab specimen issues email indicating that the ordering location and/or provider has been notified of the problem.
- b. To share one sample between multiple lab sections or instruments (one tube, two labels):
- i. Scan both labels. On the label that is loose (not attached to a tube), write “refer to...” and the container number of the tube. For example, Refer to 7023814700. Flag tube with the second label, or place it with add-on labels for that section.
9. **Specimen Communications:** Communications regarding specimen problems should be communicated to the ordering location by the lab section evaluating the problem.
- a) Specimen problems for an inpatient:
- i. Central Processing should communicate problems regarding improper specimen types and compromised specimens (broken, leaking). Central Processing should notify the ordering location if they note problems during processing the sample (for example, wrong tube type).
 - ii. If the sample is short but can possibly be run, the sample should be marked with an “S” and the lab section alerted. Enter a Beaker Lab Comment to document a short sample was received (.sheme for short hematology or .schem for short chemistry).
 - iii. The testing lab section should notify the ordering location if there is a sample problem identified after specimen is received at the testing bench (clot, QNS).
 - iv. The lab section that notifies the ordering location of a problem should document the problem in Beaker and send the received test for recollection with the appropriate reason. Reasons for redrawing or canceling in Beaker include: Broken/spilled in transit, cancelled by provider, clotted, collected in wrong tube, correct test ordered, duplicate request, floor/clinic ordered incorrectly, improperly preserved/processed, lab duplicate order, lab ordered incorrectly, lost in transit, no sample received, not proper time for requested test, not received on ice, other, patient ID incorrect, physician cancelled order, sample not kept warm, sample not protected from light, specimen clotted, specimen mislabeled, specimen not labeled, stability limit exceeded when received, wrong tube/specimen type.
- b) Specimen problems for an outpatient:
- i. For outpatient specimen problems, notify Laboratory Client Services of the inadequate specimen by sending an email to the lab specimen issues email list, lab_specimenissue_dl@wakehealth.edu, with the ordering location code as the email subject.

- ii. Client Services will then notify the ordering location that tests have been canceled. If the ordering location is outside the Atrium Health Wake Forest Baptist network, Client Services will call the location to notify them of the problem. Client Services will reply to the lab specimen issues email indicating that the ordering location and/or provider has been notified of the problem.
 - c) Refer to Incident/Credit Reports procedure for further instructions on canceling tests and documenting incidents.
10. **Order Clarification:** After assuring patient specimen identification matches on all samples and requisitions, assure that all orders are clearly understood. Any questions must be resolved by calling the ordering location for clarification. Document that a call was made on the requisition or in Beaker, including the name of the person you spoke to, date and time, and your name.
- a. For outpatient samples, notify the ordering location or collection site of the order question by sending an email to the lab specimen issues email list, lab_specimenissue_dl@wakehealth.edu, with the location code as the subject.
11. **Aliquot Samples:** Samples poured off (aliquoted) must be identified with a minimum of the patient's name, medical record number, and accession number.
- a. In the event that there is minimal room to record this information (such as bullet tubes), the patient's last name and medical record number may be used.
 - b. The person pouring off the aliquot must initial the identification label placed on the aliquot to indicate their responsibility for verifying the identity of the aliquot sample from the primary tube.
12. **Extra samples:** When samples arrive without an order, check Beaker for any pending or outstanding orders.
- a. Do not assume that a particular test is wanted without verifying with the provider. Call if necessary and request that an order be placed.
 - b. Staff should only be receiving tests that have been ordered.
 - c. Extra tubes received in the lab that are ordered in Beaker as Extra Tubes include any pediatric bullet samples, and gold or lavender tubes from outreach or outpatient clients. Extra urine (UA or plain chemistry tubes) or urine culture tubes are also ordered in Beaker. See Attachment A for instructions on ordering extra tubes.
 - d. Any urine remaining after aliquoting ED and OR patients is stored in the Spin refrigerator rack.
 - e. Any body fluids remaining after aliquoting for testing are stored in the Spin refrigerator rack. Refer to Spin Procedure.
 - f. Extra blood tubes from inpatients are kept in a rack in Spin.
 - g. Extra body fluid freeze and holds and autopsy specimens are tracked in Beaker in Container Storage. Refer to Container Storage in Beaker procedure.
13. **Specimens should not be returned to the ordering location for any reason:**
- a. Once specimens are accepted in the lab, they may not be returned to an ordering location or given to non-lab personnel for any reason to take out of the lab.
 - b. Extra specimens will be retained in the laboratory in the extra rack located at the Spin bench.
 - c. Specimens sent to main campus in error should be evaluated by the pathology resident.

