

Laboratory Medicine – October 2021

December 21, 2021

Bridgeport and Milford Campuses Turnaround Time Goals

- Mean determined from median TAT across the Yale New Haven Health System delivery networks
 - Bridgeport and Milford Campuses – Bridgeport Hospital, Greenwich Hospital, Lawrence Memorial Hospital, Westerly Hospital, St. Raphael and York Street Campus – Yale New Haven Hospital and Shoreline Medical Center
- Standard Deviation calculated
- 2 SD Range established and represents the upper and lower limits
 - If data set within control range, no corrective actions are necessary

FY21 vs. FY22 Baseline Comparison

Test Name	TAT			% Compliance		
	FY21	FY22	Change	FY21	FY22	Change
Procalcitonin	63	62	-1	53.5	57.1	3.6
Troponin	31	32	1	84.7	83.6	-1.1
BMP	29	29	0	88.4	87	-1.4
CBC	7	7	0	92.7	92.3	-0.4
PTINR	19	18	-1	87.8	89	1.2
D-dimer	23	21	-2	79.9	82.1	2.2
Type and screen	56	58	2	53.9	55.6	1.7
COVID Panther	317	298	-19	98	99.6	1.6
COVID Cepheid/Liat	63	57	-6	46.9	85.8	38.9
Legend						
Good						
Neutral						
Bad						

Changed from 60 to 90 minutes due to assay reformulation

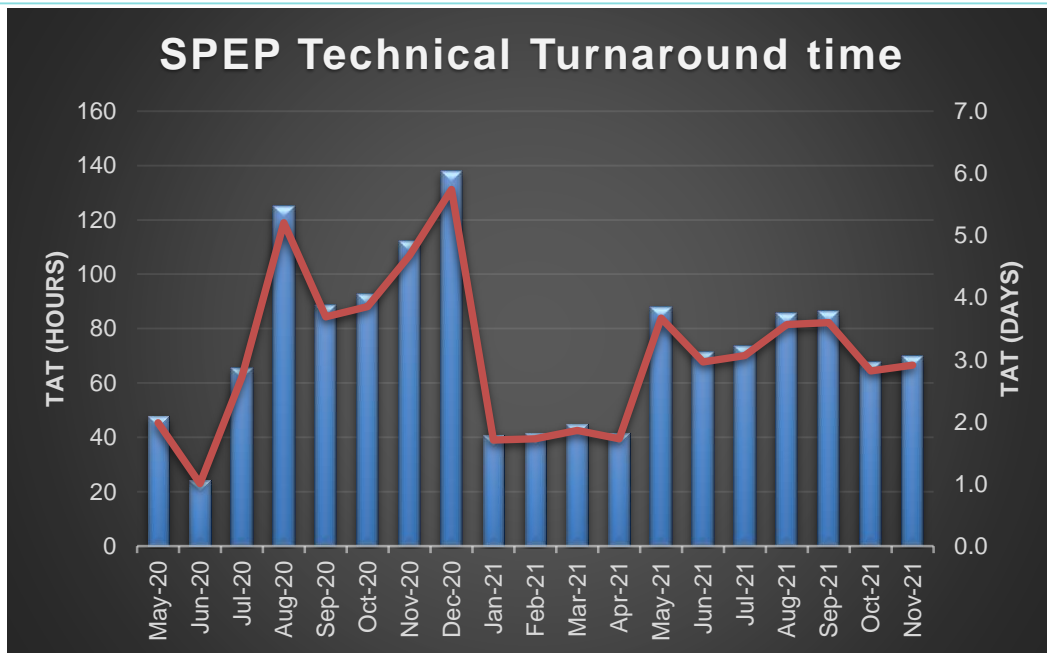
SPEP Outcome Metrics: Technical

Establish Target & Stretch Goals

Threshold (FY22)	Target	Stretch
Baseline Median	25%	50%
4 days	3 days	2 days

Post Intervention

% Improvement	TAT (days)
Oct 2021	2.8
Nov 2021	2.9
YTD	2.9



**Original Baseline:
May 2020 – Dec 2020**



FY21



FYTD22



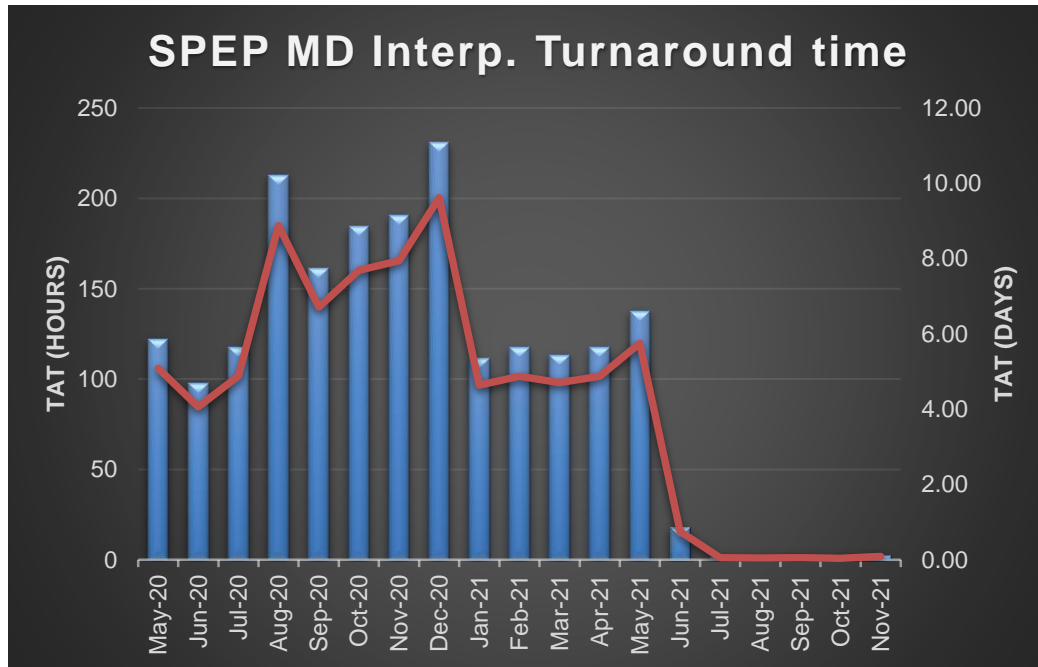
SPEP Outcome Metrics: MD Interp.

Establish Target & Stretch Goals

Threshold (FY22)	Target	Stretch
Baseline Median	25%	50%
3 days	2.3 days	1.5 days

Post Intervention

% Improvement	TAT (days)
Oct 2021	0.04
Nov 2021	0.09
FYTD	0.06



**Original Baseline:
May 2020 – Dec 2020**



FY21

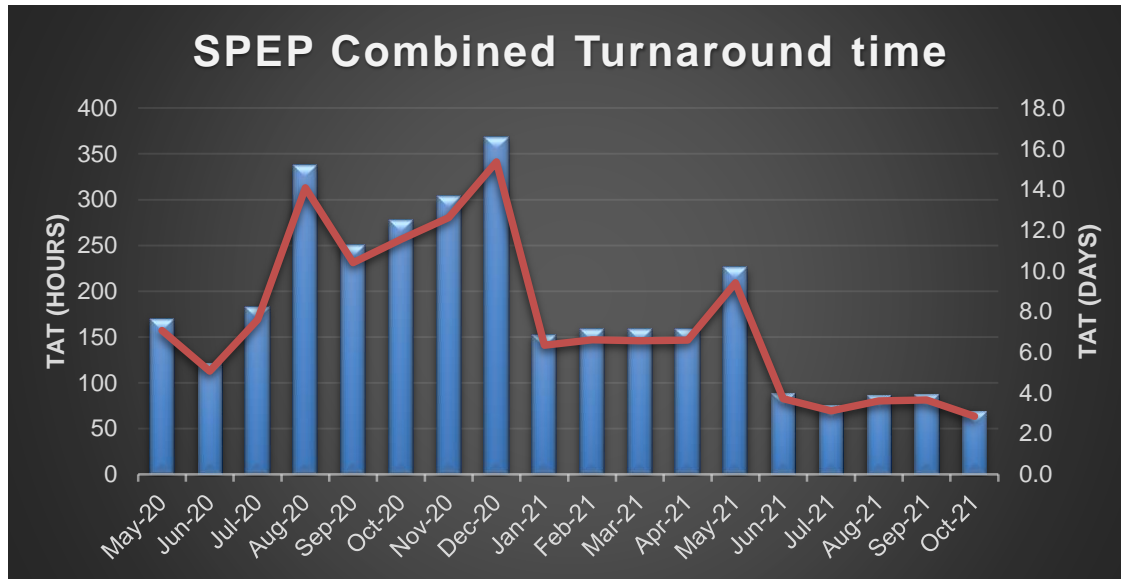


FYTD22



SPEP Outcome Metrics: Tech + MD Total

Establish Target & Stretch Goals

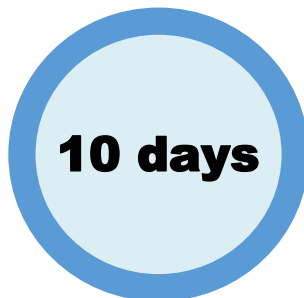


Threshold (FY 19)	Target	Stretch
Current Median	25%	50%
7 days	5.3 days	3.5 days

Post Intervention

% Improvement	TAT (days)
Oct 2021	2.86
Nov 2021	3.00
FYTD	2.93

Baseline:
May 2020 – Dec 2020



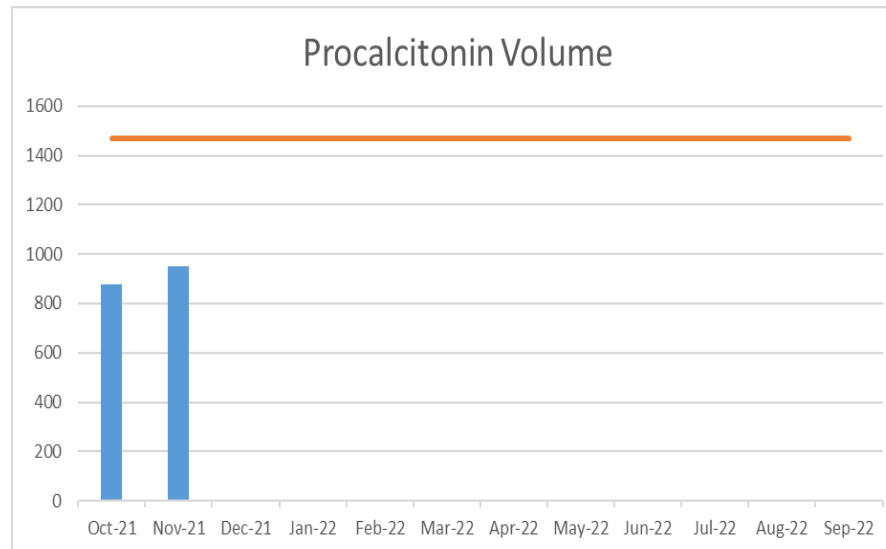
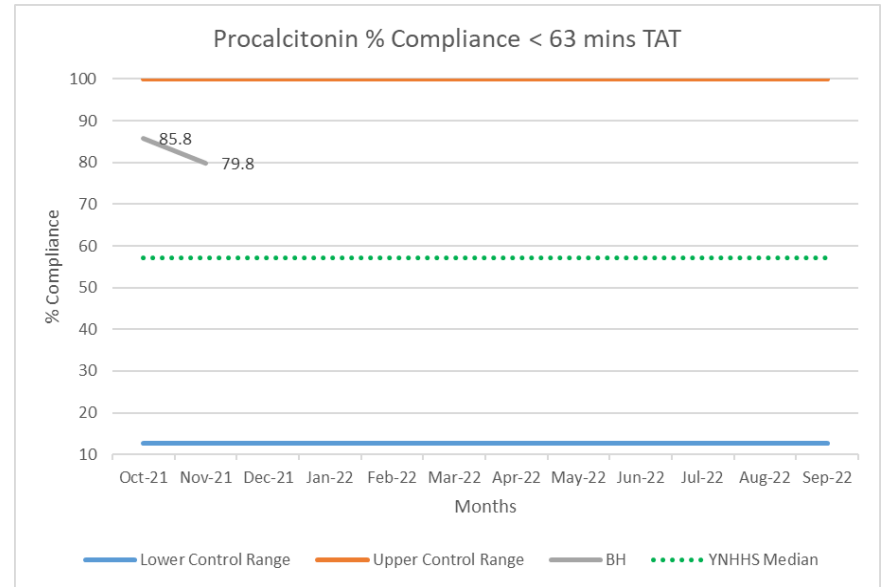
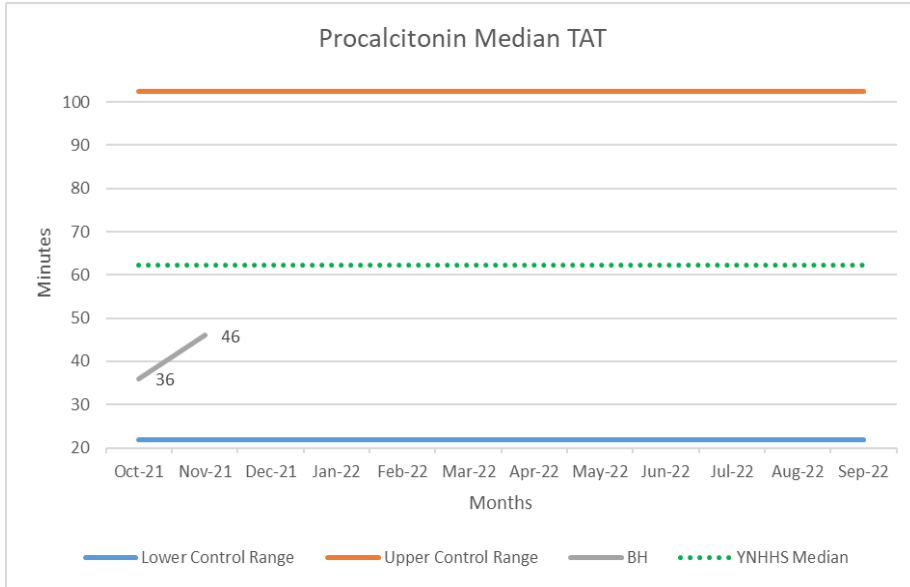
FY21



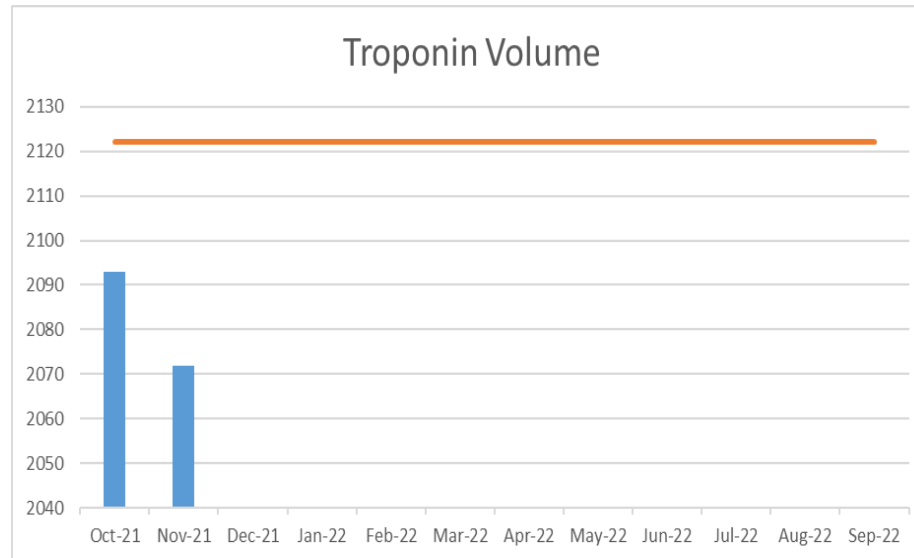
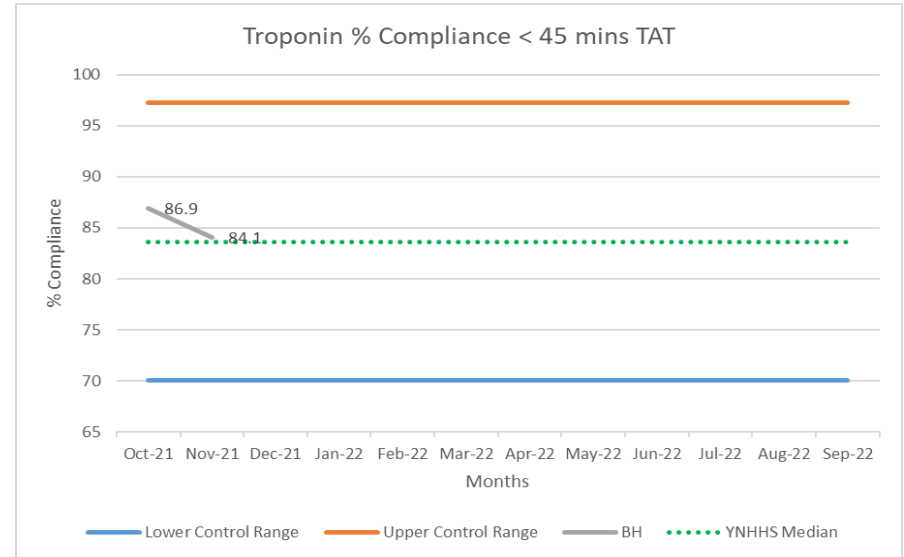
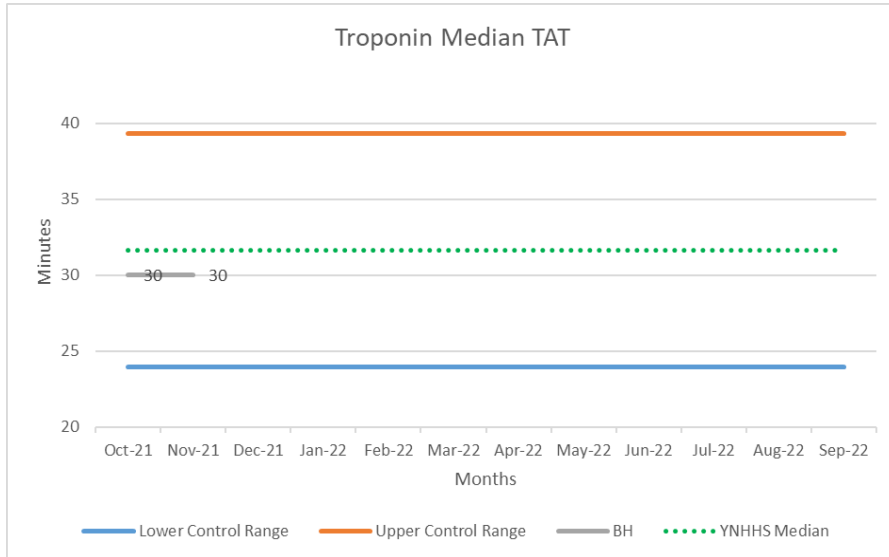
FYTD22



