



**Rhode Island Hospital  
The Miriam Hospital**

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**Memorandum**

**TO:** Rhode Island Hospital, The Miriam Hospital and Newport Hospital  
Medical Staff, House Staff Officers, Nursing Managers, and Lifespan  
Laboratory Outreach Clients

**FROM:** Ricky Darnell Grisson, II MD, MBA, MPH.  
Director, Clinical Chemistry Services  
Lifespan Laboratories

**DATE:** May 24, 2024

**SUBJECT:** New Critical Values and Rule Out Myocardial Infarction Protocol

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Effective May 29, 2024, Lifespan Clinical Chemistry Laboratory will move over to Abbott Alinity Chemistry and Immunoassay systems for a significant number of the in-house tests. This move to Abbott Diagnostics systems represents an improvement in system standardization, testing quality, resulting turnaround time and operational and cost efficiency. In accordance with clinical laboratory standards surrounding such a cross-over, the following critical values have been updated.

TEST NAME	Old Critical Levels	New Critical Levels
Acetaminophen	>150 ug/mL	>175 ug/mL
Ammonia	>100 umol/L	>80 umol/L
Bicarbonate	<11 & >45 mEq/L	<9 & >42 mEq/L
Phenytoin	>30 ug/mL	>31 ug/mL
Ethanol	>400 mg/dL	>360 mg/dL
GENTT (trough)	>5 ug/mL	>3.9 ug/mL
GENTP (peak)	>12 ug/mL	>9.3 ug/mL
GENT (random)	>12 ug/mL	>9.3 ug/mL
Glucose	<40 & >450 mg/dL	<40 & >500 mg/dL
Neonatal bilirubin	>14.9 mg/dL	>14.1 mg/dL
Total Protein	<4.0 & >12.0 g/dL	<3.9 & >12.6 g/dL
Vancomycin (trough)	>20 ug/mL	>25 ug/mL
Vancomycin (peak)	>80 ug/mL	>45 ug/mL
Vancomycin (random)	>80 ug/mL	>30 ug/mL

Furthermore, the high sensitivity troponin is being transferred from Beckman Coulter and Siemens systems to our new Abbott clinical chemistry systems for RIH, TMH and NH. Consequently, the new, independently established protocol for evaluating myocardial infarction is as follows in the figure below. This algorithm was independently established, as published in Boeddinghaus J., et al. Clinical Chemistry. 62:3,494-504 (2016).

# RIH, TMH, NH High Sensitivity 0- and 2-Hour Troponin Chest Pain Algorithm

**Algorithm only applies to patients with an initial concern for ACS except:**

- STEMI/ Transfers with ACS
- Renal Failure
- Non-ACS alternative diagnosis subsequently made during evaluation

Chest Pain consistent with possible ACS\*

## REFERENCE RANGES:

Female: 3-14 ng/L

Male: 3-35 ng/L

Delta ( $\Delta$ ) = Difference between the 0- and 2-hour troponin

\*Any absolute value outside the reference range should be considered for the CDU

Onset > 3 hours ago  
+ Troponin < 3 ng/L

Onset < 3  
hours ago or  
unknown

## DISPOSITION PLANNING:

Green → Discharge

Yellow → CDU (inpatient medicine if meets CDU exclusions and/or at capacity)

Red → Cardiology consult → Disposition per Cardiology/inpatient medicine

0 and 2 hr  
Troponin < 6 ng/L  
and  $\Delta$  < 2 ng/L

Any Troponin  
 $6 \leq X < 64$  ng/L  
or  $\Delta$  2-14 ng/L

Any Troponin  
 $\geq 64$  ng/L or  
 $\Delta \geq 15$  ng/L

## HEART SCORE:

0 to 3 points = low risk (0.6% to 1.7% risk of MACE)

4 to 6 points = intermediate risk (16.6% risk);

7 to 10 points = high risk (50.1% risk).

$\Delta$  2 - 14 ng/L  
and HEART  
Score  $\leq 3$

> 14F or 35M  
ng/L or HEART  
Score  $\geq 4$

For questions, comments or concerns, please do not hesitate to contact the Clinical Chemistry Laboratory: Ricky Grisson, II MD, MPH (793-4298), Deb Smeal (444-5217), Ean Larson (793-2526), Kraig Ruth (845-1104) or Kim Paiva (793-4237).