

MANUAL DILUTION LOCAL PROCEDURE

Safety Message Use universal precautions when handling patient samples.

Purpose To provide instructions on the use of the Manual Dilution Worksheet LCS 7060-B.

- Policy**
- The Manual Dilution Worksheet LCS 7060-B is to be used to document the manual dilution of results for tests listed in the Regional Dilution Policy results exceeding instrument analytic measuring range (AMR).
 - The lowest possible dilution will be used to obtain a result within the instrument's AMR.
 - All instrument generated reports will be attached to the Manual Dilution Worksheet LCS 7060-B
 - Submit completed worksheet and print-outs to manager for review.

Procedure

Step	Action																																								
1	Attach a reprint of the accession # onto the worksheet.																																								
2	Select the lowest possible dilution to obtain a result within the instrument's AMR.																																								
3	Perform the dilution with the appropriate verified diluent from the instrument's Chemistry Information Sheet manual.																																								
4.	Program the dilution into the instrument. <ul style="list-style-type: none"> • With or without ORDAC • Enter dilution factor 																																								
5.	Front-load diluted sample.																																								
6.	Print results from instrument.																																								
7.	Enter results in Remisol manually. <ul style="list-style-type: none"> • If results are greater than procedural limits in Cerner: <table border="1" data-bbox="641 1199 1015 1749"> <thead> <tr> <th>Procedure</th> <th>Result</th> </tr> </thead> <tbody> <tr><td>RBS</td><td>> 1200</td></tr> <tr><td>Acetaminophen</td><td>> 3000</td></tr> <tr><td>ALT</td><td>> 5000</td></tr> <tr><td>AST</td><td>> 5000</td></tr> <tr><td>CBZ Level</td><td>> 200.0</td></tr> <tr><td>CK Total</td><td>> 41000</td></tr> <tr><td>LDH</td><td>> 2700</td></tr> <tr><td>Magnesium</td><td>99.9</td></tr> <tr><td>PHB</td><td>> 800.0</td></tr> <tr><td>PTN</td><td>> 400.0</td></tr> <tr><td>Salicylate</td><td>> 1000.0</td></tr> <tr><td>Theo</td><td>> 400.0</td></tr> <tr><td>Valproic</td><td>> 1500.0</td></tr> <tr><td>R Vanco</td><td>> 400.0</td></tr> <tr><td>Xa Unfrac</td><td>> 1.10</td></tr> <tr><td>Digoxin NIS</td><td>> 45.0</td></tr> <tr><td>Pk Gent</td><td>> 120.0</td></tr> <tr><td>Lact Blood</td><td>> 110.0</td></tr> <tr><td>U Pro Pro_Cr</td><td>> 1500</td></tr> </tbody> </table> <ul style="list-style-type: none"> • Add in results comments section: <ul style="list-style-type: none"> ○ Verified by dilution comment e.g., CK 56,000 IU/L, Verified by dilution • Validate results 	Procedure	Result	RBS	> 1200	Acetaminophen	> 3000	ALT	> 5000	AST	> 5000	CBZ Level	> 200.0	CK Total	> 41000	LDH	> 2700	Magnesium	99.9	PHB	> 800.0	PTN	> 400.0	Salicylate	> 1000.0	Theo	> 400.0	Valproic	> 1500.0	R Vanco	> 400.0	Xa Unfrac	> 1.10	Digoxin NIS	> 45.0	Pk Gent	> 120.0	Lact Blood	> 110.0	U Pro Pro_Cr	> 1500
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Procedure

Step	Action
8.	Complete the Manual Dilution Worksheet LCS 7060-B and submit for manager review with instrument print-outs attached.

References

- Manual Dilution Policy, SCPMG QMS-0024, Rev 3
- Chemistry Information Sheets, Synchron DxC analyzer, Beckman Coulter.

Attachment

- Attachment A: Manual Dilution Worksheet LCS 7060-B

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Document History Page

Change type: New, Major, Minor etc.	Changes Made to SOP – describe	Signature responsible person/date	Laboratory Operations Director Reviewed/ date	Laboratory Medical Director Reviewed/ Date	Date change implemented
New		M.Acosta 03-15-16	J.Wolf 03-21-16	S.Wirio MD 03-25-16	03-25-16
Major	<ul style="list-style-type: none">Updated Manual Dilution Worksheet to reflect ALT and AST linear limits in Cerner.	<i>[Signature]</i> 8/8/18	<i>[Signature]</i> 8/9/18	<i>[Signature]</i> 8/8/18	8/13/18

MANUAL DILUTION LOCAL PROCEDURE ATTACHMENT A



CLS Initials: _____
 Date: _____

**Analyte
 being
 Diluted:** _____

Results Reported: _____

Tests listed below have been approved for dilution by SCPMG Lab Systems:

ALT** AST**	TDMS:
Glucose (Auto-ORDAC)	Acetaminophen
hCG	Digoxin
Lactic Acid	Dilantin/
LDH	Gentamycin
Magnesium	Phenobarbital
Urine Total Protein (mTP)	STAR Evolution
	Salicylate
	Tegretol/Carbamazepine
	Theophylline
	Valproic Acid
	Vancomycin
	Anti-Xa

- 1 Indicate dilution used by drawing a circle around dilution factor.
- 2 Answer question whether ORDAC was used in programming dilution on DXC.
- 3 Identify the diluent used.
- 4 Attach all instrument forms to this worksheet and place in QC review bin for manager review.

DILUTION FACTOR	SAMPLE	DILUENT
2	100 µL	100 µL
3	100 µL	200 µL
5	100 µL	400 µL
10	100 µL	900 µL
15	100 µL	1400 µL
20	50 µL	950 µL
50	10 µL	490 µL
100	10 µL	990 µL

Comments: _____

Manual ORDAC requested?

YES _____
 NO _____

Diluent used: Saline _____
 DI Water _____
 QC Material _____
 Normal pooled plasma _____
 other: _____

NOTE: Verify diluent in Chemistry Information Sheet Manual

Cerner Procedural Limits

Procedure	Result
RBS	> 1200
Acetaminophen	> 3000
ALT	> 5000
AST	> 5000
CBZ Level	> 200.0
CK Total	> 41000
LDH	> 2700
Magnesium	99.9
PHB	> 800.0
PTN	> 400.0
Salicylate	> 1000.0
Theo	> 400.0
Valproic	> 1500.0
R Vanco	> 400.0
Xa Unfrac	> 1.10
Digoxin NIS	> 45.0
PK Gent	> 120.0
Lact Blood	> 110.0
U Pro Pro_Cr	> 1500

**ALT and AST max dilution is 1:15
 *CK may be diluted greater than 1:10
 Manual Dilution Worksheet LCS 7060-B