Bridgeport Campus – Procalcitonin

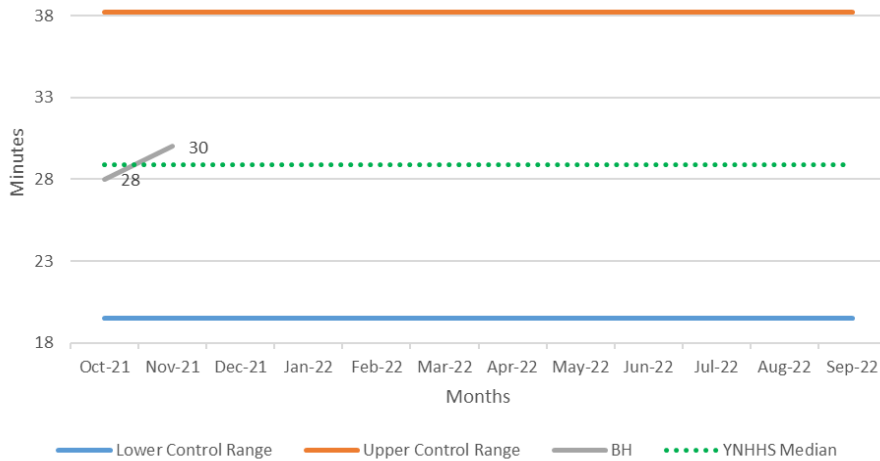


Bridgeport Campus – Troponin ED TAT

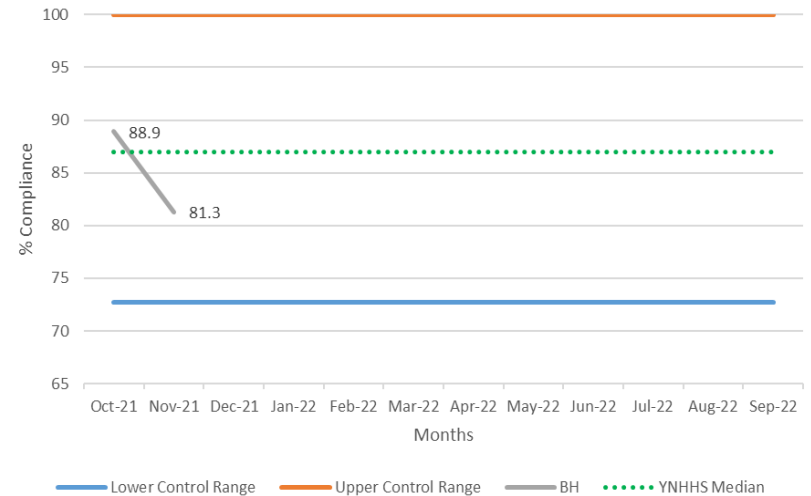


Bridgeport Campus – Basic Metabolic Panel (BMP) ED TAT

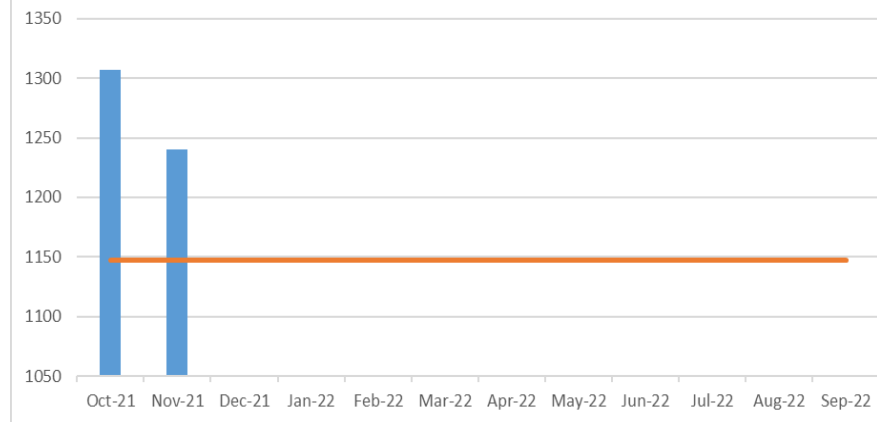
BMP Median TAT



BMP % Compliance < 45 mins TAT

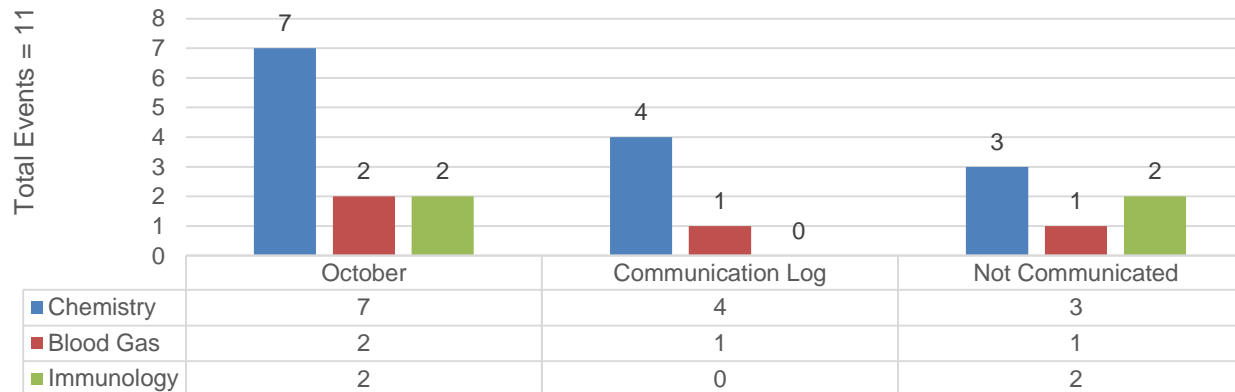


BMP Volume

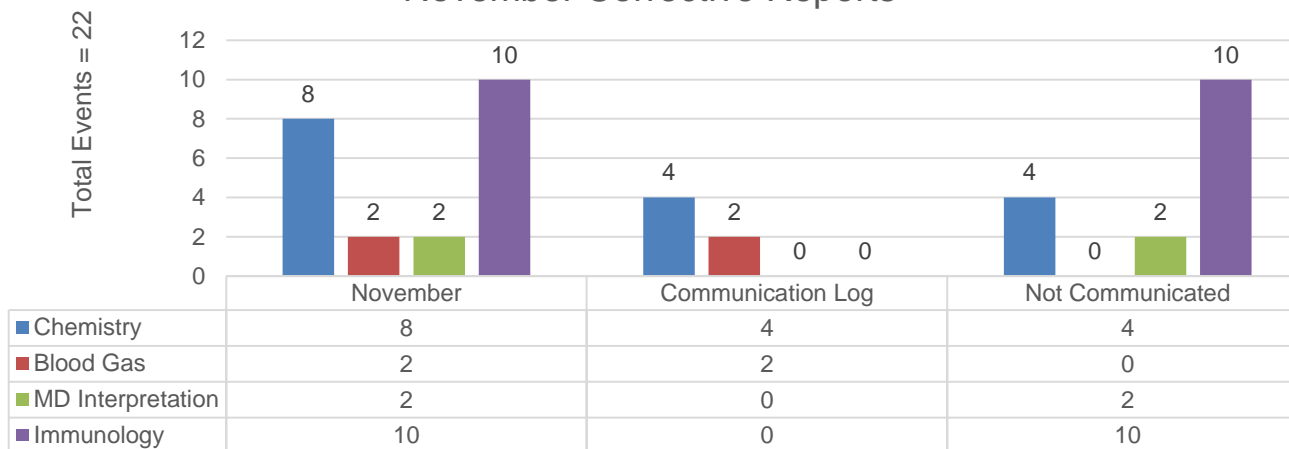


Result Correction – Chemistry & Immunology

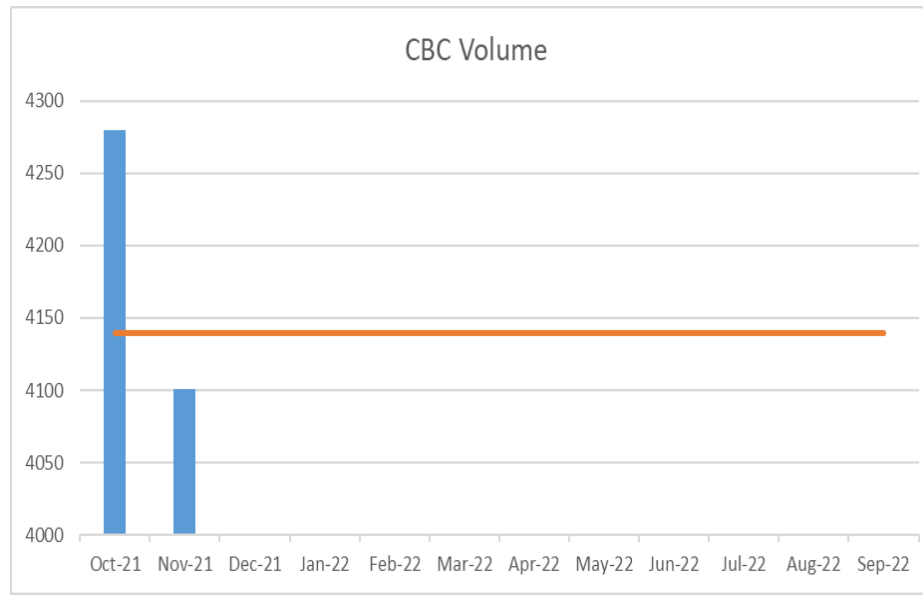
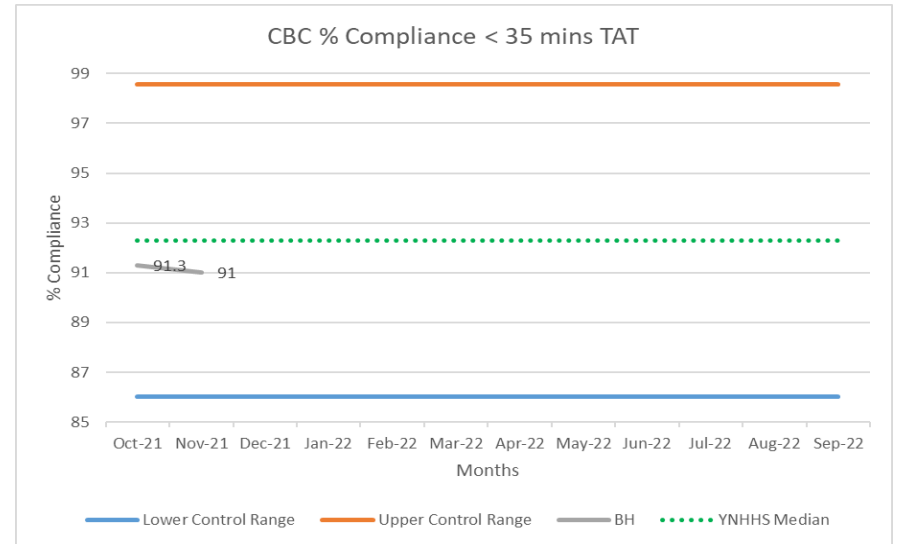
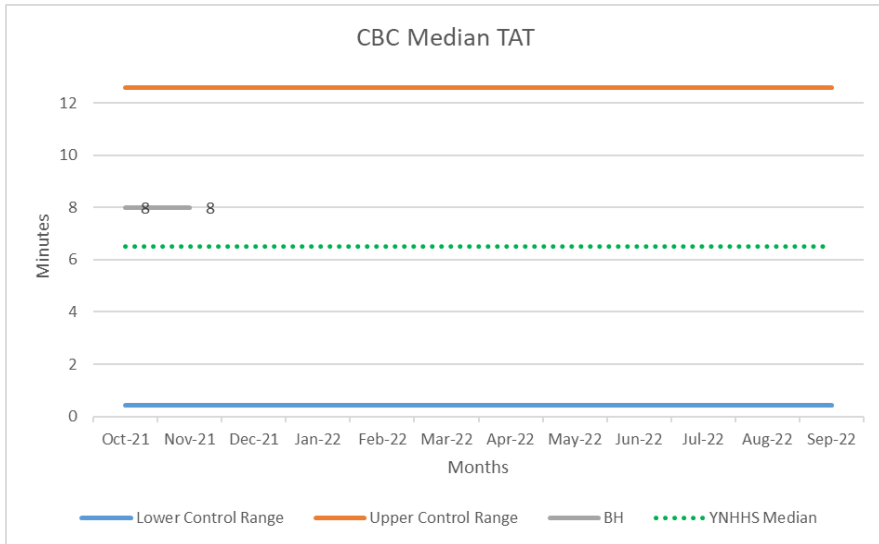
October Corrective Reports



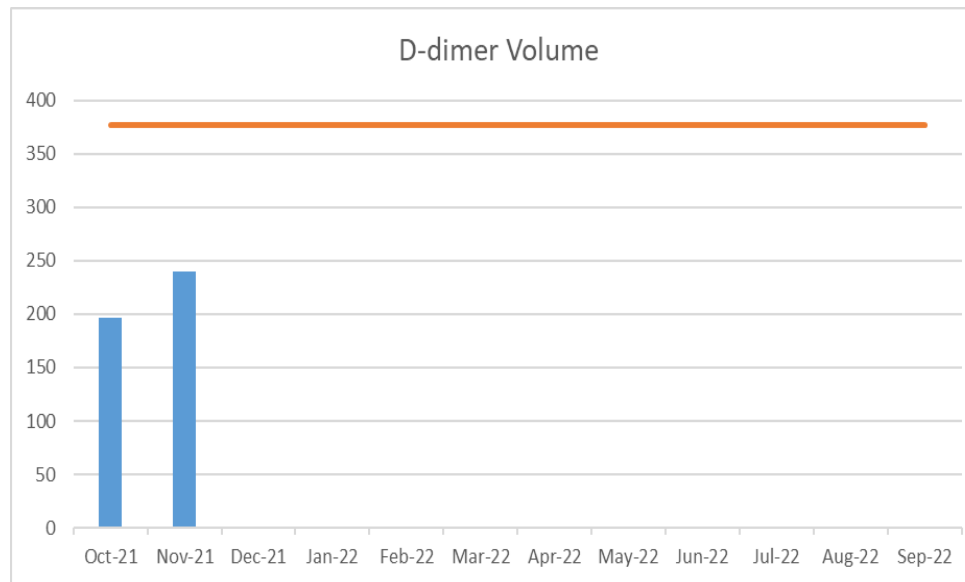
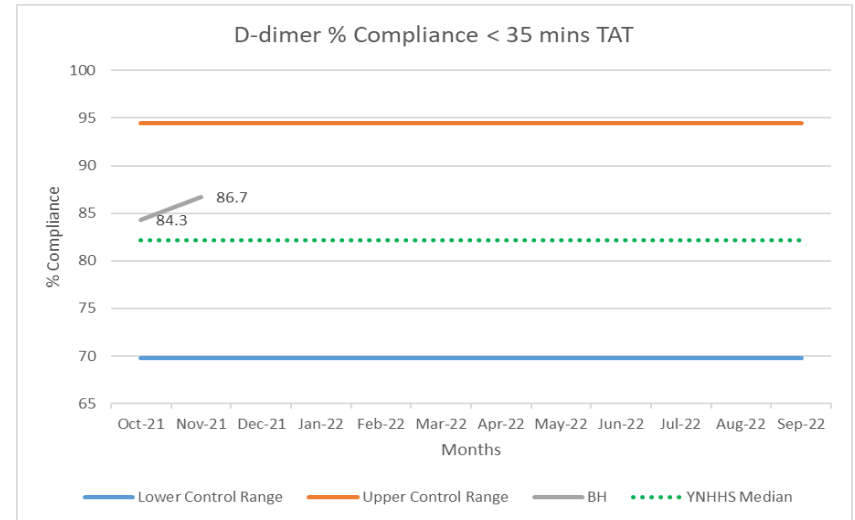
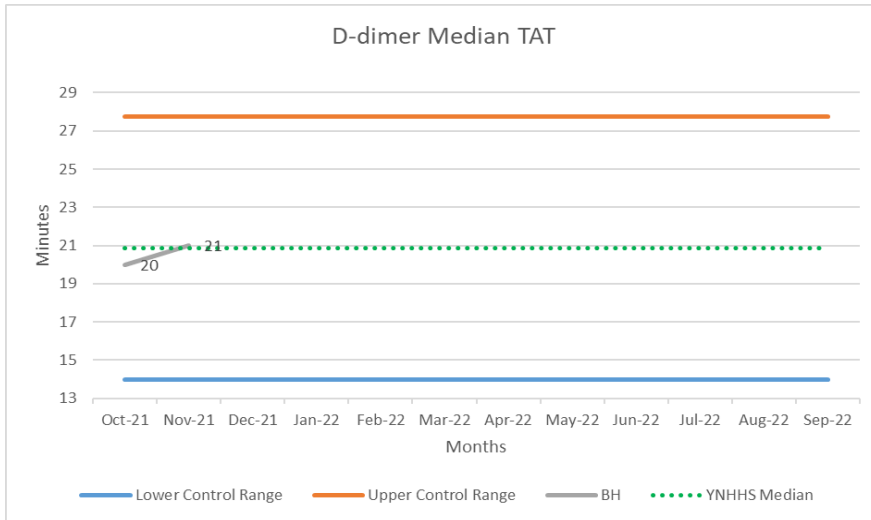
November Corrective Reports



