

Beaumont

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Chemistry
Applicability Royal Oak

Outreach Problem Serum Separator Tubes - Royal Oak

Document Type: Policy

I. PURPOSE AND OBJECTIVE:

- A. The purpose of this procedure is to provide guidance to Automated Chemistry technical staff in determining action for inappropriately processed serum separator tubes (SST) that may be received from Outreach. A Technical Bulletin, flowcharts and stability tables are also included.

II. POLICY STATEMENT:

- A. It is essential that gold-top/SST tubes are centrifuged as soon as the blood has clotted (clotting takes 30-60 mins). Centrifugation allows the gel to separate red cells, white cells, and platelets from the serum. If cells remain in contact with serum, cell contents (e.g. potassium, LD, AST) leak into the serum, or because the cells are metabolically active they utilize glucose. Consequently, the following changes start to occur within 2-4 hours from blood collection:
1. Potassium increases
 2. Glucose decreases
 3. Other tests are affected after longer periods (e.g. LD, CO2, Phosphate, TSH)

III. LABORATORY BULLETIN:

Updated Policy - Un-Centrifuged Serum Separator Tubes Received by Lab. August 3, 2009

Beaumont Laboratory

Royal Oak • Troy • Grosse Pointe

Technical Bulletin

ATTENTION PHYSICIANS AND OFFICE MANAGERS

– UPDATED POLICY –

UN-CENTRIFUGED SERUM SEPARATOR TUBES RECEIVED BY LAB –

Why have a policy?

It is essential that gold-top/SST tubes are centrifuged as soon as the blood has clotted (clotting takes 30 – 60 mins). Centrifugation allows the gel to separate red cells, white cells and platelets from the serum. If cells remain in contact with serum, cell contents (e.g. potassium, LD, AST) leak into the serum, or because the cells are metabolically active they utilize glucose. Consequently the following changes start to occur within 2-4 hours from blood collection:

- Potassium increases
- Glucose decreases
- Other tests are affected after longer periods (e.g. LD, CO2, phosphate, TSH)

What is the updated policy?

Un-centrifuged tube collected less than 24 hours prior to receipt:

Routine Chemistry tests performed. The following cautionary note will be reported with results: "Tube received unspun – may elevate K and LD and lower gluc."

If results include a critical glucose or potassium value, these will be called to the physician after 6 am the next day.

Un-centrifuged tube collected 25-48 hours prior to receipt:

Only selected chemistry tests (e.g. BUN, creatinine) can be performed; others will be canceled (e.g. electrolytes).

Un-centrifuged tube that has been frozen, exposed to excessive heat or collected more than 48 hours prior to receipt:

All tests will be canceled.

In summary, in order to cause as little inconvenience to you and your patients, it is essential that your staff:

- Centrifuges the gold-top/SST tube as soon as the blood has clotted (clotting takes approximately 30-60 mins).
- Does NOT centrifuge before clotting has occurred.
- Documents the time of blood collection on the requisition form.

Effective Date
Submitted by

August 3, 2009
Elizabeth Sykes, MD, Medical Director, Automated Chemistry and
Special Testing, Royal Oak