14. **Specimen Disposal:** All specimens received in the laboratory are considered biohazardous and should be handled according to the Laboratory Safety Manual. Refer to the Biohazard Waste Disposal procedure.
15. **Sharps:** Specimens with attached needles should not be accepted in the lab. If the specimen is from a critical patient, caution the sender that needles should be removed at the collection site. Accept it and carefully remove the needle with hemostats.
 - a. Urine cups with a built-in transfer device should not be accepted in the lab. The transfer device is a sharp and causes leaking of sample in transit.
16. **Blood Bank Segments:** Blood bank segments sent to Central Processing should have orders for sickle cell screens and are delivered to hematology.
17. **Blood Gas Samples:** Blood gas samples are sent via pneumatic tube system to the ICU Blood Gas Lab, Station 54.
 - a. See instructions for OR Stat Lab samples in the OR Stat Lab Hours and Testing After Hours Job Aide.
18. **Release of Samples to Outside Agencies:** Blood and body fluid samples may be released to Federal, State, or Local Law Enforcement Agencies or other outside agencies having statutory authority to obtain physical evidence such as: the North Carolina Industrial Commission, a Court Order, a Search Warrant, a North Carolina Industrial Commission Order, or other legal document recognized by the legal department.
Management (CP or Referral Testing) should be notified if there is a request.
19. **Handling Duplicate Test Orders:** Known duplicates are:
 - a. Two labels for the same test with two different accession numbers
 - b. Two labeled tubes with different accession numbers but the same test.Cancel one of the accession numbers with reason "Floor duplicate order."
Order an extra tube as appropriate. Refer to section 12.

LITERATURE REFERENCES

None

RELATED PROCEDURES/POLICIES IN NAVEX

None

ATTACHMENTS/LINKED DOCUMENTS IN TITLE 21

Attachment A: Ordering Extra Tubes
CP-JOBAIDE-0014: Job Aide: OR Stat Lab Hours and Testing After Hours
CP-SOP-0013: Incident Credit Reports
CP-SOP-0037: Biohazard Waste Disposal

REVISION DATES: REVIEW CHANGE SUMMARY AS REPRESENTED IN TITLE 21.


Attachment A: Ordering Extra Tubes

Test code: LAB4193 Phlebotomist Extra Tube Order (Lab Use Only)

Section	Use When	Comments
A	Receiving Screen is up	Action tab to select Extra tube Use Extra tube order **
B	Only Tube, nothing to scan in	Manage Orders Use Extra Tube Order **
C	X locations (CareEvolve)	Use Requisition Entry Order test by tube color

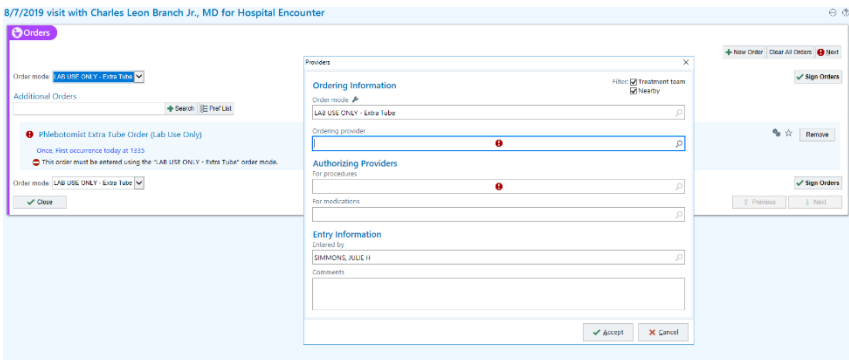
The Extra Tubes Navigator can be accessed from these activities.**