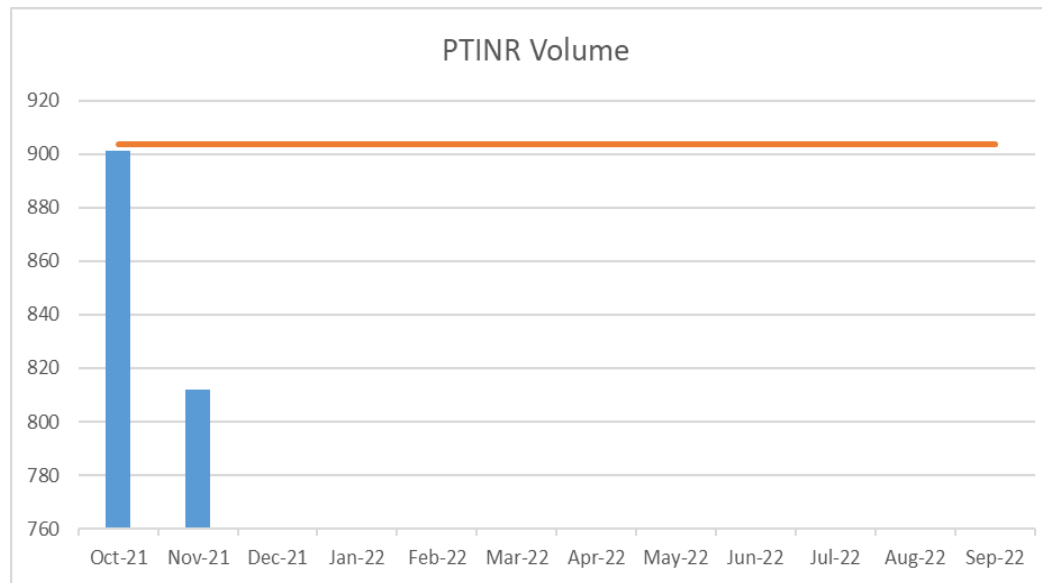
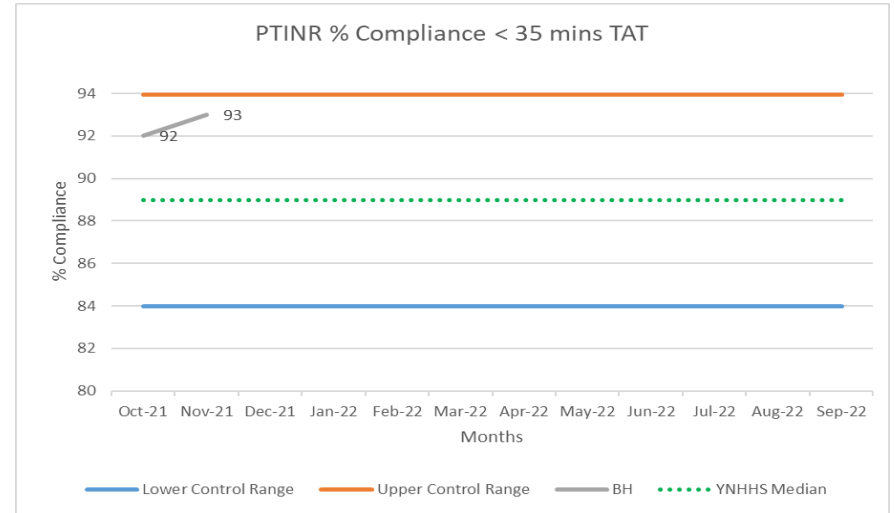
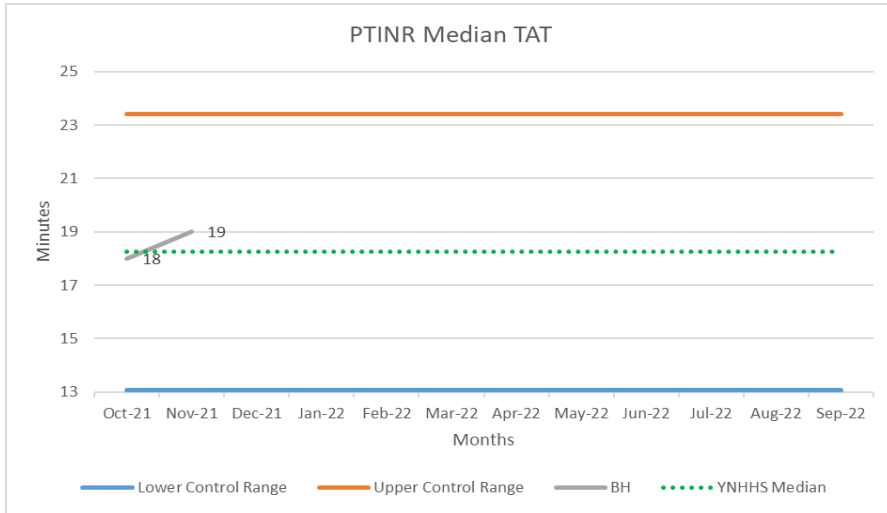
Bridgeport Campus – Complete Blood Count (CBC) ED TAT



Bridgeport Campus – D-dimer ED TAT



Bridgeport Campus – PTINR ED TAT



Aspect of Care

Aspect of Care	Threshold Expected / Target	Sample Size	Data Source	Threshold Achieved	Prior Month's Data	Remedial Action Taken	Responsible Party	Outcome
Comparison of body fluid results with cytology	100% compliance	Total# of fluids = 132 #with cytology ordered =52	EPIC	100 %	100%		K. Castillo	

Aspect of Care	Threshold Expected / Target	Sample Size	Data Source	Threshold Achieved	Prior Month's Data	Remedial Action Taken	Responsible Party	Outcome
Critical values called to pedi within 15 min	100% compliance	0	EPIC	100%	100%		K. Castillo	

Aspect of Care	Threshold Expected / Target	Sample Size	Data Source	Threshold Achieved	Prior Month's Data	Remedial Action Taken	Responsible Party	Outcome
Manually entered results match worksheets	100% compliance	30	EPIC	100%	100%		K. Castillo	

Aspect of Care	Threshold Expected / Target	Sample Size	Data Source	Threshold Achieved	Prior Month's Data	Remedial Action Taken	Responsible Party	Outcome
Corrected results are phoned to care giver	100% Compliance	5	EPIC	80%	60%		K. Castillo	Threshold increased this month.

Aspect of Care	Threshold Expected / Target	Sample Size	Data Source	Threshold Achieved	Prior Month's Data	Remedial Action Taken	Responsible Party	Outcome
Critical Values are called to care giver and documented properly	100% compliance	10	EPIC	100%	100%		K. Castillo	

Corrected reports:

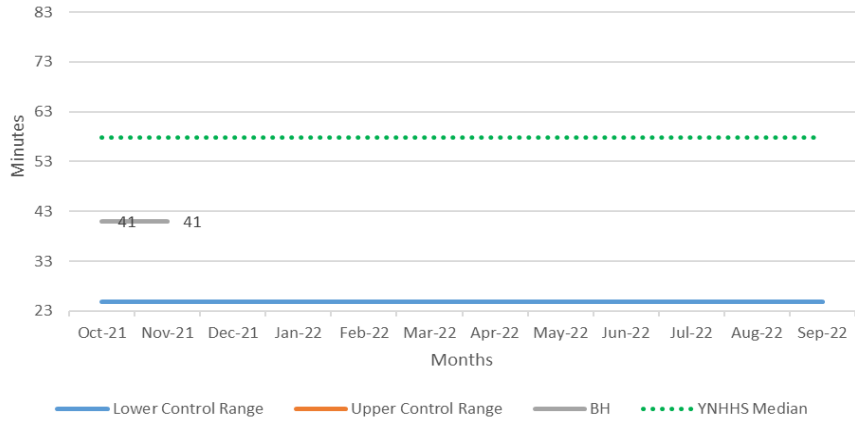
Total corrected Reports = 20 contaminated -2

Data entry error - 4 comment added- 8

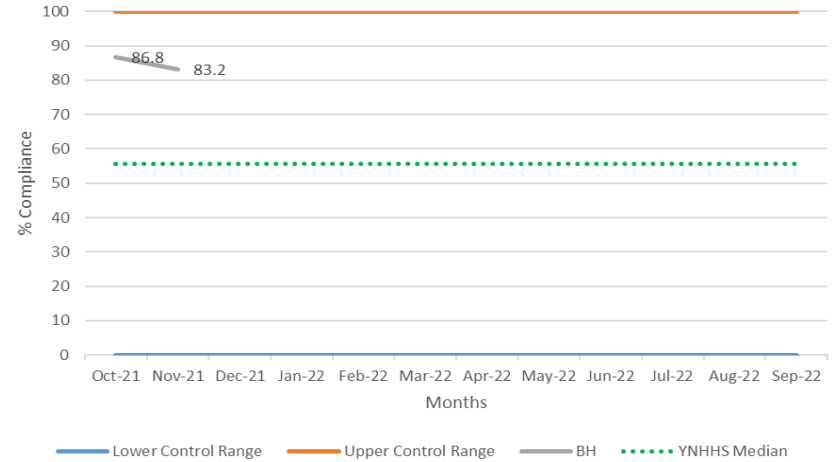
Instrument malfunction -4 other-2

Bridgeport Campus – Type and Screen ED TAT

Type and Screen Median TAT



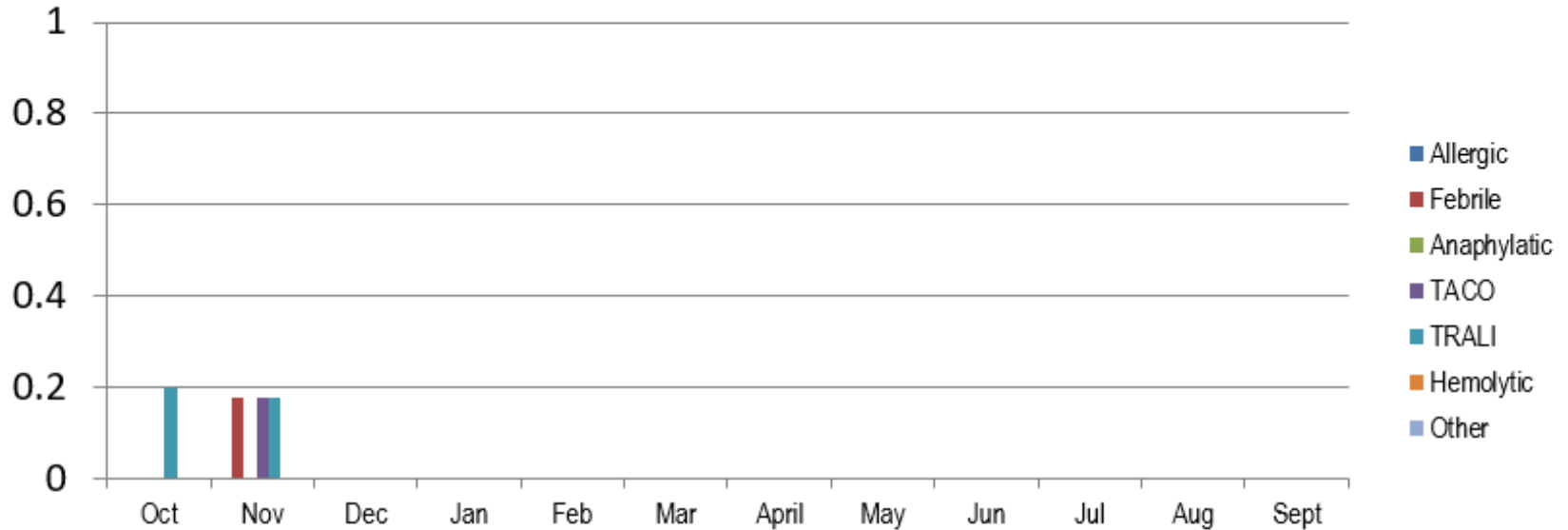
Type and Screen % Compliance < 60 mins TAT



Type and Screen Volume



FY 2022 Adverse Reaction



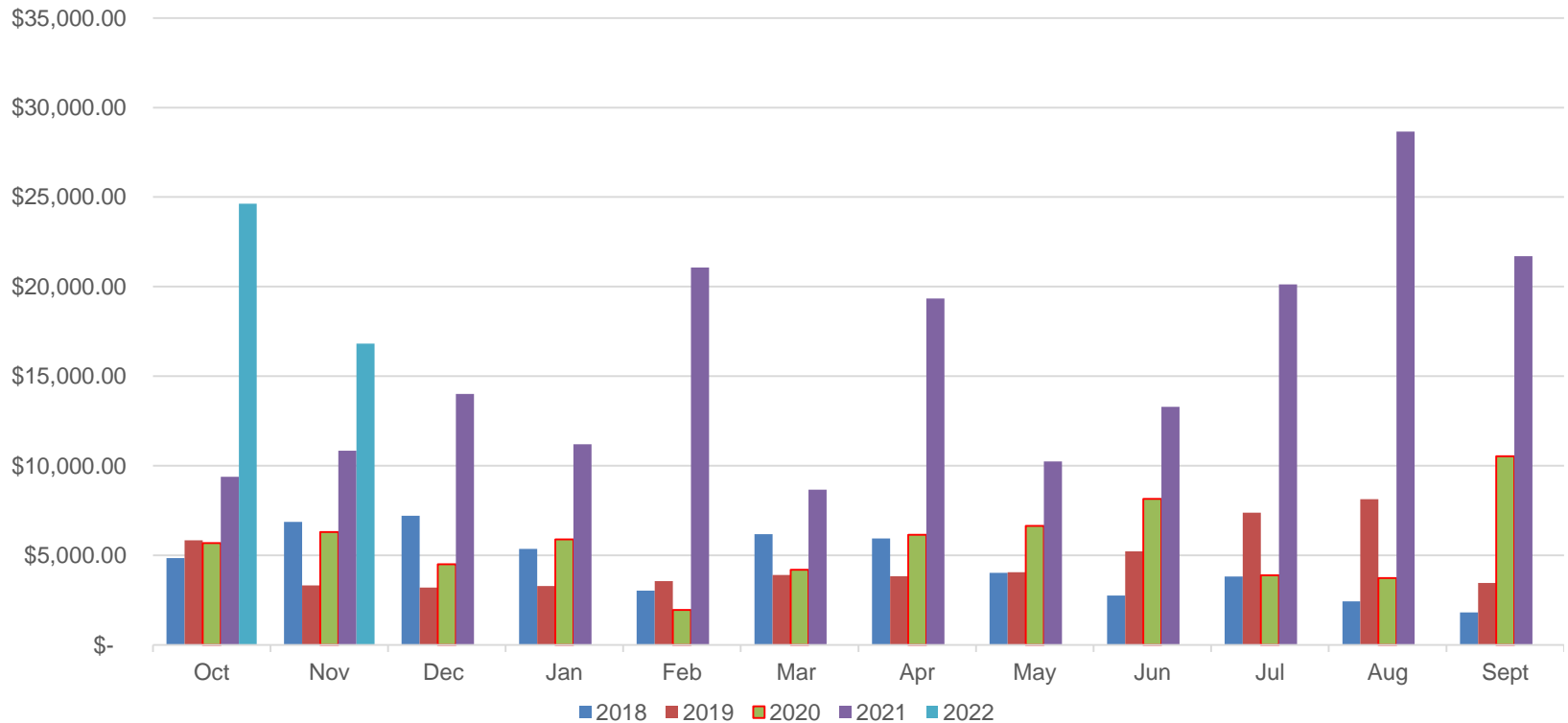
Acceptable threshold 1%

	October	November	December	January	February	March	April	May	June	July	August	September	YTD % Adverse Reaction
# of Reaction	1	3											
# of Products Transfused	636	553											
Overall Percentage	0.2	0.54											

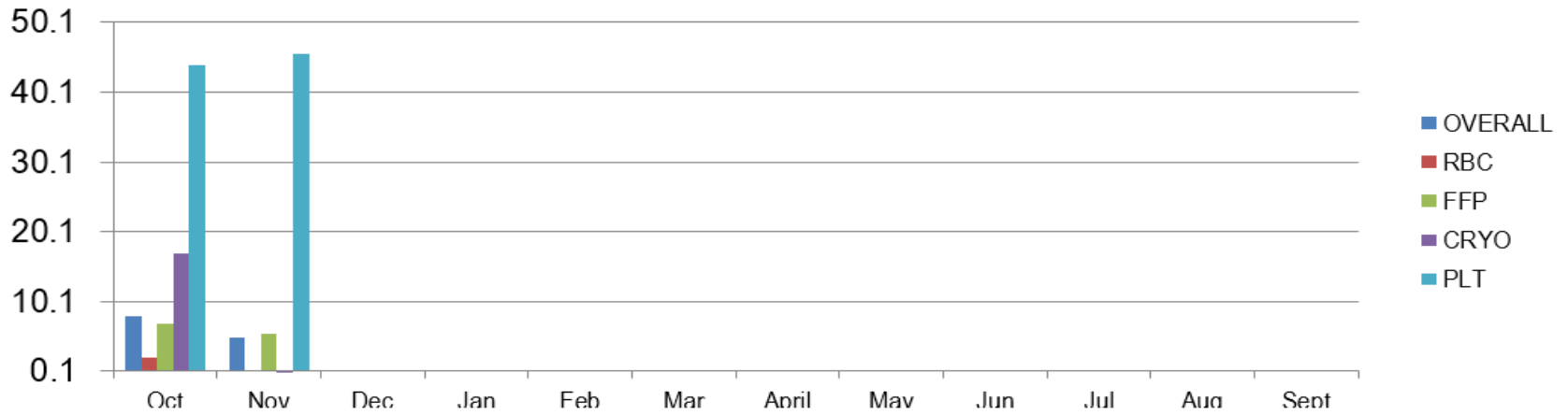
iven

Blood Wastage (updated 12/21/2021)

Bridgeport Campus Blood Wastage FY18, FY19, FY20, FY21



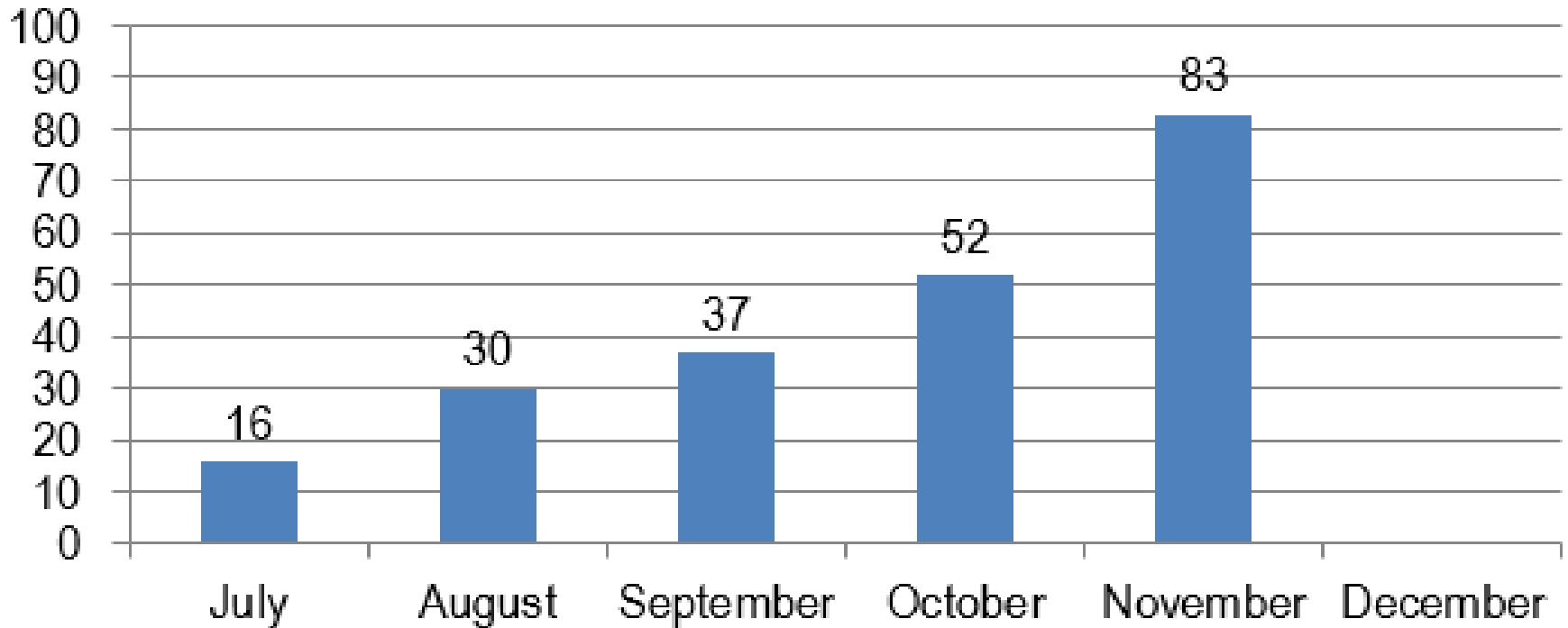
FY 2022 Blood Wastage



Acceptable threshold 3%

	October	November	December	January	February	March	April	May	June	July	August	September	YTD
Overall % Wastage	8%	5%											
% Waste by Product	RBC 2% FFP 7% CRYO 17% PLT 44%	RBC 0.2% FFP 5.4% PLT 45.6%											
cost of wastage	24628.54	16820.55											41449.09