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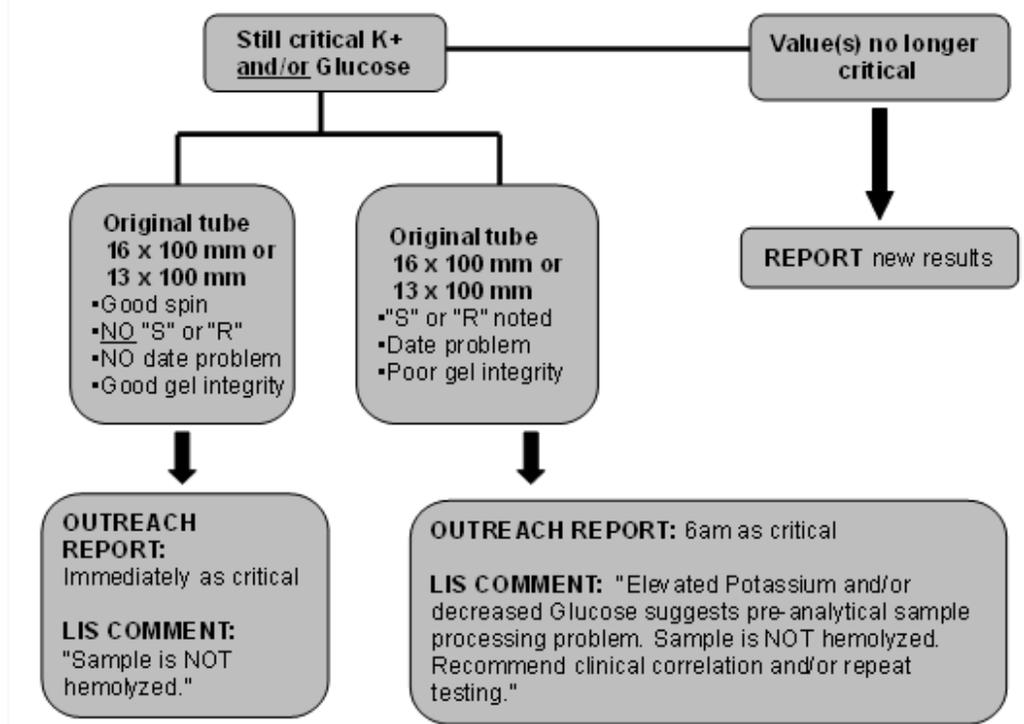
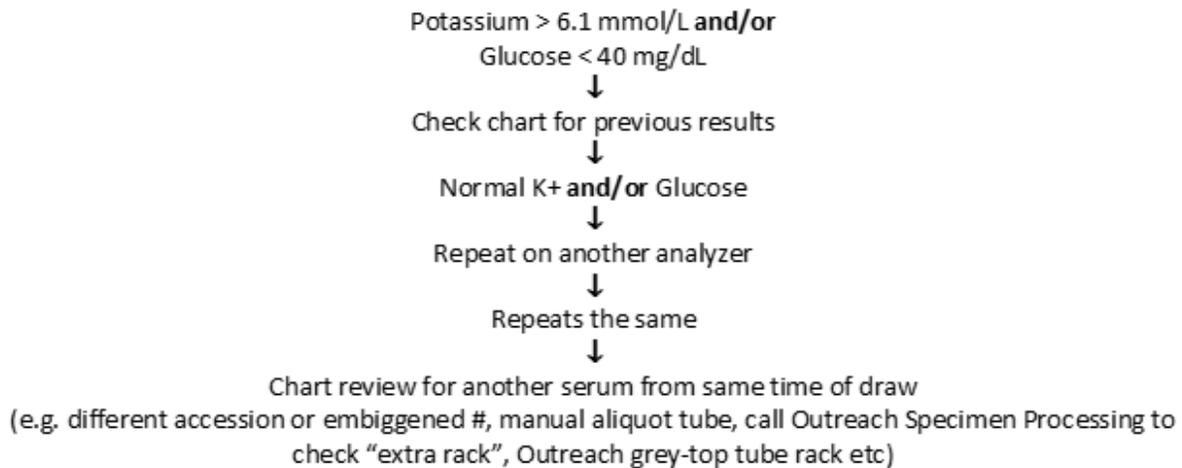
Beaumont Laboratory
Outreach Customer Service
1-800-551-0488

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Royal Oak, MI 48073-6769
1-800-551-0488