**Section A: Ordering from the Receiving Screen.
(There are other tubes available to receive.)**

STEPS	INSTRUCTIONS				
1.0	<p>Scan labels to receive tubes that have orders.</p> <p>NOTE: If there are no current tubes – you can re-print a label from a previous test and scan to bring up the patient in the receiving screen. VERIFY that the correct patient has been pulled up before proceeding.</p>				
2.0	<p>Go to Patient Inquiry and Order Inquiry to verify that there are no outstanding orders requiring the tube that has been sent.</p> <p>2.1 IF:</p> <table border="1"> <thead> <tr> <th>NO ORDERS</th> <th>HAVE ORDERS</th> </tr> </thead> <tbody> <tr> <td> <p>a. Go to Step 3.</p> </td> <td> <p>a. Collect the tube so that the label prints. b. Verify label is for correct patient. c. Label tube so that name on original label on tube is visible. d. Scan tube to receive.</p> </td> </tr> </tbody> </table>	NO ORDERS	HAVE ORDERS	<p>a. Go to Step 3.</p>	<p>a. Collect the tube so that the label prints. b. Verify label is for correct patient. c. Label tube so that name on original label on tube is visible. d. Scan tube to receive.</p>
NO ORDERS	HAVE ORDERS				
<p>a. Go to Step 3.</p>	<p>a. Collect the tube so that the label prints. b. Verify label is for correct patient. c. Label tube so that name on original label on tube is visible. d. Scan tube to receive.</p>				
3.0	<p>Click the Extra Tubes button.</p> 				

STEPS **INSTRUCTIONS**

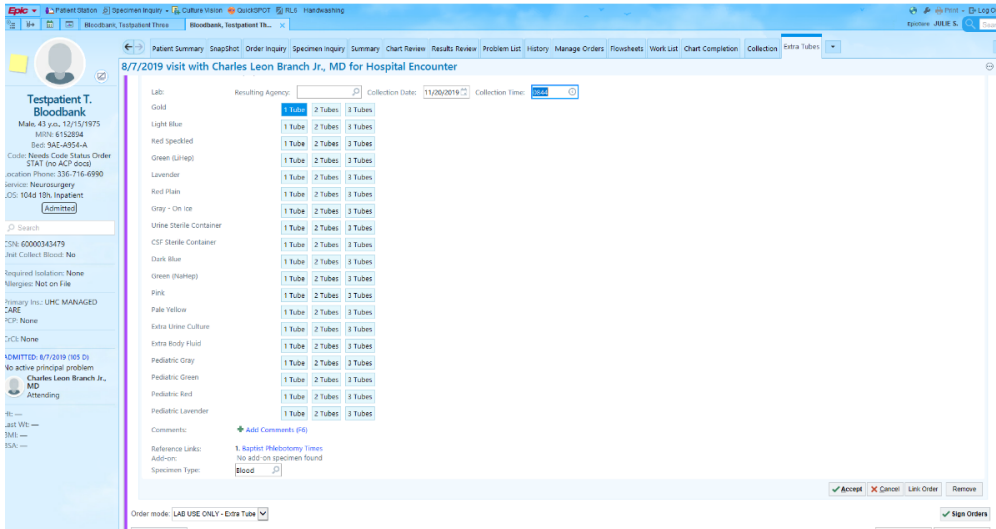
4.0 **Select the Order Mode option: LAB USE ONLY EXTRA TUBE from drop down window. Provider window opens.**



- 4.1 Hit spyglass beside ordering provider to add ordering provider information.
 - a. Provider if physician will default in.
 - b. Note: If provider is Physician Assistant (PA) - will not be in there.
 - Type in provider name and search.
 - May need to clear filters and search (based on who ordered other tests.)
- 4.2 Click Accept when provider information has been added.
- 4.3 Click NEXT.

5.0 **Enter the collection information from the tube you have received and select the number and color/type tube by highlighting.**

- 5.1 Enter date and time of collection.
 - a. Use T for today or select the date.
 - b. Use N if just collected or enter correct time if different.



NOTE: Verify that you have NOT ordered the Extra tube as a future order. If it is a Future order – then need to change it or the label will not print.

STEPS	INSTRUCTIONS
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NOTE: Occasionally if you are ordering you may be prompted to answer diagnosis question. Check all and it will automatically fill in the boxes.

- 5.2 Review the specimen type at the bottom of the screen.
- a. It defaults to blood. If urine or body fluid– have to change.

