STAY AMAZING

NewYork-Presbyterian

WITH WORLD-CLASS DOCTORS FROM

COLUMBIA Weill Cornell Medicine

Chemistry Updates*

February 2025

*Subject to change. Refer back to this page regularly for updates.

Major changes

- **Phased go-live**
- **New assays/orderables:**
  - ❖Hs-cTnI to hs-cTnT
  - ❖BNP to NT-proBNP
  - ❖Three additional tests in the Drug of Abuse (DAU) panel
  - ❖Iron & TIBC→ Iron & TIBC with Transferrin Saturation
- **Collection procedures**
  - ❖Ammonia, hsTnT and NT-proBNP: tube type change
  - ❖DHK: Serum RST tube→ SST tube (phase 1) and Li-Heparin PST tubes (phase 4)
- **Reference range, unit and calculation changes**
- **Discontinued/sendout**
  - ❖Discontinued tests
  - ❖Temporary send out
- **Hemolysis reporting**

Big picture

- Changing the major chemistry automation system from Siemens to Roche
- Old Siemens instruments are breaking (urgency to switch)
- Standardization with other NYP hospitals

Project Timelines

Project	Status	February	March	April	May	June	July
Roche Cobas Pro Phase 1 Payson 8	In Progress	Go-Live March 11					
Roche Cobas Pro Phase 2 Payson 8	In Progress	Tentative Go-Live April/May					
Roche Automation Phase 3 Payson8	Planning		Tentative Go-Live June/July				
Roche Pure Phase 4 DHK	Planning		Tentative Go-Live June/July				

Phase 1: critical/priority test menu

March 11, 2025

Acetaminophen Level	Cholesterol LDL Direct	Hepatitis A B C Profile	Phosphorus Level
Acute Hepatitis Panel	CMP	Hepatitis B Core Ab	Phosphorus Level Urine Random
Adrenal Vein Sampling (Cort LAV/Cort IVC)	Cortisol	Hepatitis B Core Antibody IgM	Potassium Level
Albumin Level	Creatine Kinase	Hepatitis B Surface Antibody	Potassium Level Urine Random
Albumin Level Urine Random	Creatinine	Hepatitis B Surface Antigen	Procalcitonin
Alkaline Phosphatase	Creatinine Urine Random	Heptatitis A B Profile	Protein CSF
ALT	CRP (Inflammation)	Heptatitis B Profile	Protein Total
Amikacin Level	Digoxin Level	HIV 1 and 2 Maternal-Newborn Screen 4th Generation	Protein Urine Random
Ammonia Level	Electrolyte Panel	HIV 1 and 2 Occupational Exposure 4th Generation	PTH Intact
Amylase Level	Electrolyte Panel Urine Random	HIV 1 and 2 Rapid 4th Generation	PTH Interoperative Base
Amylase Level Urine Random	Ethanol Level	HIV 1/2/P24 Combo	PTH Interoperative Post
AST	Ferritin	Insulin	Renal Function Panel
Beta Hydroxybutyric Acid	Folate Serum	Iron	Salicylate Level
Beta-HCG Quantitative	Free T4	IronTIBC	Sodium Level
Bilirubin Direct	Gentamicin Level	Lactate Dehydrogenase	Sodium Level Urine Random
Bilirubin Total	Glucose CSF	Lactic Acid	Tobramycin Level
BMP	Glucose Plasma	Lactic Acid CSF	Troponin T, High Sensitivity
Bun/ Creat Ratio	Glucose Random	Lipase Level	TSH
Calcium Level Total	Glucose Urine Random	Lipid	TSH w/r FT4
Calcium Urine Random	Haptoglobin	Lithium Level	Urea Nitrogen Urine
Carbamazepine Level	Hep Bs Ag Mat	Magnesium Level	Uric Acid
Carbon Dioxide Level	Hep C Ab Total w/refl to HCV RNA NAAT	Magnesium Level Urine	Urine Prot/Creat Ratio
Cardiac CRP	Hepatic	NT-proBeta-Natriuretic Peptide	Valproic Acid Level
Chloride Level	Hepatitis A Antibody	Phenobarbital Level	Vancomycin Level
Chloride Level Urine Random	Hepatitis A Antibody IgM	Phenytoin Level Total	Vitamin B12 Level

Phase 2: test menu

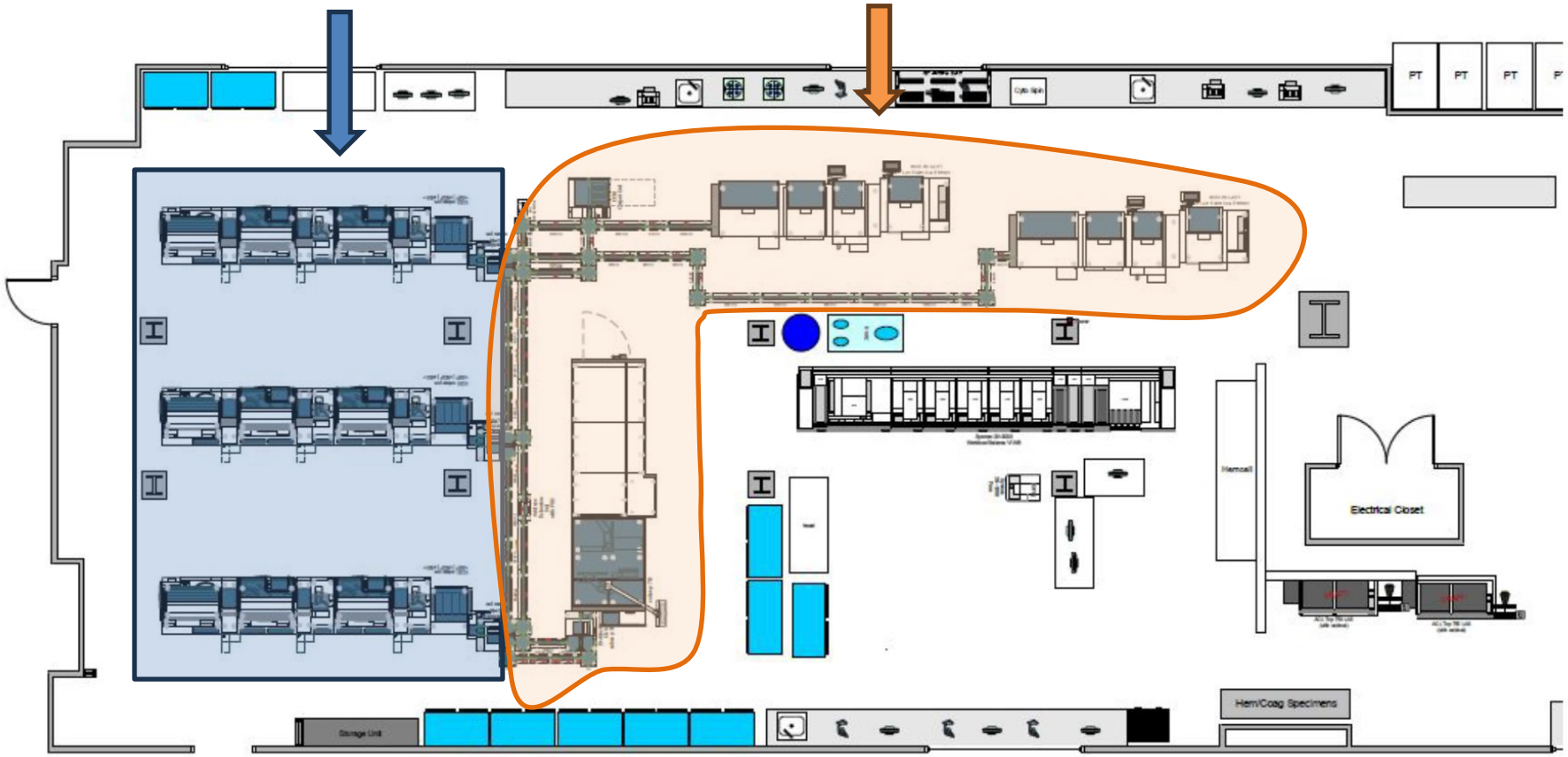
April/May, 2025

Albumin Level Body Fluid	IgE
Alpha Fetoprotein Tumor Marker	Lactate Dehydrogenase Body Fluid
Amylase Level Body Fluid	LDH CSF (LDT)
Anti-Nucleocapsid (N) SARS-CoV-2 Ab	Lipase Level Body Fluid
Anti-S SARS-CoV-2 Ab	Luteinizing Hormone
ASO	Methotrexate Level
Bilirubin Body Fluid	Potassium Level Body Fluid
C3 Complement	Progesterone Level
C4 Complement	Prolactin Level
CA 125	Prostate Specific Antigen
CA19-9	Protein Body Fluid
Cancer Antigen 15-3	Rheumatoid Factor Quantitative
Carcinoembryonic Antigen	Sodium Level Body Fluid
Carcinoembryonic Antigen Body Fluid	T4
Chloride Level Body Fluid (LDT)	Testosterone Level Total
Cholesterol Body Fluid	Theophylline Level
Creatinine Body Fluid	Toxoplasma IgG
Drugs of Abuse Urine No Confirmation	Toxoplasma IgM
Estradiol Level	Triglyceride Body Fluid
FSH	Triiodothyronine
Gamma Glutamyl Transferase	Urea Nitrogen Body Fluid
Glucose Body Fluid	
Gonadotropin Panel	
Homocysteine	

Phase 3: full automation (June, 2025)

Phase 1:
manual sample loading

Phase 3:
full automation with sample storage

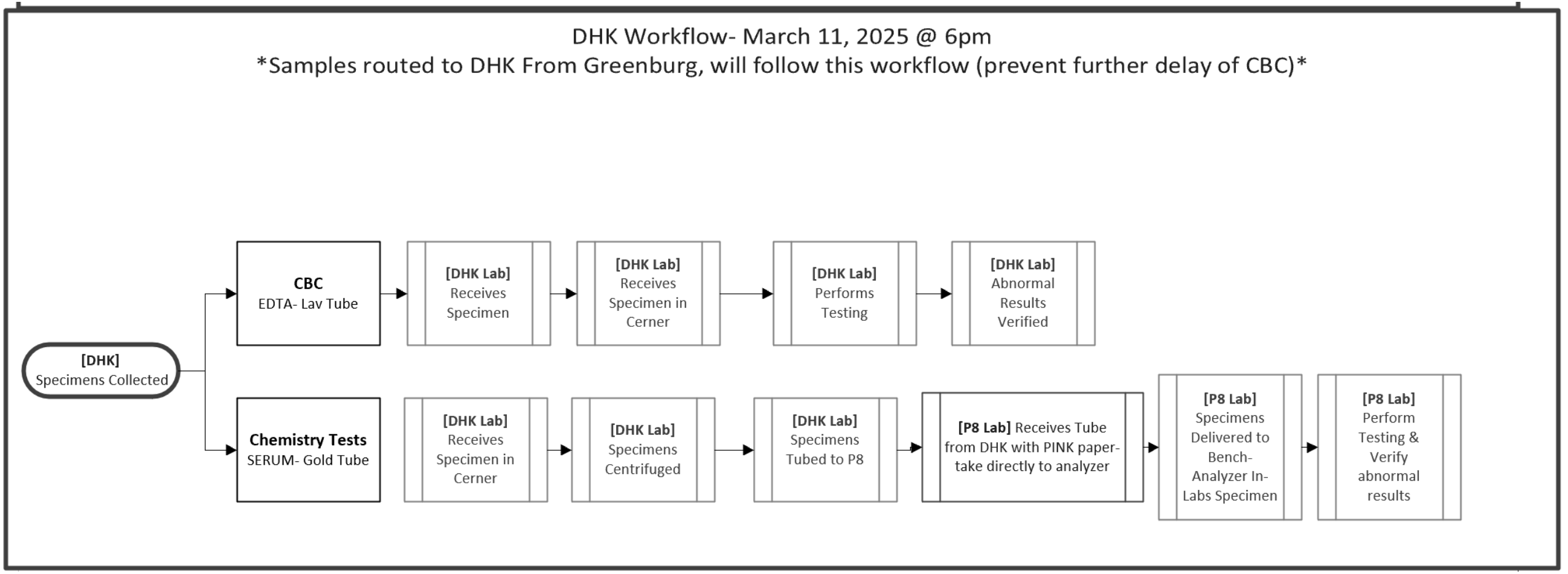


Phase 4: DHK lab

(Go Live Target: June-July, 2025)

Future Test Menu:

- CMP
- BMP
- Hepatic Panel
- Magnesium
- Phosphorus



Turnaround time will be monitored and optimization will be made when available.

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- **Collection procedures**
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- **Reference range, unit and calculation changes**

- **Discontinued/sendout**
  - Discontinued tests
  - Temporary send out

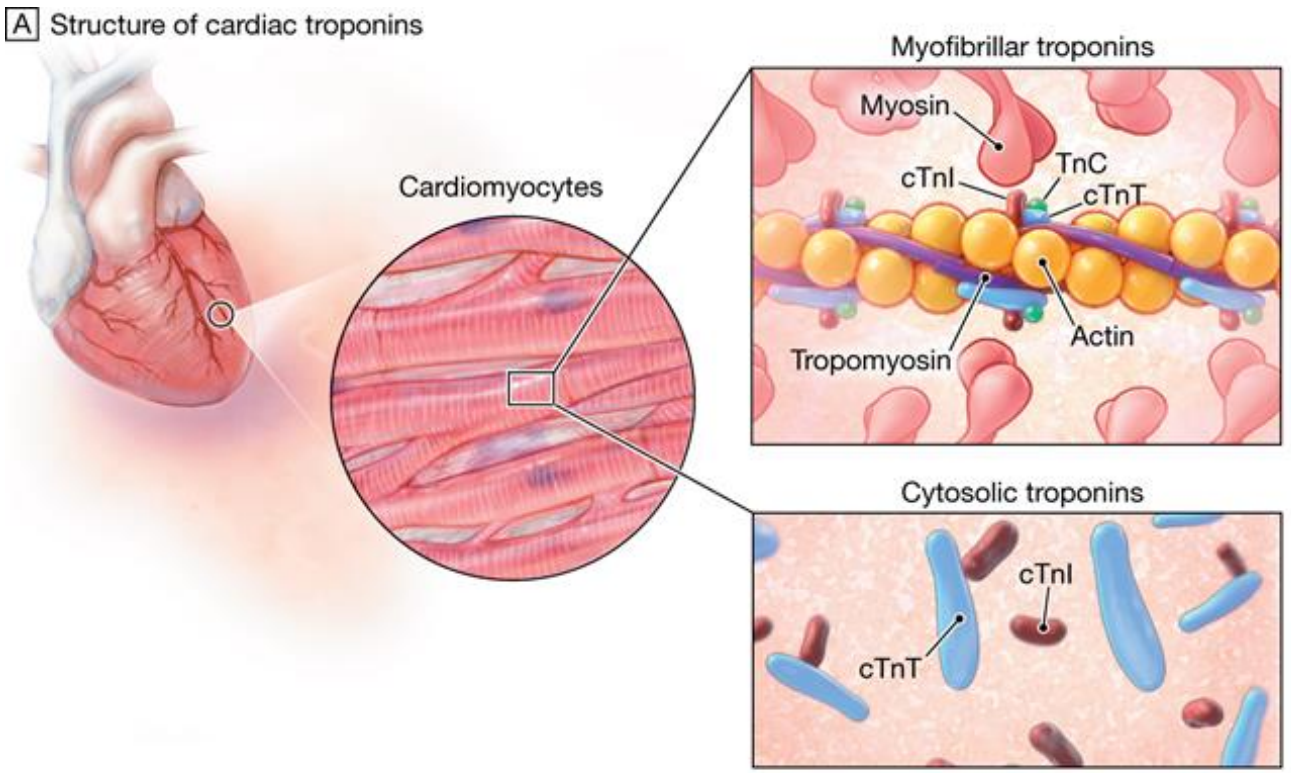
- **Hemolysis reporting**

hs-Troponin I → hs-Troponin T

What will be the changes for Troponin

- Clinical pathway for ACS and Troponin Algorithm
- Result interpretation
- Sample type
- Sample collection
- Interference (hemolysis→ falsely low)
- Pathophysiological factors impacting Troponin

