



Intermountain Health
Laboratory Services

Roche Chemistry Implementation: Changes from Current Abbott Assays

Version 10/12/2023

This document provides information about Roche chemistry assays scheduled to be implemented at Utah Valley Hospital, Orem Community Hospital, and Spanish Fork Hospital on October 30, 2023. Other Intermountain Hospitals will not be impacted until later dates to be announced.

Assays

NEW Roche Assay	OLD Abbott Assay																		
Troponin T, High Sensitivity (hsTnT) NOTE: hsTnT is reported in whole numbers with units of ng/L. Reference intervals are 0-14 for females and 0-22 for males. For more information, refer to Intermountain’s algorithm “Suspected Acute Coronary Syndrome (ACS) – ED and Inpatient” (https://kr.ihc.com/ckr-ext/Dcmnt?ncid=530420539).	Troponin I Reference interval is 0.00-0.04 ng/mL.																		
NT-proBNP (N-terminal pro-B-type Natriuretic Peptide) <table><tr><th>Age</th><th>NT-proBNP, pg/mL</th><th>Interpretation</th></tr><tr><td rowspan="2"><50 y</td><td>>450</td><td>ADHF likely</td></tr><tr><td>300-450</td><td>Indeterminate</td></tr><tr><td rowspan="2">50-75 y</td><td>>900</td><td>ADHF likely</td></tr><tr><td>300-900</td><td>Indeterminate</td></tr><tr><td rowspan="2">>75 y</td><td>>1800</td><td>ADHF likely</td></tr><tr><td>300-1800</td><td>Indeterminate</td></tr></table> ADHF = acute decompensated heart failure	Age	NT-proBNP, pg/mL	Interpretation	<50 y	>450	ADHF likely	300-450	Indeterminate	50-75 y	>900	ADHF likely	300-900	Indeterminate	>75 y	>1800	ADHF likely	300-1800	Indeterminate	BNP (B-type Natriuretic Peptide) Reference interval is 0-100 pg/mL.
Age	NT-proBNP, pg/mL	Interpretation																	
<50 y	>450	ADHF likely																	
	300-450	Indeterminate																	
50-75 y	>900	ADHF likely																	
	300-900	Indeterminate																	
>75 y	>1800	ADHF likely																	
	300-1800	Indeterminate																	
Hepatitis A Virus Antibody, Total (IgG + IgM)	Hepatitis A Virus Antibody, IgG																		

Biotin Interference with Roche Assays

High biotin (vitamin B7) concentrations in blood (e.g., from nutritional supplements) may interfere with some immunoassays, causing falsely low or falsely high results. The daily recommended allowance for biotin, 0.03 mg, does not typically interfere with assays; however, supplements may contain 20 mg or more and could interfere with assays listed on the right.

Assay	Biotin potential interference
Cortisol	False elevation
Digoxin	False elevation
Estradiol	False elevation
Free T4	False elevation
LH	False decrease
Progesterone	False elevation
PTH, intact	False decrease

To reduce the potential impact on test results, patients taking biotin are encouraged to wait at least 8 hours after biotin ingestion before having blood drawn for these tests. When investigating unexpected test results, it is important to

communicate a patient's biotin use to the laboratory.

Some assays have recently been reformulated by Roche to minimize the potential for biotin interference, but mega-doses (>300,000 µg/day) may interfere with the assays listed on the right.

<u>Assay</u>	<u>Mega-dose potential interference</u>
FSH	False decrease
HBV surface ag	False decrease
hCG, quant.	False decrease
NT-proBNP	False decrease
Procalcitonin	False decrease
PSA, total	False decrease
Troponin T	False decrease
TSH	False decrease

Reference Intervals

Test	NEW Roche Reference Intervals			OLD Abbott Reference Intervals		
Alkaline Phosphatase (U/L)	<u>Age</u>	<u>Female</u>	<u>Male</u>	<u>Age</u>	<u>Female</u>	<u>Male</u>
	0-14 d	83-248	83-248	0-14 d	90-273	90-273
	15 d-11 m	122-469	122-469	15 d-11 m	134-518	134-518
	1-9 y	142-335	142-335	1-9 y	156-369	156-369
	10-12 y	129-417	129-417	10-12 y	141-460	141-460
	13-14 y	57-254	116-468	13-14 y	62-280	127-517
	15-16 y	50-117	82-331	15-16 y	54-128	89-365
	17 y	45-87	55-149	17 y	48-95	59-164
	≥18 y	35-104	40-129	≥18 y	40-120	40-120
C-Reactive Protein (mg/dL)	<u>Age</u>	<u>Range</u>		<u>Age</u>	<u>Female</u>	<u>Male</u>
	0-17 y	<0.3		0-17 y	≤0.7	≤0.7
	≥18 y	<0.5		≥18 y	≤1.5	≤1.0
Cortisol, AM or Untimed (µg/dL)	<u>Age</u>	<u>Range</u>		<u>Age</u>	<u>Range</u>	
	0-30 d	0.5-14.0		0-1 d	None	
	1-11 m	0.7-20.0		2-14 d	5.0-12.3	
	1-10 y	2.4-15.0		15 d-11 m	5.0-16.6	
	12-17 y	3.6-17.0		1-8 y	5.0-10.8	
	≥18 y	4.8-19.5		9-13 y	5.0-12.7	
				14-16 y	5.0-16.4	
Cortisol, PM (µg/dL)	<u>Age</u>	<u>Range</u>		<u>Age</u>	<u>Range</u>	
	0-30 d	0.5-14.0		0-1 d	None	
	1-11 m	0.7-20.0		2-14 d	5.0-12.3	
	1-10 y	2.4-15.0		15 d-11 m	5.0-16.6	
	12-17 y	3.6-17.0		1-8 y	5.0-10.8	
	≥18 y	2.5-11.9		9-13 y	5.0-12.7	
				14-16 y	5.0-16.4	
				17 y	5.0-18.3	
				≥18 y	3.0-16.0	