5.3 Click Accept.

The screenshot shows a web-based interface for selecting laboratory specimens. It features a list of container types on the left, each with three buttons for selecting the number of tubes (1, 2, or 3). The 'Urine Sterile Container' is currently selected and highlighted in blue. Below the list, there are fields for 'Comments', 'Reference Links', 'Add-on', and 'Specimen Type'. The 'Specimen Type' is currently set to 'Blood'. At the bottom right, there are buttons for 'Accept', 'Cancel', 'Link Order', 'Remove', and 'Sign Orders'. A 'Close' button is at the bottom left, and 'Previous' and 'Next' buttons are at the bottom right.

Gray - On Ice	1 Tube	2 Tubes	3 Tubes
Urine Sterile Container	1 Tube	2 Tubes	3 Tubes
CSF Sterile Container	1 Tube	2 Tubes	3 Tubes
Dark Blue	1 Tube	2 Tubes	3 Tubes
Green (NaHep)	1 Tube	2 Tubes	3 Tubes
Pink	1 Tube	2 Tubes	3 Tubes
Pale Yellow	1 Tube	2 Tubes	3 Tubes
Extra Urine Culture	1 Tube	2 Tubes	3 Tubes
Extra Body Fluid	1 Tube	2 Tubes	3 Tubes
Pediatric Gray	1 Tube	2 Tubes	3 Tubes
Pediatric Green	1 Tube	2 Tubes	3 Tubes
Pediatric Red	1 Tube	2 Tubes	3 Tubes
Pediatric Lavender	1 Tube	2 Tubes	3 Tubes
Pediatric Amber	1 Tube	2 Tubes	3 Tubes

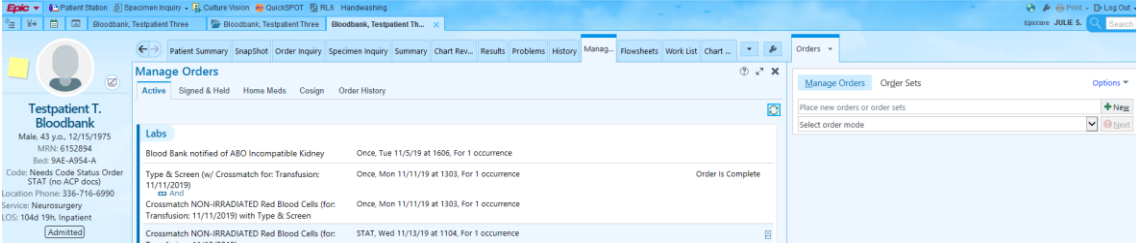
Comments: [+ Add Comments \(F6\)](#)
 Reference Links: [1. Baptist Phlebotomy Times](#)
 Add-on: No add-on specimen found
 Specimen Type:

der mode:

6.0	Click the ‘Sign Orders’ button and label should print.
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7.0	<p>Verify label is for correct patient.</p> <p>7.1 <u>SCAN</u> label for ‘Extra tube’ to receive.</p>
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Section B: Ordering from Manage Orders when there are no orders – no tubes are available to scan in the Receiving screen.

STEPS	INSTRUCTIONS				
<p>1.0</p>	<p>Go to Patient Inquiry and Order Inquiry to verify that there are no outstanding orders requiring the tube that has been sent.</p> <table border="1"> <thead> <tr> <th>NO ORDERS</th> <th>HAVE ORDERS</th> </tr> </thead> <tbody> <tr> <td> <p>a. Go to Step 2.</p> </td> <td> <p>a. Collect the tube so that the label prints. b. Verify label is for correct patient. c. Label tube so that name on original label on tube is visible. d. Scan tube to receive.</p> </td> </tr> </tbody> </table> <p>1.1 IF:</p>	NO ORDERS	HAVE ORDERS	<p>a. Go to Step 2.</p>	<p>a. Collect the tube so that the label prints. b. Verify label is for correct patient. c. Label tube so that name on original label on tube is visible. d. Scan tube to receive.</p>
NO ORDERS	HAVE ORDERS				
<p>a. Go to Step 2.</p>	<p>a. Collect the tube so that the label prints. b. Verify label is for correct patient. c. Label tube so that name on original label on tube is visible. d. Scan tube to receive.</p>				
<p>2.0</p>	<p>Enter Extra Tube in the ‘Place new orders or order sets’ box and enter.</p>  <p>2.1 A window should open and EXTRA TUBE DRAW should be highlighted.</p>				

