



NORTH CAROLINA

STATEWIDE TELEPSYCHIATRY PROGRAM

Quarterly Progress Update

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NC-STeP Quality Management and Outcomes Monitoring Processes: January – March 2022

- 39 hospitals in the network, 38 hospitals were live
- 29 hospitals reporting Telepsychiatry patients in their ED
 - not all live hospitals had telepsychiatry patients
- Total number of assessments for this quarter = 1,470
- Patient assessments billed for Model 1 hospitals = 1,032
- Total number of encounters for this quarter = 1,208
- Patient encounters for Model 1 hospitals = 770

NC-STeP Quality Management and Outcomes Monitoring Processes: January – March 2022

- The Median Length of Stay was 42.7hours
- The Average Length of Stay was 74.5 hours
 - 73.9 hours for those discharged to home
 - 72.9 hours for those transferred to another facility
- Average Consult Elapsed Time (in Queue to Exam Complete) for Model 1 hospitals was 5 hours and 32 minutes.

NC-STeP Quality Management and Outcomes Monitoring Processes: January – March 2022


- 806 ED patients who received telepsychiatry services had an IVC in place during their ED stay.
 - 367 (45.5%) of those patients did not have an IVC in place when discharged.
- Of the ED patients who received telepsychiatry services:
 - 50.0% were discharged to home
 - 42.5% were discharged to another facility

NC-STeP Quality Management and Outcomes Monitoring Processes: January – March 2022

- 21 Community based sites were live as of 03/31/2022.
- There were 1,139 total behavioral health visits.
 - 103 visits with a Psychiatrist.
 - 1,036 visits with a behavioral health manager.
 - 21 visits with a Maternal and Fetal Medicine Specialist.



	Since project inception in November 2013	Quarter Jul- Sep 2021	Quarter Oct- Dec 2021	Quarter Jan- Mar 2022	Quarter Apr- Jun 2022
Total Patient Encounters	40,295	1,179	1,218	1,208	
Model 1 Hospital Patient Encounters	24,493	705	752	770	
Model 2 Hospital Patient Encounters	15,802	474	466	438	
Total Number of Assessments (Billed Assessments for Model 1 Hospitals + Number of Patient Encounters for Model 2 Hospitals)	52,764	1,403	1,477	1,470	

	Since project inception in November 2013	During Calendar Year 2014	During Calendar Year 2015	During Calendar Year 2016	During Calendar Year 2017	During Calendar Year 2018	During Calendar Year 2019	During Calendar Year 2020	During Calendar Year 2021
Total Patient Encounters	40,295	5,144	7,128	1,896	3,971	6,104	4,835	4,305	4,762
Model 1 Hospital Patient Encounters	24,493	4,578	5,849	706	2,044	2,654	1,902	2,152	2,896
Model 2 Hospital Patient Encounters	15,802	566	1,279	1,190	1,927	3,450	2,933	2,153	1,866
Total Number of Assessments (Billed Assessments for Model 1 Hospitals + Number of Patient Encounters for Model 2 Hospitals)	52,764	8,130	13,573	1,942	4,348	6,680	5,287	4,820	5,640

NC-STeP Benchmarks



Goals	Values Reached		
Cumulative Target to be reached by (06/30/2022)	Value Reached as of most recent previous quarter (12/31/2021)	Value Reached as of this reporting quarter (03/31/2022)	Year-to-Date Total with % of the Yearly Target (03/31/2022)
Number of IVCs	2,557	799	2,431 95% of Yearly Target
Number of IVCs Overturned	1,023	343	1,044 102% of Yearly Target
Total Number of Assessments (Billed assessments for Model 1 hospitals + Number of patient encounters for Model 2 hospitals.)	4,261	1,477	1,470 4,350 102% of Yearly Target

NC-STeP Status as of March 31, 2022

EVALUATION CRITERIA	BASELINE VALUES/MEASURES AS REPORTED ON 03/31/2021	TARGET TO BE REACHED BY 06/30/2022	VALUES/MEASURES REACHED AS OF 03/31/2022
1. The number of full-time equivalent (FTE) positions supported by these contracts	4.10 FTEs	4.30 FTEs	4.08 FTEs
2. The number of overturned involuntary commitments (inpatient admission prevented)	711	1,023	367 in this quarter Cumulative total since program inception 8,392
3. The number of participating consultant providers	40	48	52

NC-STeP Status as of March 31, 2022

EVALUATION CRITERIA	BASELINE VALUES/MEASURES AS REPORTED ON 03/31/2021	TARGET TO BE REACHED BY 06/30/2022	VALUES/MEASURES REACHED AS OF 03/31/2022
4. The number of telepsychiatry assessments conducted.	4,251	4,261	1,470 in this quarter Cumulative total since program inception 52,764
5. The number of telepsychiatry referring sites	48	41	39 38 Live
6. The reports of involuntary commitments to enrolled hospitals	2,061	2,557	806 in this quarter Cumulative total since program inception 23,801

NC-STeP Status as of March 31, 2022

EVALUATION CRITERIA	BASELINE VALUES/MEASURES AS REPORTED ON 03/31/2021	TARGET TO BE REACHED BY 06/30/2022	VALUES/MEASURES REACHED AS OF 03/31/2022
7. The average (mean) Length of Stay for all patients with a primary mental health diagnosis across all dispositions.	55 hours	55 hours	QTD Average = 74.5 QTD Median = 42.7
8. The rate of "satisfied" or "strongly satisfied" among emergency department staff participating in NC-STeP.	88%	80%	64%

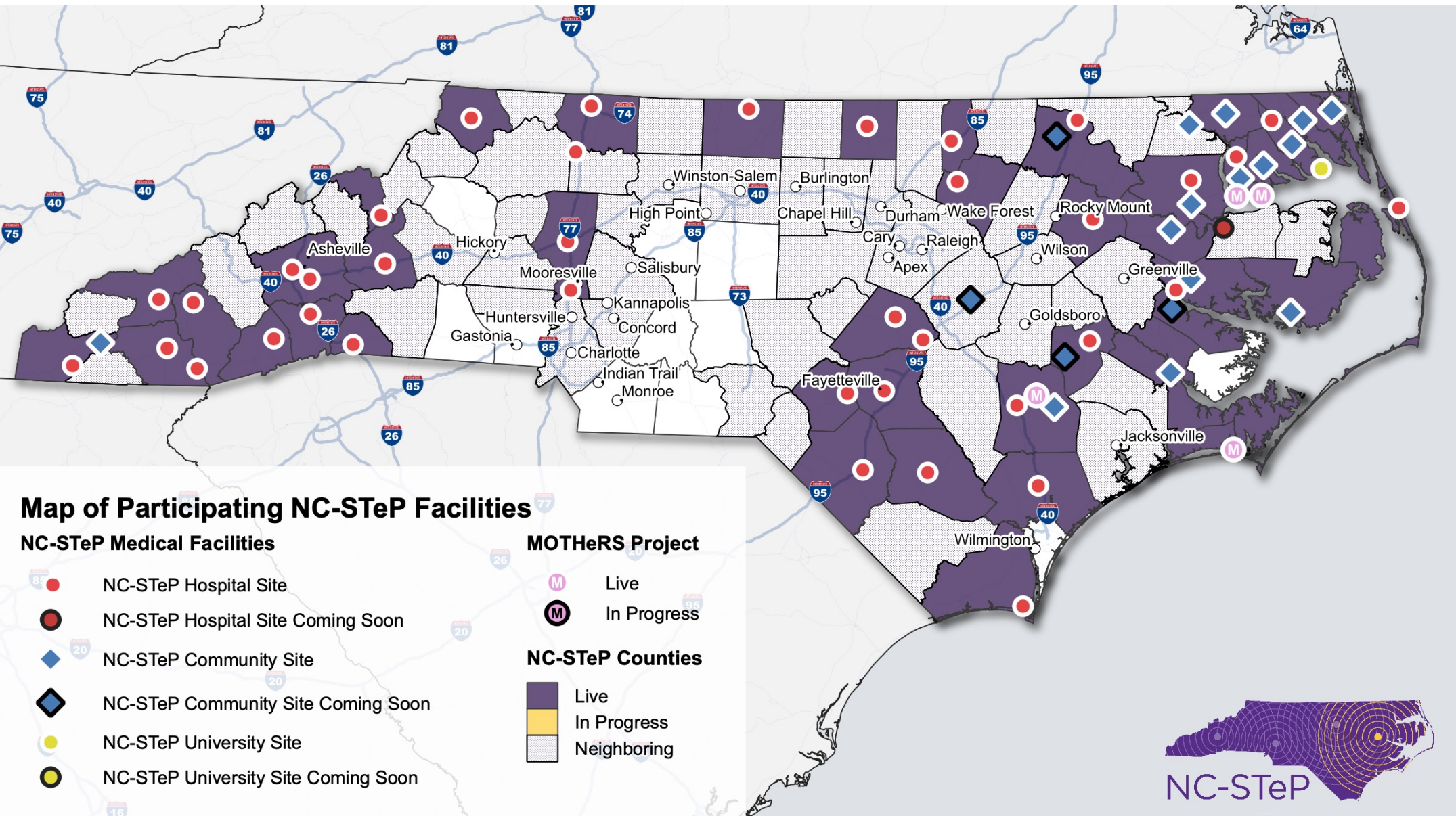
NC-STeP Status as of March 31, 2022

EVALUATION CRITERIA	BASELINE VALUES/MEASURES AS REPORTED ON 03/31/2021	TARGET TO BE REACHED BY 06/30/2022	VALUES/MEASURES REACHED AS OF 03/31/2022
9. The rate of "satisfied" or "strongly satisfied" among hospital CEOs/COOs participating in NC-STeP.	100%	100%	83%
10. The rate of "satisfied" or "strongly satisfied" among consulting (hub) providers participating in NC-STeP.	100%	85%	100%

