TRAINING UPDATE

Lab Location:	GEC, SGMC & WAH	**Date Distributed:**	2/22/2016
Department:	Core	**Due Date:**	3/22/2016
		Implementation:	**3/23/2016**

DESCRIPTION OF PROCEDURE REVISION

Name of procedure:
Preparation of Chemistry Dilutions **GEC.C215, SGAH.C854, WAH.C853 v2**
Description of change(s):
Section 5: refer reader to assay SOP for diluent, instructions, etc. instead of package insert This revised SOP will be implemented on March 23, 2016

Document your compliance with this training update by taking the quiz in the MTS system.

Approved draft for training (version 2)

Non-Technical SOP

Title	**Preparation of Chemistry Dilutions**	
Prepared by	Cynthia Bowman-Gholston	Date: 11/5/2013
Owner	Robert SanLuis	Date: 11/5/2013

Laboratory Approval		
Print Name and Title	**Signature**	**Date**
Refer to the electronic signature page for approval and approval dates.		
Local Issue Date:	Local Effective Date:	

Review:		
Print Name	**Signature**	**Date**

Form revised 3/31/00

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1. PURPOSE

This procedure establishes guidelines for preparing appropriate manual dilutions for quantitation of results exceeding the assay's linear range, require confirmation, or have special interference problems.

2. SCOPE

2.1 Includes all quantitative chemistry tests. This procedure does not apply to auto dilutions, performed by instrumentation, or dilutions for qualitative and semi-qualitative assays.

2.2 This dilution procedure applies to both existing and new chemistry assays.

3. RESPONSIBILITY

3.1 The department supervisor is responsible for implementation and training of technical staff on the proper use of this procedure.

3.2 It is the responsibility of each trained staff member to carry out the process as described in this SOP.

4. DEFINITIONS

Dilution Factor: The ratio number used to multiply a diluted result to determine a final answer of a diluted specimen.

5. PROCEDURE

1. Review the assay procedure for specific diluent and other information or instructions, as applicable.
~~Determine the Reportable Range for the assay.~~

~~Review manufacturer kit insert (or additional literature accompanying the test) for information related to high dose hook effect~~

~~Review manufacturer kit insert (or additional literature accompanying the test) for specific diluent to be used. Some manufactured kits include a sample diluent; others recommend use of a 0 standard.~~

~~If the manufacturer does not offer diluent information as part of the kit, an acceptable diluent can be determined in one of the following ways:~~
- ~~Contact the manufacturer for the information,~~
- ~~Contact another Quest Diagnostics laboratory that may have an appropriate diluent,~~
- ~~Refer the specimen to the reference laboratory for testing.~~

2. **Preparation and Calculation of Dilutions:** The description below gives examples of dilution preparation, labeling and determining the final reported result. Deviation from these dilution processes must be validated, documented and approved and documented by a departmental supervisor before reporting the result.

A. If a sample has a value that is slightly higher than the linear range:
1:2 (X2) Dilutions:

1) Label one 12 x 75 mm (borosilicate glass, polyethylene or specifically required) tube for each patient dilution. Label the tube with an accession ID and mark the tube "X2".
2) Using a fixed volume pipette, add 0.2 mL (200 µL) of diluent to the X2 tube.
3) Using a fixed volume pipette, add 0.2 mL (200 µL) of patient sample to the appropriately labeled X2 tube.
4) Mix the X2 tube well (3 bursts) on a vortex mixer.
5) Analyze the diluted specimen in the routine assay and multiply the reading or recovered value by 2.

B. For the following dilutions choose a sample with a value that significantly exceeds the linear range.
1:5 (X5) Dilutions:

1) Label one 12 x 75 mm (borosilicate glass, polyethylene or specifically required) tube for each patient dilution. Label the tube with an accession ID and mark the tube "X5".

2) Using a fixed volume pipette, add 0.4 mL (400 µL) of diluent to the X5 tube.
3) Using a fixed volume pipette, add 0.1 mL (100 µL) of patient sample to the appropriately labeled X5 tube.
4) Mix the X5 tube well (3 bursts) on a vortex mixer.
5) Analyze the diluted specimen in the routine assay and multiply the reading or recovered value by 5.

1:10 (X10) Dilutions:

1) Label one 12 x 75 mm borosilicate glass, polyethylene or specifically required) tube for each patient dilution. Label the tube with an accession ID and mark the tube "X10".
2) Using a fixed volume pipette, add 0.45 mL (450 µL) of diluent to the X10 tube.
3) Using a fixed volume pipette, add 0.05 mL (50 µL) of patient sample to the appropriately labeled X10 tube.
4) Mix the X10 tube well (3 bursts) on a vortex mixer.
5) Analyze the diluted specimen in the routine assay and multiply the reading or recovered value by 10.

1:50 (X50) Dilutions:

1) Prepare the 1:10 dilution as described above.
2) Using a fixed volume pipette, add 0.4 mL (400 µL) of diluent to the X50 tube.
3) Using a fixed volume pipette, transfer 0.1 mL (100 µL) from the patient's X10 tube into the respective X50 tube.
4) Mix the X50 tube well (3 bursts) on a vortex mixer.
5) Analyze the X50 diluted specimen in the routine assay and multiply the reading or recovered value by 50.

3. The description of dilution preparation is intended to serve as a guideline. Additional dilutions (e.g., X3, X20 dilutions) are acceptable if the preparation corresponds similarly to the descriptions above. Dilutions of greater than X50 must be prepared by serial dilution.

6. RELATED DOCUMENTS

Assay specific procedures

7. REFERENCES

N/A

8. REVISION HISTORY

Version	Date	Reason for Revision	Revised By	Approved By
0	2/11/2014	Section 9: correct error in table	L Barrett	R SanLuis
1	2/5/2015	Section 5: refer to assay SOP instead of package insert	L Barrett	R SanLuis

9. ADDENDA AND APPENDICES

Dilution Quick Reference Table

Addenda A

Dilution Quick Reference Table

Dilution	Serum/Plasma/Urine	Diluent	Dilution Factor
1:2	0.2 mL (200 µL)	0.2 mL (200 µL)	2
1:3	0.1 mL (100 µL)	0.2 mL (200 µL)	3
1:5	0.1 mL (100 µL)	0.4 mL (400 µL)	5
1:10	0.05 mL (50 µL)	0.45 mL (450 µL)	10

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