STEPS **INSTRUCTIONS**

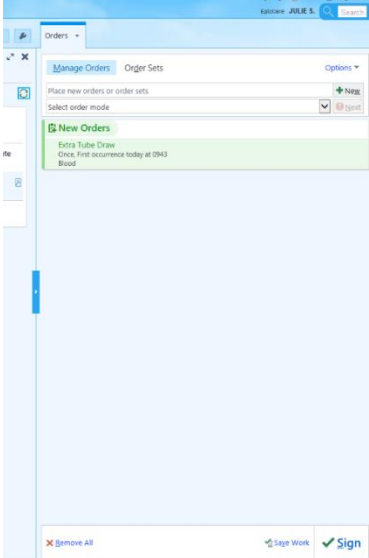
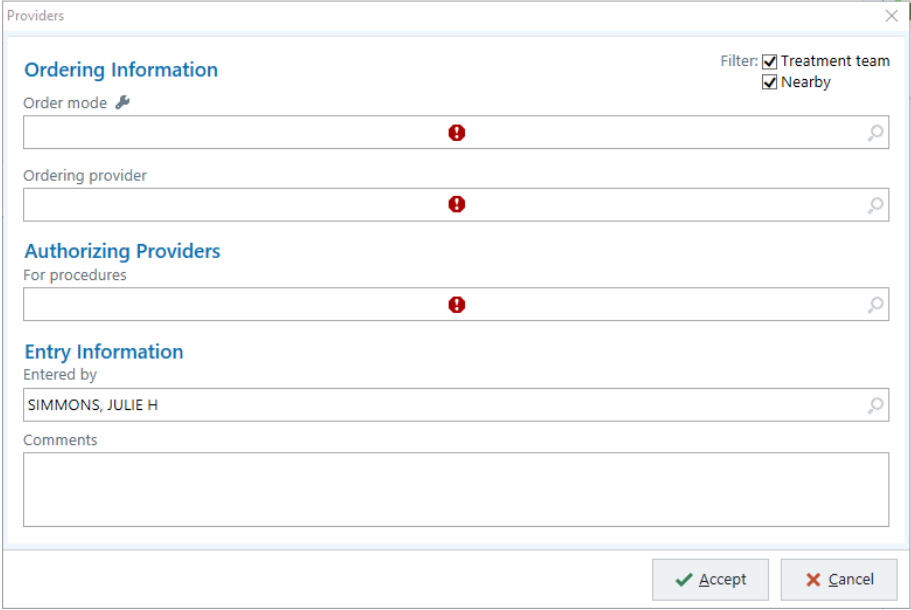
3.0

Click Accept.

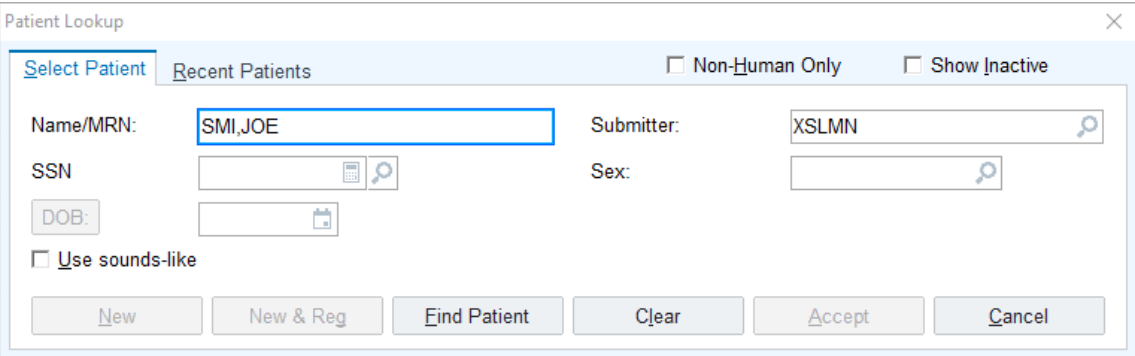
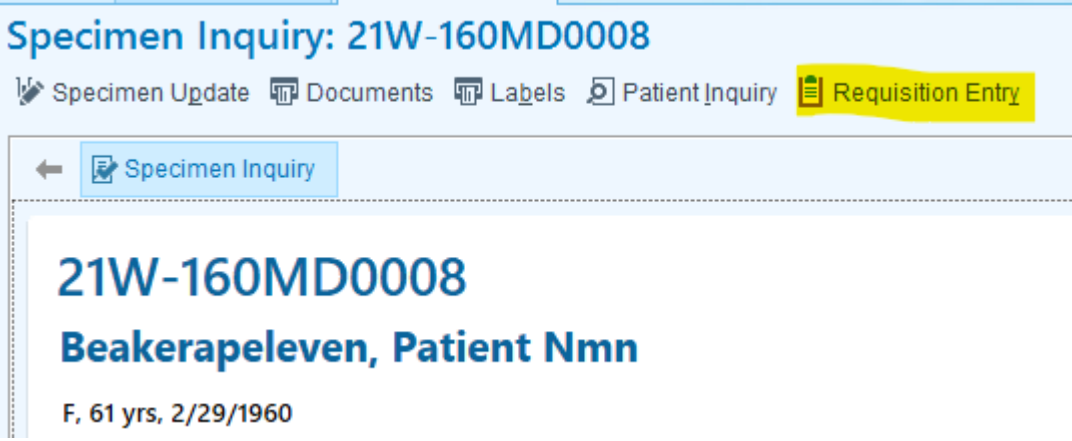
4.0