NC-STeP Status as of March 31, 2022

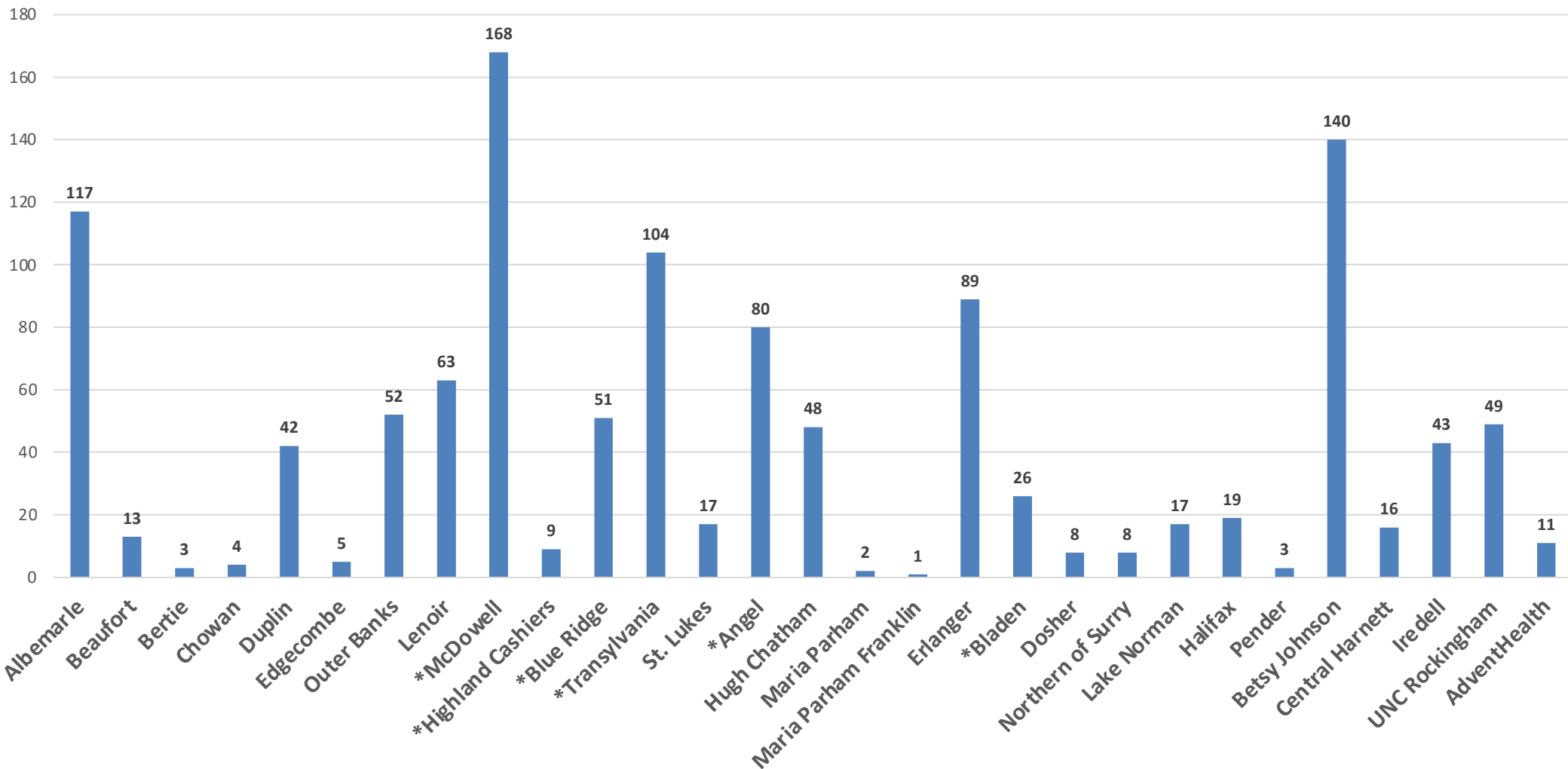
EVALUATION CRITERIA	BASELINE VALUES/MEASURES AS REPORTED ON 03/31/2021	TARGET TO BE REACHED BY 06/30/2022	VALUES/MEASURES REACHED AS OF 03/31/2022
11. The rate of "satisfied" or "strongly satisfied" among emergency department physicians participating in the statewide telepsychiatry program.	100%	85%	100%
12. Cumulative return on investment to state psychiatric facilities through overturned involuntary commitments (inpatient admission prevented)	\$3,890,000	\$5,522,256	\$1,981,800 Cumulative average since program inception \$45,316,800