Cardiac Troponin

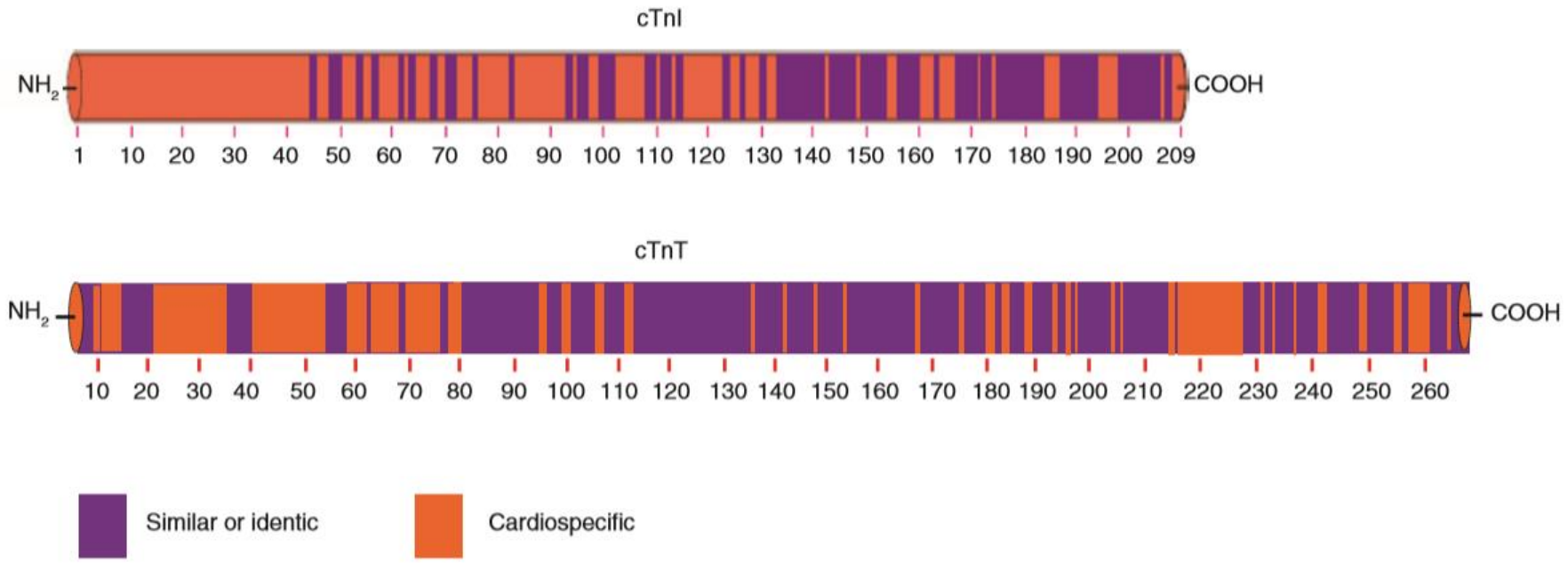


Troponin complex:
Troponin I
Troponin T
Troponin C

cTnI and cTnT subunits are only expressed in heart

de lemos, *JAMA*. 2013;309(21):2262-2269

Cardiac vs Skeletal Troponins
TnT and TnI



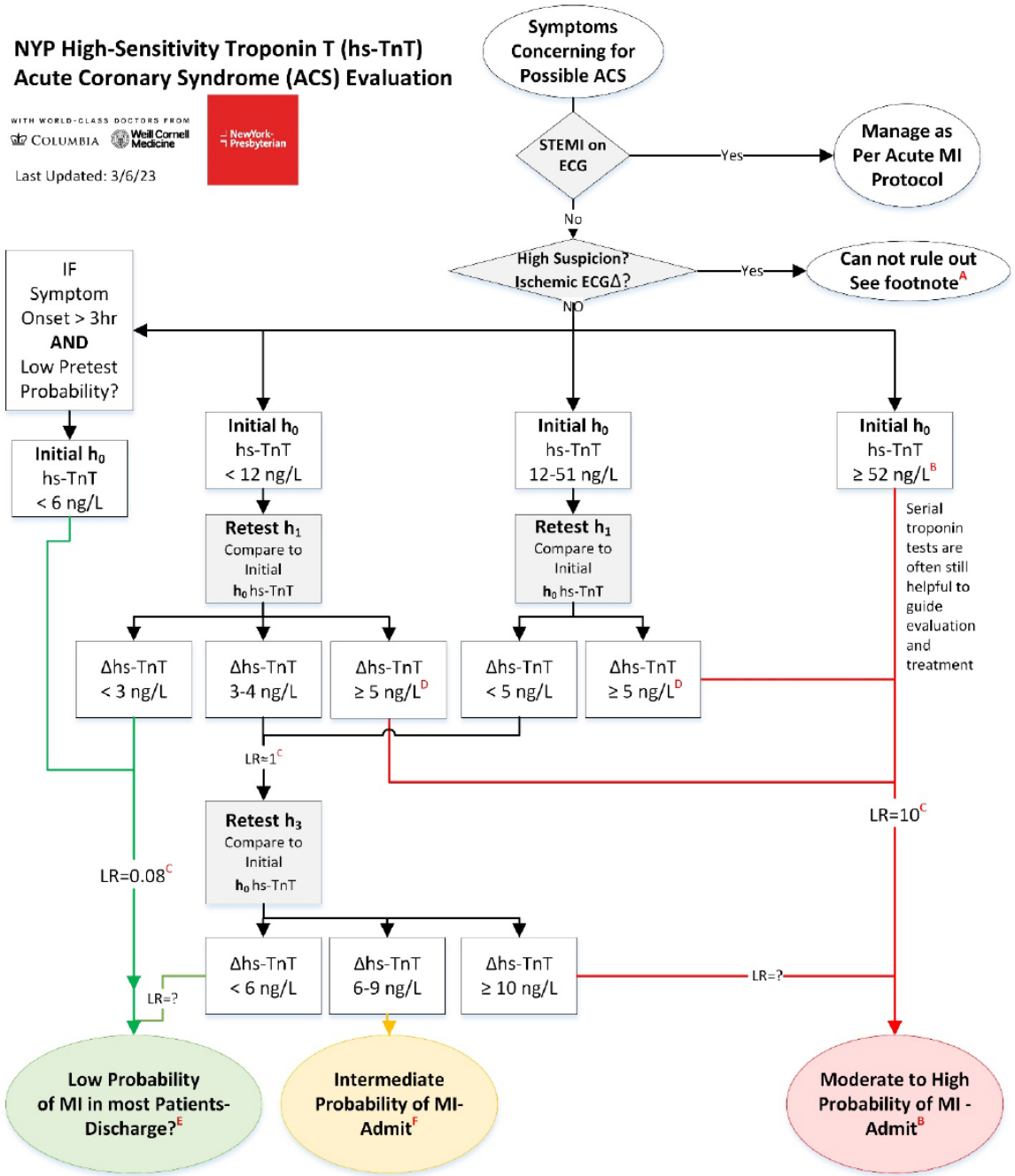
Troponins T and I have unique cardiac isoforms, whereas cardiac and skeletal muscle share troponin C isoforms.

https://www.degruyter.com/downloadpdf/j/dx.2019.6.issue-3/dx-2019-0045/dx-2019-0045.pdf

NYP High-Sensitivity Troponin T (hs-TnT) Acute Coronary Syndrome (ACS) Evaluation

WITH WORLD-CLASS DOCTORS FROM COLUMBIA Weill Cornell Medicine — NewYork-Presbyterian

Last Updated: 3/6/23



Usage Principles

This algorithm does not replace clinical judgement. Clinical context varies and this algorithm can not be interpreted as defining standard of care for all cases. E.g., not all patients with chest pain require lab testing to rule out a Myocardial Infarction (MI).

This algorithm is intended for the initial evaluation of a patient presenting with symptoms concerning for possible ACS (including Type 1 and 2 MI). For those patients in the red or yellow endpoint, once admitted, further risk stratification based on pre-test probability, additional testing where indicated, anticipated follow-up, and other factors is appropriate.

Other conditions besides ACS can cause an elevation in troponin (see appendix). Hemolysis or biotin usage may cause falsely low measurement of hs-TnT

Definitions and Timing

h0 = Time of initial troponin test
h1 = One hour after h0
h3 = Three hours after h0
Δhs-TnT = change from h0 (either rise or fall may be significant)

If the second troponin is drawn >= 3 hours after the first, interpret as if a **h3** troponin.

If the patient is being admitted for other reasons, admission does not necessarily need to be delayed for to wait for h1 and h3 troponin.

Notes

A. Use clinical context (e.g. history, exam, and ECG) to risk stratify decision to use care pathway. If there is a high suspicion for ACS (e.g. acute ischemic changes on ECG or story highly concerning) then cannot rule out MI via this pathway. Serial Troponin testing as per the pathway is still relevant however as it can help with risk stratification to guide further management.

B. Exercise clinical judgement in cases of chronic, stable elevated troponin (e.g. some patients with CKD)

C. LRs from Allen BR, Christenson RH, Cohen SA, et al. Diagnostic Performance of High-Sensitivity Cardiac Troponin T Strategies and Clinical Variables in a Multisite US Cohort. Circulation. 2021;143(17):1659-1672.

D. NOTE: If h1 troponin drawn "late" (near or after 2 hours) and Δhs-TnT 5-9 ng/L, consider retesting h3 instead of proceeding to red path

E. No early evidence of myocardial infarction by biomarkers, consider other causes of symptoms. Most patients can be discharged unless high suspicion of ACS (e.g. acute ischemic changes on ECG or story highly concerning) or other there are non-ACS diagnoses of concern.

F. Alternate plans can be considered in select patients with shared decision making. Be certain to consider non-ACS causes of troponin rise (see appendix).

Hs-cTnT and hs-cTnI do not correlate!

	NEW	OLD
	hs-Trop-T	**hs-Trop-I**
Reference Range	Female: ≤14 ng/L Male: ≤22 ng/L	Female: ≤40 ng/L Male: ≤58 ng/L
Abnormal Value	Female: 15-51 ng/L Male: 23-51 ng/L *Marked Red*	Female: 41-199 ng/L Male: 59-199 ng/L *Marked Red*
Critical Value	≥52 ng/L *Notification Required*	≥200 ng/L *Notification Required*

Roche hs-cTnT

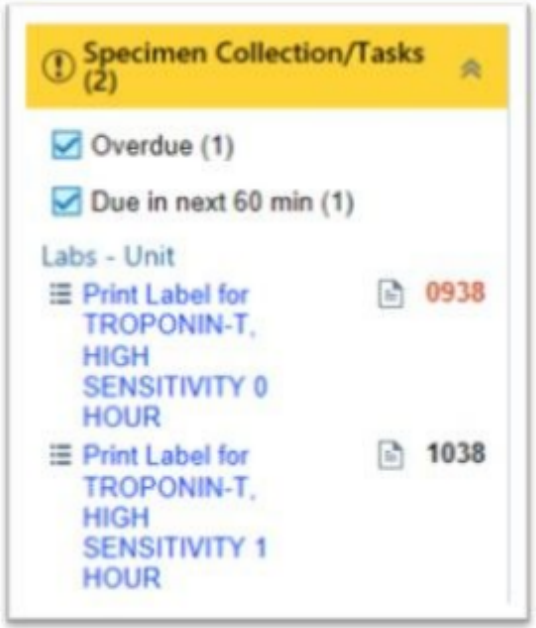
NEW!

RST
(Serum)

LI HEPARIN
(LiHep)

Collecting hs-Trop-T

for Nurses

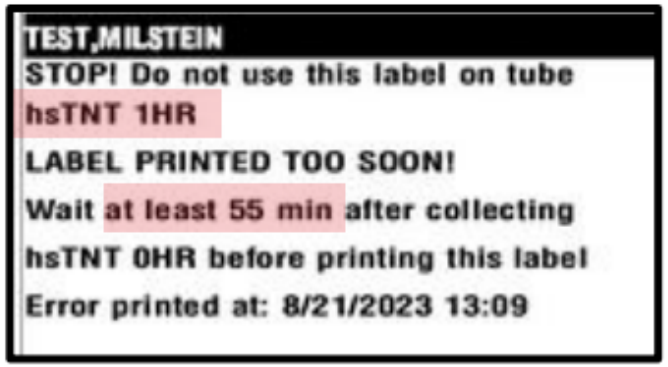


Collect the 0 Hour Troponin first.

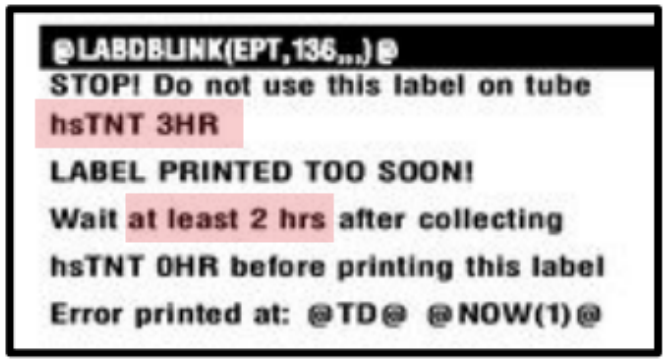
- It is important to collect the first hs-Trop-T specimen (0 Hour) before collecting the second one (1 Hour).
- The first hs-Trop-T specimen (0 Hour) is indicated in **red** with the earliest time **(1).**
- The second hs-Trop-T specimen (1 Hour) is indicated in **black** 1 hour later **(2).**
- If you accidentally collect the second specimen first, you will NOT receive a notification to collect the second hs-Trop-T.

Collecting hs-Trop-T *for Nurses*

Printing the 1 hour hs-Trop-T too early:



Printing the 3 hour hs-Trop-T too early:



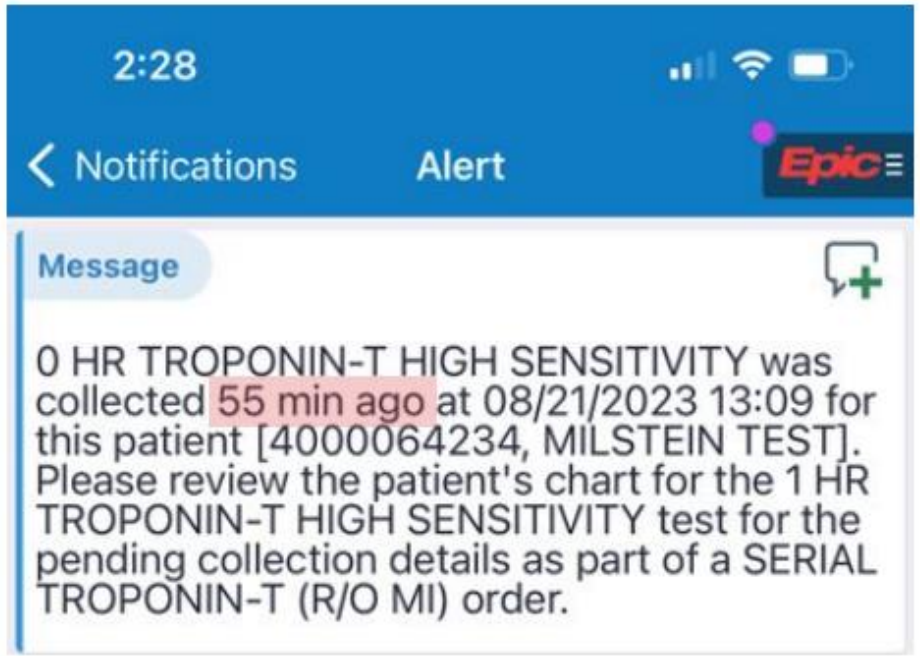
Don't collect specimens too late or too early.

Wait at least 55 minutes to collect the 1 Hour hs-Trop-T after collecting the 0 Hour hs-Trop-T. Otherwise you will see a lockout print label.