Bridgeport Hospital Laboratory CAP Competency Completions July 2021 – December 2021



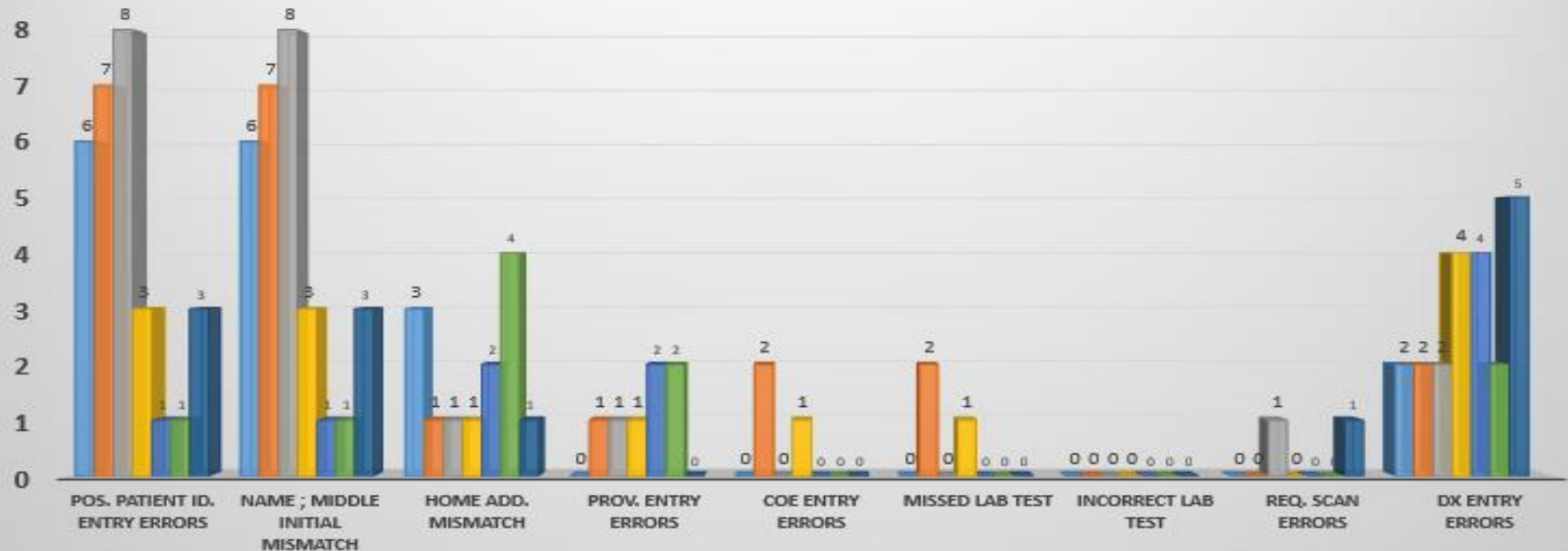
Completed						
Completed/ Total	35/219	74/244	93/253	132/255	263/316	
% Completed	16%	30%	37%	52%	83%	

Outpatient Test Requisition Monitoring Check

Milford Draw Station

(40 Commerce Park, MFD, CT)

2021



	Pos. Patient ID, Entry Errors	Name ; Middle Initial Mismatch	Home Add. Mismatch	Prov. Entry Errors	COE Entry Errors	Missed Lab Test	Incorrect Lab Test	Req. Scan Errors	Dx Entry Errors
■ MAY	6	6	3	0	0	0	0	0	2
■ JUNE	7	7	1	1	2	2	0	0	2
■ JULY	8	8	1	1	0	0	0	1	2
■ AUGUST	3	3	1	1	1	1	0	0	4
■ SEPTEMBER	1	1	2	2	0	0	0	0	4
■ OCTOBER	1	1	4	2	0	0	0	0	2
■ NOVEMBER	3	3	1	0	0	0	0	1	5
■ DECEMBER	3	3	1	1	1	1	0	0	2

Pos. Patient ID for Pat. :

- a. Full Name including Mid. Init.
- b. Date of Birth (DOB)
- c. Medical Record Nbr (MRN)

Prov. Error: Missing Provider (i.e. "CC" etc.)

COE Errors: 2 Categories; Incorrect test/missed test

Req. Scan Error: Transcribed Orders Req NOT saved or scanned incorrectly.

Dx Errors: One or more Dx Not listed for visit.

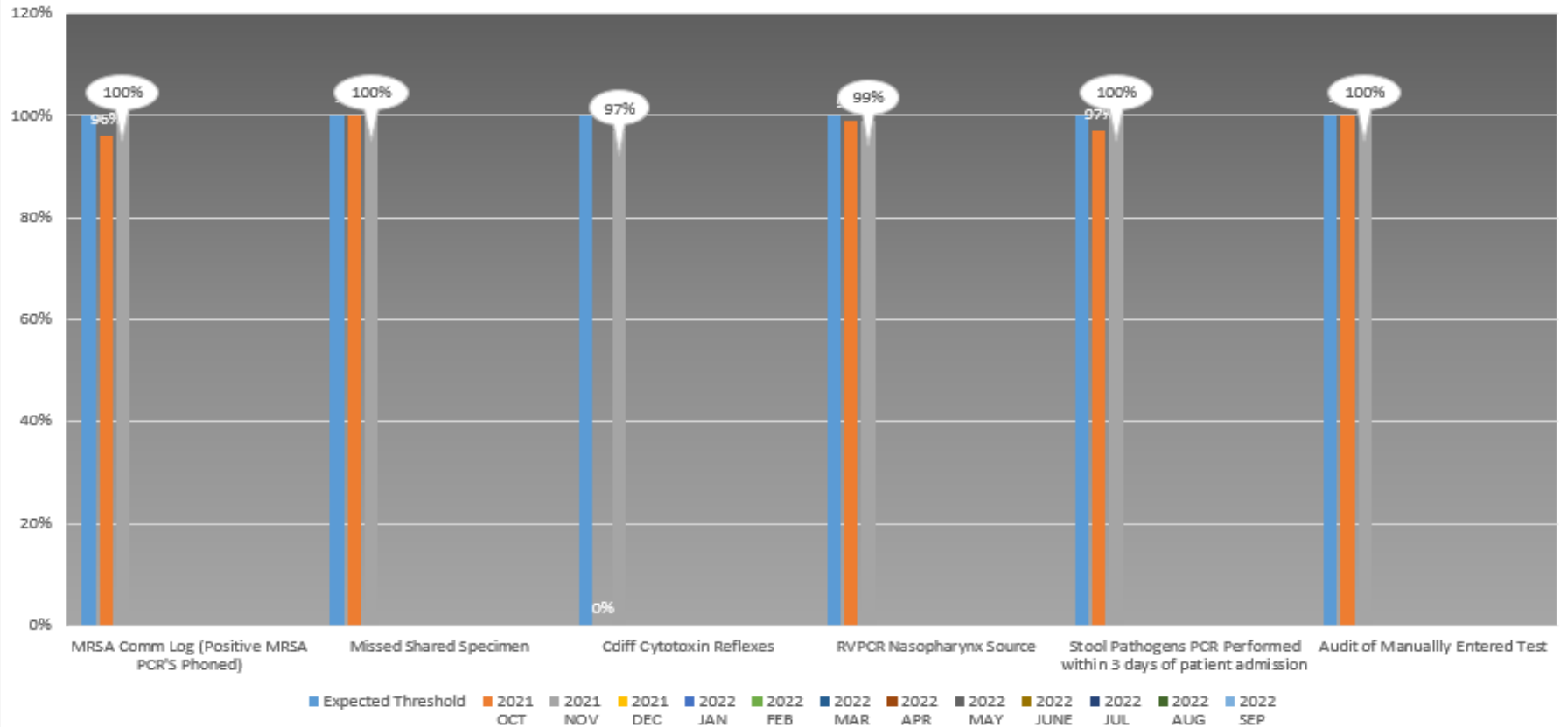
Milford Draw Station (40 Commerce Prk., MFD., CT.)

Patient Volume and Requisition QC Check



	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
■ Tot. Patient Volume	340	510	436	454	515	452	481	
■ # of Req. Reviewed	42	45	70	74	70	70	74	
■ EPIC Prov. Entry	0	0	10	6	10	10	6	
■ # of Business Days/month	26	26	25	24	25	23.5	25	
■ Est. Ave. Patients per day	13	20	17	19	21	19	19	

Microbiology Quality Assurance FY 2021



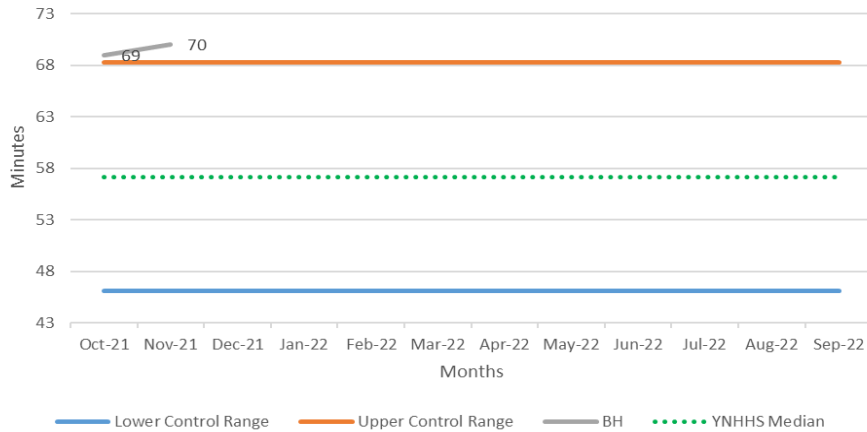
Total V	October	November	December	January	February	March	April	May	June	July	AUG	Sept
MRSA	236	269										
MRSA +	27	23										
Cdif	142	133										
Cdif +	20	33										
RVP	211	263										
Stool	141	126										
Stool Admitted	68	48										
Errors	6	2										

October Errors: Manual transcription of instrument results (RSV tests being run on Resp Panel, H pylori Breathtek), Repeat testing of suspicious results (Positive flus on Resp Panel not being confirmed by Cepheid)

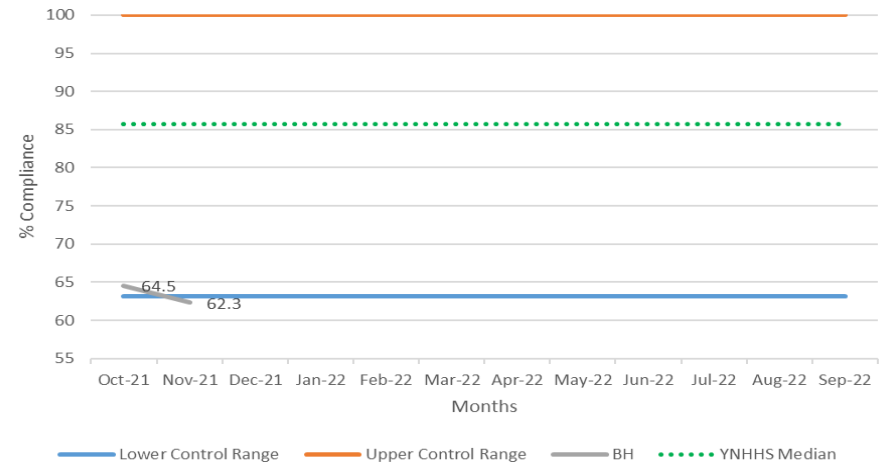
November errors: Manual entry errors (nanosphere & Strep/Legionella Ag)

Bridgeport Campus – COVID-19 Cepheid

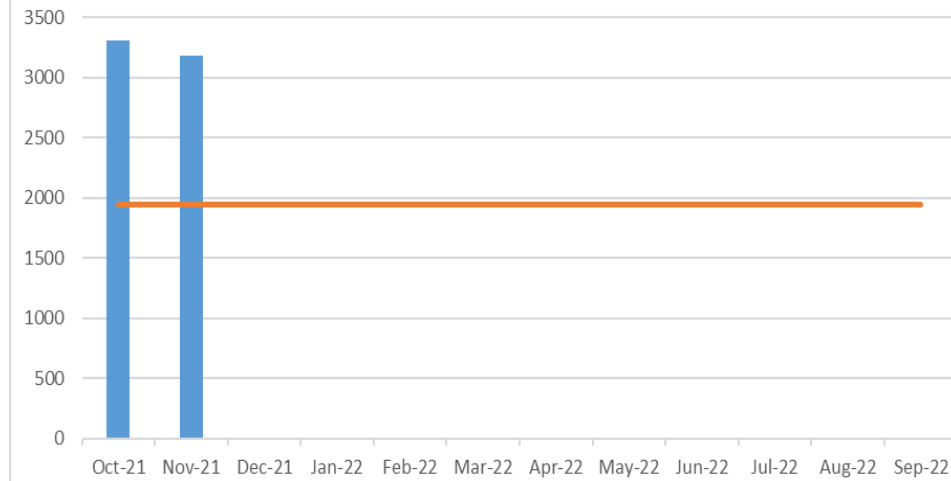
Covid Cepheid Median TAT



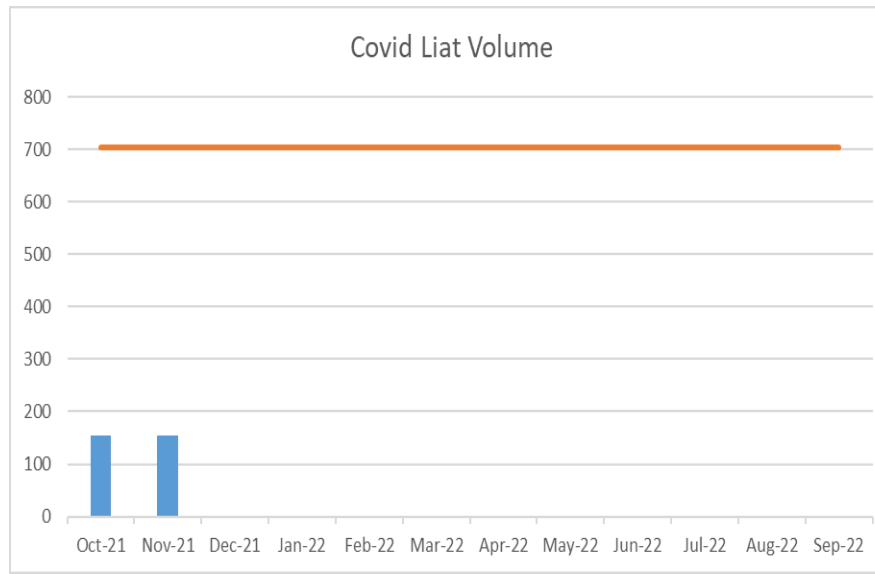
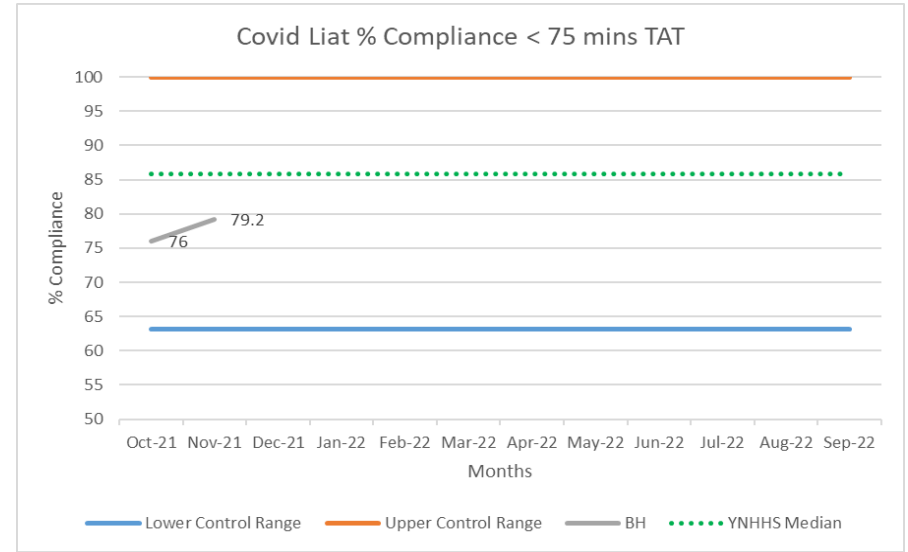
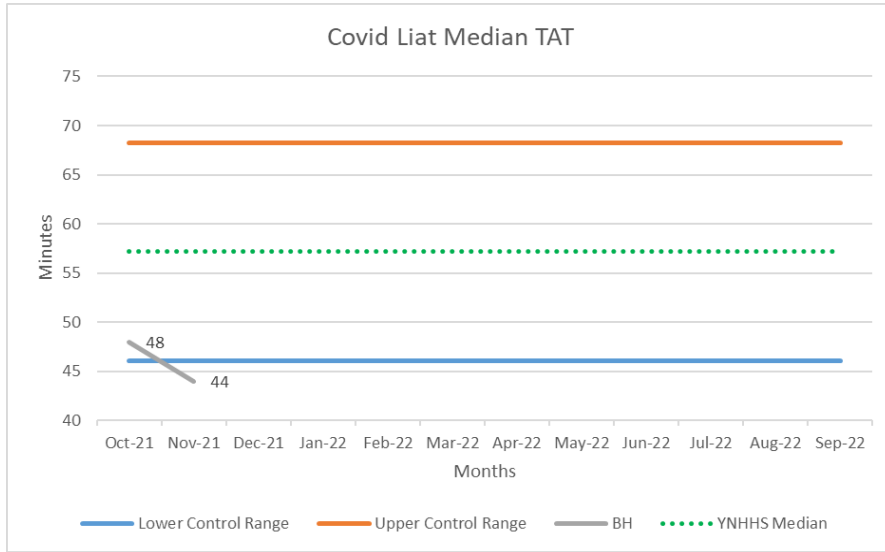
Covid Cepheid % Compliance < 75 mins TAT