NC-STeP Status as of March 31, 2022



Number of NC-SteP Patients by Hospital

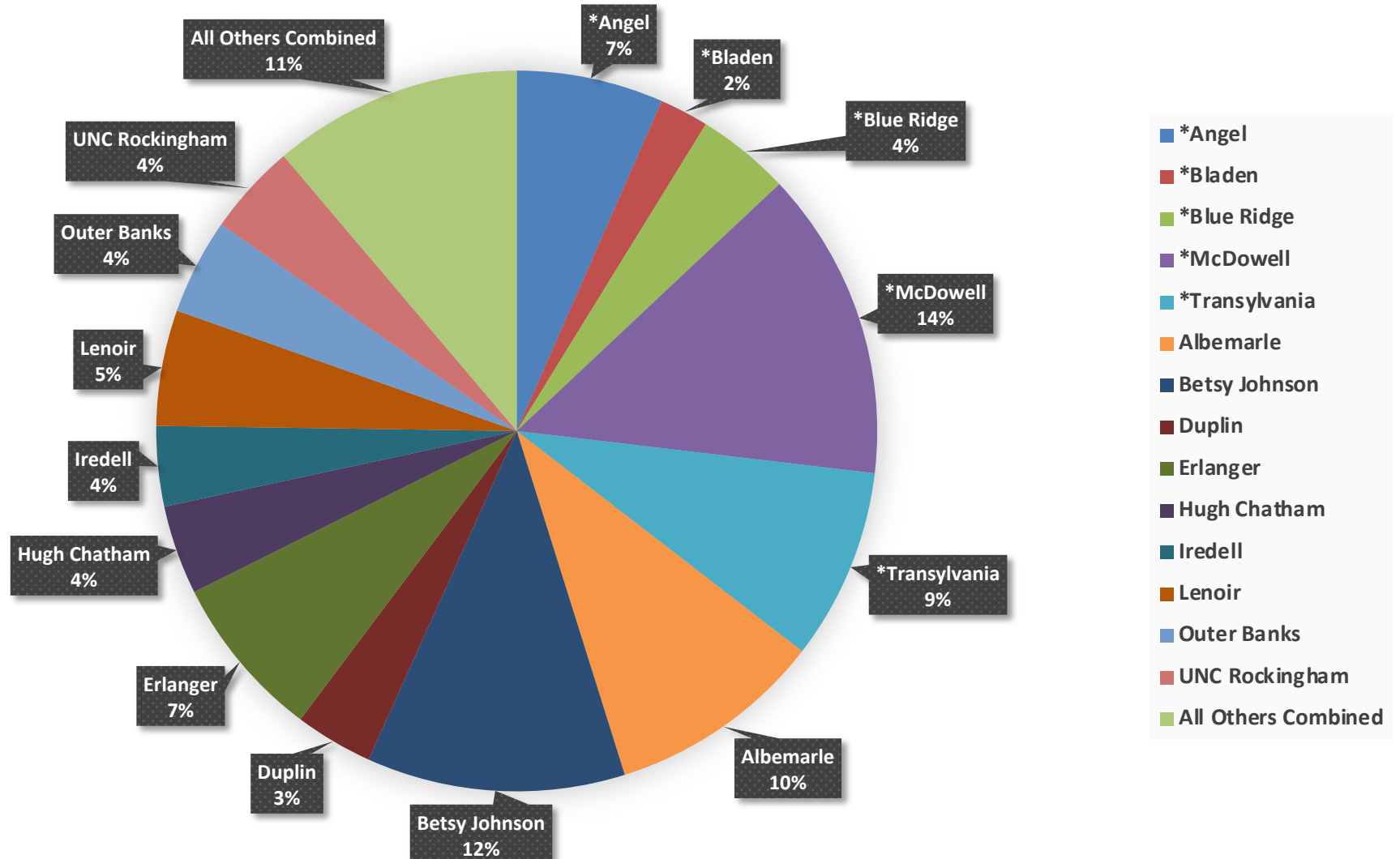
January - March 2022



Percent of Use by Hospital

Jan-Mar 2022

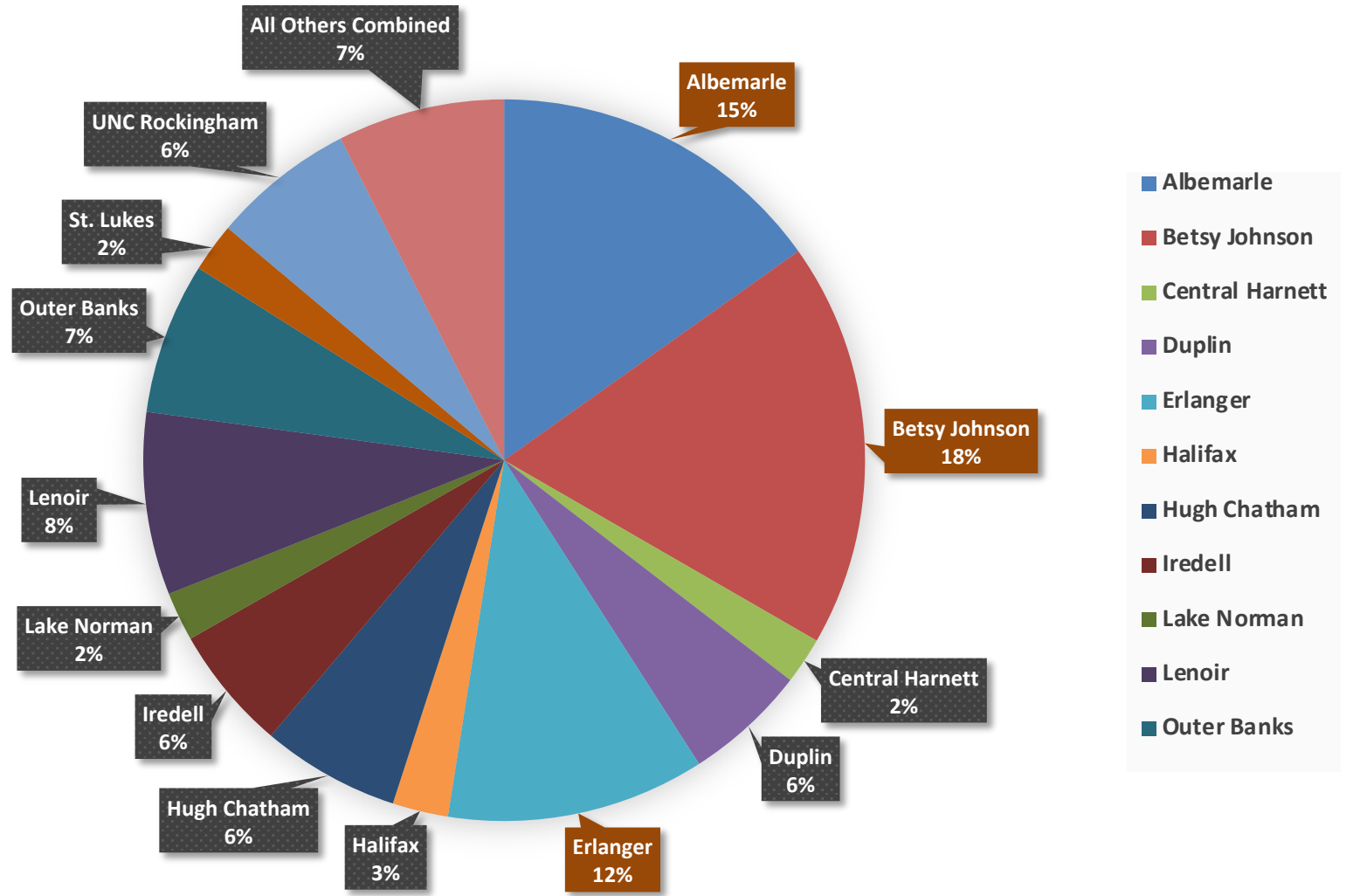
(based on number of encounters)



Percent of Use for Model 1 Hospital

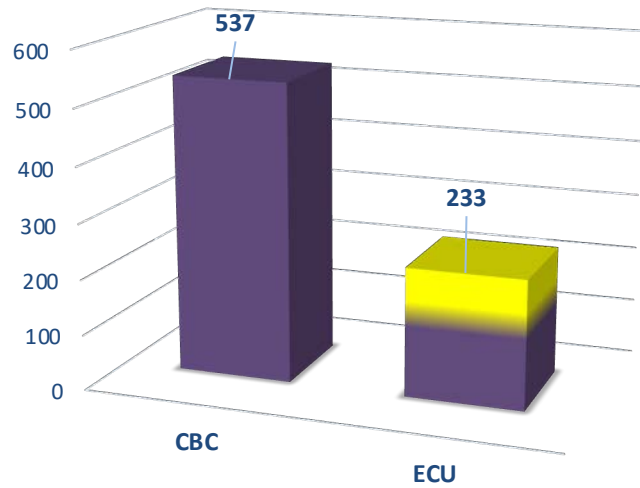
Jan-Mar 2022

(based on number of encounters)

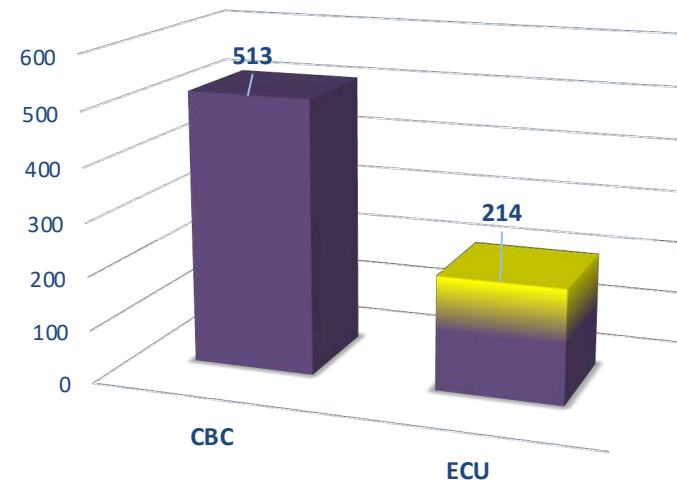


Number of Patients by Provider (Model 1)