Wait at least 2-3 hours to collect the 3 Hour hs-Trop-T after collecting the 0 Hour hs-Trop-T. Otherwise you will see a lockout print label.

Collecting hs-Trop-T

for Nurses



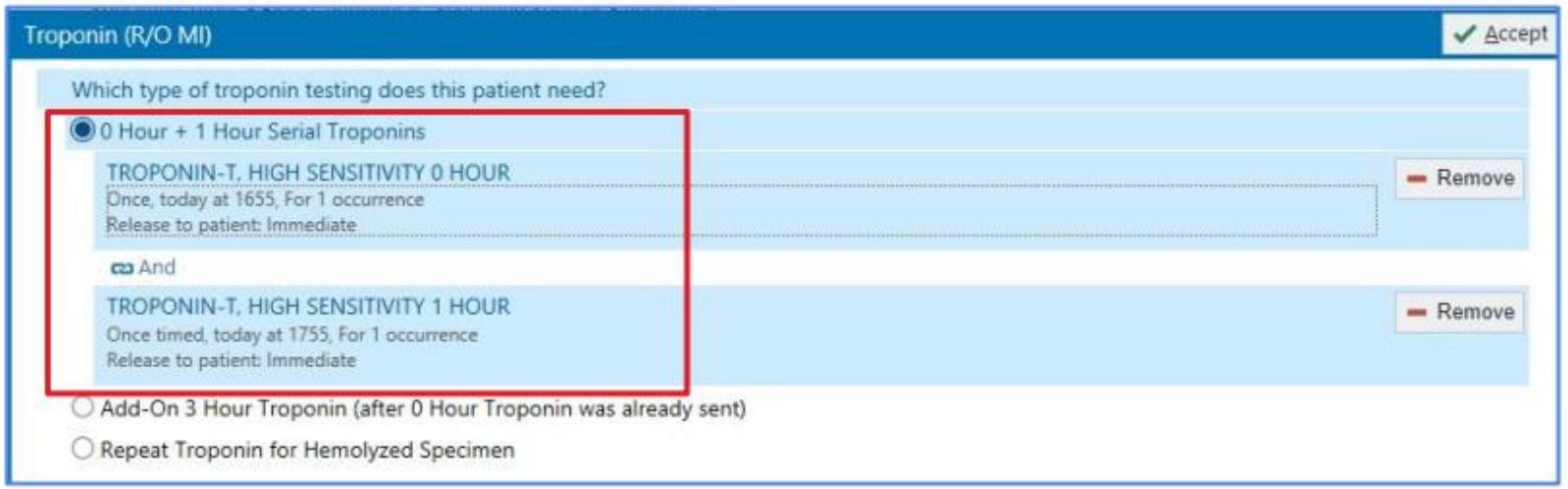
A Rover alert will remind you when to collect the 1 Hour Troponin.

This Rover alert will fire **55 minutes** after the 0 Hour hs-Trop-T is collected.

For the alert to fire appropriately, you MUST accurately document the collection time (not the label printing time) of the 0 Hour hs-Trop-T.

Ordering hs-Trop-T *for Providers*

Default Orders if the Patient has No Troponins Yet



Always use the Troponin (R/O MI) Order Panel.

The appropriate orders will be defaulted based on the patient's troponin history.

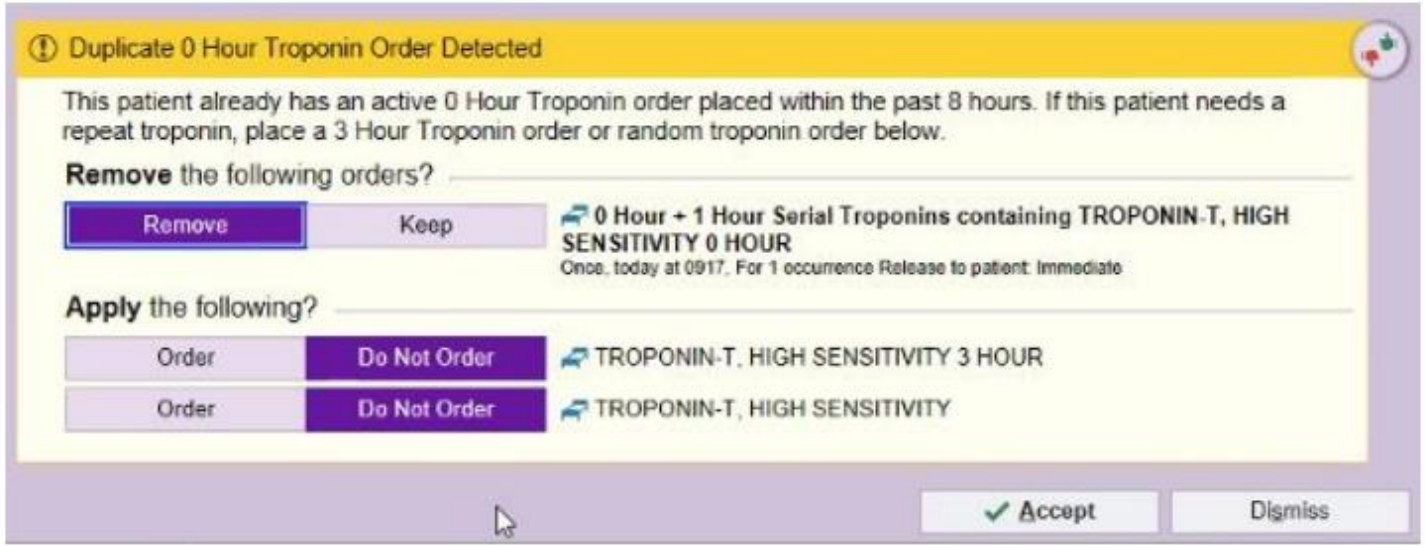
If the patient has no troponins ordered yet, the 0 Hour and 1 Hour tests will be defaulted.

If the patient's last troponin test was hemolyzed, the "repeat troponin for hemolyzed specimen" option will be defaulted.

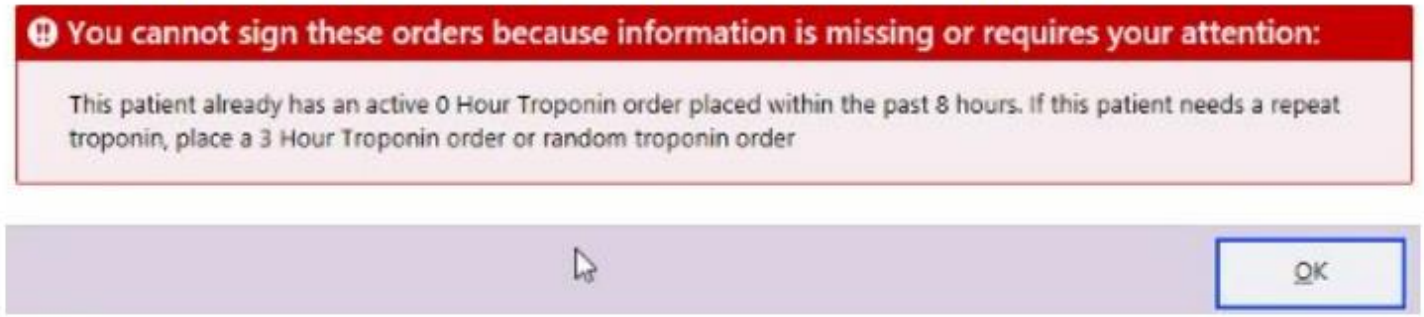
Ordering hs-Trop-T

for Providers

Alert When Opening a Duplicate 0 Hour Troponin Order



Alert When Signing a Duplicate 0 Hour Troponin Order



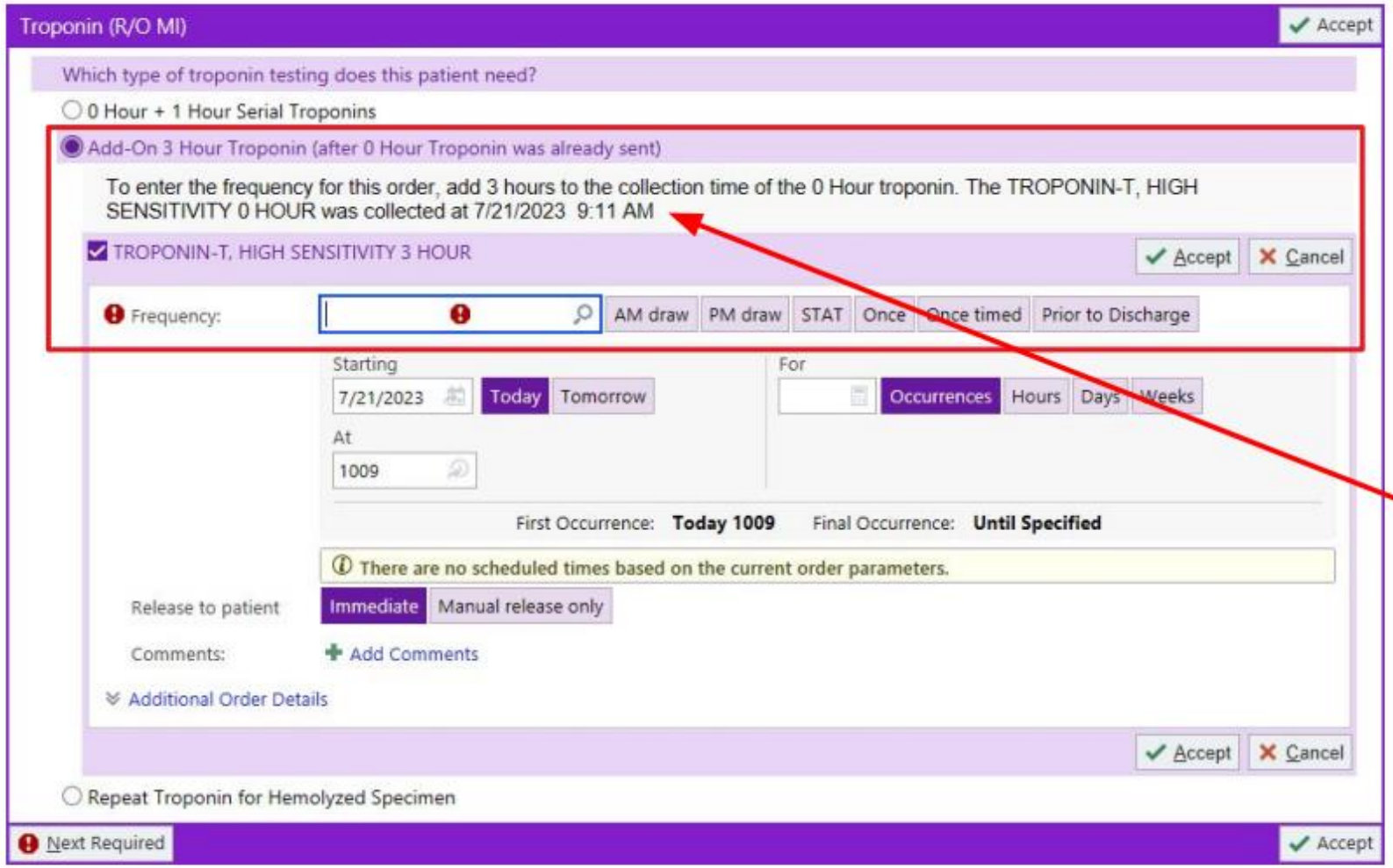
Avoid duplicate 0 Hour Troponin orders less than 8 hours apart.

The system cannot calculate the difference between serial troponins if there are duplicate 0 Hour Troponin orders placed too closely together.

You will see these alerts if you attempt to order a duplicate 0 Hour Troponin.

Ordering hs-Trop-T

for Providers



Always use the Troponin (R/O MI) Order Panel.

If you are adding a 3 Hour troponin based on the results of the 0 Hour troponin, click on the “add-on 3 hour” option.

The collection time of the 0 Hour troponin will be displayed, with instructions on how to enter the frequency for the 3 Hour troponin order.

Interpreting hs-Trop-T *for Providers*

What if the sample was drawn outside the 1 hour or 3 hour window?

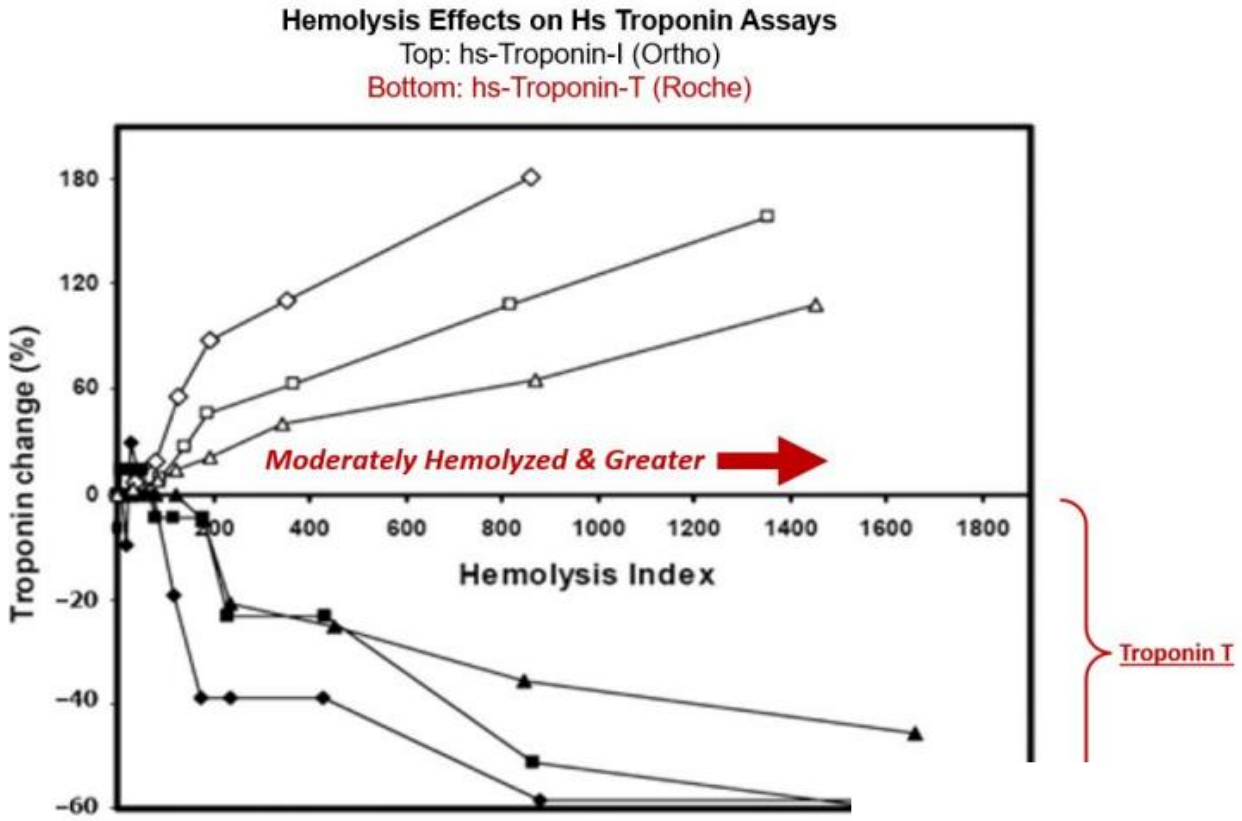
If the **second** hs-Trop-T was drawn
1-3 hours after the **first** hs-Trop-T

Interpret as if it were a
1 Hour hs-Trop-T

If the **second or third** hs-Trop-T was drawn
more than 3 hours after the **first** hs-Trop-T

Interpret as if it were a
3 Hour hs-Trop-T

Hemolysis may cause falsely low Roche Hs-cTnT



Do not trust hemolyzed results.

Hemolysis may cause **falsely low** hs-Trop-T levels at an unpredictable rate.

Hemolyzed hs-Trop-T samples should never be used for clinical decision-making.