Test	NEW Roche Reference Intervals			OLD Abbott Reference Intervals		
Creatine Kinase (U/L)	<u>Age</u>	<u>Female</u>	<u>Male</u>	<u>Age</u>	<u>Female</u>	<u>Male</u>
	0-5 m	None	None	0-1 d	0-1031	0-1031
	6 m – 2 y	38-260	50-272	2-10 d	0-756	0-756
	3-5 y	42-227	59-296	11 d-11 m	0-461	0-461
	6-8 y	50-231	54-275	1-6 y	0-295	0-295
	9-11 y	52-256	55-324	7-9 y	0-238	0-298
	12-14 y	45-257	63-407	10-11 y	80-230	55-215
	15-17 y	45-458	68-914	12-13 y	50-295	60-330
	≥18 y	36-184	56-356	14-15 y	50-240	60-335
				16-17 y	45-230	55-370
Estradiol (pg/mL)	<u>Age</u>	<u>Female</u>	<u>Male</u>	<u>Age</u>	<u>Female</u>	<u>Male</u>
	0	None	None	1-8 y	5-14	3-12
	18	Varies*	11.3-43.2	9-10 Y	5-55	3-12
				11-12 Y	5-270	3-12
	<u>* Adult female ranges</u>			13-15 y	22-370	5-28
	Follicular Phase		30.9-90.4	16-17 y	34-370	5-42
	Ovulation		60.4-533	≥18 y	≤508	≤77
	Luteal Phase		60.4-232			
	Post-menopausal		<5-138	<u>Adult female interpretation</u>		
	1 st Trimester		154-3243	Follicular Phase		39-189
Ethanol (mg/dL)	2 nd Trimester		1561-21,280	Mid-cycle Peak		94-508
	3 rd Trimester		8525->30,000	Luteal Phase		48-309
				Post-menopausal		≤41
Human Chorionic Gonadotropin (hCG), Quantitative (mIU/mL)	<10			<13		
	Non-Pregnant Female: <5			Non-Pregnant Female: <5		
	<u>Weeks of Gestation</u>		<u>Range</u>	<u>Weeks of Gestation</u>		<u>Range</u>
	3		5-70	0-1		5-50
	4		10-700	1-2		50-500
	5		220-8200	2-3		100-10,000
	6		150-32000	3-4		1000-30,000
	7		4000-154,000	4-5		3500-115,000
	8		31,000-149,000	6-8		12,000-270,000
	9		59,000-136,000	12		15,000-220,000
	10		44,000-170,000			
	12		27,000-202,000			