Jan-Mar 2022

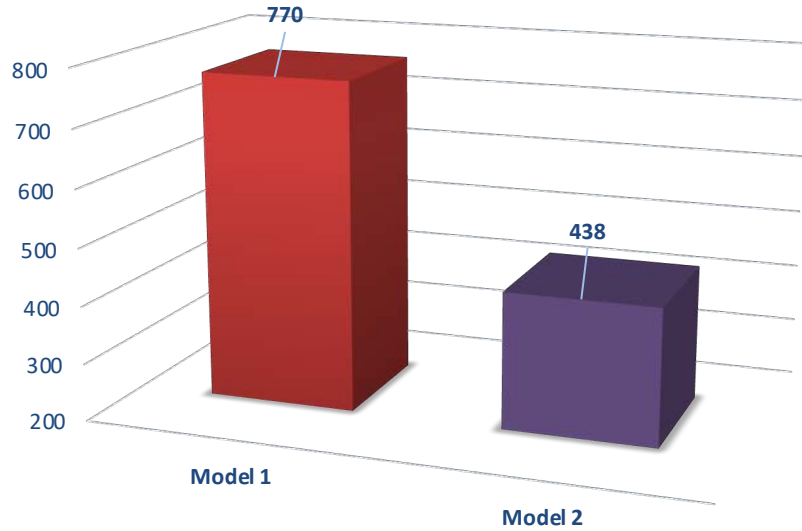


Oct-Dec 2021

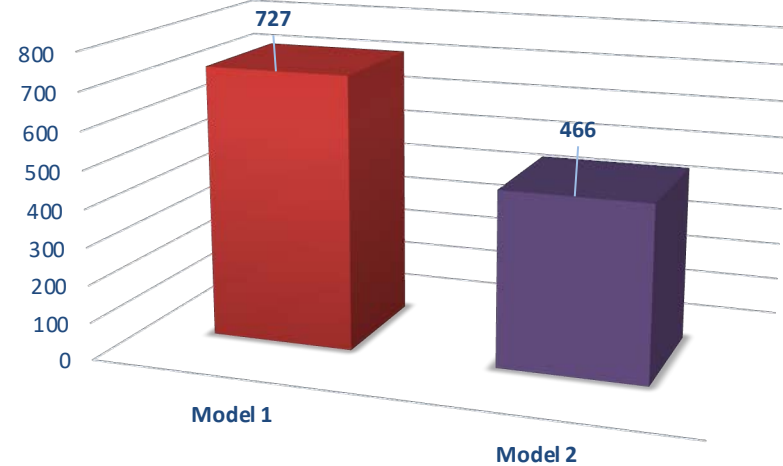


Number of Patients by Model

Jan-Mar 2022

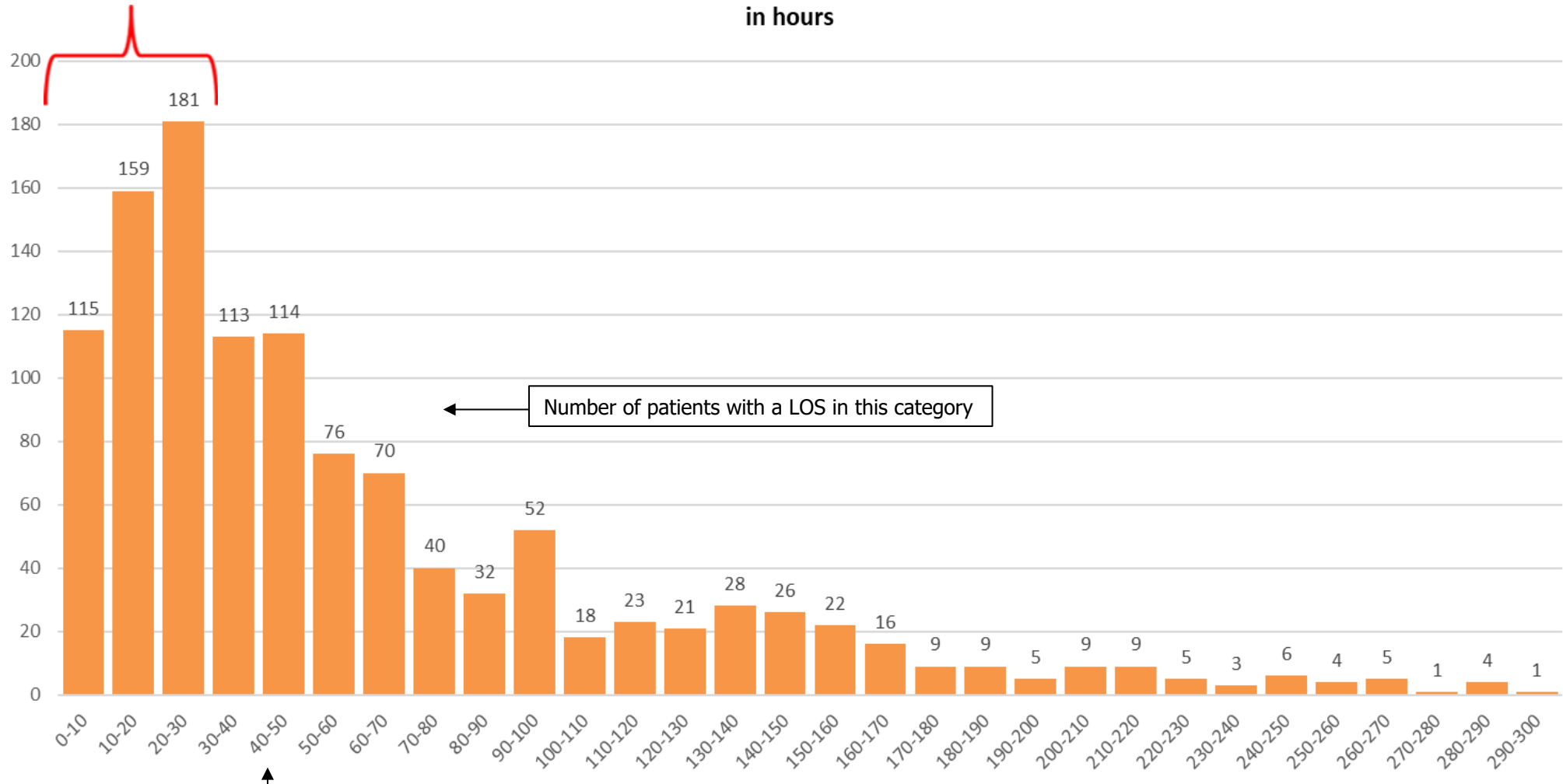


Oct-Dec 2021



Number of NC-STeP Patients by LOS Category Jan - Mar 2022 in hours

38% percent of patients
had a LOS of 30 hours or less

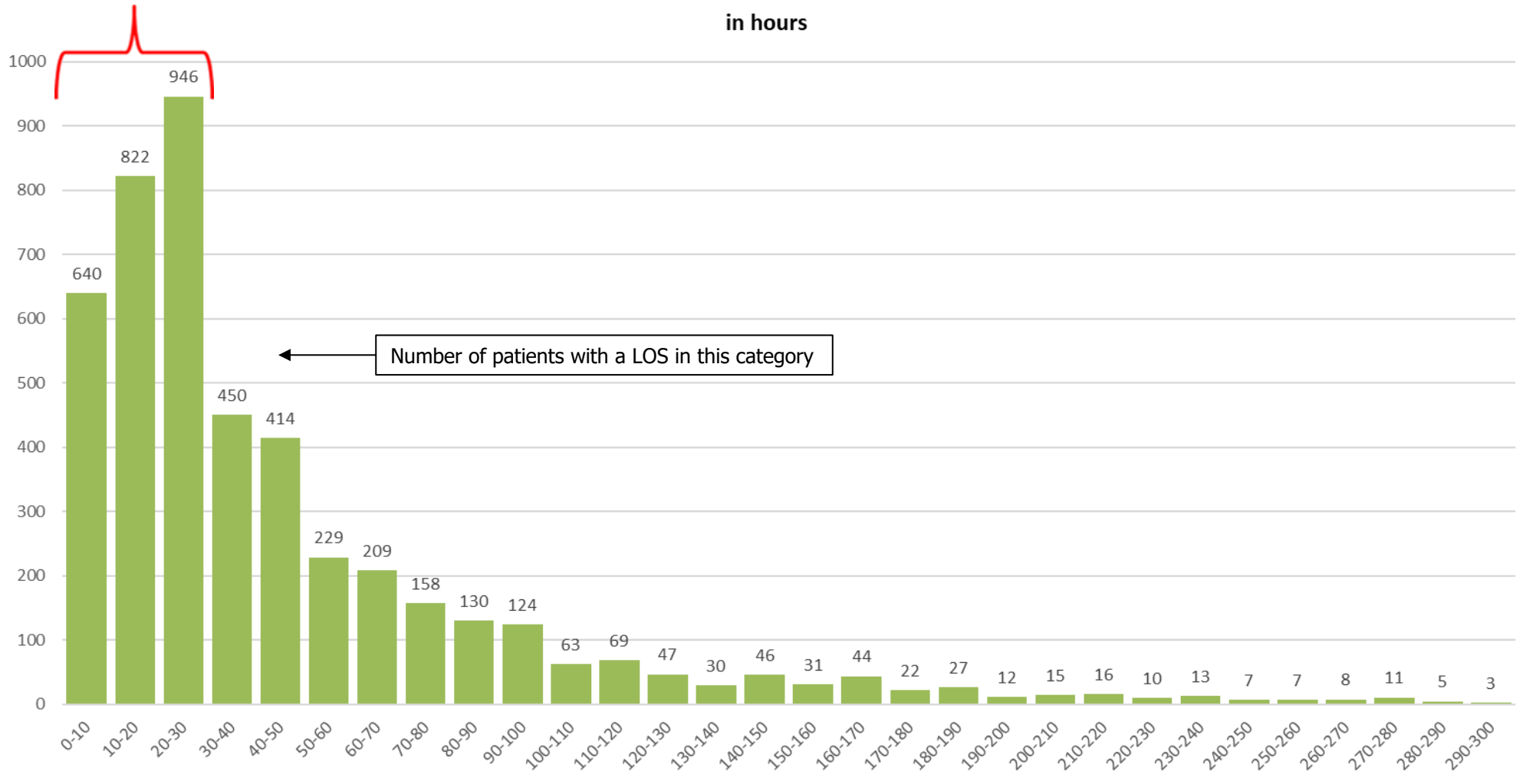


Median Length of Stay for Jan-Mar 2022 = 42.7 hours

32 patients had a LOS longer than 300 hours

Number of NC-STEP Patients by LOS Category Jan - Dec 2021 in hours