Enter the collection information and select the correct extra tube type/number by highlighting.

4.1 Click Accept to return to manage orders screen.

STEPS	INSTRUCTIONS
5.0	<p>Click Sign.</p> 
6.0	<p>Complete Ordering information in the box that pops up.</p> <p>6.1 Order mode: LAB USE ONLY – Extra Tube</p> <p>6.2 Ordering provider: Select</p> 
7.0	Click Accept and label should print.
8.0	Scan Extra tube label to receive.

C. Using Requisition Entry when extra tube is from “X” location.

STEPS	INSTRUCTIONS
1.0	Go to Specimen Inquiry by Patient.
2.0	<p>Type “X” location in submitter box and the first three letters of patient’s last and first name in Name/MRN box. i.e. XSLMN for Salemtowne; SMI, JOE for Joe Smith.</p> <p>2.1 Click find Patient.</p>  <p>The screenshot shows a 'Patient Lookup' dialog box with the following fields: 'Name/MRN' containing 'SMI,JOE', 'Submitter' containing 'XSLMN', 'SSN', 'DOB', and 'Sex'. There are checkboxes for 'Non-Human Only' and 'Show Inactive', and a 'Use sounds-like' checkbox. Buttons at the bottom include 'New', 'New & Reg', 'Find Patient', 'Clear', 'Accept', and 'Cancel'.</p> <p>2.2 Review patient that is displayed and Click Accept if correct patient.</p>
3.0	<p>Click on a current specimen. Specimen Inquiry will open.</p> <p>3.1 In Specimen Inquiry screen, click on Requisition Entry button.</p>  <p>The screenshot shows the 'Specimen Inquiry: 21W-160MD0008' screen. At the top, there are navigation icons for 'Specimen Update', 'Documents', 'Labels', 'Patient Inquiry', and 'Requisition Entry' (which is highlighted in yellow). Below this is a 'Specimen Inquiry' breadcrumb. The main content area displays the specimen ID '21W-160MD0008', the patient name 'Beakerapeleven, Patient Nmn', and demographic information 'F, 61 yrs, 2/29/1960'.</p>
4.0	<p>In Requisition Entry, scroll through the lists of tests ordered for the patient (in Procedure section) until you reach an ‘empty’ box.</p> <p>3.1 Type in the tube color in the Procedure box. (i.e. “Gold” or “Lav”)</p>

STEPS **INSTRUCTIONS**

Requisition Entry

Clear Accept & New Set Defaults Documents

Submitter: XEHSG

Patient alias:

SSN:

DOB: 2/29/1960

SUBMITTER PATIENT ID: XEHSG-CE013608

Orders [1] Billing Info [2] Demographics [3]

Diagnoses:

	Code	Description
1		

	Procedure [6]
1	BCR-ABL1 P210 BLOOD [LAB3167]
2	gold
3	

a. Make sure you are in the database tab to find these extra tube types by color.

Order Search

gold Database

Procedures

Name	Type	Cost to Org	Px Code
GOLD	Lab Panel		LAB3963

5.0 **Click "Create Specimens."**

4.1 Label should automatically print.

6.0 **Go to Receiving screen and scan label to receive.**