Test	NEW Roche Reference Intervals			OLD Abbott Reference Intervals		
Luteinizing Hormone (mIU/mL)	<u>Age</u> 0-5 m 0.0-8.2 0.0-6.2 6 m-10 y 0.0-1.3 0.0-1.3 11-13 y 0.0-10.0 0.0-2.0 14-17 y 0.4-25.0 1.3-8.4 ≥18 y Varies* 1.7-8.6 <u>* Adult female ranges</u> Follicular Phase 2.4-12.6 Ovulation 14.0-95.6 Luteal Phase 1.0-11.4 Post-menopausal 7.7-58.5			<u>Age</u> 0-6 y None None 7-9 y 0.0-0.7 0.0-0.7 10-12 y 0.0-6.8 0.0-3.4 13-15 y 0.3-23.0 0.3-5.6 16-17 y 0.0-26.4 1.1-9.0 ≥18 y Varies* 0.6-12.1 <u>* Adult female ranges</u> Follicular Phase 1.8-11.8 Ovulation 7.6-89.1 Luteal Phase 0.6-14.0 Post-menopausal 5.2-62.0		
Parathyroid Hormone, Intact (pg/mL)	<u>Age</u> 0-30 d 6.6-59.4 1-11 m 8.5-61.3 1-10 y 11.3-60.0 11-17 y 15.1-68.0 ≥18 y 15.0-65.0	<u>Range</u>		<u>Age</u> 6 d-11 m 6-89 1-8 y 16-63 9-16 y 22-88 ≥17 y 22-94	<u>Range</u>	
Procalcitonin (ng/mL)	<u>Age</u> ≥4 d ≤0.09 <u>Additional interpretation</u> <0.10: serious bacterial infections are very unlikely. 0.10-0.25: Significant bacterial infections are unlikely. 0.26-2.00: Risk of infection increases as PCT increases from 0.25 to 2.00 but there is considerable uncertainty. >2.00: Highly suggestive of systemic bacterial infection or severe local bacterial infection.			<u>Age</u> ≥4 d ≤0.09 <u>Additional interpretation</u> <0.10: Indicates absence of bacterial infection 0.10-0.25: Bacterial infection unlikely 0.26-0.50: Bacterial infection possible >0.50: Suggestive of presence of bacterial infection		
Prolactin (ng/mL)	<u>Age</u> 0-30 d 1.1-470.0 1.1-470.0 1-11 m 5.2-60.0 5.2-60.0 1-17 y 3.0-25.0 3.0-25.0 ≥18 y 4.8-23.3 4.0-15.2	<u>Female</u> <u>Male</u>		<u>Age</u> 0-6 d 30.0-495.0 30.0-495.0 7-30 d 0.3-95.0 0.3-95.0 1-11 m 0.3-30.0 0.3-30.0 1-2 y 2.0-20.0 2.0-25.0 3-6 y 1.0-18.0 1.0-16.0 7-10 y 2.0-12.0 2.0-11.0 11-17 y 3.0-18.0 2.0-14.0 ≥18 y 3.6-26.5 3.5-19.4	<u>Female</u> <u>Male</u>	
Prostate Specific Antigen, Total (ng/mL)	<u>Age</u> 0-39 y <0.01 None 40-49 y <0.01 ≤2.50 50-59 y <0.01 ≤3.50 60-69 y <0.01 ≤4.50 ≥70 y <0.01 ≤6.50	<u>Female</u> <u>Male</u>		<u>Age</u> All None ≤4.0	<u>Female</u> <u>Male</u>	

Test	NEW Roche Reference Intervals		OLD Abbott Reference Intervals	
T4, Free (ng/dL)	<u>Age</u>	<u>Range</u>	<u>Age</u>	<u>Range</u>
	0-30 d	1.24-3.89	0-11 m	0.70-2.10
	1-11 m	1.09-1.71	1-5 y	0.77-1.73
	1-17 y	1.01-1.63	6-10 y	0.74-1.56
	≥18 y	0.93-1.70	11-14 y	0.70-1.42
			15-17 y	0.73-1.57
			18-20 y	0.78-1.45
			21-40 y	0.76-1.44
			41-60 y	0.74-1.46
			61-80 y	0.75-1.50
Thyroid Stimulating Hormone (μIU/mL)	<u>Age</u>	<u>Range</u>	<u>Age</u>	<u>Range</u>
	0-30 d	1.23-27.20	0-20 y	0.50-5.00
	1-11 m	1.03-6.80	≥20 y	0.46-4.88
	1-14 y	1.12-5.01		
	15-17 y	0.68-4.09		
	≥18 y	0.27-4.20		
Urine Drug Screen Cutoffs (ng/mL)	<u>Drug Class</u>	<u>Cutoff</u>	<u>Drug Class</u>	<u>Cutoff</u>
	Amphetamines /		Amphetamines /	
	Methamphetamines	500	Methamphetamines	1000, *500
	Barbiturates	200	Barbiturates	200, *150
	Benzodiazepines	100	Benzodiazepines	200, *100
	Cocaine metabolite	150	Cocaine metabolite	300, *150
	Fentanyl	5	Fentanyl	1
	Methadone	300	Methadone	300, *150
	Opiates	300	Opiates	300, *150
	Synthetic Opioids	100	Synthetic Opioids	100, *75
	THC / Cannabinoids	50	THC / Cannabinoids	50
	Buprenorphine	10	* age 0-12 years	

Specimen Types

Test	NEW Roche Specimen Tube Types	OLD Abbott Specimen Tube Types
Ammonia	Lavendar top only	Mint, green, lavender tops OK
Acetaminophen	Red top preferred; lavender top OK	Red, gold, mint, green tops OK
Serum Drug Screen	Red top preferred; lavender top OK	Red, gold, mint, green tops OK
Troponin	Mint top only	Red, gold, mint, green tops OK
Vancomycin	Red top preferred; lavender top OK	Red, gold, mint, green, lavender tops OK