

SUPPLEMENTAL MATERIAL

Table I: Troponin assays and centers

Location	Assay	Manufacturer and Assay	Coefficient of variation*	99th percentile/ULN, ng/L	Limit of detection, ng/L**	Limit of Quantitation, ng/L	High sensitivity assay	Number of subjects	Mortality [N (%)]
Howard County General Hospital	Troponin T	Roche Diagnostics Cobas 6000 Elecsys Troponin T STAT	1.3-15.7%	10	10	30	No	43	15 (34.9)
Suburban Hospital	Troponin T	Roche Diagnostics Cobas 6000 Elecsys Troponin T STAT	1.3-15.7%	10	10	30	No	69	35 (50.7)
Bayview Medical Center	Troponin I	Siemens Dimension Vista 1500 Troponin I Beckman	2.9-6.6%	45	15	40	No	10	1 (10.0)
Johns Hopkins Hospital***	Troponin I	Coulter Access 2 AccuTnl+3 Troponin I Ortho Vitros 5600	5-7%	20	40	40	No	109	31 (28.4)
Sibley Memorial Hospital	Troponin I	Integrated System Troponin I	2.2-12.5%	34	10	12	No	12	6 (50.0)
MI-ARDS Study	Troponin I	Abbott ARCHITECT	2.4-4.9%	26	2	3.5	Yes	506	134 (26.5)

STAT High Sensitivity Troponin I		
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*Manufacturers'
reported within-
lab or total
precision
**Location
reported cutoff
***For this site
the URL is the limit
of detection (limit
of quantitation)

Table II: missing data prior to multiple imputation

Variable	Missing	Percent missing	Imputed
Age (y)	0	0	
Female sex	0	0	
Chronic lung disease	0	0	
Congestive heart failure	0	0	
Chronic immunodeficiency	0	0	
Chronic liver disease	0	0	
Obesity	0	0	
Diabetes with complication	0	0	
Chronic kidney disease	0	0	
Temperature (C)	3	1.23	*
Heart rate (beats per minute)	3	1.23	*
Systolic BP (mmHg)	3	1.23	*
Diastolic BP (mmHg)	3	1.23	*
Vasopressor use	0	0	
Weight (kg)	37	15.2	*
Body-mass index	43	17.3	*
Height (cm)	11	4.5	*
Tidal volume (mL)	67	27.6	*
Positive end-expiratory pressure (cm H2O)	48	19.8	*
Plateau pressure (cm H2O)	74	30.5	*
Driving pressure (cmH2O)	75	30.9	*
FiO2 (fraction)	52	21.4	*
PaO2/FiO2 ratio	104	43.7	*
Lung compliance (mL/cm H2O)	83	34.2	*
Minute ventilation (L/min)	48	19.8	*

pH	64	26.3	*
pCO2 (mmHg)	64	26.3	*
pO2 (mmHg)	64	26.3	*
Creatinine (mg/dL)	3	1.2	*
Bilirubin	9	3.7	*
Lactate	84	34.6	*
Hemoglobin	3	1.23	*
Hematocrit	3	1.23	*
Troponin	0	0	
White blood cell count	3	1.23	*
Platelets	3	1.23	*
SvO2	138	56.8	
Interleukin-6	199	81.9	
Ferritin	57	23.5	*
Fibrinogen	138	56.8	
D-dimer	32	13.2	*
C reactive protein	39	16	*
Death	0	0	
Ventilator-free days (days)	0	0	

Table III: Demographics of intubated COVID-19 patients with versus without troponin checked

	Total	No troponin checked	Troponin checked	P
Number	328	85 (25.9)	243 (74.1)	
Age (y)	64.5 (53.7-73.0)	64.9 (55.3-75.8)	64.0 (53.6-72.6)	0.41
Female sex (%)	127 (38.7)	32 (37.7)	95 (39.1)	0.81
Hispanic ethnicity (%)	78 (23.8)	24 (28.2)	54 (22.2)	0.26
African-American race (%)	127 (38.7)	41 (48.2)	86 (35.4)	0.036
Chronic lung disease (%)	73 (22.3)	19 (22.4)	54 (22.2)	0.98
Congestive heart failure (%)	92 (28.1)	22 (25.9)	70 (28.8)	0.61
Hypertension (%)	204 (62.2)	56 (65.9)	148 (60.9)	0.42
Diabetes with complication (%)	67 (20.4)	20 (23.5)	47 (19.3)	0.41
Chronic kidney disease (%)	59 (18.)	10 (11.8)	49 (20.2)	0.083
Death (%)	121 (36.9)	33 (38.8)	88 (36.2)	0.67
Renal replacement (%)	58 (17.7)	17 (20.0)	41 (16.9)	0.52
Vasopressors (%)	278 (84.8)	66 (77.7)	212 (87.2)	0.034