51% percent of patients had a LOS of 30 hours or less

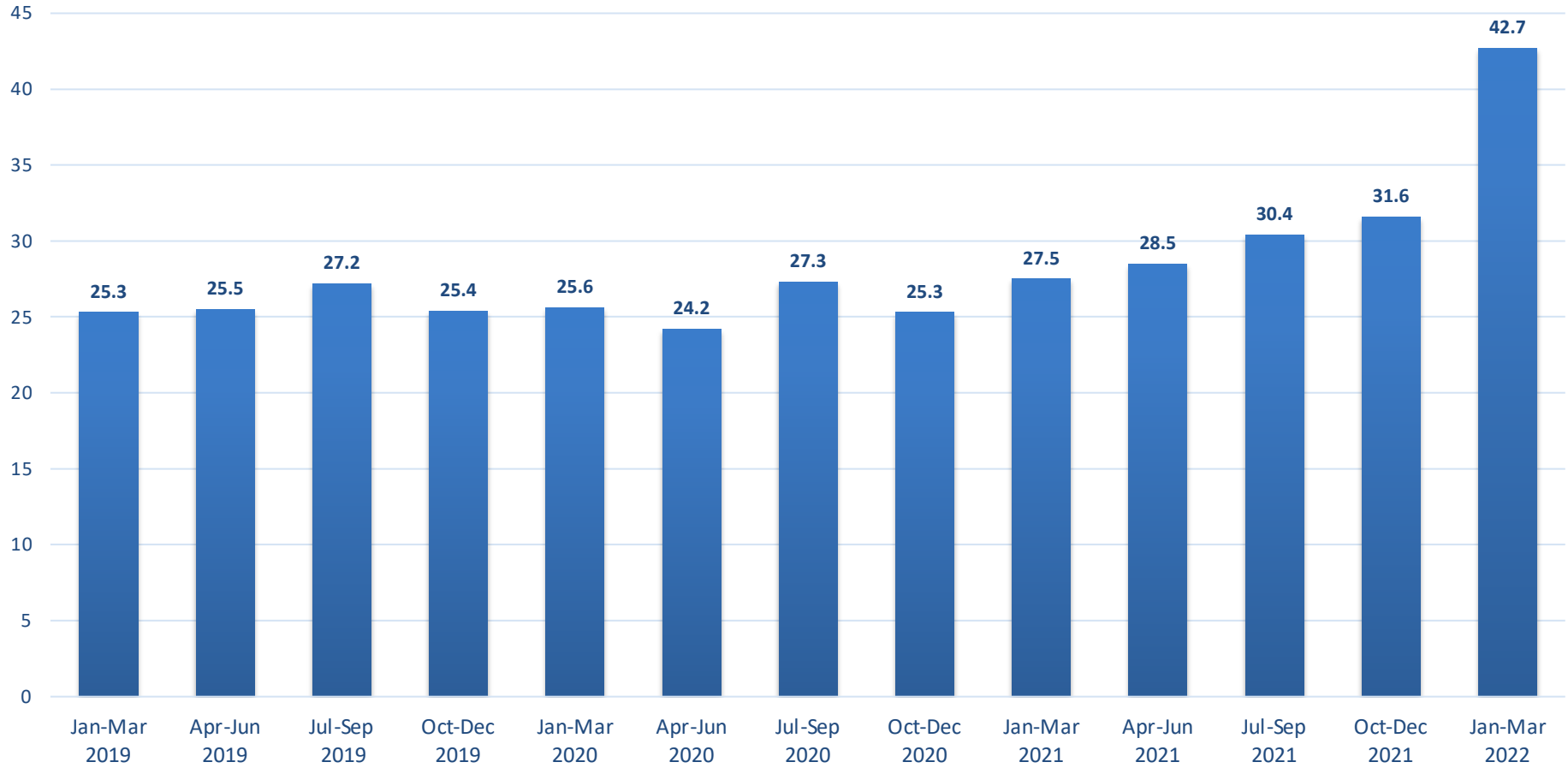


Median Length of Stay for Jan-Dec 2021 = 29.2 Hours

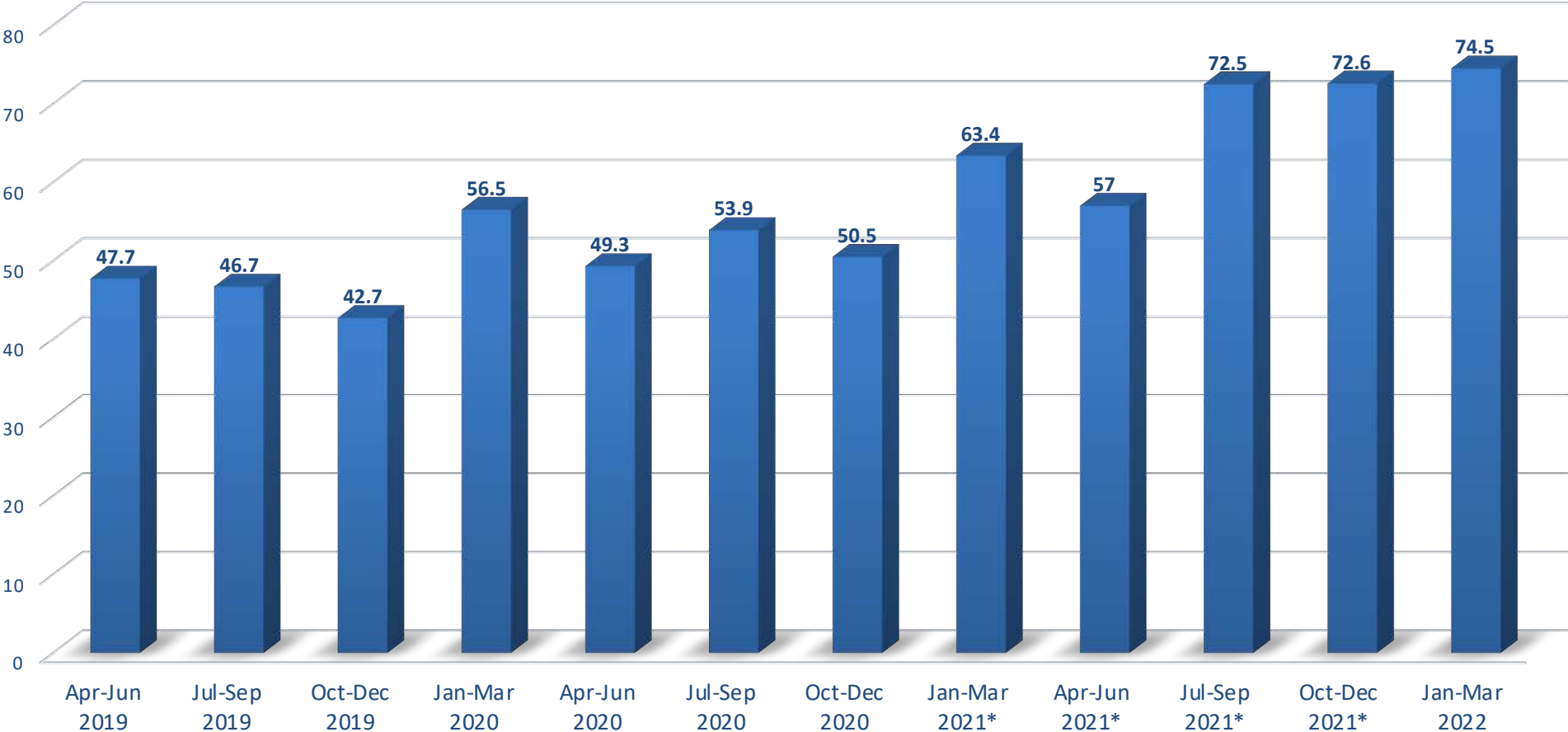
115 patients had a LOS longer than 300 hours over the 12 months

Median Length of Stay by Quarter

(in hours)

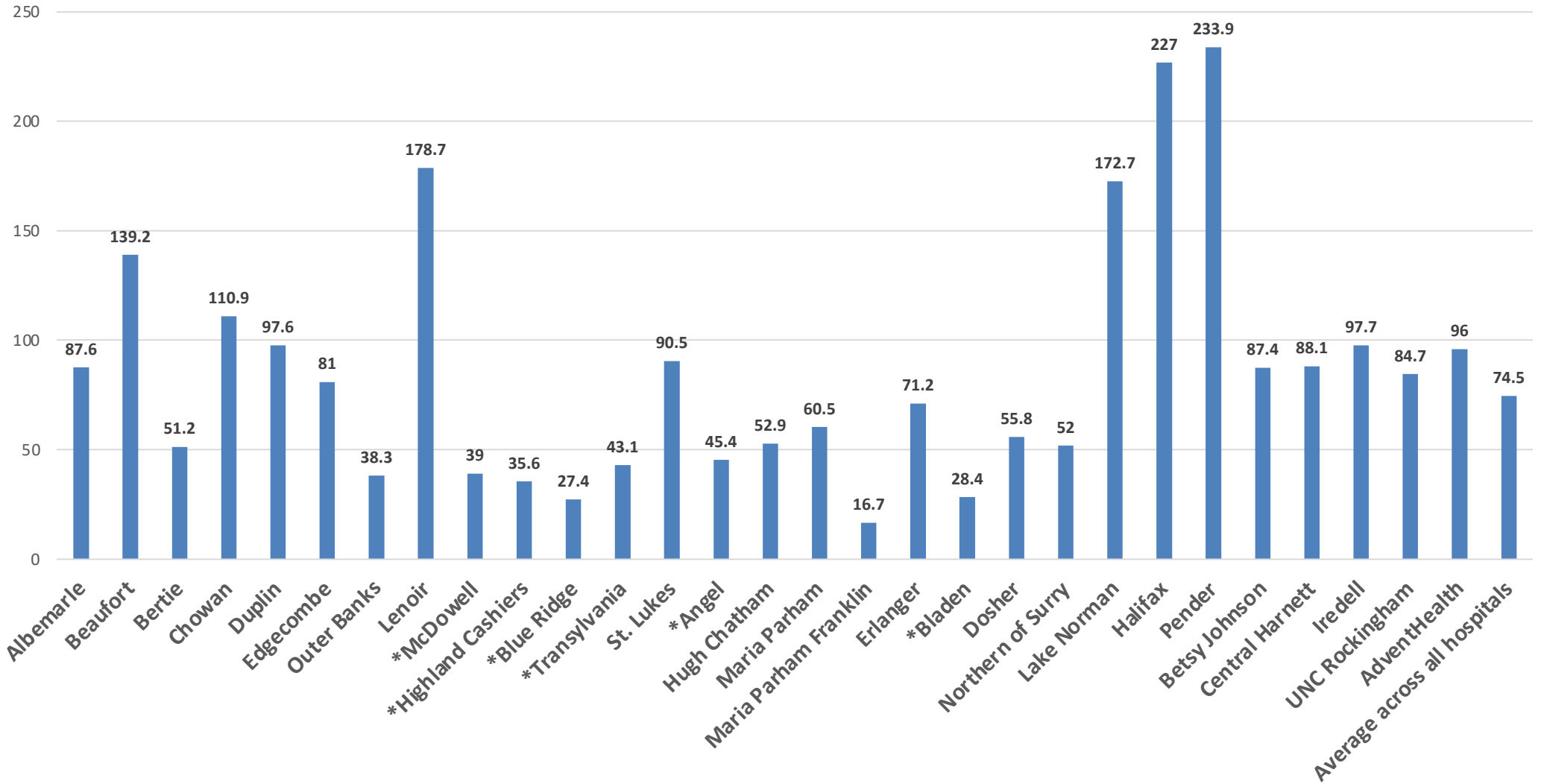


Average Length of Stay by Quarter (in hours)



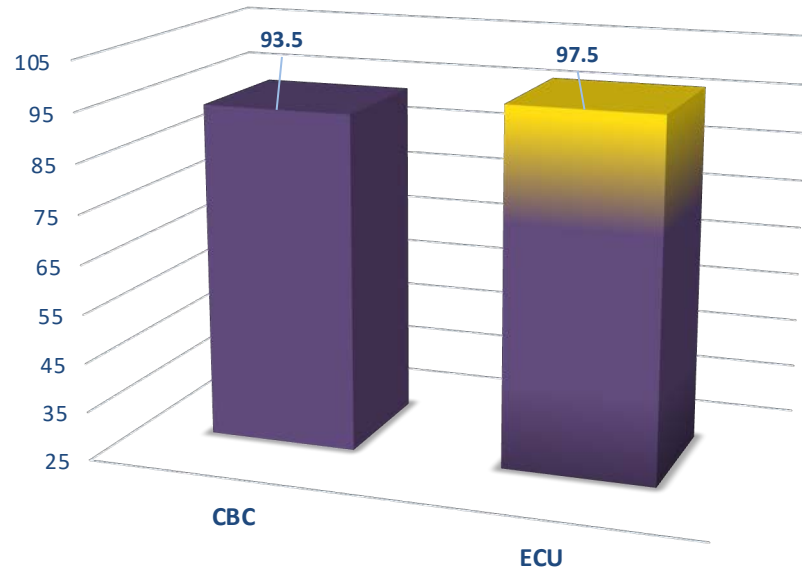
Average Length of Stay by Hospital

January - March 2022
(in hours)