44201 Dequindre Road
Troy, MI 48065-1198
248-964-8030

www.beaumont-hospitals.com/labs

IV. WORK FLOW: Elevated Potassium and/or Decreased Glucose - Outreach Sample:

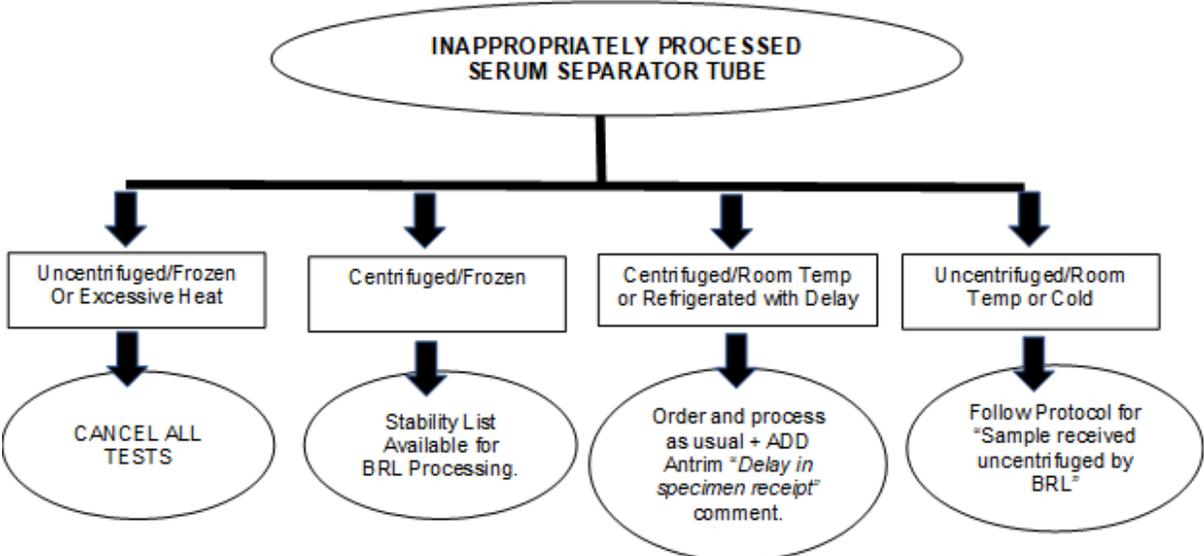


- "S" = spun by Outreach (noted on specimen tube by Outreach Processing)
- "R" = respun (noted on specimen tube)
- Integrity poor – angled gel, cells in serum, or incomplete separation of cells/serum
- Date problem/Processing delay – date of collection differs from processing date.

Poor gel integrity - If sample is "old" (has sat for several hours, already centrifuged in client's office, in Outreach refrigerated problem rack, or in archive) **do NOT re-centrifuge primary specimen**. If you must re-spin, pour off the serum into another tube and re-centrifuge the serum only.

If you receive a critical Outreach K+ that is >10.0 mmol/L, report as ">10.0 mmol/L" instead of the actual value from the analyzer.

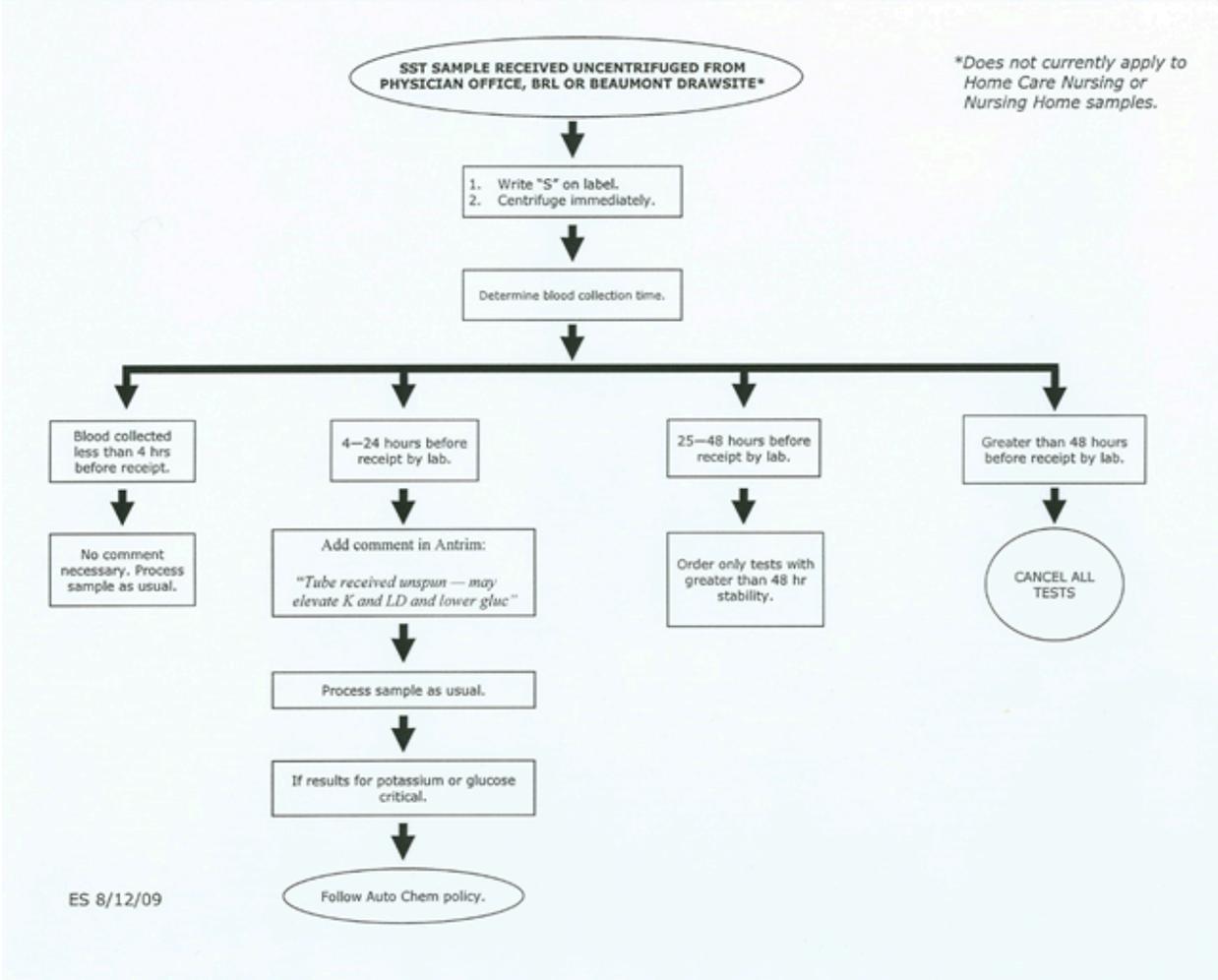
V. WORK FLOW: Inappropriately Processed Serum Separator Tube:



ES 08/12/2009



VI. WORK FLOW: SST Sample Received Un-Centrifuged from Physician Office, Beaumont Reference Lab or Hospital Draw Site:



VII. STABILITY DATA FROM ES 01MAY09 UN-CENTRIFUGED SPECIMENS:

COPY

Stability Data from ES 01May09
Uncentrifuged Specimen

Alphabetical Sort		By Time (hrs) Sort	
Test	Time (hrs)	Test	Time (hrs)
Albumin	48	Glucose	4
Alk Phos	48	LD	8
ALT	24	Potassium	8
Amylase	24	ALT	24
AST	24	Amylase	24
Bicarbonate	24	AST	24
Bilirubin, total	24	Bicarbonate	24
Bilirubin, direct	24	Bilirubin, direct	24
BUN	48	Bilirubin, total	24
Calcium	48	CO2	24
Chloride	48	Cortisol	24
Cholesterol, total	48	Estradiol	24
Cholinesterase	48	Ferritin	24
CO2	24	Folate, serum	24
Cortisol	24	Fructosamine	24
CK	48	FSH	24
Creatinine	48	hCG	24
Estradiol	24	HDL cholesterol	24
Ferritin	24	Iron	24
Folate, serum	24	LDL cholesterol	24
Fructosamine	24	LH	24
FSH	24	Lipase	24
GGT	48	Magnesium	24
Glucose	4	Phosphorus	24
hCG	24	Prealbumin	24
HDL cholesterol	24	Prolactin	24
Iron	24	Sodium	24
LD	8	T3	24
LDL cholesterol	24	T4	24
LH	24	Testosterone	24
Lipase	24	TSH	24
Magnesium	24	Vitamin B12	24
Potassium	8	Albumin	48
Phosphorus	24	Alk Phos	48
Prealbumin	24	BUN	48
Prolactin	24	Calcium	48
Protein, total	48	Chloride	48
Protein electrophoresis	48	Cholesterol, total	48
Sodium	24	Cholinesterase	48
Testosterone	24	CK	48
T3	24	Creatinine	48
T4	24	GGT	48
Triglycerides	48	Protein electrophoresis	48
TSH	24	Protein, total	48
Uric Acid	48	Triglycerides	48
Vitamin B12	24	Uric Acid	48

S:/Autochem/Spec Processing/Stability Chart_Uncentrifuged_01May09.xls / Uncentrifuged Comb

VIII. SST SPECIMEN RECEIVED CENTRIFUGED

Approval Signatures

Step Description	Approver	Date
CLIA Directors	Ann Marie Blenc: System Med Dir, Hematopath	2/15/2024
System Medical Director	Caitlin Schein: Staff Physician	1/26/2024
Medical Director	Subhashree Mallika Krishnan: Staff Physician	1/24/2024
Technical Director	Qian Sun: Tech Dir, Clin Chemistry, Path	1/24/2024
Policy and Forms Steering Committee Approval (if needed)	Kelly Walewski: Supv, Laboratory	1/24/2024
Lab Manager	Leah Korodan: Mgr, Division Laboratory	1/24/2024
	Kelly Walewski: Supv, Laboratory	1/24/2024

Applicability

Royal Oak