Covid Cepheid Volume

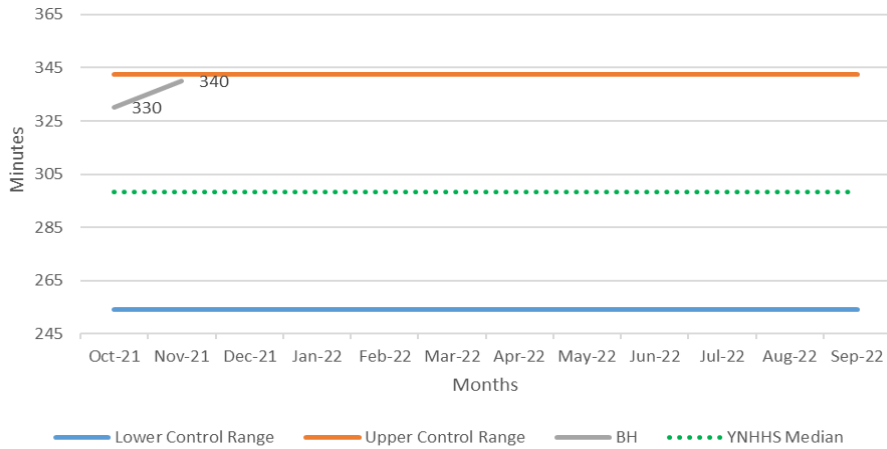


Bridgeport Campus – COVID Liat

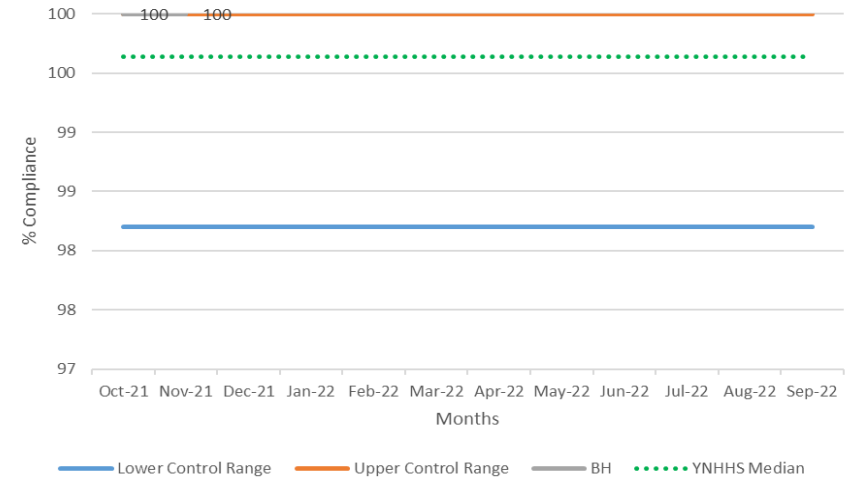


Bridgeport Campus – COVID-19 Panther

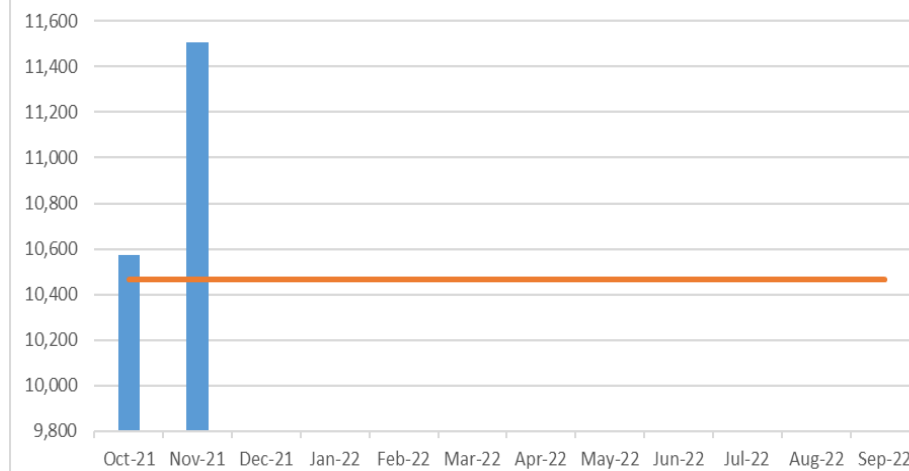
Covid Panther Median TAT



Covid Panther % Compliance < 2880 mins TAT



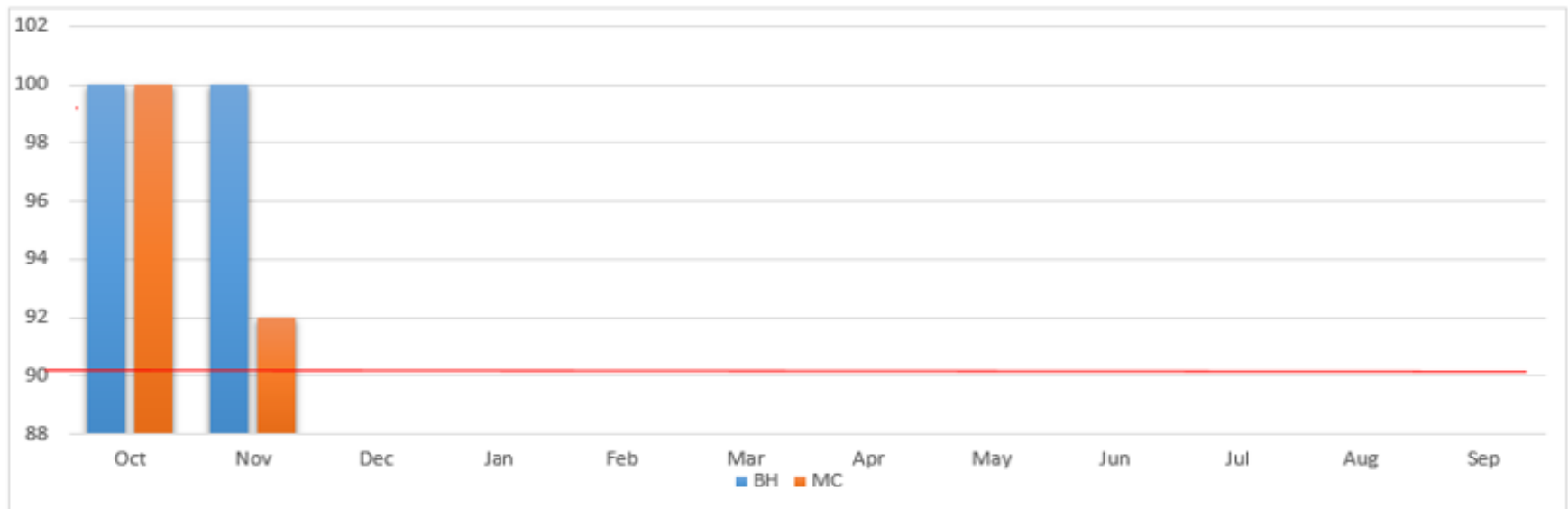
Covid Panther Volume



Lab General - Bridgeport

Quality Metric	Target	Sample size	Current performance	Previous month	Patient Impact	Corrective action and follow-up	Responsible
CAP PT Turnaround within 30 days	90%	BC 28/28 surveys	100%	100%	None	Benchmark met 90-day workout put into effect Dec 2020. Goal of 10% monthly improvement to meet lowered benchmark. Target to be raised to 90% in FY22	Lab management and administration
		MC 11/12 surveys	92%	100%			

CAP PT Evaluation Completion TAT within 30 days
Benchmark 90%



Lab General - Bridgeport

Proficiency Testing Performance BC	98%	474/474 analytes	100%	100%	None	None required Reminder-when doing corrective action responses, make sure procedures reflect the corrective actions stated	Laura
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Proficiency Testing Performance Overview ?

Select View: Graph

Acceptable Proficiency Testing by Year and Group



15 Mailings with New Evaluations	0 Mailings with Revised Evaluations	0 Analytes with Unsatisfactory PT	0 Analytes with Unsuccessful PT	0 Analytes with Repeat Unsuccessful PT
--------------------------------------------	-----------------------------------------------	---------------------------------------------	-------------------------------------------	--------------------------------------------------

Reporting Year	Acceptable %	Demographic Group Average ?	CAP-wide Average
2021	99.85%	99.07%	98.69%
2020	98.76%	98.99%	98.58%
2019	99.35%	99.00%	98.63%

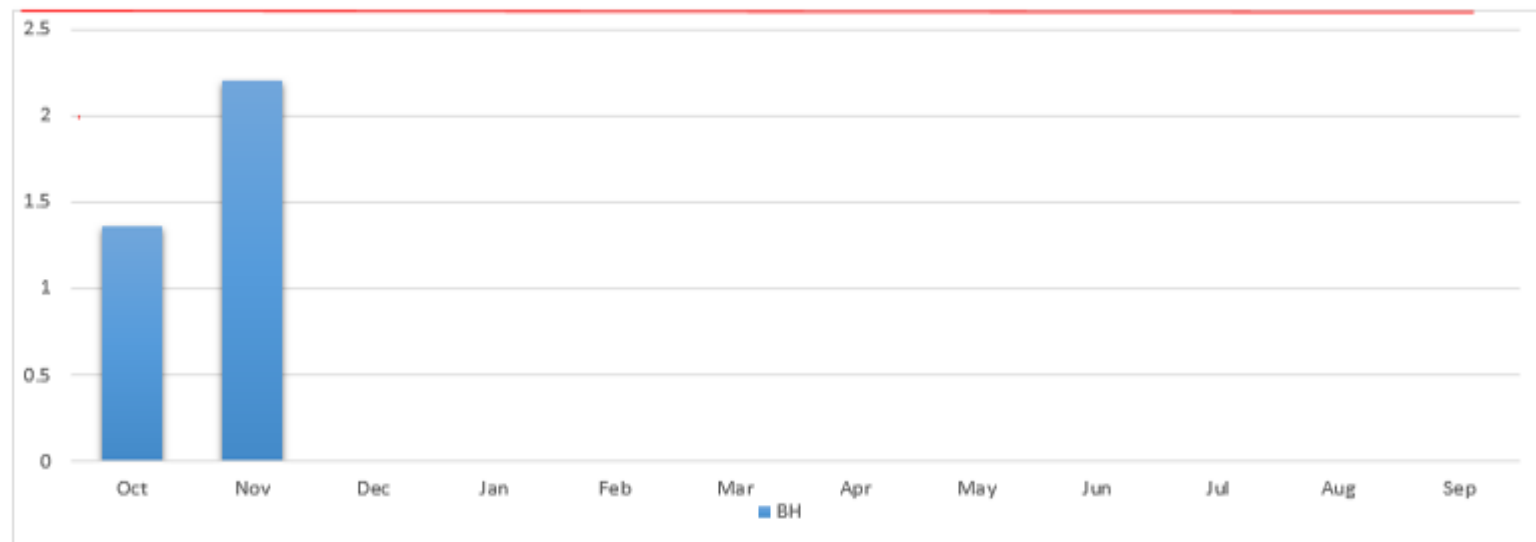
Reporting Year	Acceptable %	Demographic Group Average ?	CAP-wide Average
2021	99.85%	99.07%	98.69%
2020	98.76%	98.99%	98.58%
2019	99.35%	99.00%	98.63%

Accreditation Performance Overview

Lab General - Bridgeport

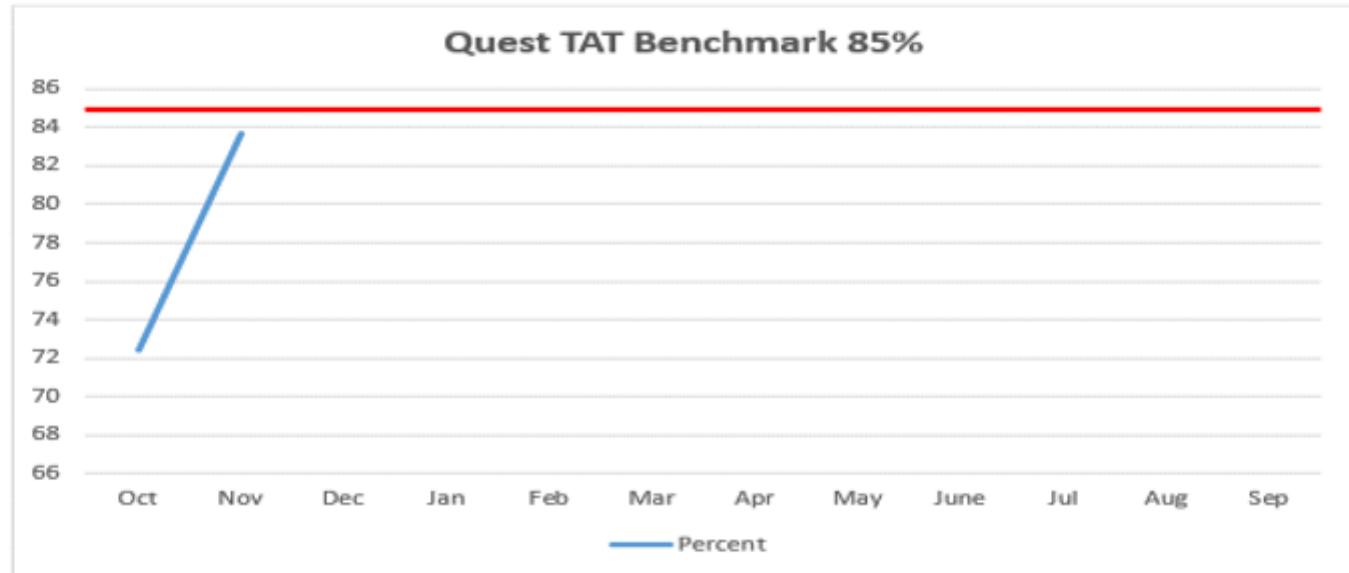
Quality Metric	Target	Sample size	Current performance	Previous month	Patient Impact	Corrective action and follow-up	Responsible
BC Lab Corrected/amended reports	<2.7/10,000 tests	226,808 tests	2.2* Per 10,000 results (0.22%)	1.36 (0.14%)	Corrected reports can lead to adverse patient outcomes	None needed benchmark met *Thyroglobulin run resulted but needed to be repeated	Laboratory administration

Corrected Reports per 10,000 test results
Benchmark <2.7



Lab General - Bridgeport

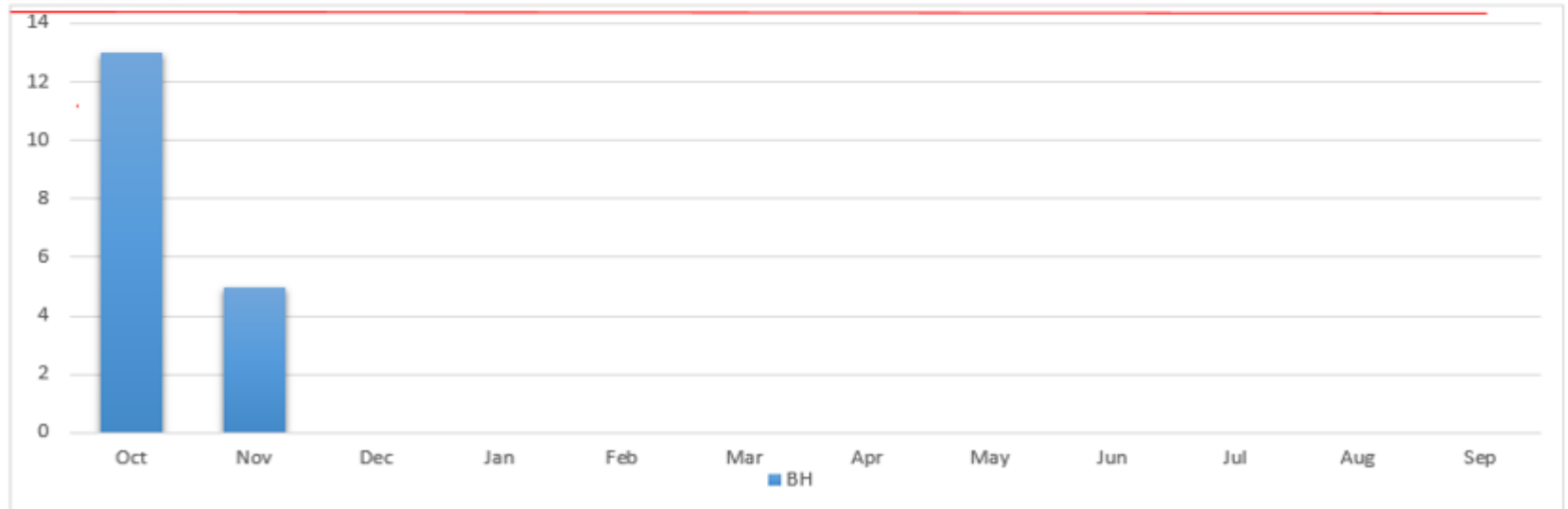
Quality Metric	Target	Sample size	Current performance	Previous month	Patient Impact	Corrective action and follow-up
Quest TAT Top 10 tests by volume	85% On time	418 tests	83.7%	72.4%	Can cause delays in patient treatment/therapy	Target was lowered to 85% in FY21 Continue increasing test sent to YH and bringing some sendouts in-house.