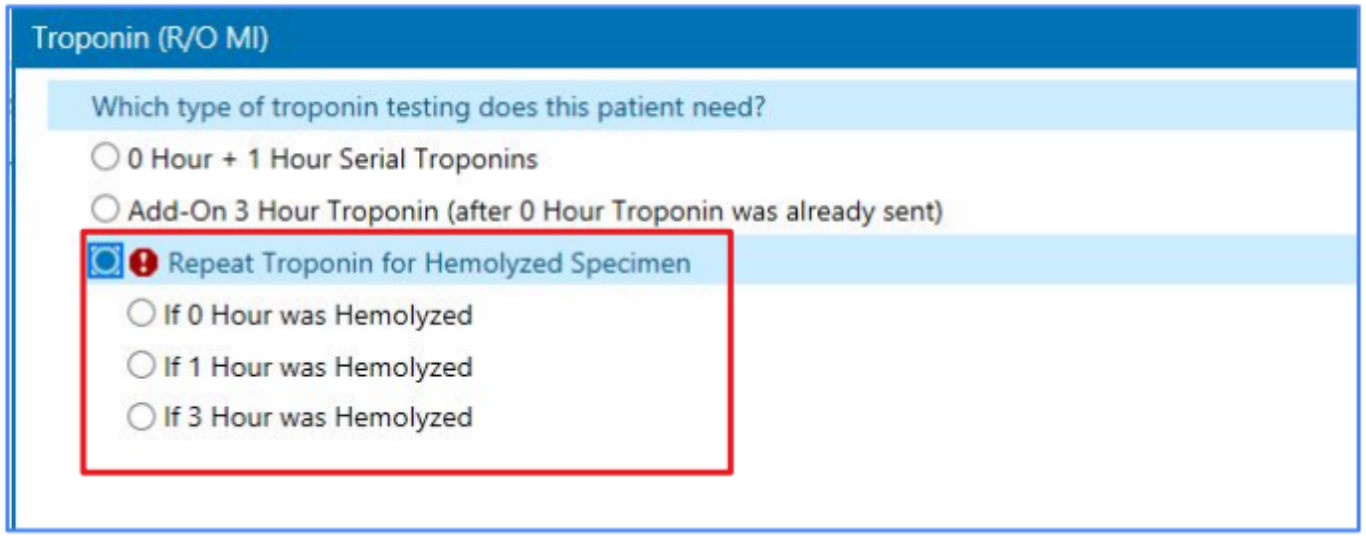
If a hs-Trop-T sample is

Clin Chem, Volume 56, Issue 8, 1 August 2010, Pages 1357–1359, https://doi.org/10.1373/clinchem.2010.144139. T

NewYork-Presbyterian

Ordering hs-Trop-T

for Providers

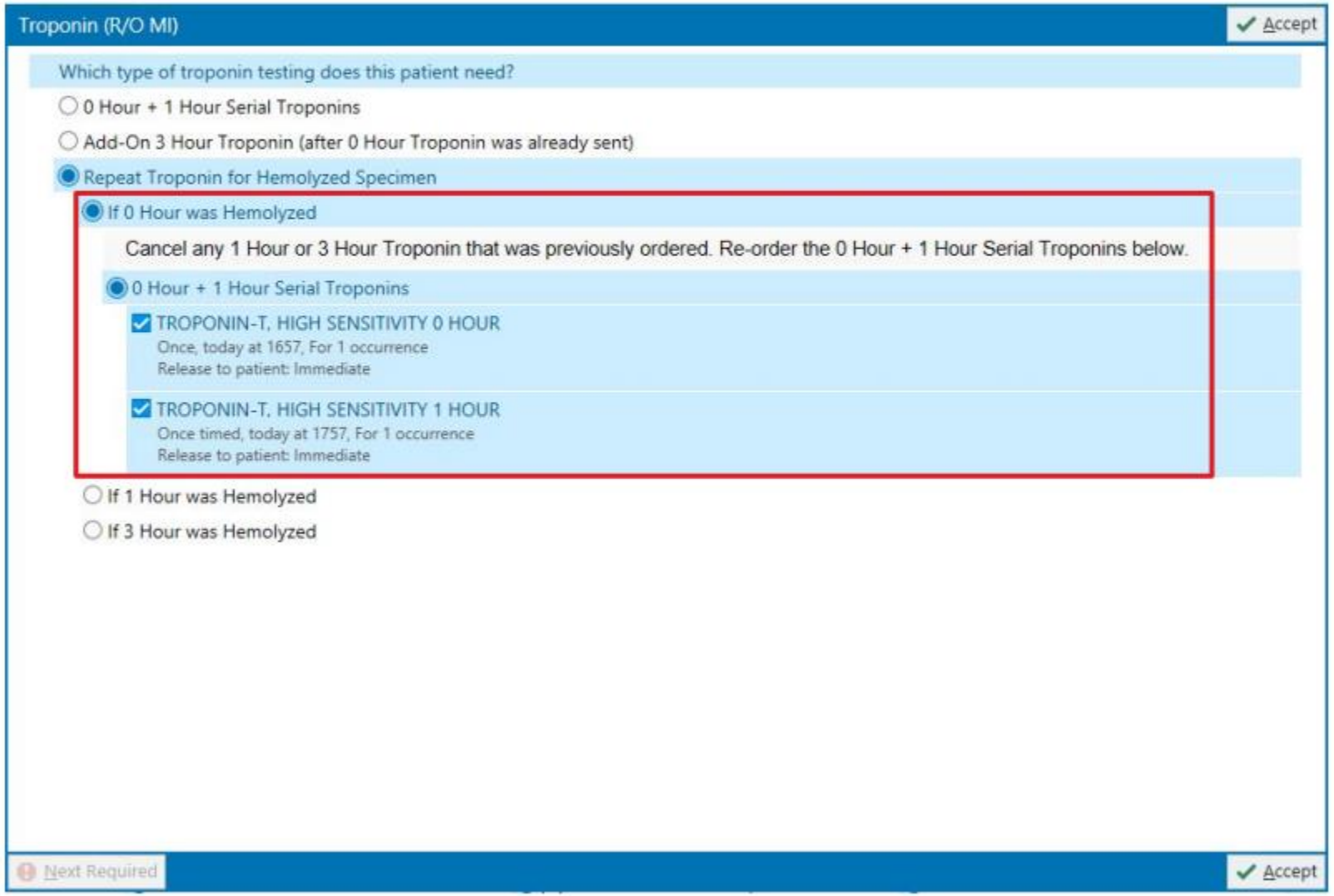


Always use the Troponin (R/O MI) Order Panel.

If the patient's last troponin was hemolyzed, the "repeat troponin for hemolyzed specimen" option will be defaulted in the order panel. Select which sample was hemolyzed to automatically get the correct orders.

Ordering hs-Trop-T

for Providers



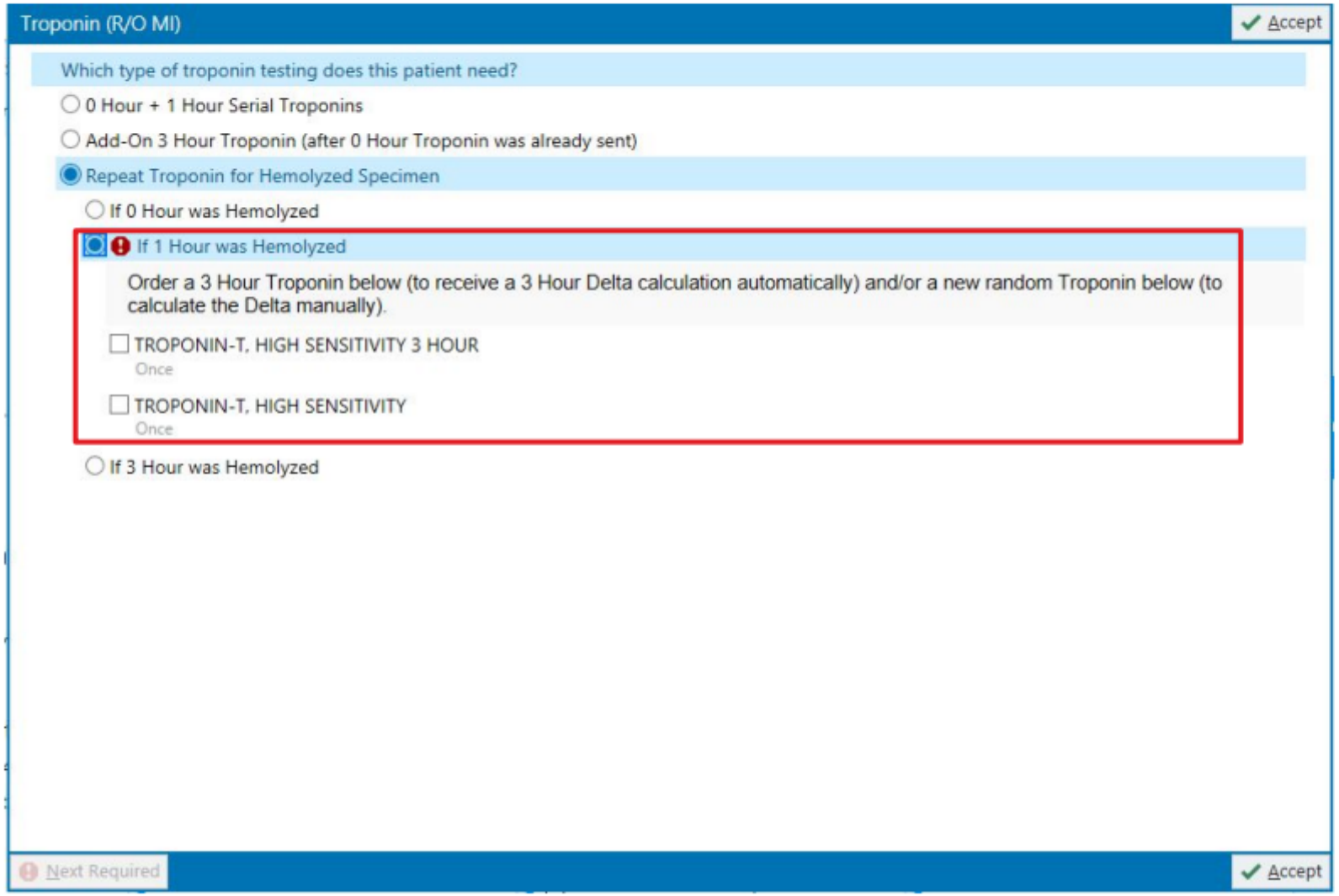
Always use the Troponin (R/O MI) Order Panel.

If you indicate that the **0 Hour troponin was hemolyzed**, you will be instructed to:

- Cancel any 1 Hour or 3 Hour troponin that was previously ordered
- **Reorder the 0 Hour + 1 Hour serial troponins** (these will be defaulted).

Ordering hs-Trop-T

for Providers



Always use the Troponin (R/O MI) Order Panel.

If you indicate that the **1 Hour troponin was hemolyzed**, you will be instructed to:

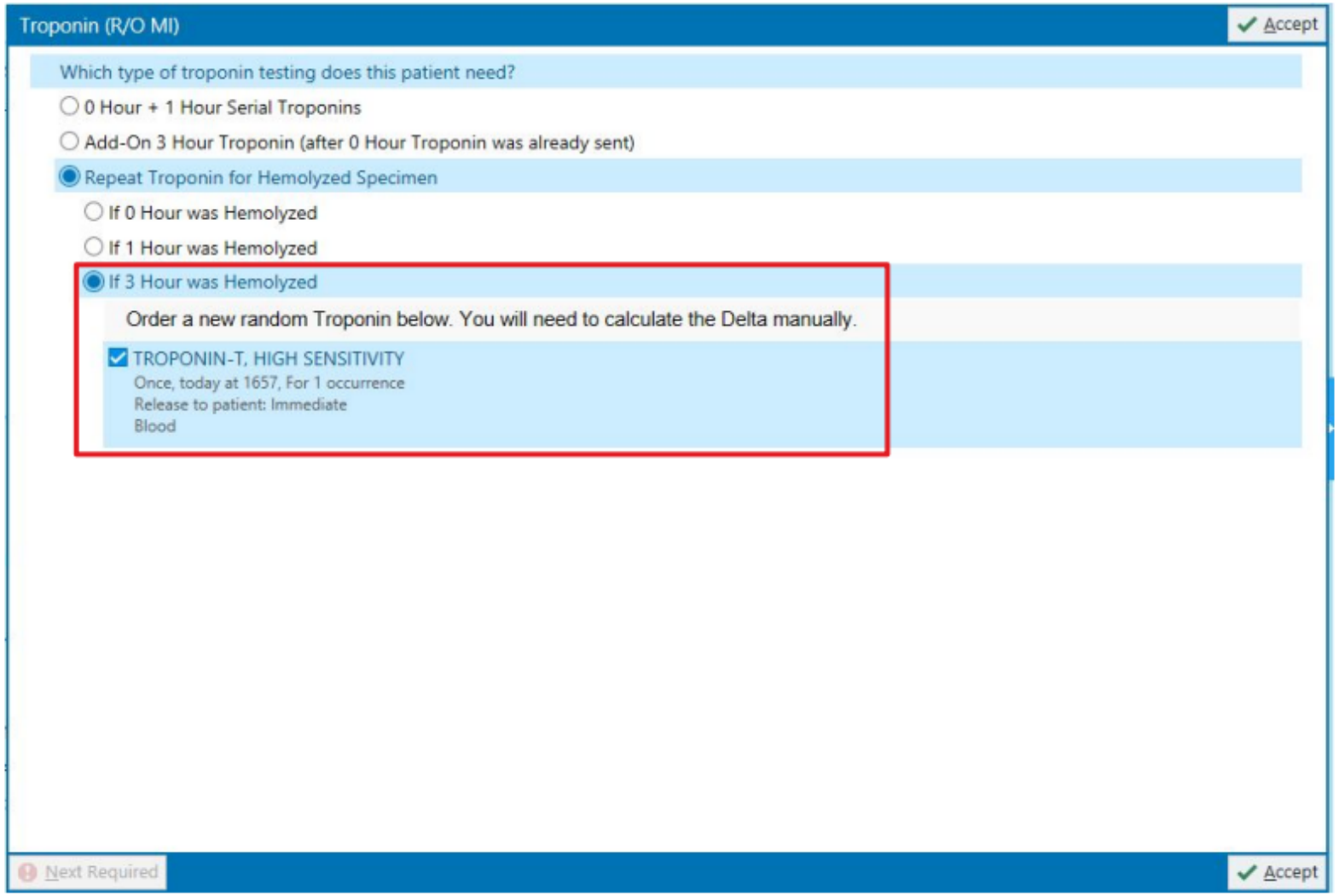
- **Order a 3 Hour troponin** (to receive a delta calculation automatically)

  AND/OR

- **Order a new random troponin** (to calculate the delta manually)