Data shown as N (%) and median (inter-quartile range)

Table IV: Comparison of patients with troponin I assessed versus troponin T

	Troponin I	Troponin T	P
Number	131 (53.9)	112 (46.1)	
Age (y)	61.1 (49.5-70.7)	67.4 (57.8-78.1)	0.0008
Female sex (%)	55 (42.0)	40 (35.7)	0.32
Hispanic ethnicity (%)	34 (26.0)	20 (17.9)	0.13
African-American race (%)	49 (37.4)	37 (33.0)	0.48
Chronic lung disease (%)	26 (19.9)	28 (25.)	0.34
Congestive heart failure (%)	42 (32.1)	28 (25.)	0.23
Hypertension (%)	71(54.2)	77 (68.8)	0.02
Diabetes with complication (%)	20 (15.3)	27 (24.1)	0.082
Chronic kidney disease (%)	22 (16.8)	27 (24.1)	0.16
Death (%)	38 (29.0)	50 (44.6)	0.011
Renal replacement (%)	25 (19.1)	16 (14.3)	0.32
Vasopressors (%)	120 (91.6)	92 (82.1)	0.028

Data shown as N (%) and median (inter-quartile range)

Table V: Factors associated with log- transformed troponin levels. Adjusted models include age, sex, and creatinine

	Univariable		Adjusted			Univariable		Adjusted	
	B (se)	P	B (se)	P		B (se)	P	B (se)	P
Troponin T					Troponin I				
Age (y)	0.041 (0.0093)	<0.001			Age (y)	0.033 (0.0099)	0.001		
Female sex	0.25 (0.29)	0.4			Female sex	0.14 (0.30)	0.65		
Hispanic ethnicity	-0.61 (0.36)	0.095			Hispanic ethnicity	-0.031 (0.34)	0.94		
African-American race	-0.46 (0.30)	0.13			African-American race	0.26 (0.31)	0.39		
Chronic lung disease	-0.35 (0.32)	0.28			Chronic lung disease	0.29 (0.37)	0.43		
Congestive heart failure	0.26 (0.32)	0.42	-0.026 (0.28)	0.93	Congestive heart failure	0.80 (0.32)	0.01	0.50 (0.31)	0.11
Hypertension	0.60 (0.30)	0.046	0.00036 (0.28)	0.99	Hypertension	0.23 (0.30)	0.44	-0.11 (0.29)	0.7
Diabetes with complication	0.10 (0.33)	0.75	0.11 (0.28)	0.69	Diabetes with complication	1.0 (0.40)	0.013	0.70 (0.39)	0.075
Chronic kidney disease	1.71 (0.29)	<0.0001	0.96 (0.34)	0.006	Chronic kidney disease	1.72 (0.38)	<0.0001	1.51 (0.53)	0.005
Temperature (C)	-0.27 (0.12)	0.022	-0.20 (0.11)	0.058	Temperature (C)	-0.15 (0.15)	0.32	0.01 (0.15)	0.95
Heart rate (beats per minute)	0.0042 (0.0067)	0.53			Heart rate (beats per minute)	0.01 (0.0076)	0.19		
Systolic BP (mmHg)	-0.012 (0.008)	0.15	-0.0038 (0.007)	0.59	Systolic BP (mmHg)	-0.027 (0.01)	0.01	-0.016 (0.01)	0.12
Diastolic BP (mmHg)	-0.035 (0.016)	0.034			Diastolic BP (mmHg)	-0.026 (0.018)	0.15		
Respiratory rate (breaths per minute)	-0.013 (0.019)	0.51			Respiratory rate (breaths per minute)	0.017 (0.022)	0.43		
Vasopressor use	-0.14 (0.37)	0.69			Vasopressor use	0.061 (0.55)	0.91		
Weight (kg)	-0.01 (0.005)	0.05	-0.003 (0.005)	0.51	Weight (kg)	-0.003 (0.006)	0.58	0.001 (0.006)	0.87
Body-mass index (kg/m2)	-0.031 (0.017)	0.071			Body-mass index (kg/m2)	-0.018 (0.19)	0.35		
Tidal volume (mL)	0.0017 (0.003)	0.54			Tidal volume (mL)	0.0039 (0.0024)	0.11		
Positive end-expiratory pressure (cm H2O)	-0.047 (0.036)	0.2	-0.022 (0.033)	0.5	Positive end-expiratory pressure (cm H2O)	-0.073 (0.04)	0.068	-0.041 (0.039)	0.3
Driving pressure (cmH2O)	-0.0057 (0.012)	0.64			Driving pressure (cmH2O)	0.0068 (0.009)	0.45		
Lung compliance (mL/cm H2O)	0.0029 (0.009)	0.74			Lung compliance (mL/cm H2O)	0.0052 (0.016)	0.75		
Minute ventilation (L/min)	0.0058 (0.005)	0.22			Minute ventilation (L/min)	0.0039 (0.016)	0.81		
pH	-0.13 (1.33)	0.92			pH	-2.12 (1.67)	0.21		
pCO2 (mmHg)	-0.02 (0.012)	0.1	-0.0068 (0.01)	0.51	pCO2 (mmHg)	-0.013 (0.012)	0.3	0.0001 (0.012)	0.99
pO2 (mmHg)	0.0025 (0.004)	0.53			pO2 (mmHg)	0.0032 (0.005)	0.56		
PaO2/FiO2 ratio	-0.0003 (0.002)	0.9			PaO2/FiO2 ratio	0.0015 (0.0024)	0.54		