Lab General - Bridgeport

Quality Metric	Target	Sample size	Current performance	Previous month	Patient Impact	Corrective action and follow-up	Responsible Staff
Nonconforming events BC	0	226,808 tests	5 events	13	All 5 events resulted in patients being redrawn which could lead to delays in treatment	Outreach and lab management continue to work on resolving events thru staff education and retraining when necessary	Lab administration and management

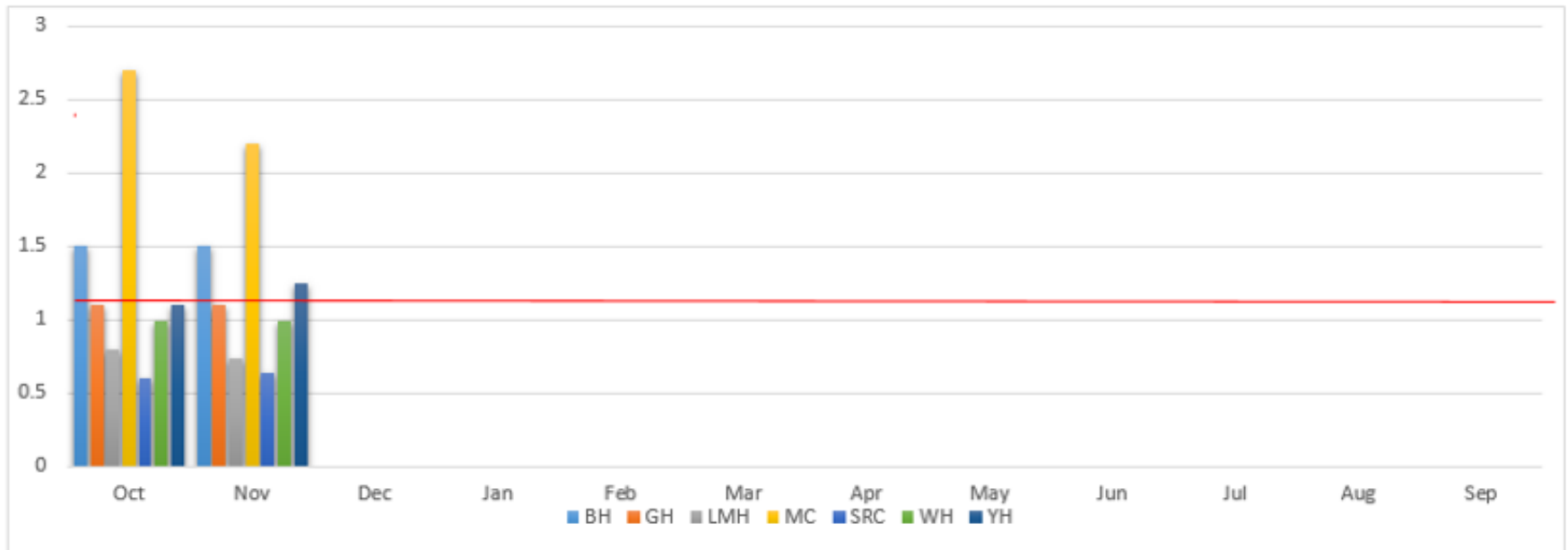
**Nonconforming Events
Benchmark 0**



Lab General – Bridgeport (Adjusted Specimen Rejection Analysis)

Percent Redraws FY2021

Benchmark < 3.5 %* Specimens Rejected

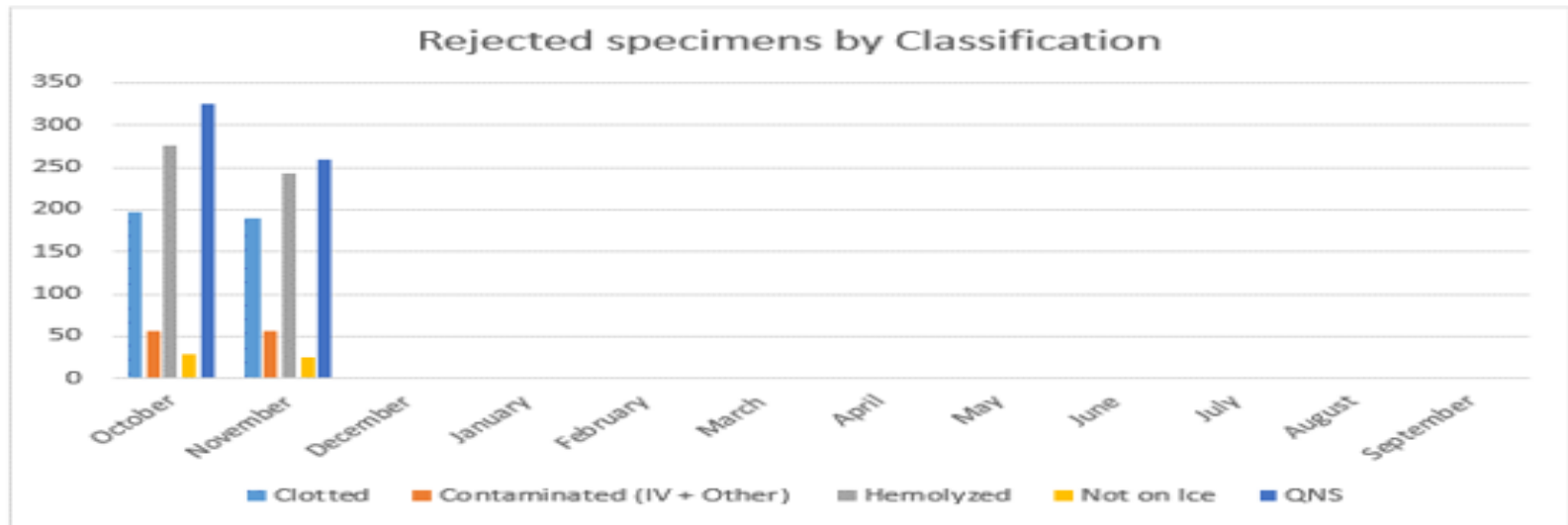


YNHHS Benchmark (1.1% Oct, Nov 2021)

*Rooper L. Carter, J., Hargrove, J., Hoffman, S & Riedel, S. (2017). Targeting rejections: analysis of specimen acceptability and rejection. *Journal of Clinical Laboratory Analysis* . volume 31, issue 3

	BH	GH	LMH	MC	SRC	WH	YH
Oct	1.5	1.1	0.8	2.7	0.60	1.0	1.1
Nov	1.5	1.1	0.74	2.2	0.64	0.99	1.25

Laboratory General - Bridgeport



	Clotted	Contaminated	Hemolyzed	Not on Ice	QNS
October	198	56	276	28	325
November	190	57	243	25	259

QNS Totals

Unit	Nov	Oct	Sep
ED	53	77	108
NE9	12	12	25
Burn Unit	1	0	5
NW7	23	34	31
WT10	16	17	23

Laboratory General - Bridgeport

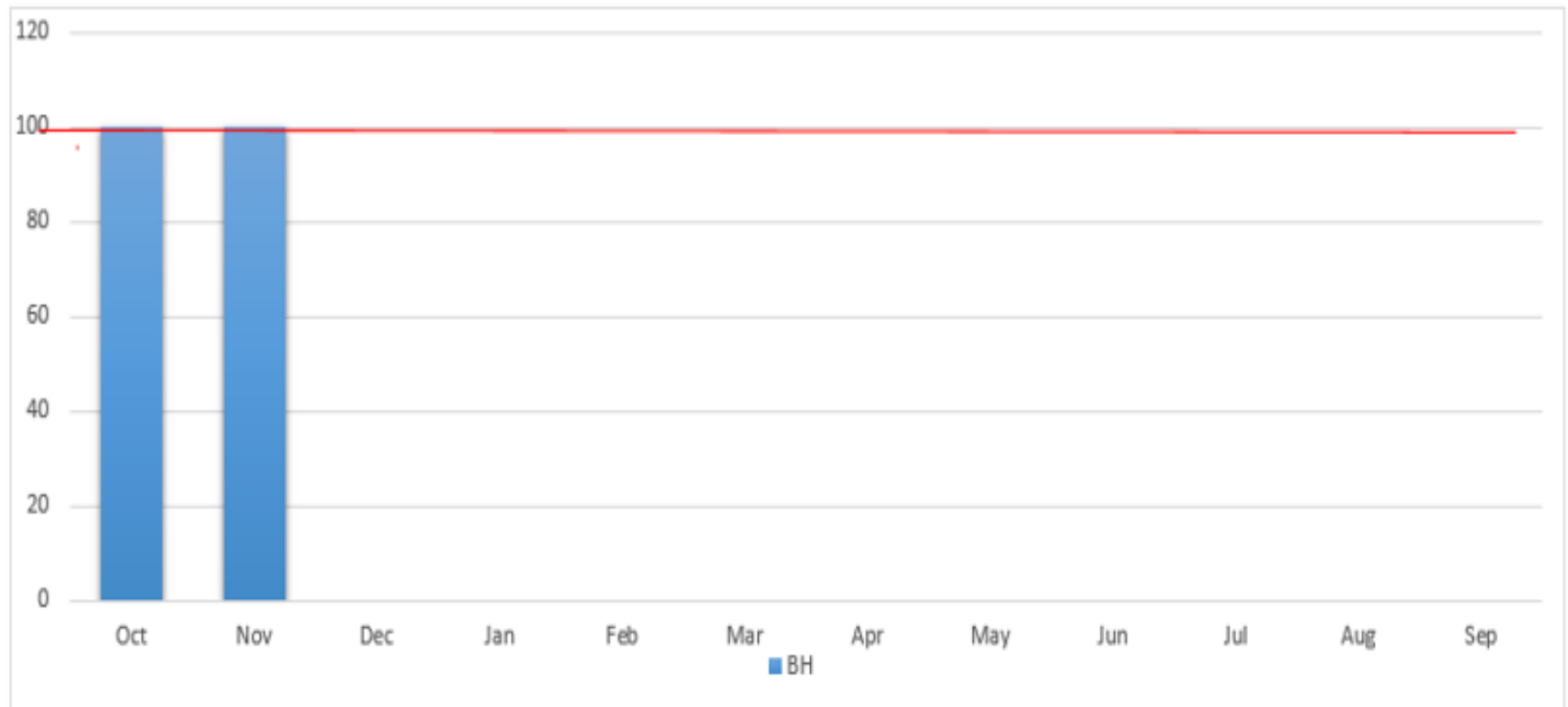
Events Calendar Task Completion

Target=100%

5/5 events completed

Events Calendar Completed

Benchmark 100%



Sample not on ice by Delivery Network

YaleNewHavenHealth

Beaker Lab Rejections Rejection Classification Totals



System Organizatio..	Rejection Classification	Test Cancellation Date		Grand Total
		2021 Q4	November	
BH	Collection Issue: Not on Ice		25	25
L&M	Collection Issue: Not on Ice		2	2
YNHH	Collection Issue: Not on Ice		53	53
Grand Total			80	80

Select Timeframe
Last Full Month ▼

Begin Date
5/14/2019

End Date
5/15/2019

Delivery Network ▼
(Multiple values) ▼

Campus
(All) ▼

Collection Department
(All) ▼

Rejection Classification
Collection Issue: Not o... ▼

Specimen Type
(All) ▼

Test Name
(All) ▼

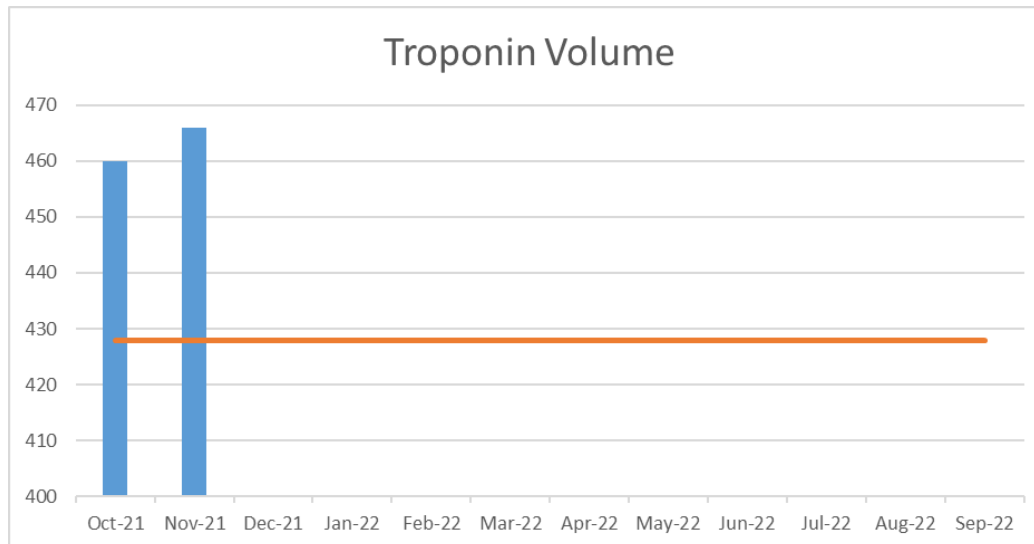
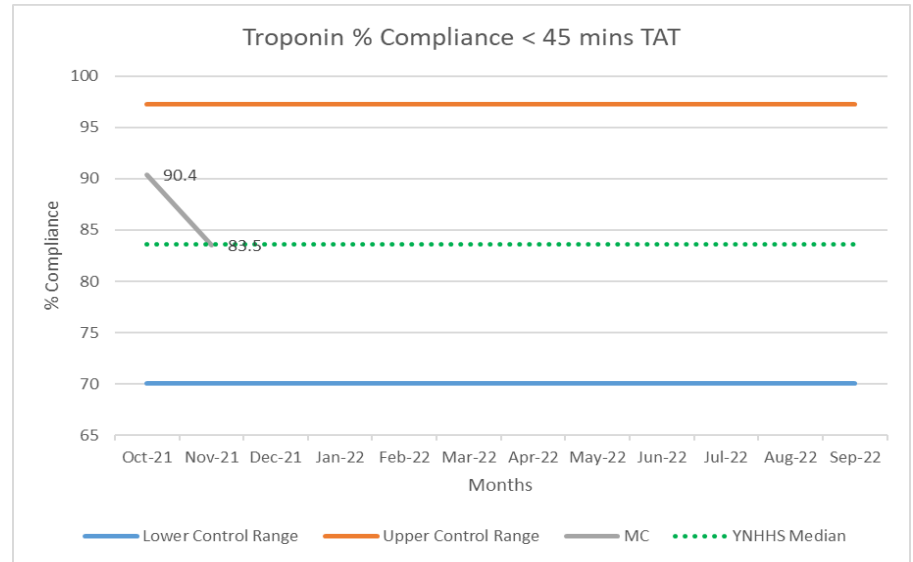
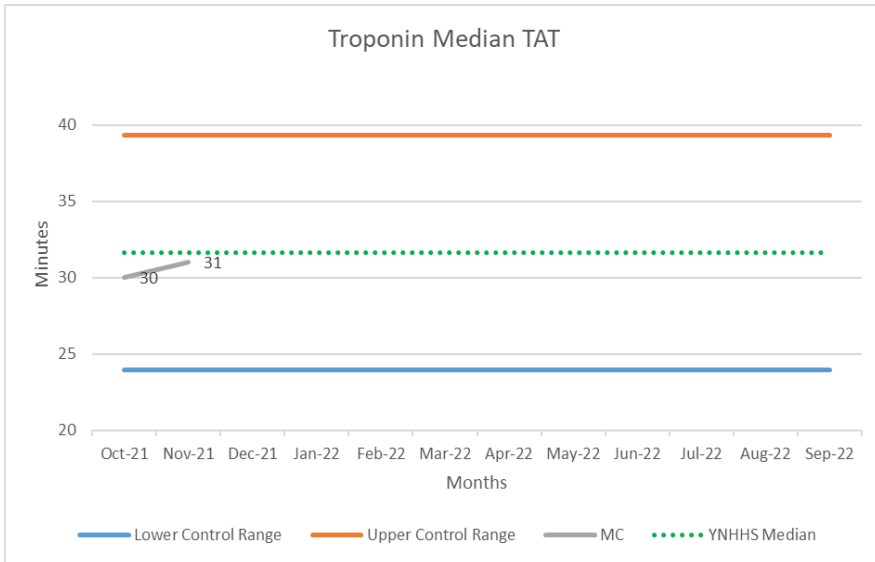
Summary

Bridgeport Hospital														
2021 Sample Rejection - not on ice														
Floor	Baseline	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	YTD Average
ED	14	13	11	11	9	11	5	11	5	12	8	7		9
MICU	4		3	4	3	7	4	1	7	2	1	0		3.20
NW7	3		0	2	1	3	0	1	2	1	3	1		1.40
SICU	3.33		1	1	0	4	2	2	0	3	0	1		1.40
WT10	2.33		1	1	0	2	2	2	1	6	0	1		1.60
WT7	2.17		0	0	1	3	0	0	1	1	1	1		0.80
WT8	1.17		3	3	1	2	3	1	1	2	0	1		1.70
			19	22	15	32	16	18	17	27	13	12		