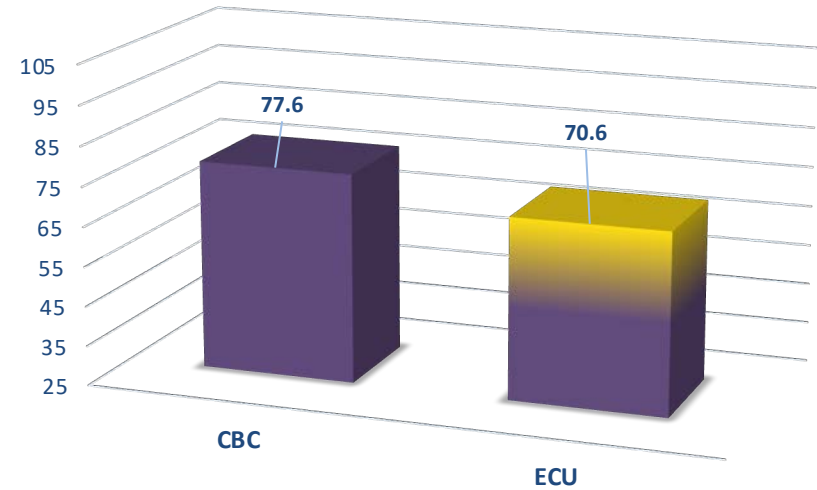


Average LOS by Provider (in hours)

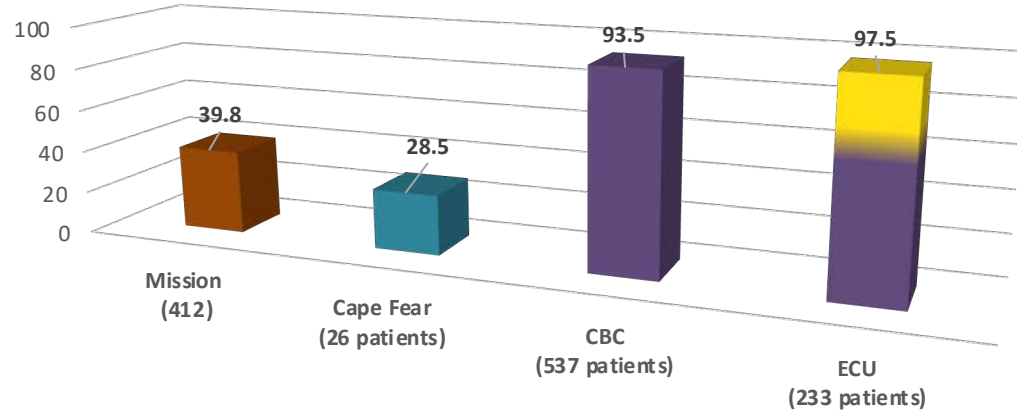
Jan-Mar 2022



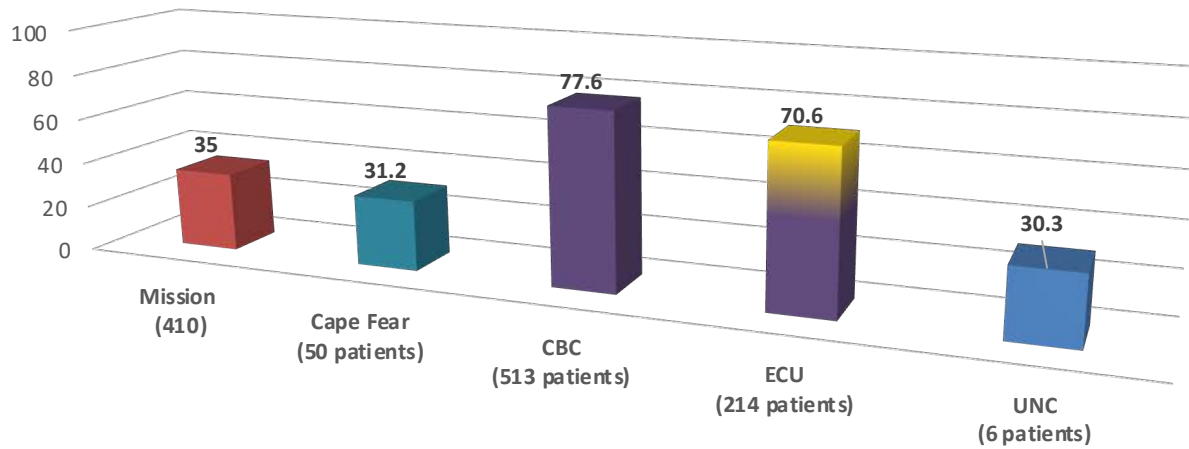
Oct-Dec 2021



Jan-Mar 2022 (in hours)



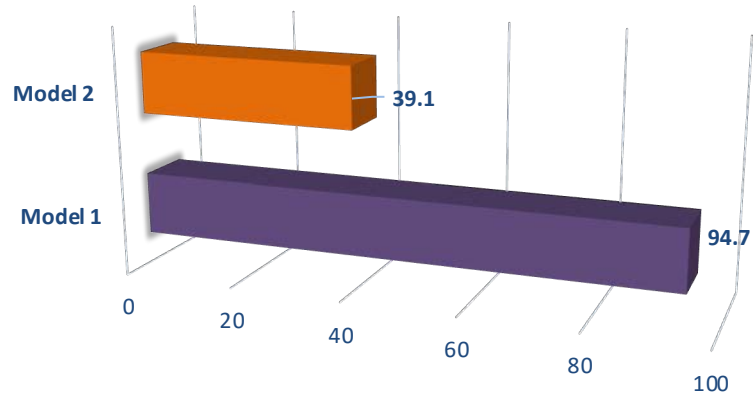
Oct-Dec 2021 (in hours)



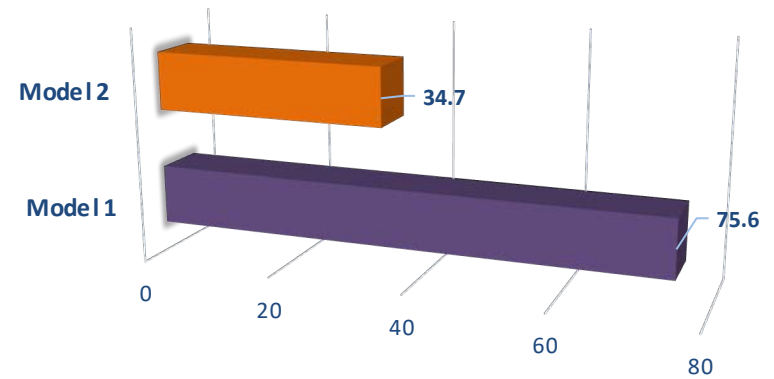
Average Length of Stay by Provider

Average LOS by Model

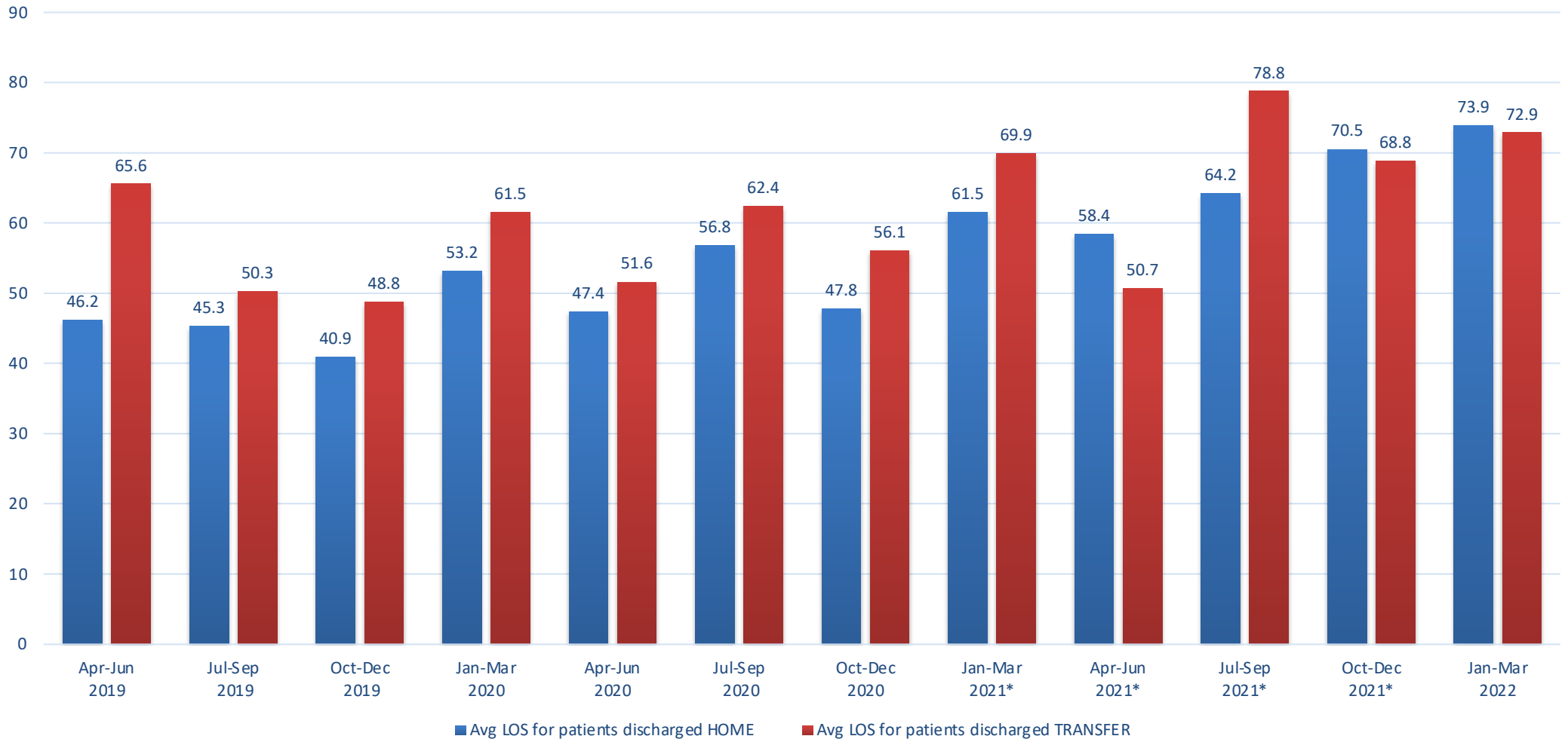
Jan-Mar 2022 (in hours)