Ordering hs-Trop-T

for Providers



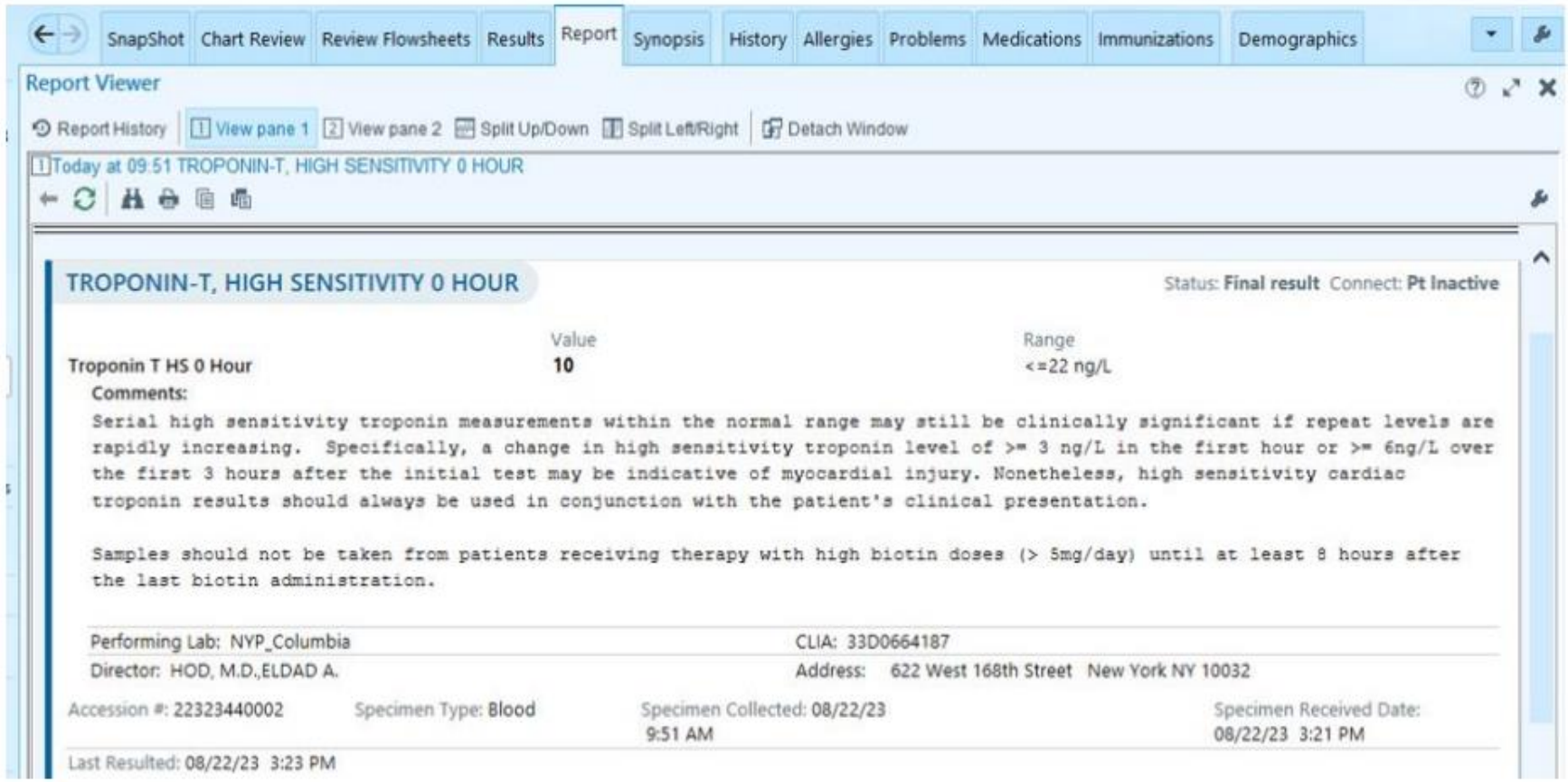
Always use the Troponin (R/O MI) Order Panel.

If you indicate that the **3 Hour troponin was hemolyzed**, you will be instructed to:

- **Order a new random troponin** (you will need to calculate the delta manually).