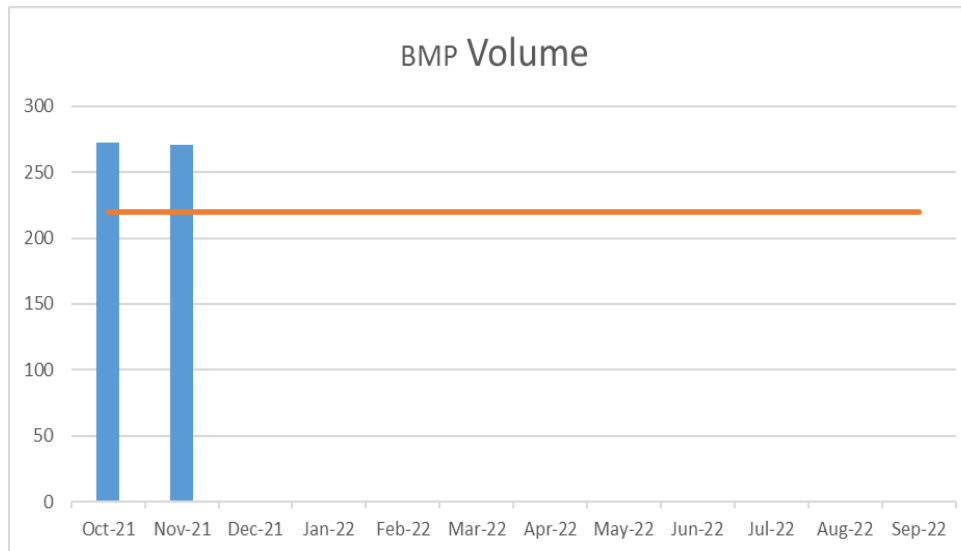
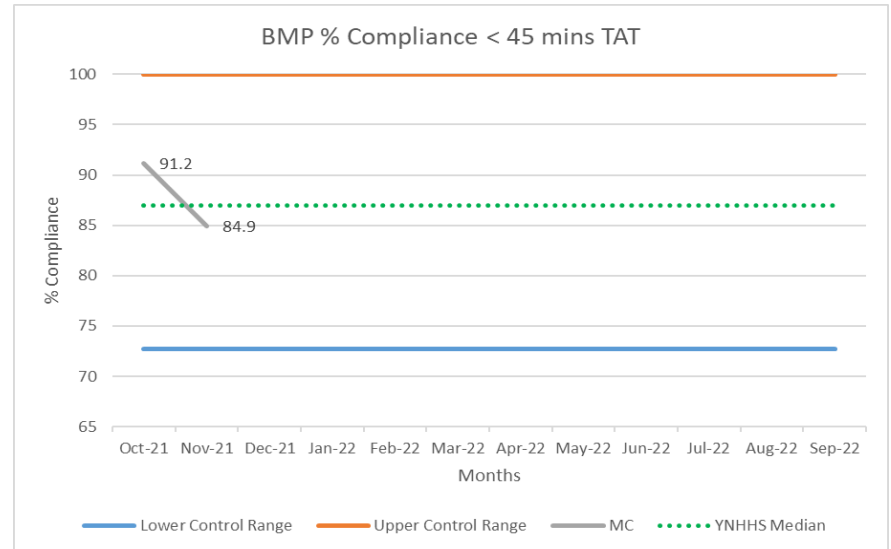
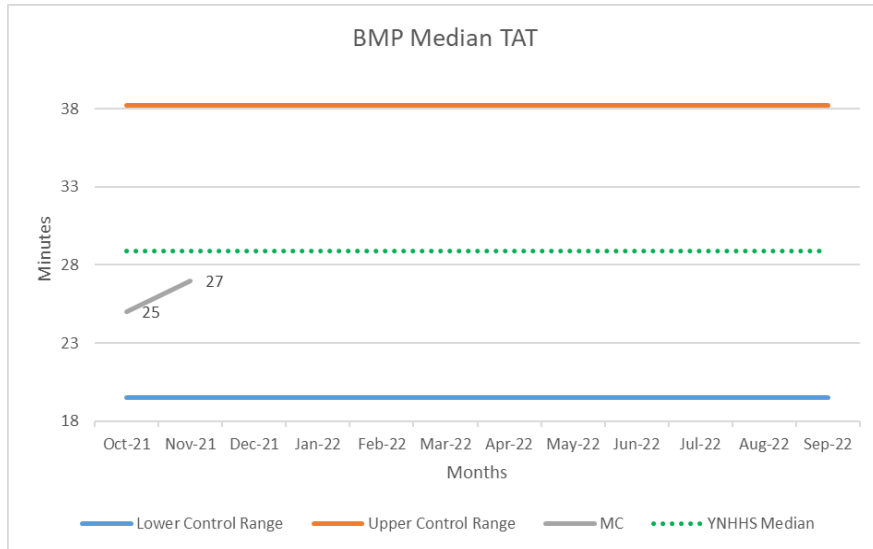
Overall Tests:

Row Labels	Count of Specimen ID
AMMONIA	10
CALCIUM, IONIZED, WHOLE BLOOD	2
FECAL FAT, SEMI-QUANTITATIVE	1
HOMOCYSTEINE (BH GH YH)	1
METHYLMALONIC ACID (YH BH)	4
Phosphatidylethanol (PEth), Whole Blood, Quantitative	1
PTH, INTACT (BH)	5
VITAMIN B1, SERUM/PLASMA (LC/MS/MS)	1
(blank)	
Grand Total	25

Milford Campus – Troponin ED TAT

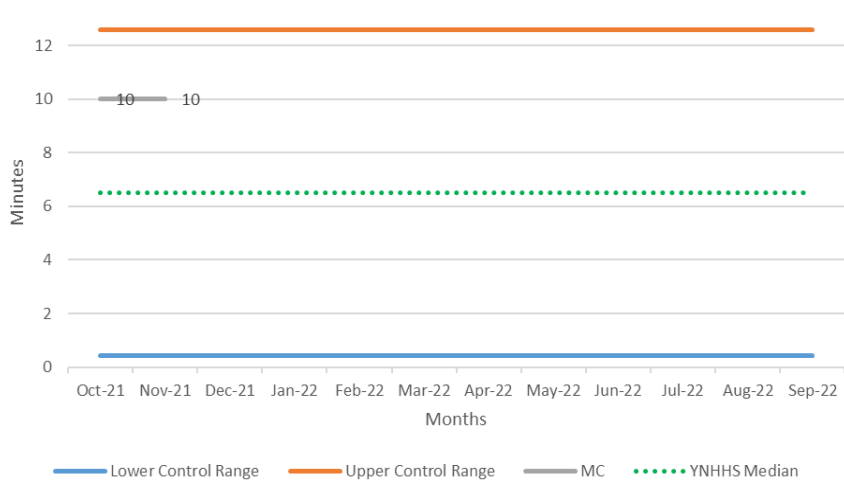


Milford Campus – Basic Metabolic Panel (BMP) ED TAT

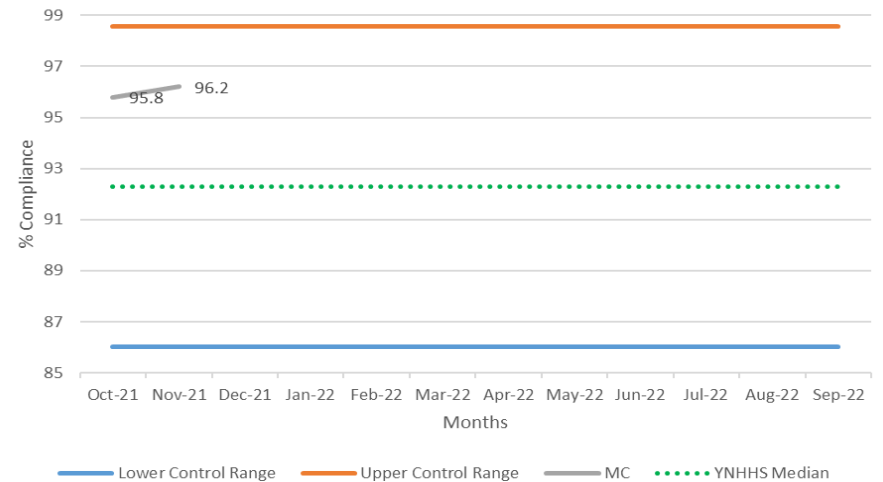


Milford Campus – Complete Blood Count (CBC) ED TAT

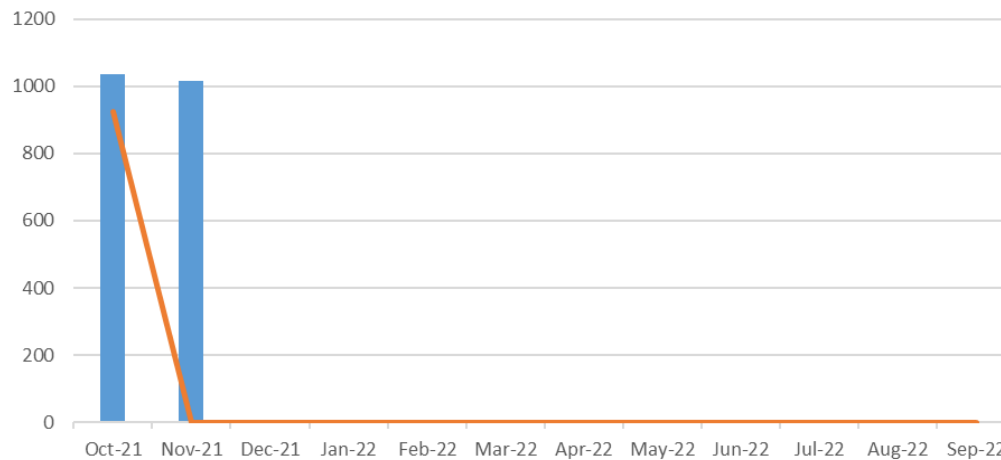
CBC Median TAT



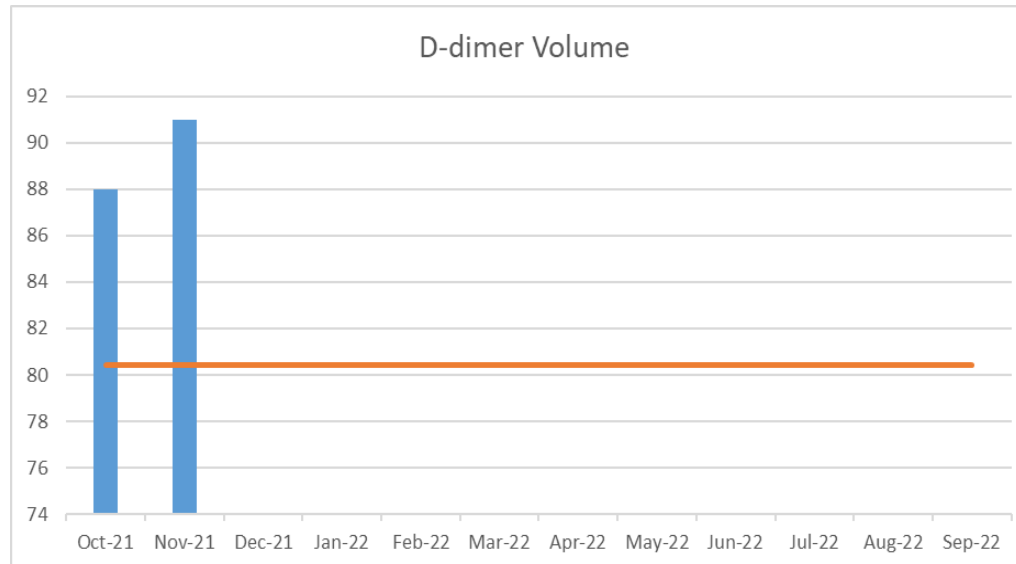
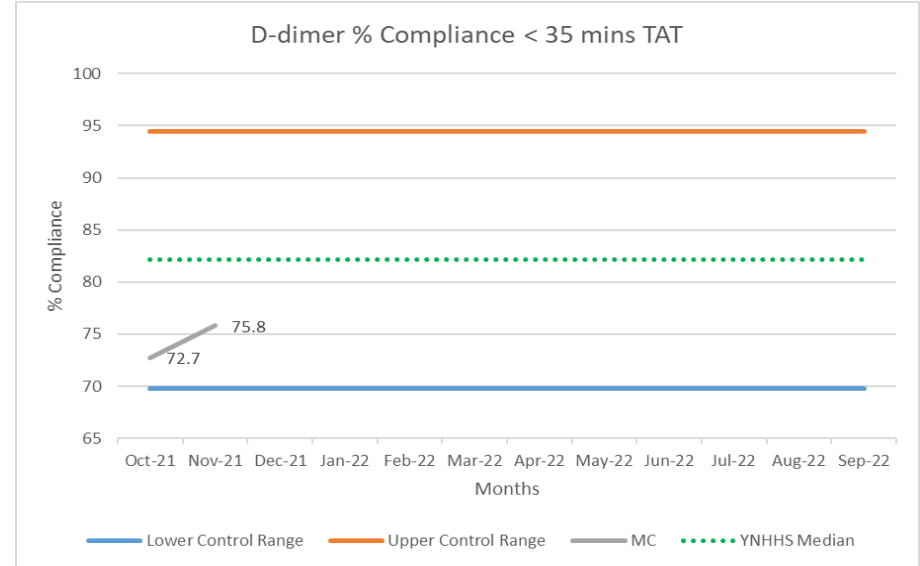
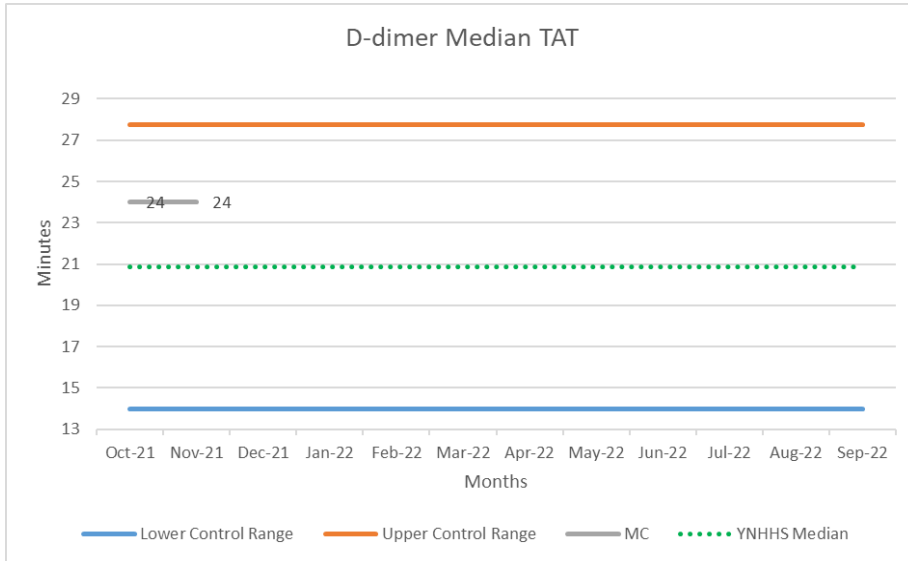
CBC % Compliance < 35 mins TAT



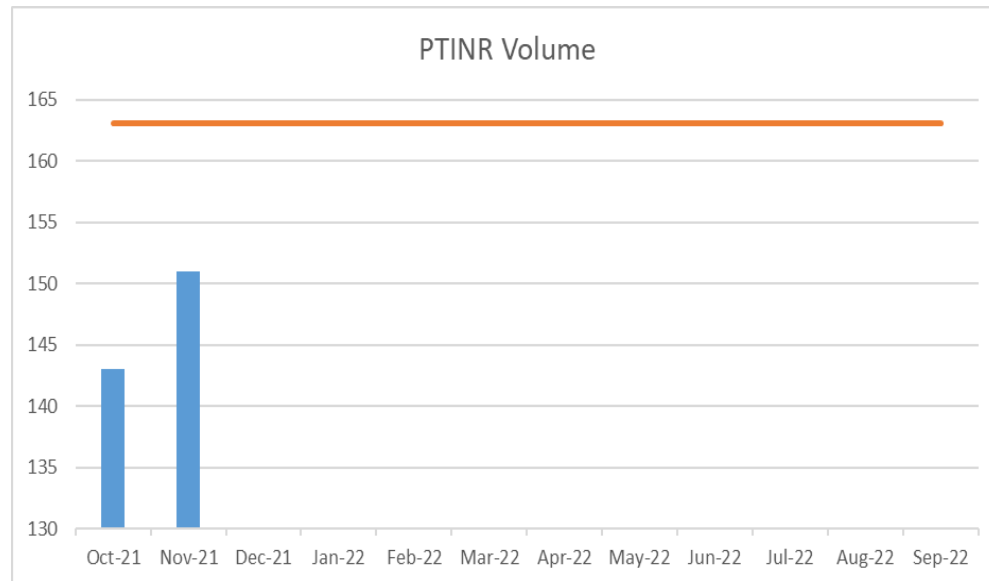
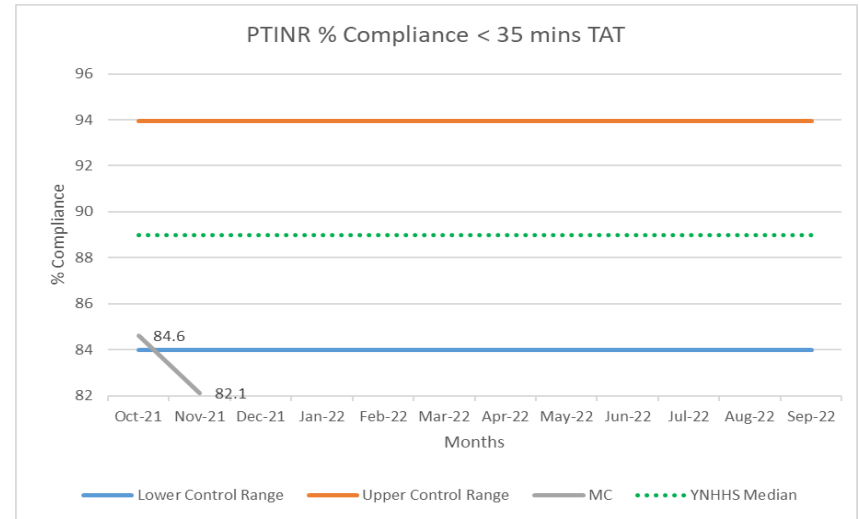
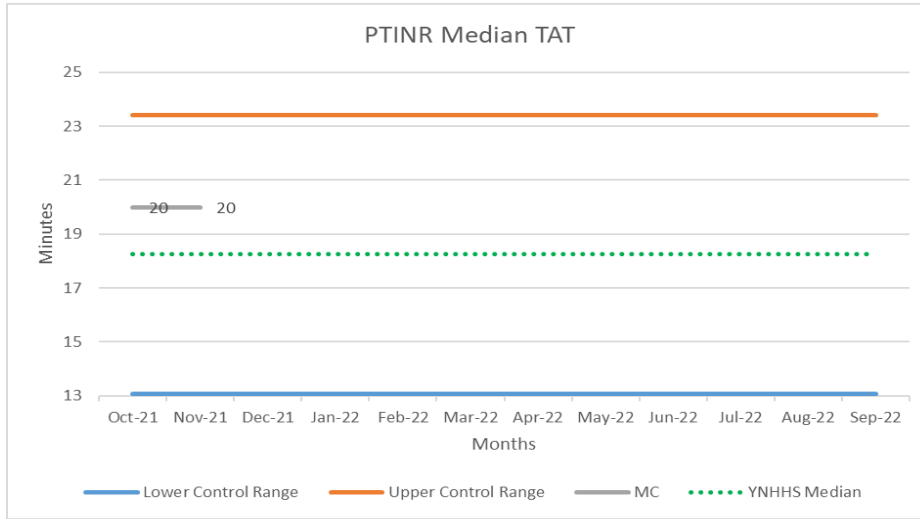
CBC Volume



