Beaumont HEALTH

Beaumont Laboratory
Clinical Pathology
Royal Oak

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Related Documents:

PROCEDURE FOR SPECIMEN ALIQUOTS AND DILUTIONS

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Purpose

The purpose of this procedure is to provide Chemistry staff with instructions to properly aliquot specimens, to verify the identity and to maintain integrity of capillary specimens, aliquots and specimen dilutions throughout the testing process.

Clinical Significance

At times, single specimens are sent to the lab with multiple test requests. Sometimes these specimens require splits or aliquots. Examples of such specimens include:

- Tests which must be sent to reference labs
- Select fluid specimens that are received in a cup but must be poured off into a specimen tube for centrifuging
- Specimens that must be frozen.
- Tests which must be performed on the same specimen
- Specimens that must be poured off into a special specimen container, tube or cup for testing

Although Specimen Processing personnel prepare specimens for testing, Chemistry personnel are responsible for such whenever further specimen processing is necessary at the workstation.

Equipment Supplies

Automated sample processing modules
Laboratory Information System (LIS)
Primary specimen
Collection/accession labels
Test tube rack
Centrifuge
Pipettes
Aliquot tube, cap, transfer cup
Pen or permanent marker
Personal Protection Equipment (PPE)
Biohazard bag

Safety Precautions

Be safe! Wear PPE (gloves, labcoat, use shield, face mask or goggles) whenever engaging in specimen handling activities likely to create a splash or spill.

Procedure

A. Instrument – Prepared Aliquots

The Acceleratora3600 is an automated processing system with modules that centrifuge, decap, aliquot, label, recap and sort specimens for distribution. Whenever possible, specimens are processed and required aliquots are prepared using this instrumentation. Samples that default from the automation without making an aliquot must be handled as a manually prepared aliquot.

B. Manually - Prepared Aliquots

1. Obtain proper secondary specimen tube, container or transfer cup.
2. Always LABEL the secondary vessel with correct patient name, MRN (medical record number), order number and test. Whenever possible, generate a barcode label in the LIS with this information to label secondary aliquot vessel. Labelled aliquot tubes that default with the primary tube due to an aliquot failure may be used to manually process the aliquot.
3. If specimen is a reference testing specimen (i.e. **send out lab**):
    a. Verify proper specimen type
    b. Verify correct storage information
    c. Record this information on the specimen label
    d. Initial label documenting patient identification with the primary tube and specimen handling.
4. Centrifuge the specimen if necessary.
5. Use a rack to hold sample containers, and match the primary specimen w/ the proper pour over tube(s), container(s) or cup.
6. Make sure that each original specimen tube/container matches correctly with the pour over tube/container by matching 2 patient identifiers (patient name, MRN, order number, birthdate) ,test(s) and collection times.
7. Determine the specimen type needed and aliquot as follows:
    a. **serum**
    Use a pipette to deliver the specimen or carefully pour it into the secondary vessel. Be careful to not let the pipette tip touch the serum separator gel at the bottom of the SST (serum separator tube), or the cells from a non-SST tube.
    b. **plasma**
    Use a pipette to aliquot specimen, being careful to not let the pipette tip touch the cells at the bottom of the tube.
    c. **whole blood**
    Invert tube several times to mix. Pour blood into secondary vessel.
    d. **CSF or other fluid**
    Use a pipette to aliquot required amount of CSF/fluid into secondary vessel.
8. Secure tube cap or specimen container lid onto aliquot specimen and original specimen.
9. Recheck 2 patient identifers on the primary tube and the aliquot tube. Initial the pour-over tube/container with your initials documenting that the identification recheck has been completed.
10. Deliver specimen to the proper testing station or storage area.

C. Aliquots Into Nested Cups

Whenever the secondary vessel is too small for a patient barcode label (e.g. a sample cup to be seated in the primary specimen collection tube for instrument analysis):

1. The MT/MLT will process only one specimen at a time
2. Carefully pour required aliquot volume into a clean sample cup and immediately nest the cup into its primary specimen collection tube that is labeled with correct patient name, MRN, order number and test.
3. If a secondary specimen tube must be prepared to hold the nesting cup, generate a barcode label in the LIS with this information to label secondary specimen tube. Recheck 2 patient identifiers on the primary tube and the aliquot tube. Initial the secondary tube documenting that the identification recheck has been completed.
4. Process aliquot ASAP to minimize evaporation
5. **It is strongly recommended that you do NOT return aliquot to original tube, to avoid contamination.** We do recognize, however, that when small sample volumes must be shared, the possibility for add-on or repeat testing or requirements for instrument deadspace volumes may preclude this. Do not store samples with nested cups.
6. Should the nested cup become separated from its parent primary specimen collection tube or properly labeled secondary tube, the cup and its contents **must** be discarded.

D. Dilutions (technical MT/MLT staff only)

1. Obtain proper secondary specimen tube, container or transfer cup, pipettes and diluent for the dilution procedure to be performed.
2. Use a permanent marker or generate additional barcode label in the LIS with correct patient name, MRN, order number and test to label secondary dilution vessel.
3. Prepare dilution according to the individual procedure protocols.
4. Initial the secondary dilution vessel with your initials.
5. **Mark dilution factor (X ___) on the secondary dilution vessel**.
6. If the dilution preparation must be transferred into a sample cup to be seated into the barcode-labeled dilution vessel for instrument sampling, use a permanent marker to **also label the sample cup with the dilution factor before seating it**.
7. **NEVER** nest a dilution cup into a primary specimen tube!
8. For automated instruments
   a. Program the dilution factor, at the analyzer, into the patient request
   b. These instruments will automatically multiply the result by the dilution factor and transmit the final result to the LIS.
   c. .

9. For all manual methods and those instruments that utilize worksheets,
    a. Record the dilution factor onto the worksheet.
    b. Multiply the result of the diluted specimen by the dilution factor, and manually report the final result into the LIS.

E. Archive Storage of Aliquots or Dilutions

1. Any dilutions made on a specimen are not archived, but discarded.
2.

Authorized Reviewers

Section Medical or Technical Director

Procedure for Specimen Aliquots and Dilutions

Document Control

Location of Master:

Master electronic file stored on the Clinical Pathology server under
S:/Automated Chemistry/Document Control Library/NEW/LOP/SH/Master Documents
Master printed document stored Chemistry General Policy and Procedure Manual Core Lab.

Number of Controlled Copies posted for educational purposes: 0

Number of circulating Controlled Copies: 1

Location of circulating Controlled Copies:

Automated Chemistry General Policy and Procedure Manual, STAT Lab

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Document History

Signature	Date		
Prepared by: V. Peterson, MT(ASCP)SC	01/21/2008		
Approved by: E. Sykes, MD	01/21/2008		
Reviewed by: (Signature)	**Date**	**Revision #**	**Modification**
Raymond E. Karcher, PhD	12/05/2008	r01	modified Beckman - clearing
Raymond E. Karcher, PhD	12/04/2009		
Vivek Kumar, PhD	12/07/2010		
John Wilson, PhD	02/03/2012		
Kenneth Simkowski, PhD	11/18/2014		
Kenneth Simkowski, PhD	10/21/2016		
Kenneth Simkowski, PhD	10/17/2017	r02	update PVT to P612
Elizabeth Sykes, MD	02/02/2018		
Peter Millward, MD	09/17/2018		
Updated by: Robin Carey-Ballough	09/27/2019	r03	Update to Abbott Line and instrumentation.
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