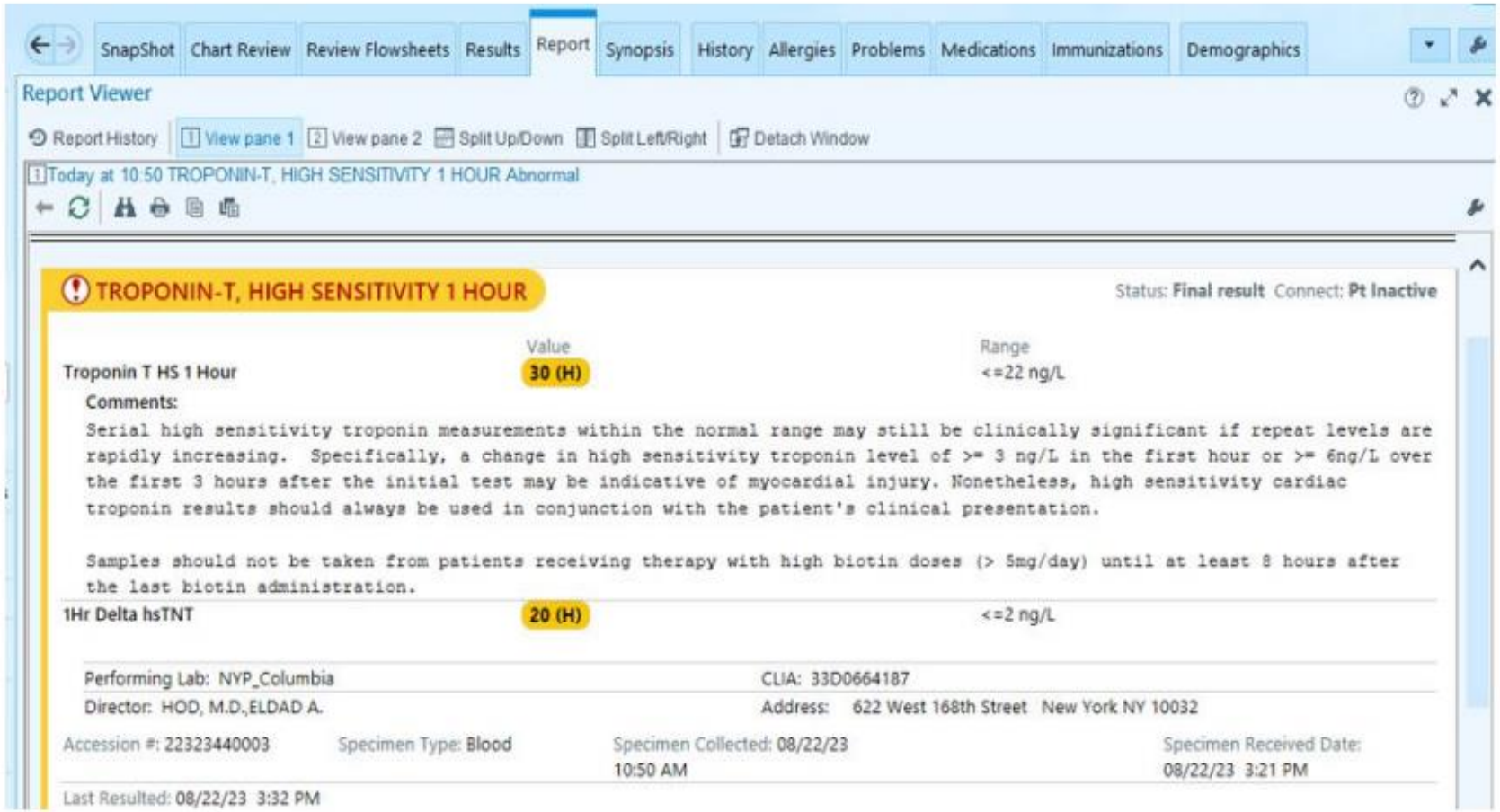
Detailed Results Report

0 Hour Troponin (No Hemolysis)



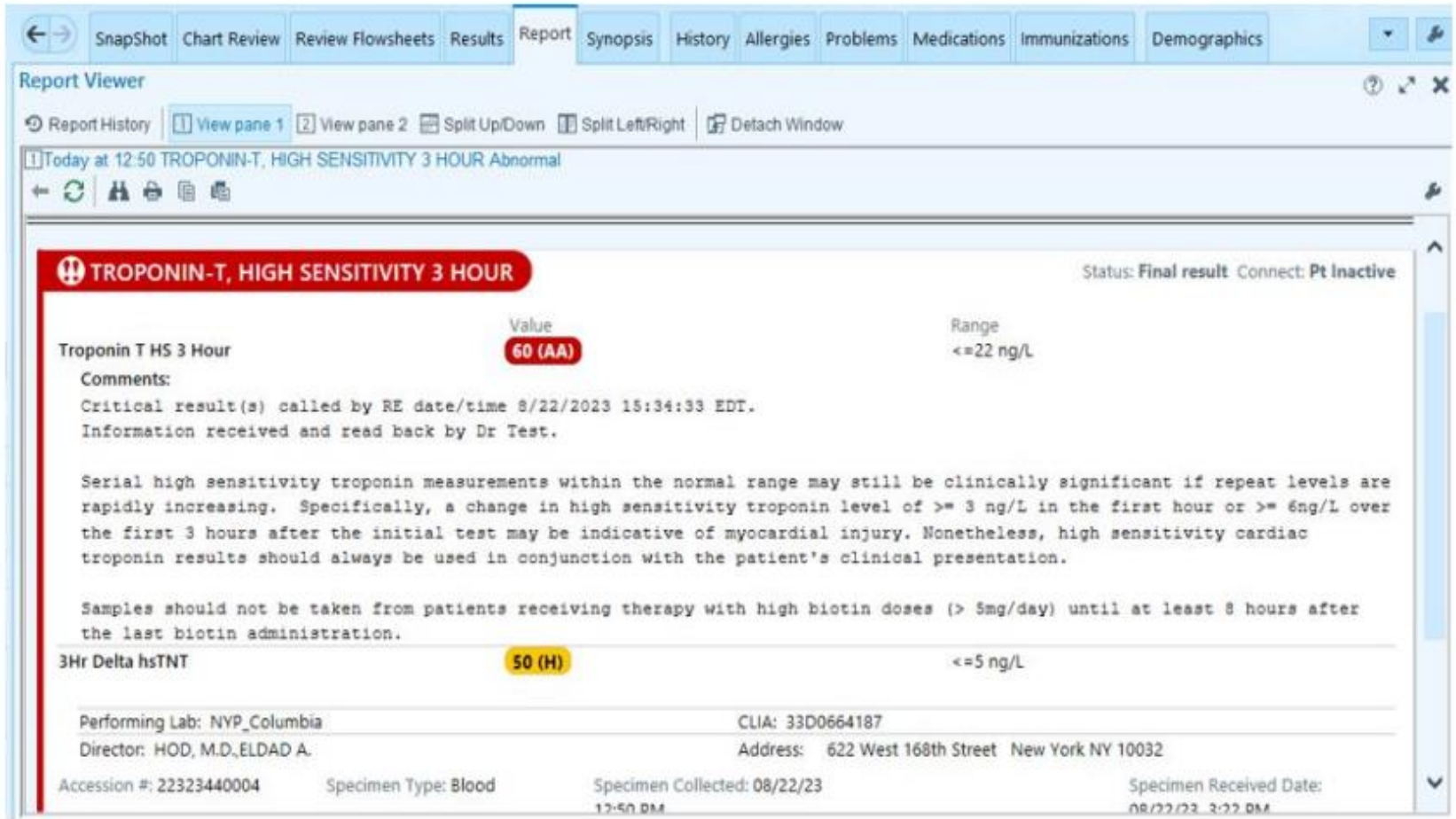
Detailed Results Report

1 Hour Troponin with Delta (No Hemolysis)



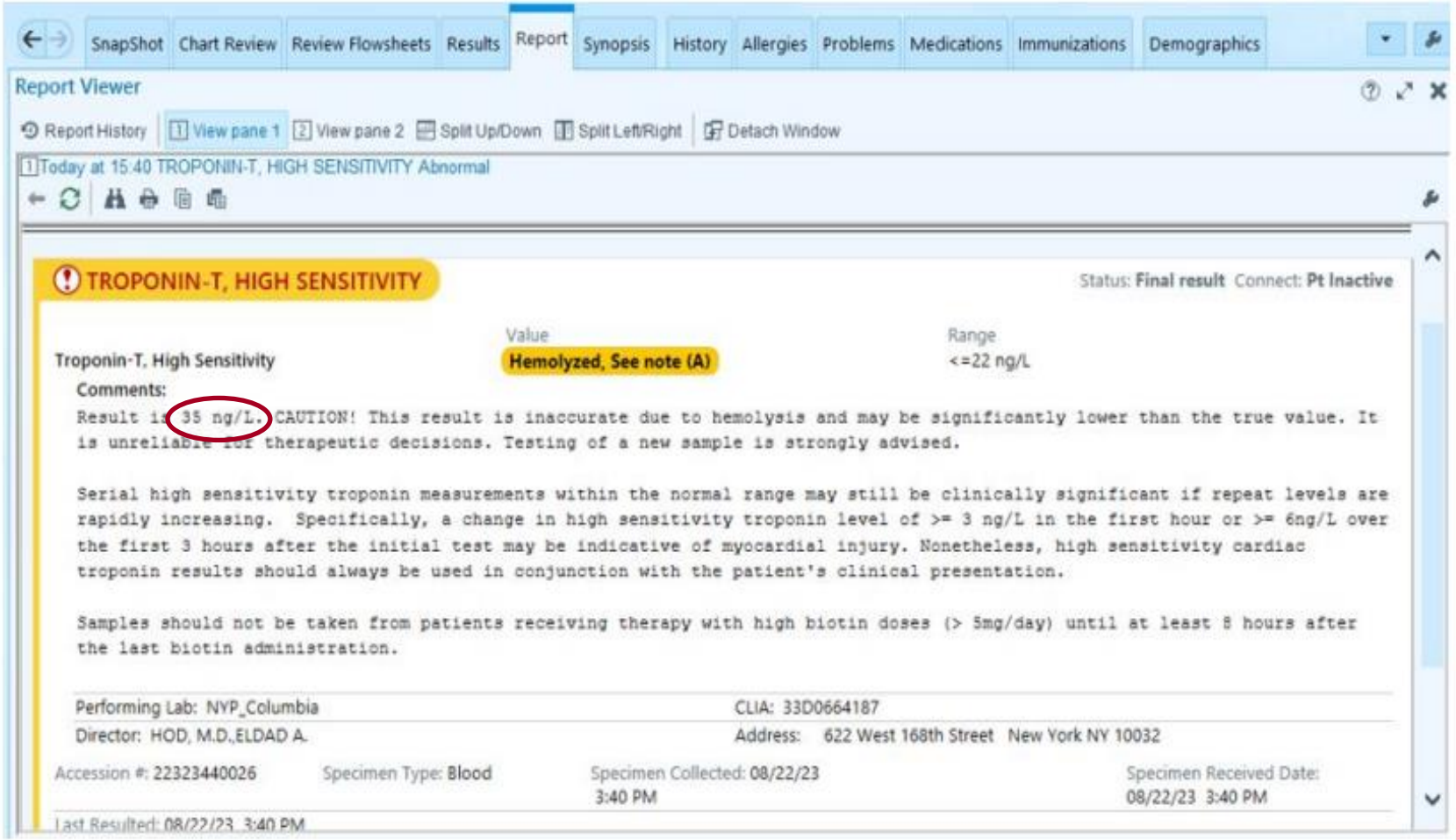
Detailed Results Report

3 Hour Troponin (No Hemolysis)



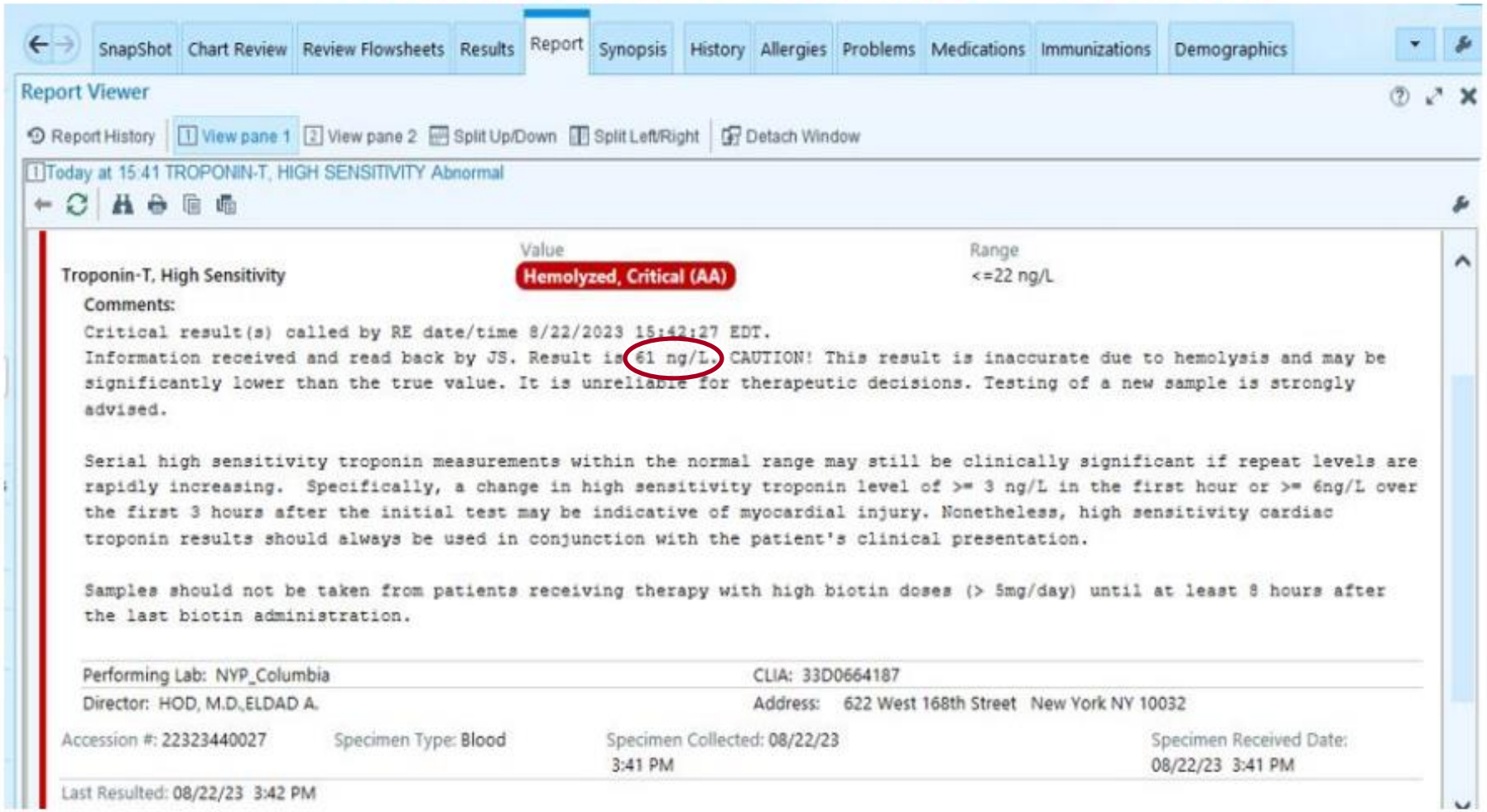
Detailed Results Report

Hemolyzed with Abnormal Value in Comment



Detailed Results Report

Hemolyzed with Critical Value in Comment



Pathophysiological factors impacting Troponin

- cTnT is more affected by renal dysfunction

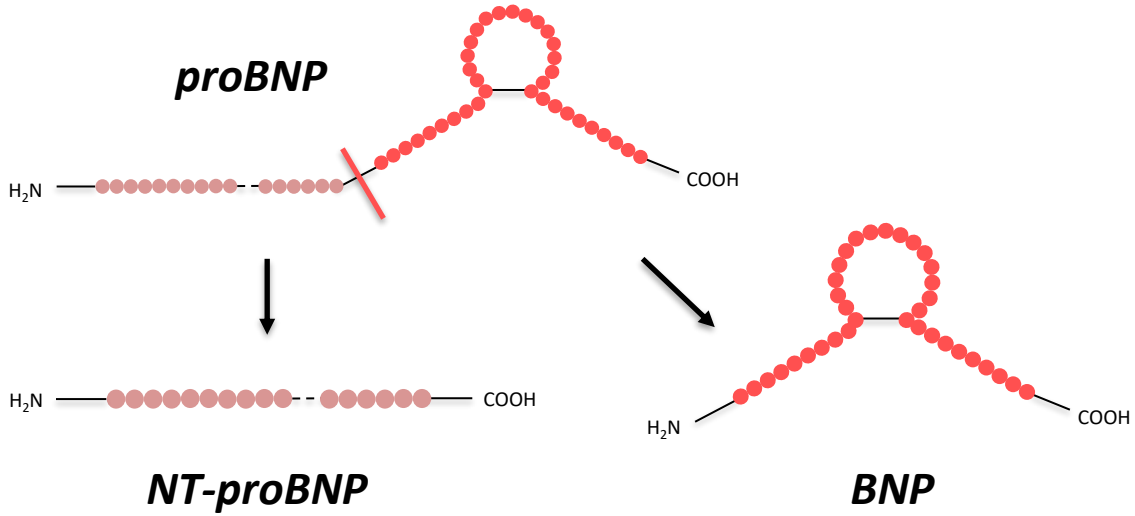
- Skeletal muscle disease (e.g., myopathy) can cause troponin elevations, especially cTnT, due to skeletal muscle expression.

- cTnI is more susceptible to macrotroponin (complexes of cardiac troponin with other proteins in the blood) interference but less influenced by CKD.

hs-Troponin T: Key Resources

- NYP Clinical Pathway for ACS and the Evaluation of Chest Pain
- hs-Troponin-T Algorithm
- https://knowit.nyp.org/Inpatient_Nursing_and_Clinical_Roles/Troponin.htm?rhsearch=troponin&rhhlterm=troponin
- https://knowit.nyp.org/Clinical_Roles/High_Sensitivity_Troponin.htm?rhsearch=troponin&rhhlterm=troponin%20troponins

BNP → NT-proBNP



- NT-proBNP and BNP are products of a single precursor proBNP.

- The 2022 AHA/ACC/HFSA Guideline for Management of Heart Failure recommends testing with either assay to establish presence and severity of heart failure.

BNP → NT-proBNP
Do not correlate!

Old: BNP	*New: NT-proBNP*
Stability	**Stability**
24 hours - room temperature	3 days - room temperature
24 hours - refrigerated	6 days - refrigerated
9 months - frozen	24 months - frozen
Specimen type	**Specimen type**
Plasma (Lav EDTA)	Serum (SST)
Reference range	**Reference range**
≤100 pg/mL	0 to 75 years old: ≤ 124 pg/mL > 75 years old: ≤ 449 pg/mL

Three additional tests in the DAU panel

- Current DAU panel: opiate, oxycodone, amphetamine, barbiturates, benzodiazepine, cocaine, fentanyl, methadone, Marijuana, PCP (with specimen validity testing: pH, creatinine, specific gravity, oxidants).

- We will add 3 tests to the DAU panel:

❖ **6-acetylmorphine** (heroin metabolite)

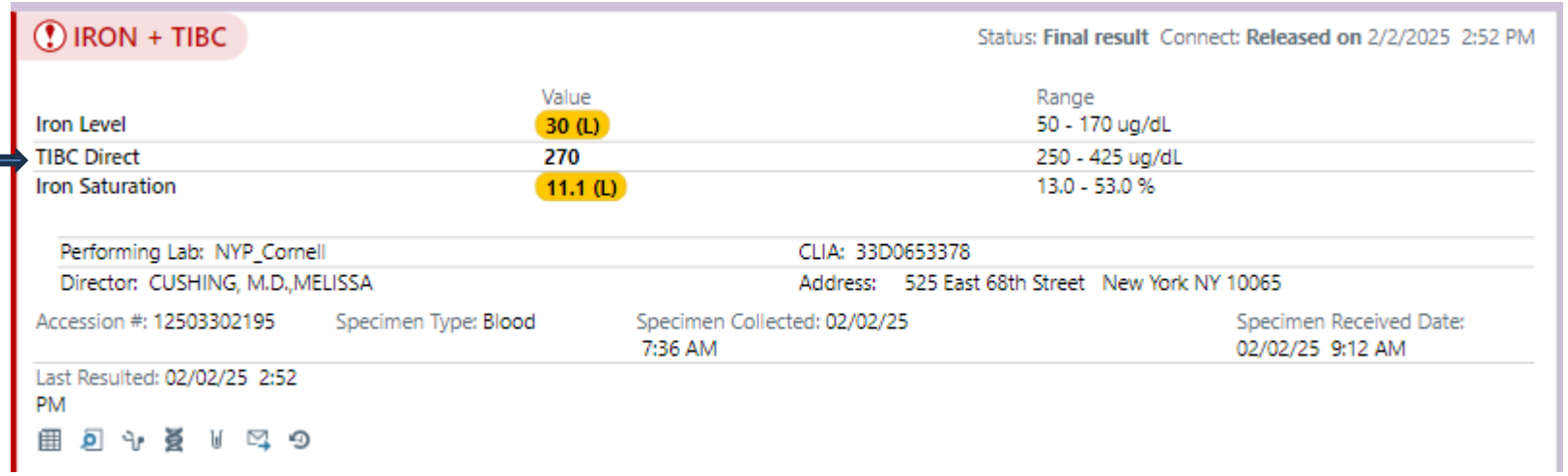
❖ **buprenorphine**

❖ **hydrocodone**

- In addition, we will test EDDP (methadone metabolite) instead of methadone to monitor methadone compliance.

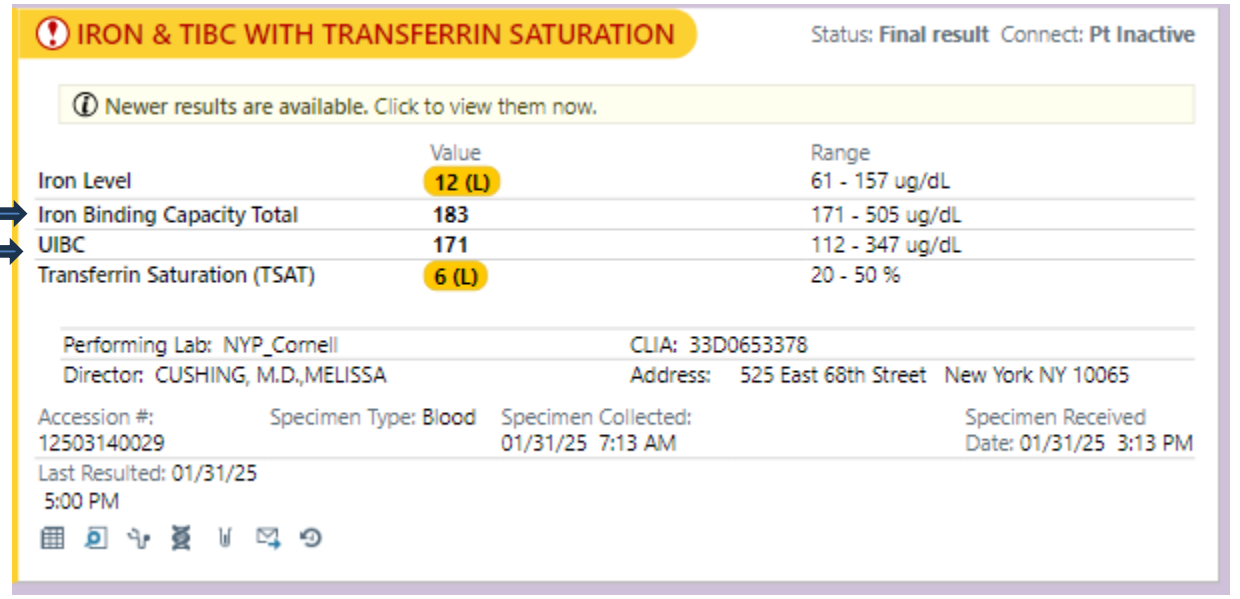
Iron & TIBC→ Iron & TIBC with Transferrin Saturation

Current on Siemens



Measured

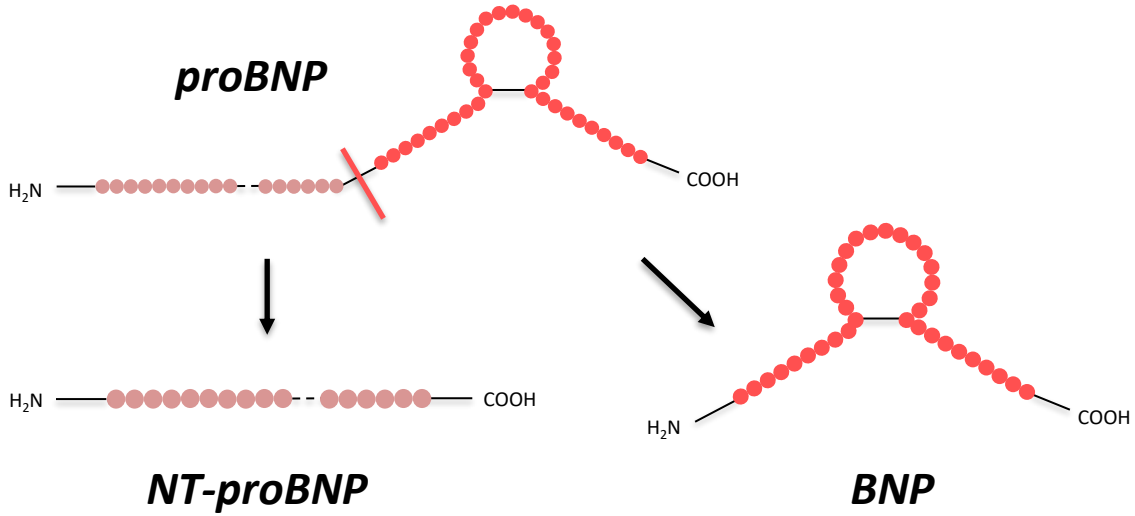
New on Roche



Calculated

Measured

BNP → NT-proBNP



- NT-proBNP and BNP are products of a single precursor proBNP.

- The 2022 AHA/ACC/HFSA Guideline for Management of Heart Failure recommends testing with either assay to establish presence and severity of heart failure.

BNP → NT-proBNP
Do not correlate!

Old: BNP	*New: NT-proBNP*
Stability	**Stability**
24 hours - room temperature	3 days - room temperature
24 hours - refrigerated	6 days - refrigerated
9 months - frozen	24 months - frozen
Specimen type	**Specimen type**
Plasma (Lav EDTA)	Serum (SST)
Reference range	**Reference range**
≤100 pg/mL	0 to 75 years old: ≤ 124 pg/mL > 75 years old: ≤ 449 pg/mL

BNP → NT-proBNP: specimen type

Do not correlate!

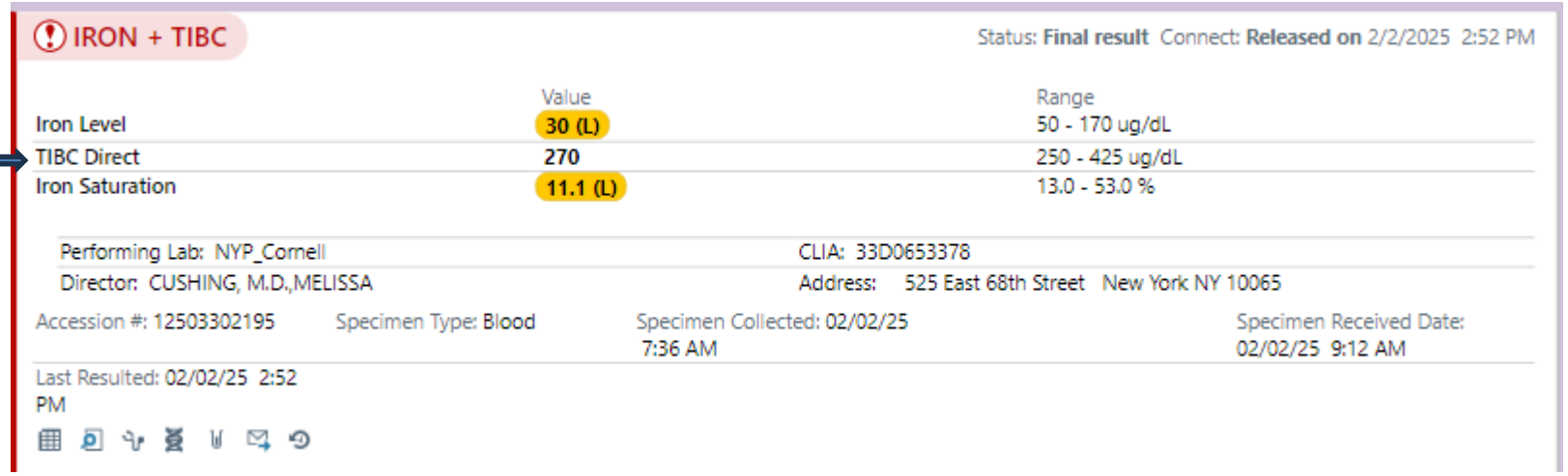
Three additional tests in the DAU panel

- Current DAU panel: opiate, oxycodone, amphetamine, barbiturates, benzodiazepine, cocaine, fentanyl, methadone, Marijuana, PCP (with specimen validity testing: pH, creatinine, specific gravity, oxidants).