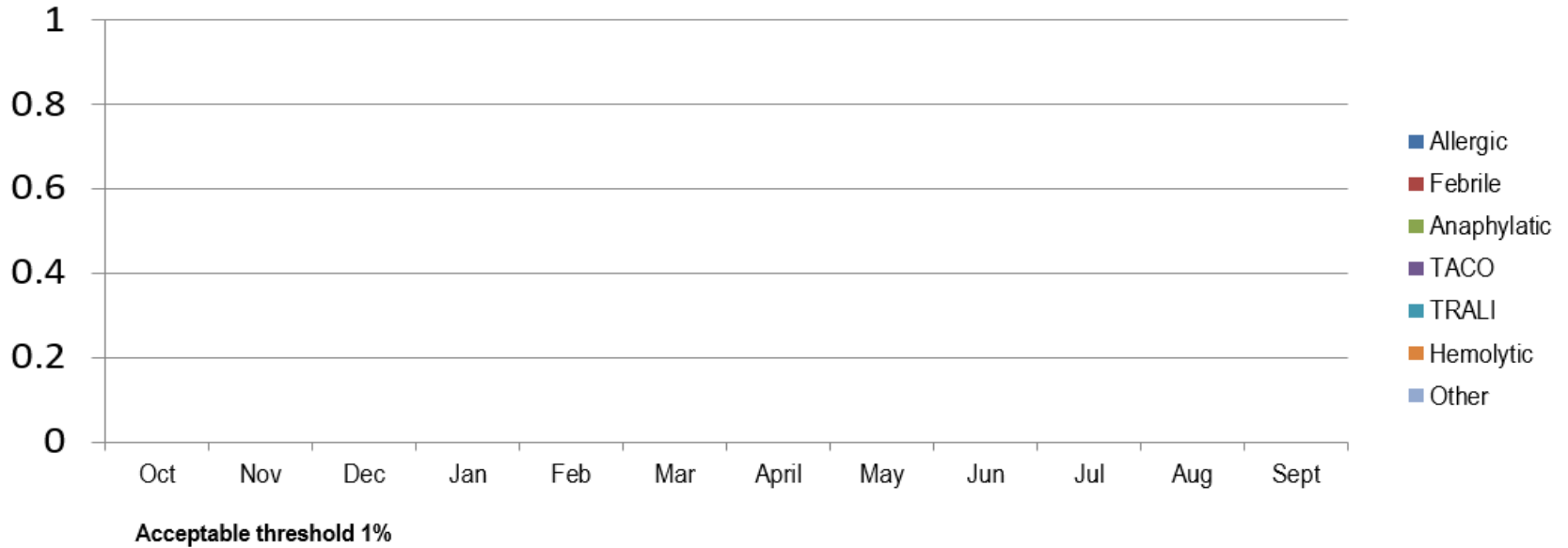
Milford Campus – D-dimer ED TAT



Milford Campus – PTINR ED TAT

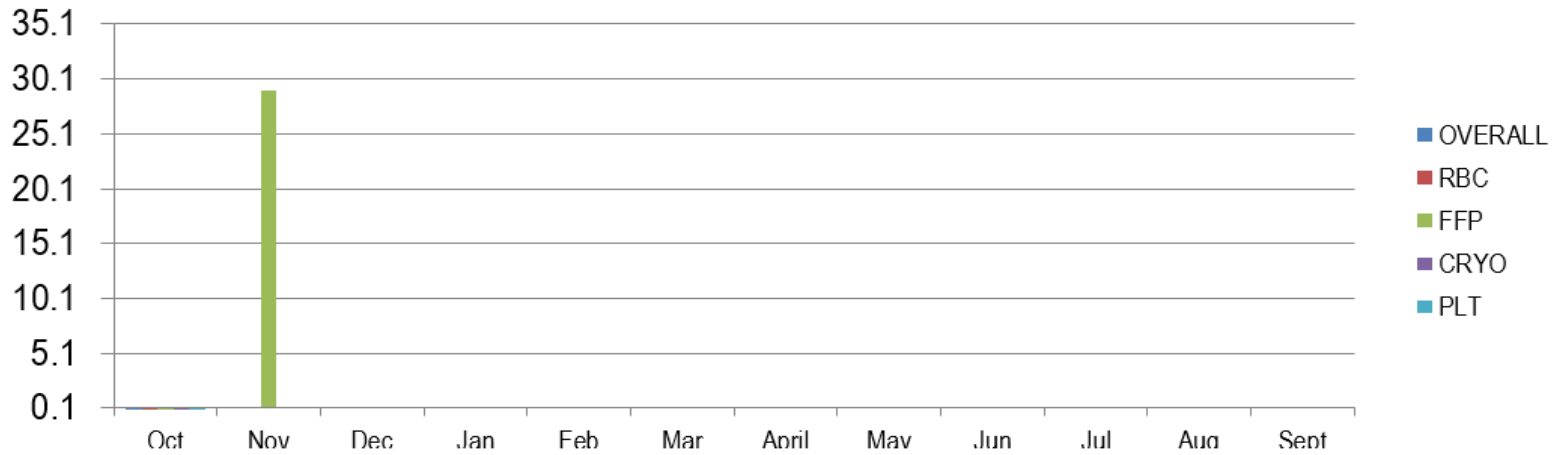


FY 2022 MC Adverse Reaction



	October	November	December	January	February	March	April	May	June	July	August	September	YTD % Adverse Reaction
# of Reaction	0	0											0
# of Products Transfused		109											
Overall Percentage	0	0											0

FY 2022 MC Blood Wastage

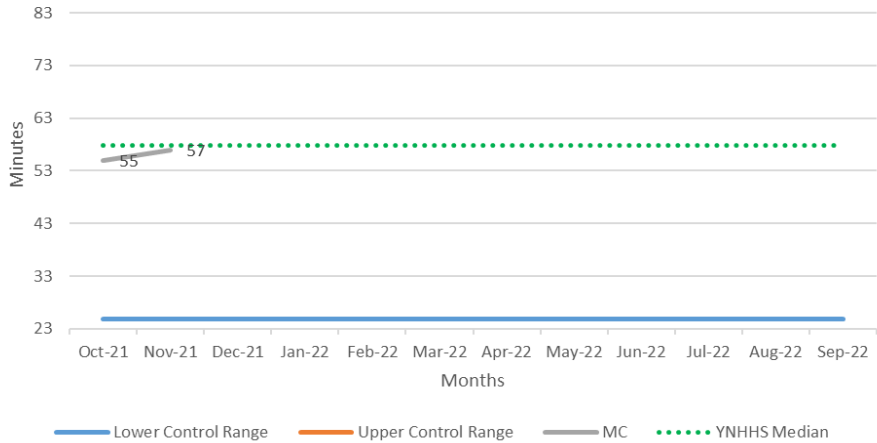


Acceptable threshold 3%

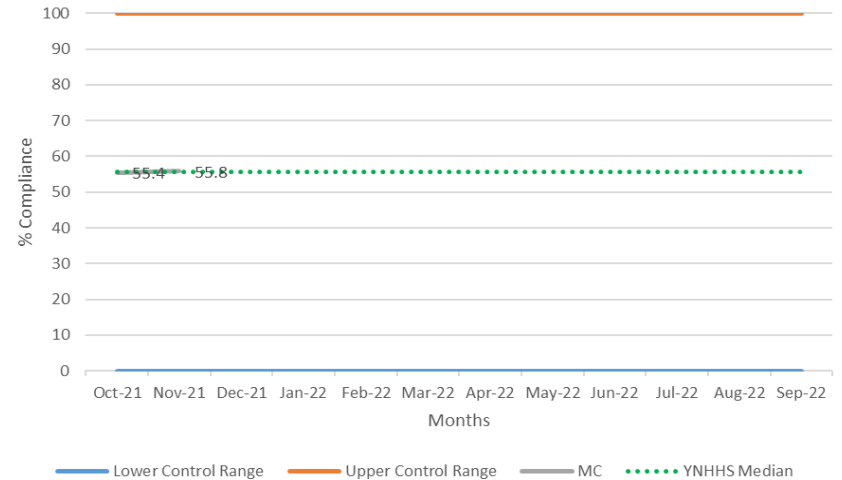
	October	November	December	January	February	March	April	May	June	July	August	September	YTD
Overall % Wastage	0	1.8											
% Waste by Product		FFP 29%											
cost of wastage	0	92.62											92.62

Milford Campus – Type and Screen ED TAT

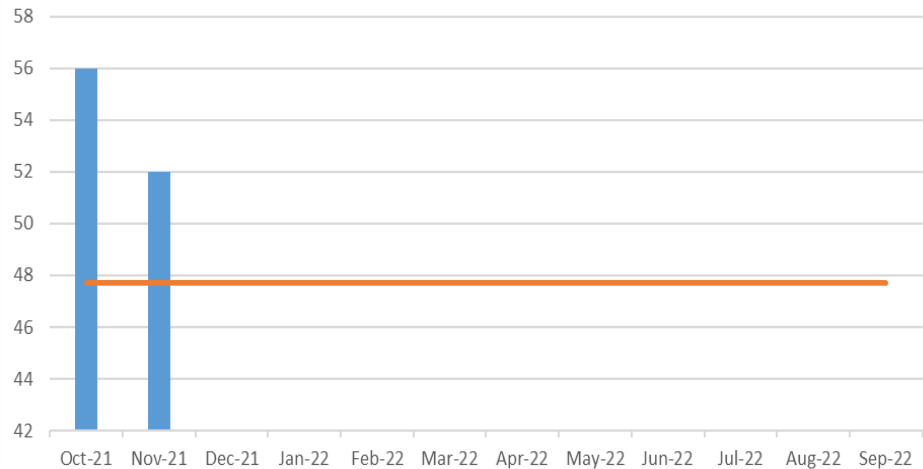
Type and Screen Median TAT



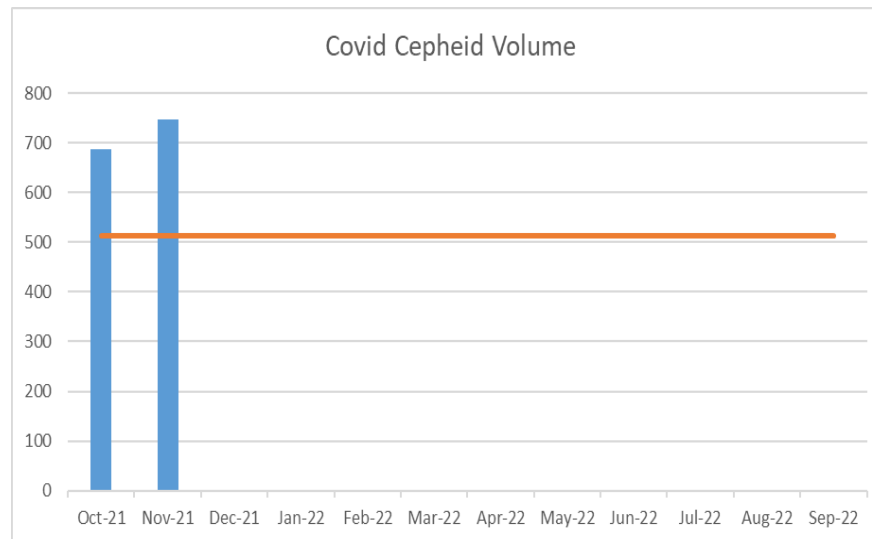
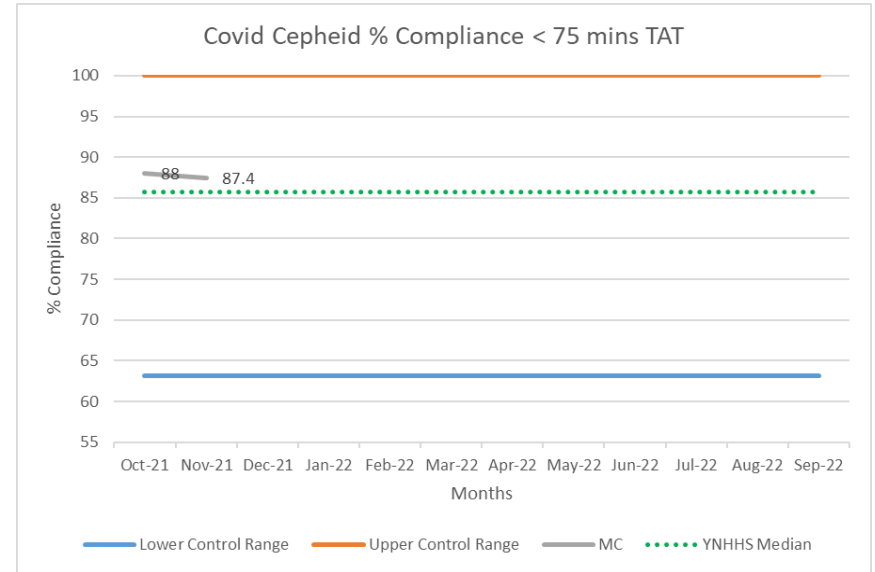
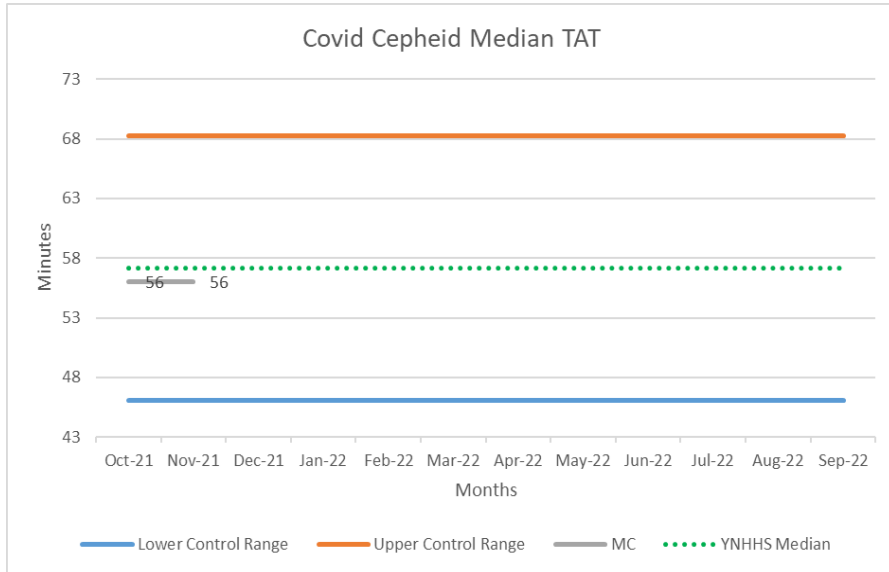
Type and Screen % Compliance < 60 mins TAT



Type and Screen Volume



Milford Campus – COVID Cepheid PCR ED TAT



Milford Campus ED TAT Ordered to Collected and Collected to Received






	Oct 1 - 31, 2021		Nov 1 - 31, 2021	
	Ordered to Collected	Collected to Received	Ordered to Collected	Collected to Received
Troponin	18	9	19	9
BMP	20	10	18	9
CBC	18	11	16	11
D-dimer	13.5	12	13	11
PTINR	16	12	14	11
Type and Screen	16	11	16.5	11
COVID Cepheid	14	12	13	12

Lab General - Milford

Aspect of Care	Threshold Expected/Target	Sample Size	Data Source	Achieved Current month	Previous month	Corrective Action	Patient Impact	Follow up and evaluation	Staff responsible
Non-Conforming Events	0	# Tests 18,631	Manual Collection	7	tbd	All corrected reports have been investigated. Retraining of staff is ongoing	none	Each corrected report is reviewed by lead tech or manager. Responsible staff are coached regarding the correct procedure.	Supervisors
Proficiency Testing	98% CAP Q Probe data	# Analytes	CAP	100%	100%	None required	None	None needed	Supervisors
Laboratory corrected reports	2.7/10,000	# tests 18,631	Manual collection	3.9	2.0	Individual coaching/counseling, and/or documented verbal warning.	none	Manual entry errors accounted for most corrected reports, technical errors produced the rest.	Supervisors
Laboratory Injuries	0	Employees n=33	IMC	0	0		none	None needed	Supervisors
Redraws		# Tests 18,631	Beaker					"Other" category expanded using Tableau to capture Incorrect specimen type, Duplicate order, and Incorrect order by provider. "QNS" category divided into QNS and unable to obtain specimen.	Nursing, Providers & Phlebotomy
Clotted	0			10	7				
Contamination (IV & other)	0			3	4				
Hemolyzed (RN)	0			34	52				
(Phleb)	0			4	2				
Not on ice	0			2	0				
QNS	0			11	9				
Wrong container	0			5	3				
Duplicate order	0			0	tbd				
Incorrect order by provider	0			9	tbd				
Unable to obtain specimen.	0			10	24				
Incorrect specimen type.	0			5	9				
Critical Call TAT	60 min		Beaker	6.0	11.9	Formatted report to show true TAT	none	Critical call TAT report settings in Epic have been modified to show the interval between report availability and when the comm log is completed. Prior settings underreported the TAT. Still under System threshold.	Supervisors

Home Bound Phlebotomy Survey Results

How often do you use our homebound phlebotomy service?

		Response percent	Response total
Weekly		8%	2
Biweekly		8%	2
Monthly		12%	3
Every 3 to 6 months		44%	11
Every 6 to 12 months		28%	7

Statistics based on 25 respondents;



Was the person calling to schedule your in-house phlebotomy service appointment polite and courteous?

		Response percent	Response total
Very Satisfied		100%	27
Satisfied		0%	0
Neutral		0%	0
Dissatisfied		0%	0
Very Dissatisfied		0%	0

Statistics based on 27 respondents;

Home Bound Phlebotomy Survey Results

Did the staff member inform you at the time of the phone call that you needed to fast for this appointment?

		Response percent	Response total
Yes		85.19%	23
No		7.41%	2
		7.41%	2

Statistics based on **27** respondents;

Did the staff member inform you who the provider was that ordered the tests?

		Response percent	Response total
Yes		100%	27
No		0%	0

Statistics based on **27** respondents;

Home Bound Phlebotomy Survey Results

Did the staff member explain the services you would be receiving in an understandable manner?

		Response percent	Response total
Yes		100%	26
No		0%	0

Statistics based on 26 respondents;

Did the phlebotomist arrive to the home, on time for the appointment?

		Response percent	Response total
Yes		100%	27
No		0%	0

Statistics based on 27 respondents;

Was the phlebotomist in uniform, have a badge and identify themselves upon arrival?

		Response percent	Response total
Yes		100%	27
No		0%	0

Statistics based on 27 respondents;

Did you observe proper hand washing/hand sanitizing?

		Response percent	Response total
Yes		100%	27
No		0%	0

Statistics based on 27 respondents;

Home Bound Phlebotomy Survey Results

Did the phlebotomist take care of you in a professional manner?

		Response percent	Response total
Yes		100%	27
No		0%	0

Statistics based on 27 respondents;

Were all of your questions answered in an understandable way?

		Response percent	Response total
Yes		100%	27
No		0%	0

Overall, how satisfied were you with the services you received from the homebound phlebotomist?

		Response percent	Response total
Very Satisfied		95.83%	23
Satisfied		4.17%	1
Neutral		0%	0
Unsatisfied		0%	0
Very Unsatisfied		0%	0

Statistics based on 24 respondents;

Home Bound Phlebotomy Survey Results

How likely are you to recommend this service to a friend or another family member?

		Response percent	Response total
Highly Likely		95.83%	23
Likely		4.17%	1
Neutral		0%	0
Unlikely		0%	0
Highly Unlikely		0%	0

Would you like a follow up call from the Phlebotomy Manager?

		Response percent	Response total
Yes, Name and Contact Number		26.09%	6
No		73.91%	17
			6

Statistics based on 23 respondents;