Creatinine (mg/dL)	0.36 (0.07)	<0.001			Creatinine (mg/dL)	0.14 (0.045)	0.002		
Bilirubin (mg/dL)	0.21 (0.36)	0.55			Bilirubin (mg/dL)	0.40 (0.24)	0.1		
Lactate (mmol/L)	0.58 (0.048)	0.23	0.032 (0.04)	0.43	Lactate (mmol/L)	0.20 (0.049)	<0.001	0.15 (0.05)	0.003
Hemoglobin (g/dL)	-0.22 (0.065)	0.001			Hemoglobin (g/dL)	-0.17 (0.069)	0.013		
Hematocrit (%)	-0.063 (0.22)	0.005	-0.035 (0.02)	0.081	Hematocrit (%)	-0.049 (0.023)	0.035	-0.031 (0.024)	0.19
Central venous saturation (%)	0.015 (0.019)	0.46			Central venous saturation (%)	-0.0073 (0.0083)	0.38		
White blood cell count (1000 cells/mm3)	0.058 (0.023)	0.014	0.64 (0.02)	0.002	White blood cell count (1000 cells/mm3)	0.023 (0.025)	0.36	0.023 (0.023)	0.31
Platelets (100 cells/mm3)	-0.002 (0.001)	0.13	-0.0002 (0.001)	0.87	Platelets (100 cells/mm3)	-0.0046 (0.0015)	0.003	-0.0029 (0.002)	0.053
Interleukin-6 (pg/mL)	0.0011 (0.0028)	0.7			Interleukin-6 (pg/mL)	0.00012 (0.0007)	0.87		
Ferritin (ng/mL)	0.000066 (0.00002)	0.001	0.00005 (0.00002)	0.005	Ferritin (ng/mL)	0.000054 (0.000015)	<0.001	0.00004 (0.00002)	0.008
Fibrinogen (mg/dL)	-0.0023 (0.0013)	0.09	-0.0015 (0.001)	0.2	Fibrinogen (mg/dL)	-0.0038 (0.001)	0.001	-0.0025 (0.001)	0.022
D-dimer (mcg/mL)	0.0088 (0.018)	0.63			D-dimer (mcg/mL)	0.027 (0.02)	0.17		
C-reactive protein (mg/dL)	0.001 (0.0013)	0.44			C-reactive protein (mg/dL)	0.0001 (0.003)	0.97		