- We will add 3 tests to the DAU panel: **6-acetylmorphine** (heroin metabolite), **buprenorphine** and **hydrocodone**. In addition, we will test EDDP (methadone metabolite) instead of methadone to monitor methadone compliance.

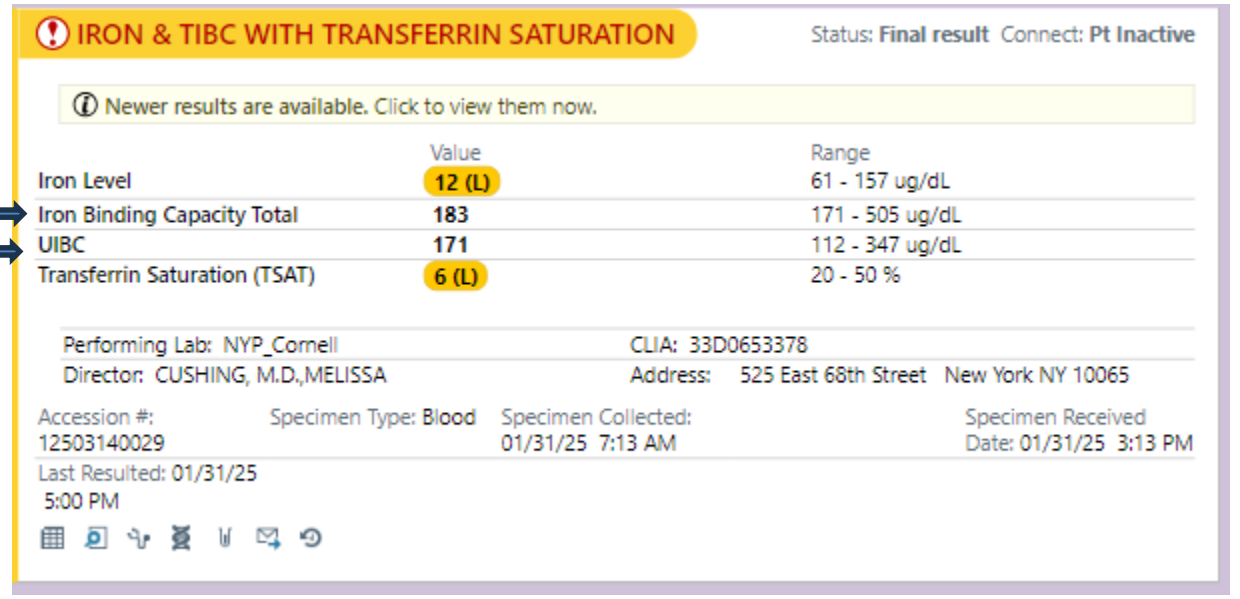
Iron & TIBC→ Iron & TIBC with Transferrin Saturation

Current on Siemens



Measured

New on Roche



Calculated

Measured

Major changes

- **Phased go-live**
- **New assays/orderables**
  - Hs-cTnI to hs-cTnT
  - BNP to NT-proBNP
  - Three additional tests in the Drug of Abuse (DAU) panel
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- **Collection procedures**
  - Ammonia, hsTnT and NT-proBNP: tube type change
  - DHK: Serum RST tube→ SST tube (phase 1) and Li-Heparin PST tubes (phase 4)
- **Reference range, unit and calculation changes**
- **Discontinued/sendout**
  - Discontinued tests
  - Temporary send out
- **Hemolysis reporting**

AMMONIA

NEW!

LI HEPARIN
(LiHep)

EDTA

BNP → NT-proBNP: specimen type

Do not correlate!

Roche Hs-Troponin T

NEW!

RST
(Serum)

LI HEPARIN
(LiHep)

CMP, hepatic panel, Magnesium and phosphorus in DHK

NEW!

NEW!

SST

HEPARIN
(LiHep)

RST (Serum)

Phase 1:
March 11, 2025

Phase 4:
June-July, 2025

Major changes

- **Phased go-live**
- **New assays/orderables**
  - Hs-cTnI to hs-cTnT
  - BNP to NT-proBNP
  - Three additional tests in the Drug of Abuse (DAU) panel
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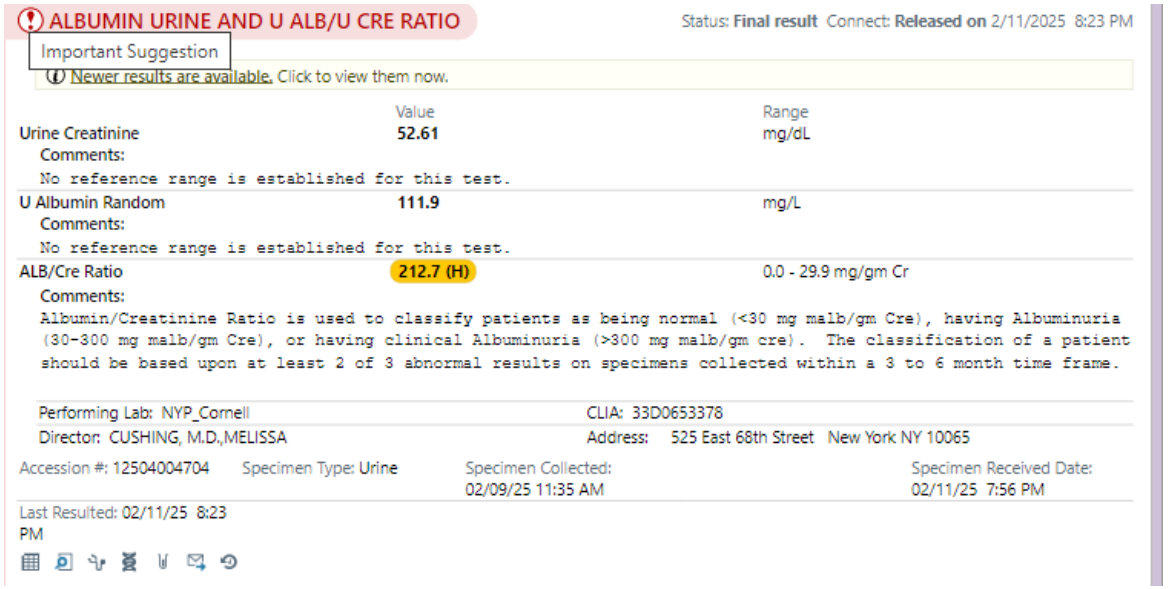
Unite changes: enterprise standardization

- CRP (Inflammation): mg/dL→ mg/L
- CRP (Cardiac): no change as mg/L
- Insulin: mIU/L → uIU/mL
- T3: ng/mL→ ng/dL
- TSH: uIU/mL→ mIU/L
- Urine Albumin/Creatinine Ratio: mg/g → ug/mg
- Urine Albumin: mg/L→mg/dL
- Urine Creatinine timed: g/24h→mg/24h
- Urine Glucose timed : g/24h→mg/24h
- Urine Phosphorus timed : g/24h→mg/24h
- Urine Protein timed : g/24h→mg/24h

Example: U ALB/U CRE Ratio

Current on Siemens



ALBUMIN URINE AND U ALB/U CRE RATIO

Status: **Final result** Connect: **Released on** 2/11/2025 8:23 PM

Important Suggestion

Newer results are available. Click to view them now.

	Value	Range
Urine Creatinine	**52.61**	mg/dL
Comments:		
No reference range is established for this test.		
U Albumin Random	**111.9**	mg/L
Comments:		
No reference range is established for this test.		
ALB/Cre Ratio	**212.7 (H)**	0.0 - 29.9 mg/gm Cr
Comments:		
Albumin/Creatinine Ratio is used to classify patients as being normal (<30 mg malb/gm Cre), having Albuminuria (30-300 mg malb/gm Cre), or having clinical Albuminuria (>300 mg malb/gm cre). The classification of a patient should be based upon at least 2 of 3 abnormal results on specimens collected within a 3 to 6 month time frame.		

Performing Lab: NYP_Cornell CLIA: 33D0653378

Director: CUSHING, M.D.,MELISSA Address: 525 East 68th Street New York NY 10065

Accession #: 12504004704 Specimen Type: Urine Specimen Collected: 02/09/25 11:35 AM Specimen Received Date: 02/11/25 7:56 PM

Last Resulted: 02/11/25 8:23 PM

New on Roche

ALBUMIN URINE AND U ALB/U CRE RATIO

Status: **Final result** Connect: **Pt Inactive**

	Value	Range
Urine Creatinine	**12.2**	mg/dL
Comments:		
1st morning urine Females 29-226 mg/dL Males 40-278 mg/dL		
U Albumin Random	**77.1**	mg/dL
Comments:		
No established reference range. The results should be integrated into clinical context for interpretation.		
ALB/Cre Ratio	**6,319.7 (H)**	<=19.9 ug/mg
Comments:		
0 - 3 years: No established Reference Range		

Performing Lab: NYP_Cornell CLIA: 33D0653378

Director: CUSHING, M.D.,MELISSA Address: 525 East 68th Street New York NY 10065

Accession #: 12504440065 Specimen Type: Urine Specimen Collected: 02/13/25 8:00 AM Specimen Received Date: 02/13/25 1:32 PM

Last Resulted: 02/13/25 1:37 PM

Reference ranges will change

- Particularly important for immunoassays (e.g., hormones, tumor markers)
- Pediatric reference ranges are added to certain tests
- Gender specific reference ranges are added to certain tests

Example: Cortisol

Old: Siemens (higher)

Reference Ranges:

- AM 5.27 ug/dL - 22.45 ug/dL
- PM 3.44 ug/dL - 16.76 ug/dL

New: Roche (Lower)

Reference Ranges:

- AM 4.8 ug/dL – 19.5 ug/dL
- PM 2.5 ug/dL – 11.9 ug/dL

LDL calculation change from Friedewald to Martin-Hopkins

Current LDL calculation formula (Friedewald)

- LDL Calculated = Chol - (Trig/5) – HDL

New LDL Calculation (Martin-Hopkins)

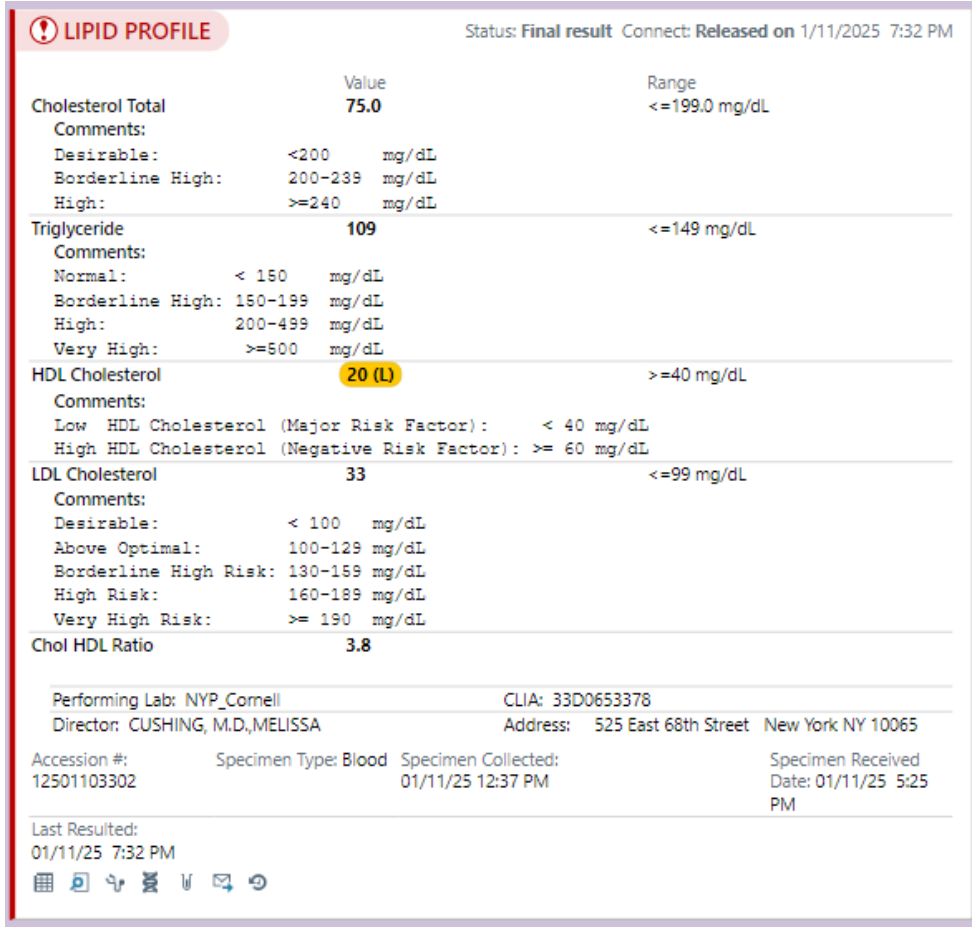
- **LDL Calculated** = Non-HDL - (Trig/NF*)
- **Non-HDL** = Total Cholesterol - HDL Cholesterol

*Novel Factor (NF) based on Triglycerides and Non-HDL Cholesterol

The Novel Factor improves accuracy of LDL Cholesterol determination throughout a wide range of triglyceride levels.

https://www.merckmanuals.com/professional/multimedia/clinical-calculator/martin-equation-for-low-density-lipoprotein-ldl-c

EPIC View of **Current** Lipid Profile



LIPID PROFILE

Status: **Final result** Connect: **Released on** 1/11/2025 7:32 PM

	Value	Range
Cholesterol Total	75.0	<=199.0 mg/dL

Comments:

Desirable:	<200	mg/dL
Borderline High:	200-239	mg/dL
High:	>=240	mg/dL

Triglyceride	109	<=149 mg/dL

Comments:

Normal:	< 150	mg/dL
Borderline High:	150-199	mg/dL
High:	200-499	mg/dL
Very High:	>=500	mg/dL

HDL Cholesterol	20 (L)	>=40 mg/dL

Comments:

Low HDL Cholesterol (Major Risk Factor):	< 40 mg/dL
High HDL Cholesterol (Negative Risk Factor):	>= 60 mg/dL

LDL Cholesterol	33	<=99 mg/dL

Comments:

Desirable:	< 100	mg/dL
Above Optimal:	100-129	mg/dL
Borderline High Risk:	130-159	mg/dL
High Risk:	160-189	mg/dL
Very High Risk:	>= 190	mg/dL

