



Technical Memorandum

TO: Physicians, Staff

From: Wesley Kim, MD, Medical Director
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Date: December 10, 2009

Subject: Laboratory Automation System

Diagnostic Laboratory Services continues to look for ways to improve the quality of its laboratory services. In 2001, DLS implemented its first fully automated chemistry system. This system allowed us to automate and standardize many internal laboratory procedures related to specimen processing, analysis, and resulting leading to improved quality of laboratory testing services. However, as time passes and technology advances, so too must laboratories change and move forward. DLS is therefore pleased to announce that the laboratory will be implementing a new automation system and new chemistry / immunoassay instrumentation, a project that has been in development for nearly two years. It is our expectation that the new system will further improve the quality and reliability of laboratory testing results, reduce turn-around time, and further enhance services to our clients and Hawaii's patient population. Because of the scope of the project and the number of tests being affected, implementation will occur in three phases. The first and second phase will involve basic chemistry tests and the third phase will involve special chemistry and immunoassay tests.

Attached is a list of tests including the current reference ranges and the new reference ranges, which will be changing over in phase one on December 14, 2009. For the majority of these analytes, the reference range and reported values should show little variation between the two systems. For a few analytes, DLS will be adopting expanded age related reference ranges, following the method validation study and review of the literature.

The remaining two phases will occur later in December and clients will be notified with the details prior to implementation.

If you have any questions or concerns, please contact DLS Client Services at 589-5101, or Dr. Wesley J. Kim at 589-5131.

Reference Ranges for Chemistry instrumentation, effective December 14, 2009

TEST	UNITS	CURRENT REFERENCE RANGE	NEW REFERENCE RANGE
Albumin	g/dL	3.4 – 5.0	3.5 – 5.2
Alkaline Phosphatase	U/L	33-130 15Y: 106-390	35-129 1D: <250 2-5D: <231 6D-6M: <449 7M-1Year: <462 1-3Y: <281 4-6Y: <269 7-12Y: <300 13-17Y (Male): <390 13-17Y (Female): <187
ALT	U/L	0 - 40	0 - 41
Amylase	U/L	25 - 135	28 - 100
AST	U/L	0 – 37	0 - 40
Bilirubin, Direct	mg/dL	0 – 0.3	0 – 0.3
Bilirubin, Total	mg/dL	0.2-1.5 2D: 0-12 1W: 0-15 2W: 0-12 1Y: 0.2-1.5	Adults: up to 1.2 1D: ≤8.0 2D: ≤14.0 4D: ≤17.0 ≥1M: 0.0-1.0
BUN	mg/dL	6 – 19	6 – 23
Calcium	mg/dL	8.3 – 10.5	8.6 – 10.2
Chloride	mEq/L	97 - 110	96 - 108
Cholesterol	mg/dL	< 200 (desirable)	< 200 (desirable)
CK	U/L	35 – 232	M: 39 – 308 F: 26 - 192
CO2	mEq/L	23 - 31	22 - 29
Creatinine	mg/dL	0.6 – 1.5	0.7 – 1.2
GGT	U/L	10 - 66	8 – 61
Glucose	mg/dL	70 - 99	70 -99
HDL	mg/dL	> 40	≥ 40
Iron	ug/dL	M: 45 – 125 F: 30 - 125	M: 45 – 160 F: 30 – 160
LDH	U/L	118 - 242	135 – 225
LDL, Direct	mg/dL	< 100	< 100
Magnesium	mg/dL	1.8 – 2.6	1.6 – 2.6
Phosphorus	mg/dL	2.4 – 4.8 1W: 4.5-6.5 15Y: 2.4-6.5	2.7 – 4.5 1W: 4.5-6.5 15Y: 2.4-6.5
Potassium	mEq/L	3.6 – 5.0 1D: 3.7-5.9 2Y: 4.1-5.3 12Y: 3.4-4.7	3.3 – 5.1 1D: 3.7-5.9 2Y: 4.1-5.3 12Y: 3.4-4.7
Sodium	mEq/L	136 – 146	133 - 145
Total protein	g/dL	6.2 – 8.2	6.4 – 8.3
Triglycerides	mg/dL	< 150	< 150
TIBC (calculated)	ug/dL	200 – 352	228 – 428
Uric Acid	mg/dL	M: 3.5 – 7.0 F: 2.5 – 6.0 12Y: 2.0-5.5	M: 3.4 – 7.0 F: 2.4 – 5.7

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