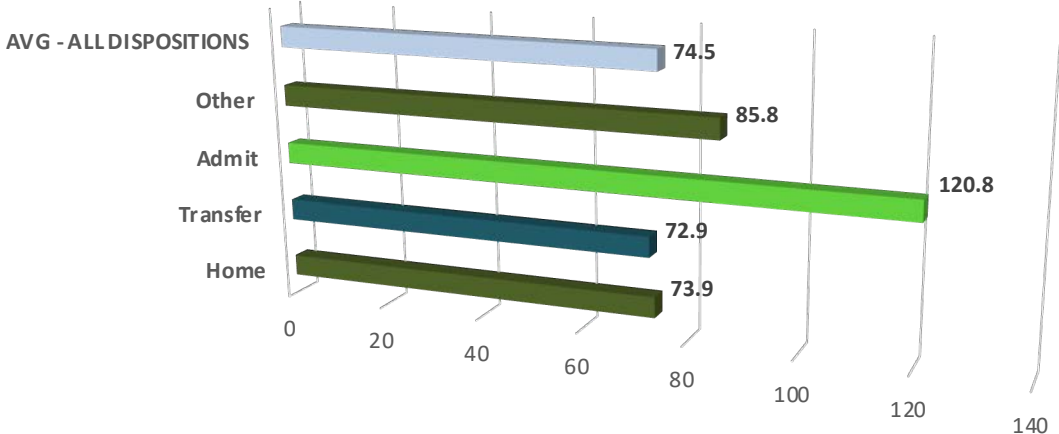
Oct-Dec 2021 (in hours)



Average Length of Stay by Quarter for Patients Discharged to Home or Transfer (in hours)

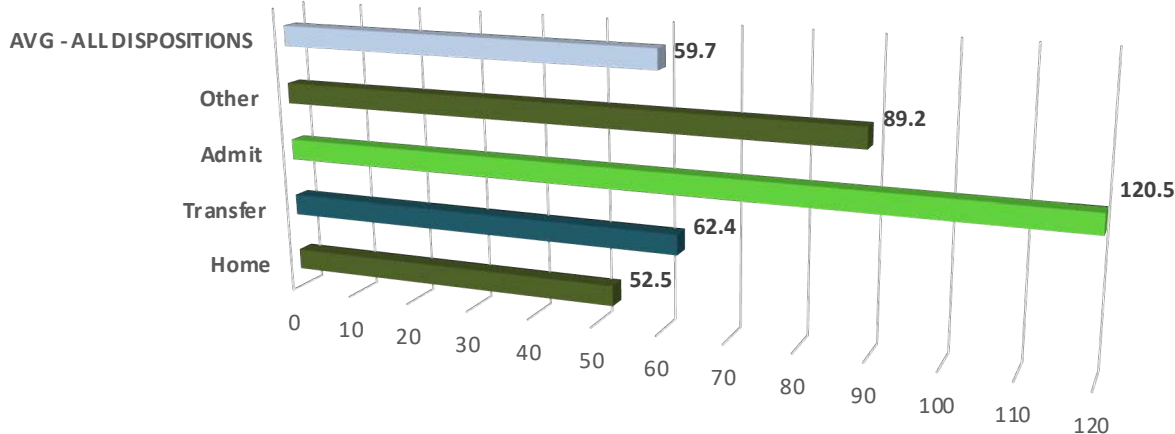


Jan-Mar 2022 (in hours)

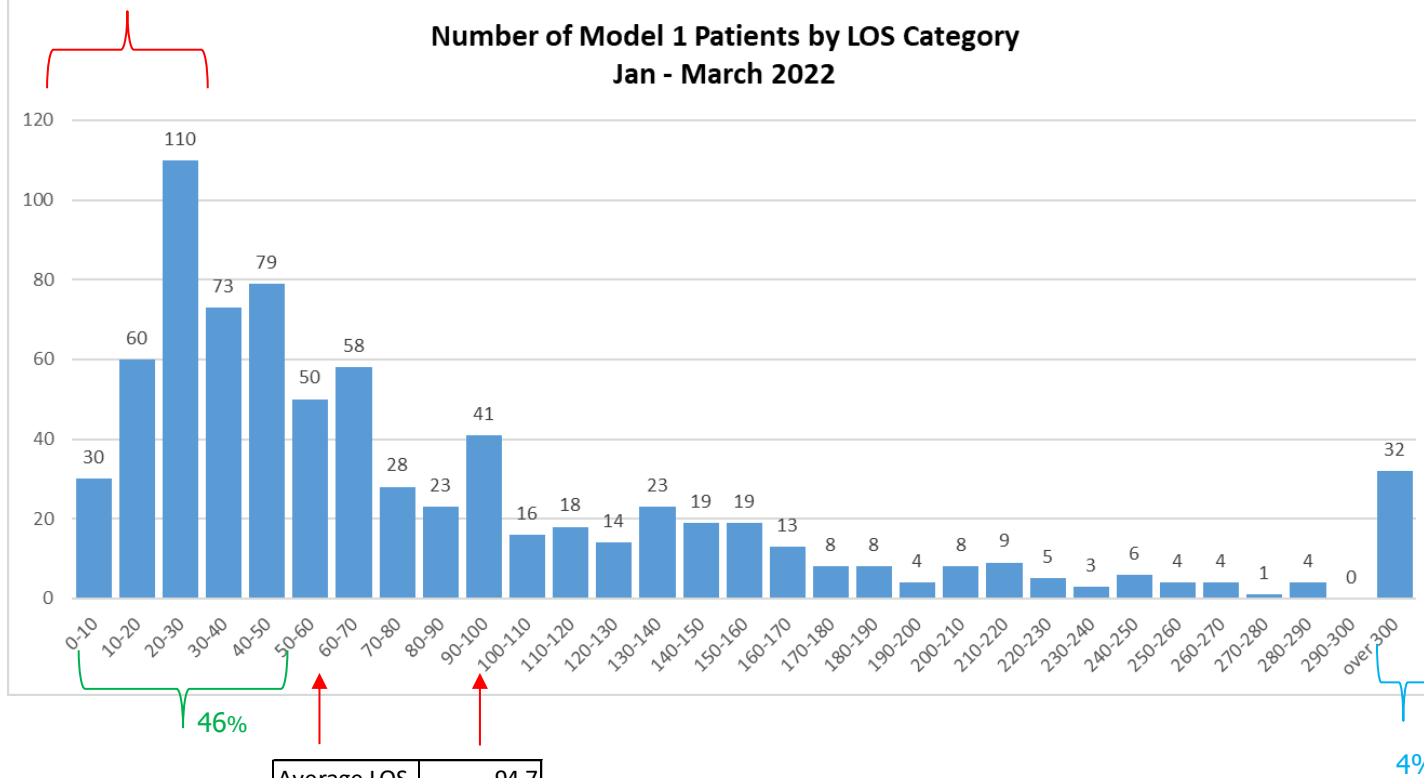


Average LOS by Discharge Disposition

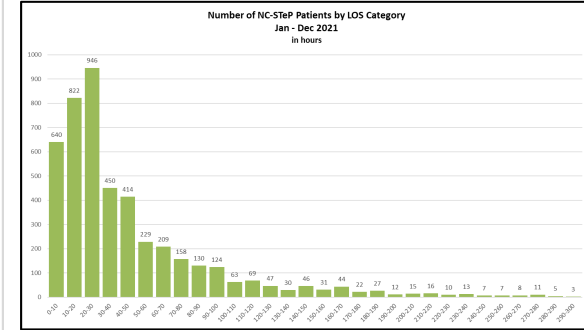
Oct-Dec 2021 (in hours)