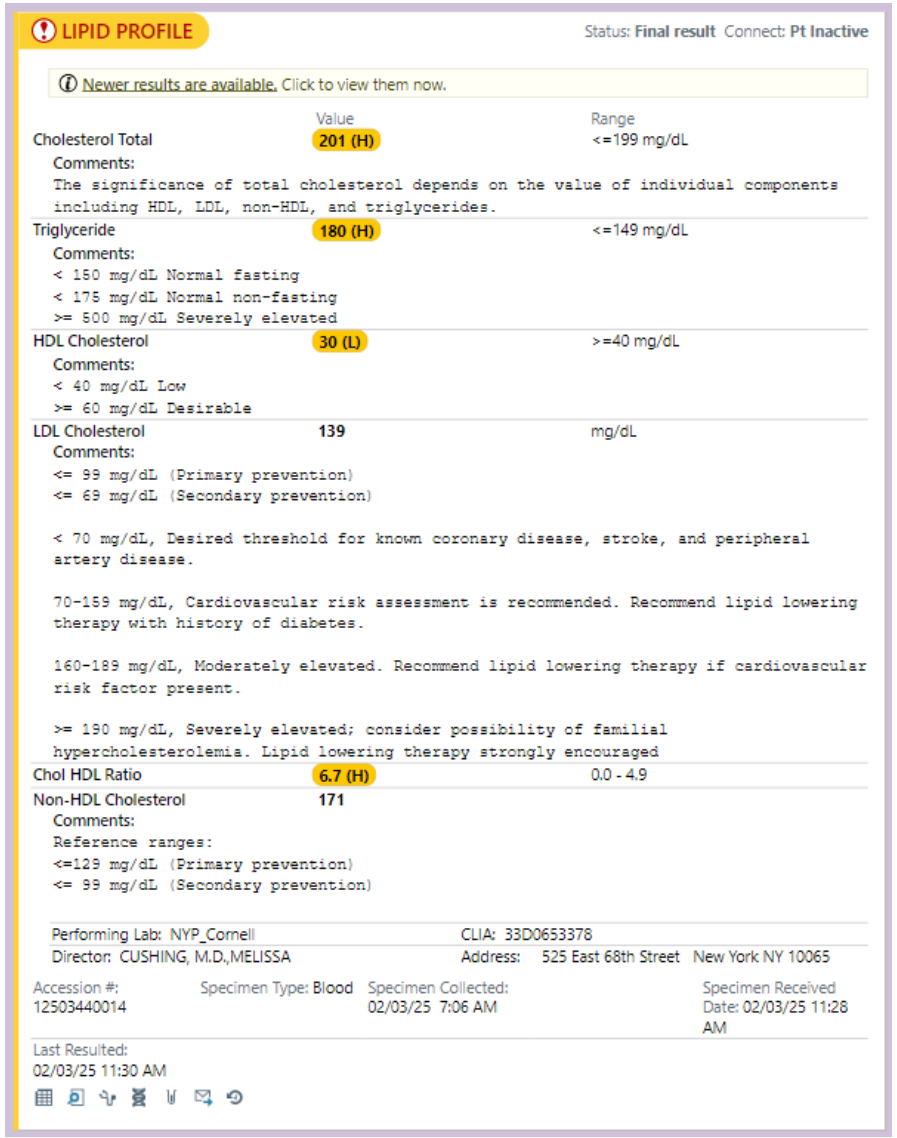
Chol HDL Ratio	3.8	

Performing Lab: NYP_Cornell CLIA: 33D0653378
Director: CUSHING, M.D.,MELISSA Address: 525 East 68th Street New York NY 10065

Accession #: 12501103302 Specimen Type: Blood Specimen Collected: 01/11/25 12:37 PM Specimen Received Date: 01/11/25 5:25 PM

Last Resulted: 01/11/25 7:32 PM

EPIC View of New Lipid Profile



LIPID PROFILE

Status: **Final result** Connect: **Pt Inactive**

Newer results are available. Click to view them now.

	Value	Range
Cholesterol Total	201 (H)	<=199 mg/dL

Comments:

The significance of total cholesterol depends on the value of individual components including HDL, LDL, non-HDL, and triglycerides.

Triglyceride	180 (H)	<=149 mg/dL

Comments:

< 150 mg/dL Normal fasting
< 175 mg/dL Normal non-fasting
>= 500 mg/dL Severely elevated

HDL Cholesterol	30 (L)	>=40 mg/dL

Comments:

< 40 mg/dL Low
>= 60 mg/dL Desirable

LDL Cholesterol	139	mg/dL

Comments:

<= 99 mg/dL (Primary prevention)
<= 69 mg/dL (Secondary prevention)

< 70 mg/dL, Desired threshold for known coronary disease, stroke, and peripheral artery disease.

70-159 mg/dL, Cardiovascular risk assessment is recommended. Recommend lipid lowering therapy with history of diabetes.

160-189 mg/dL, Moderately elevated. Recommend lipid lowering therapy if cardiovascular risk factor present.

>= 190 mg/dL, Severely elevated; consider possibility of familial hypercholesterolemia. Lipid lowering therapy strongly encouraged

Chol HDL Ratio	6.7 (H)	0.0 - 4.9
Non-HDL Cholesterol	171	

Comments:

Reference ranges:
<=129 mg/dL (Primary prevention)
<= 99 mg/dL (Secondary prevention)

Performing Lab: NYP_Cornell CLIA: 33D0653378
Director: CUSHING, M.D.,MELISSA Address: 525 East 68th Street New York NY 10065

Accession #: 12503440014 Specimen Type: Blood Specimen Collected: 02/03/25 7:06 AM Specimen Received Date: 02/03/25 11:28 AM

Last Resulted: 02/03/25 11:30 AM

Major changes

- **Phased go-live**
- **New assays/orderables:**
  - Hs-cTnI to hs-cTnT
  - BNP to NT-proBNP
  - Three additional tests in the Drug of Abuse (DAU) panel
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- **Collection procedures**
  - Ammonia, hsTnT and NT-proBNP: tube type change
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- **Reference range, unit and calculation changes**
- **Discontinued/sendout**
  - Discontinued tests
  - Temporary send out
- **Hemolysis reporting**

Discontinued tests

Tests:

- Caffeine,
- NAPA and Procainamide,
- CKMB,
- T3 Uptake and free Thyroxin index
- BNP,
- cTnI,

Calculations:

- Urea clearance calculation (BUN and Urine Urea Nitrogen are still offered),
- Amylase/Creatinine Ratio,

Panels/profiles:

- FSH timed stimulation profile,
- LH timed stimulation profile,
- Thyroid panel (TSH, T4, T3 Uptake and FTI)*

*Keeping Thyroid profile (TSH and fT4)

Body fluid testing

Temporary send out pending NYS approval
Estimated TAT: 1-3 days

Body fluid type examples: Peritoneal, pleural, pericardial, drainage, amniotic, abscess, gastric, pancreatic, pelvic, and synovial fluids.

The below tests are still offered in house:

CSF: lactate, glucose, protein

Body fluid cell counts

Urine (phase 2): Amylase, BUN, Calcium, CL, Creatinine, glucose, Mg, PO4, K, Na, total protein, uric acid.

Major changes

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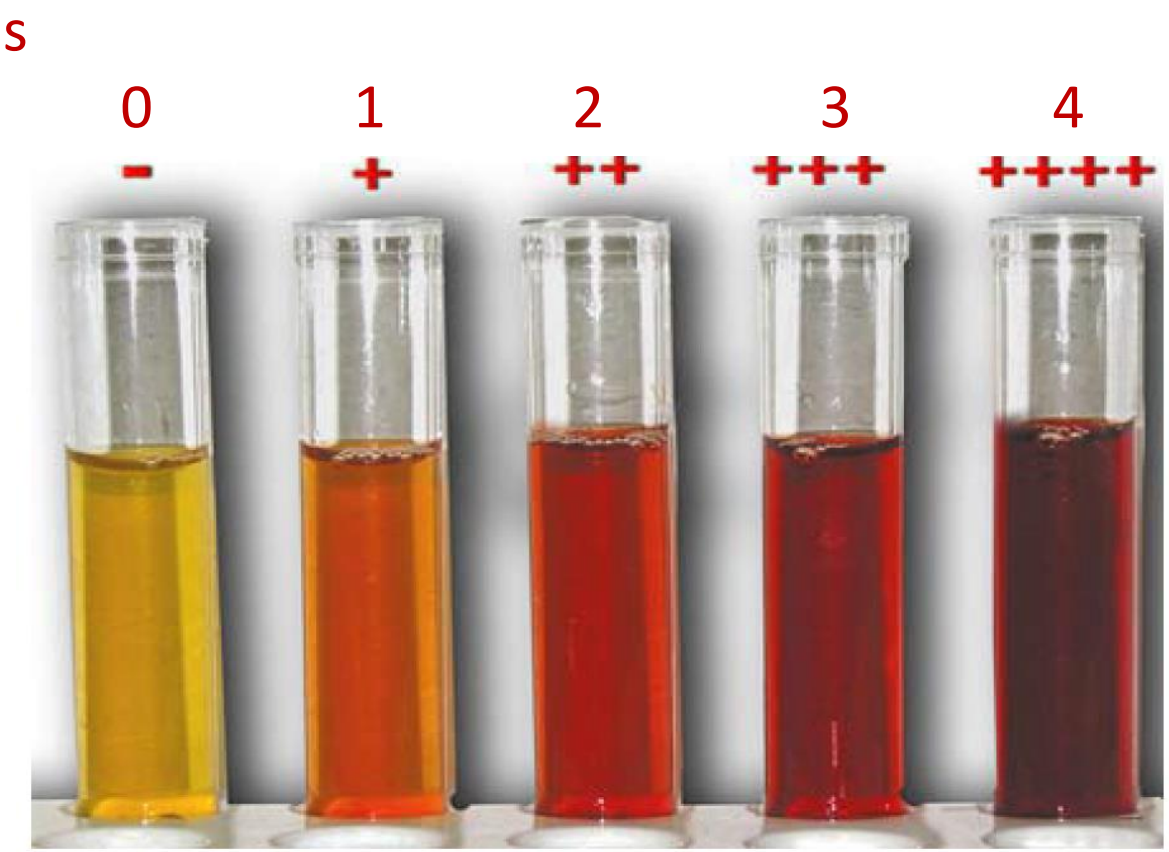
We have high hemolysis rates

	Hemolysis Grade - % of Location draws				
Location	0	1	2	3	4
GBG5SMICU	86%	10%	1%	2%	0%
ACH14LBRNDLVRY	75%	19%	3%	2%	1%
ACH15NICU	33%	52%	9%	4%	2%
ACH 16 POSTPARTUM	92%	8%	0%	0%	0%
GBGADLTEMRGNCY	75%	17%	4%	2%	1%
GBGPEDSEMRGNCY	76%	17%	3%	2%	2%
Examples of tests impacted by hemolysis on Roche at different hemolysis level	LDH AST DBIL	K IGE ALT AMM CK	GGT ETOH ALP FE	PHOS RF	TP CORT

Semi-quantitative determination of hemolysis



Theoretical Hemoglobin Concentration (mg/dL) (The current Siemens method does not report hemoglobin concentrations.)	0-44	45-139	140-234	234-444	>445

Current sample Reporting- hemolysis

Adults	Pediatric patients
When the H index is 0 and 1 →Report	
When the H index is 2 →Cancel K, LD, AST, CK with comment “Hemolysis noted”	
When the H index is 3 and 4 → Cancel all the tests	When the H index is 3 and 4 → Cancel K, LD, AST, CK Report the results with comment “Specimen hemolyzed”

What will be improved for hemolysis reporting?

- Semi-quantitative to quantitative detection of hemolysis.
  - ❖ Siemens: H index measured as 0, 1, 2, 3, 4
  - ❖ Roche: H index measured as hemoglobin concentration (mg/dL)
- More granular assessment for each assay .
- More flexible and more customizable.
- The hemolyzed results will be reported based individual tests but not entire specimen.
- An automated detection and reporting system

Impact of hemolysis on test accuracy (examples of sensitive tests)

Increasing hemolysis

Analyte	H index (mg/dL)	0	10	15	20	25	40	60	90	100	130	175	260	350	450	530	600	700	800	900	Criteria
LDH (U/L)	POOL1	235	244	250	251.5	256.5	269.5		311		367	413	500.5	588	677	765	848.5	970.5	1099	1144	Extended based on 15% TAE
	POOL2	673.5	675	678	682	684	700.5		752.5	760.5	797	836.5	925.5	1023	1116	1211	1301	1406	1503	1646	
K (mM)	POOL1	4.3	4.3	4.4	4.4	4.4	4.4		4.6	4.6	4.7	4.8	5	5.2	5.5	5.7	5.8	6.1	6.3	6.5	Extended based on 0.3mM TAE
	POOL2	4.9	5	5	5	5	5.1		5.2	5.2	5.3	5.4	5.6	5.9	6.1	6.4	6.6	6.8	7.1	7.2	
AST (U/L)	POOL1	48	49	50		50	52		56	57	60	65	73	79	88	96	103	114	132	148	Extended based on 15% TAE
	POOL2	426	429	428		428	432		434	435	438	443	450	457	464	471	478	488	497	501	
ALT (U/L)	POOL1	44	44	44		44	44		43	45	46	47	49	50	52	54	56	59	71	75	Extended based on 15% TAE
	POOL2	167	165	164		164	165		165	166	166	168	171	171	172	175	178	180	184	190	
DBIL (mg/dL)	POOL1	0.6	0.6	0.5		0.5	0.5	0.4	0.3		0.2	0.1	0.1	0.1	0	0	0	0	0	0	Extended based on 20% TAE
	POOL2	2.6	2.5	2.5		2.4	2.3	2.1	1.8		1.5	1.3	1	0.9	0.8	0.7	0.6	0.6	0.6	0.5	
UIBC (µg/dL)	POOL1	160.5	162	164		166.5	170.5		183.5	186.6	193	206	232	257	282.5	311	337.5	366.5	418.5	427	Extended based on 20% TAE
	POOL2	136.5	140.5	141		141	146		159.5	163.8	174.5	188	215	239.5	268	295	323.5	352	390	411	
HAPT (mg/dL)	POOL1	166	165	167		166	166		166		158	152	151	153	152	152	149	151	148	148	10%
	POOL2	165	168	166		167	171		165		155	153	151	153	152	151	150	148	150	148	
Folate (ng/mL)	POOL1	12.4	12.95	12.5		12.65	12.85		13.25	13.99	14.6	15.2	17	18.15	19.45	20	20	20	20	20	1ng/ml
	POOL2	12	11.95	11.6		11.6	12.65		12.9	13.31	14	15.05	16.15	17.6	19.05	20	20	20	20	20	
Insulin (mU/L)	POOL1	17.4	17	16.9		16.7	16.5		16.2	14.8	13.6	12.5	12.1	10.2	7.8	6.6	8.4	5.1	4.6	3.6	12%
	POOL2	8	8.1	8		7.7	7.8		7		6.4	5.7	4.5	3.7	3.1	2.5	2.1	1.8	1.1	0.8	

RED: FDA approved H index cutoffs

Green: Extended H index ranges at NYP/Cornell for the sensitive tests

Example: LDH

- H Index- 0 - 14 mg/dL = result shown
- H Index- 15 – 40 mg/dL = See comment ;(comment – Test name (LDH) = result. This result is inaccurate due to hemolysis and may be falsely increased. Testing of a new sample is strongly advised.)
- H Index- > 40 mg/dL = See comment ;(comment – Test name (LDH) = no result reported. This test is affected by hemolysis. Testing of a new sample is strongly advised)

Example: K

- H Index- 0 - 19 mg/dL = result shown
- H Index- 20 – 100 mg/dL = See comment ;(comment – Test name (K) = result. This result is inaccurate due to hemolysis and may be falsely increased. Testing of a new sample is strongly advised.)

  If the K result is critical: =Hemolyzed, Critical; (comment as above)

  Note: CV K Value will post in comment box. Follow protocol to report CV, and document CV call in comment box.
- H Index- > 100 mg/dL = See comment ;(comment – Test name (K) = no result reported. This test is affected by hemolysis. Testing of a new sample is strongly advised)

Example: DBIL

- H Index- 0 - 24 mg/dL = result shown
- H Index- 25 – 60 mg/dL = See comment ;(comment – Test name (DBIL) = result. This result is inaccurate due to hemolysis and may be falsely decreased. Testing of a new sample is strongly advised.)
- H Index- > 60 mg/dL = See comment ;(comment – Test name (DBIL) = no result reported. This test is affected by hemolysis. Testing of a new sample is strongly advised)

Hemolysis interference is method dependent

Example: Direct bilirubin

Direct bilirubin	Interference on Roche at H index of 25 mg/dL
Direct bilirubin (neonatal)	NO Interference up to H index of 600 mg/dL

Note: Neonatal bilirubin (Total and Direct) is performed on another non-Roche analyzer, which is not affected by the coming changes.

Major changes

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  - Discontinued tests
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- **Hemolysis reporting**

Contact information

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