26% of encounters are 30 hrs or less



Average LOS	94.7
Median LOS	57.5

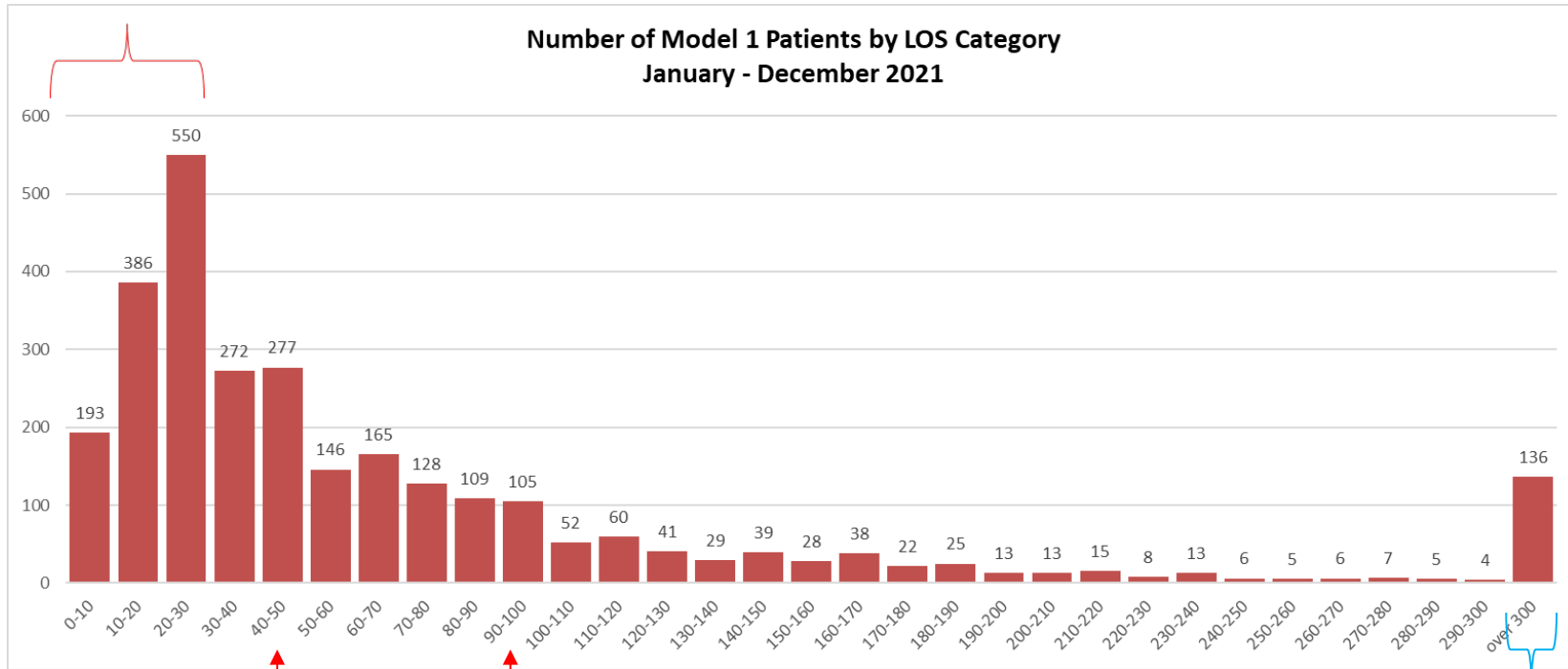


30 hrs or less	51%
50 hrs or less	69%
100 hrs or less	87%
over 300 hours	2%

Encounter length	Number of Encounters	Percent of All Encounters
30 hours or less	200	26%
50 hours or less (about 2 days)	352	46%
100 hours or less (about 4 days)	552	72%
150 hours or less (about 6 days)	652	83%
200 hours or less (about 8 days)	694	90%

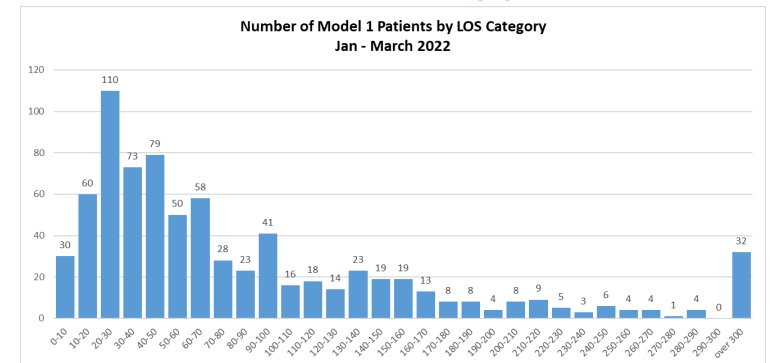
Very Long Encounters	Number of Encounters	Percent of All Encounters
200 hours or more (about 8 days)	76	9.90%
300 hours or more (about 12 days)	32	4%
400 hours or more (about 16 days)	21	3%

39% of encounters are 30 hrs or less



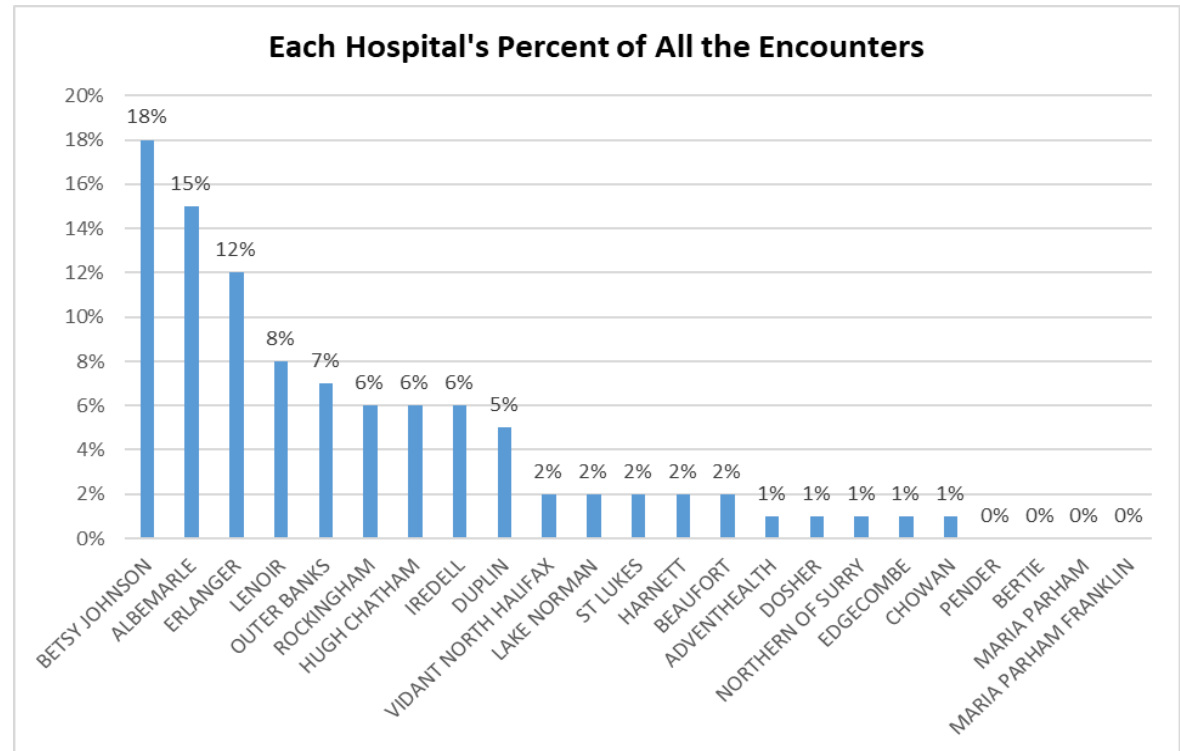
Average LOS	90.4
Median LOS	41.3

Encounter Length	Number of Encounters	Percent of All Encounters
30 hours or less	1129	39%
50 hours or less (about 2 days)	1678	58%
100 hours or less (about 4 days)	2331	80%
150 hours or less (about 6 days)	2552	88%
200 hours or less (about 8 days)	2678	93%
Over 300 hours	136	4.60%
total number of encounters	2896	



NC-STeP Model 1 Patient Encounters January – March 2022

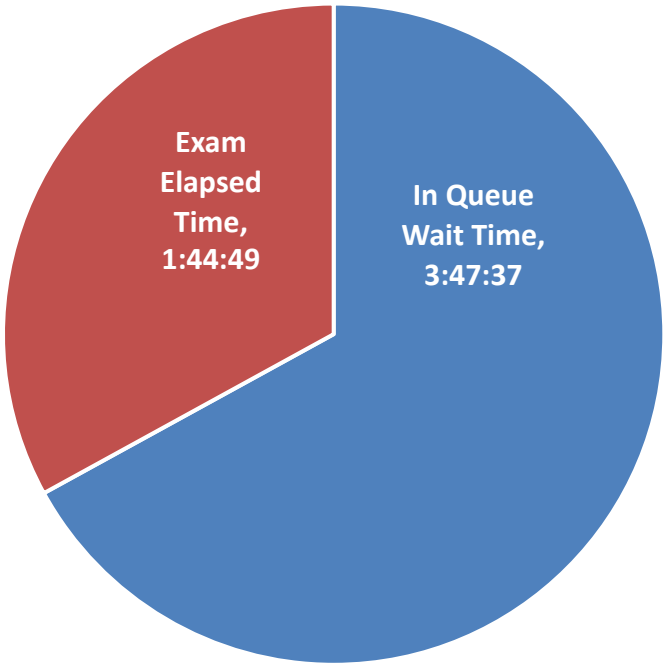
Number of Encounters by Hospital (Jan - Mar 2022)			
Hospital	Num of Encounters	Percent of Total Encounters	Average LOS
BETSY JOHNSON	140	18.18	87.4
ALBEMARLE	117	15.19	87.6
ERLANGER	89	11.56	71.2
LENOIR	63	8.18	178.7
OUTER BANKS	52	6.75	38.3
ROCKINGHAM	49	6.36	84.7
HUGH CHATHAM	48	6.23	52.9
IREDELL	43	5.58	97.7
DUPLIN	42	5.45	97.6
VIDANT NORTH HALIFAX	19	2.47	227
LAKE NORMAN	17	2.21	172.7
ST LUKES	17	2.21	90.5
HARNETT	16	2.08	88.1
BEAUFORT	13	1.69	139.2
ADVENTHEALTH	11	1.43	96
DOSHER	8	1.04	55.8
NORTHERN OF SURRY	8	1.04	52
EDGECOMBE	5	0.65	81
CHOWAN	4	0.52	110.9
PENDER	3	0.39	233.9
BERTIE	3	0.39	51.2
MARIA PARHAM	2	0.26	60.5
MARIA PARHAM FRANKLIN	1	0.13	16.7
Total	770		94.7



Consult Elapsed Time: January –March 2022

CBC & ECU

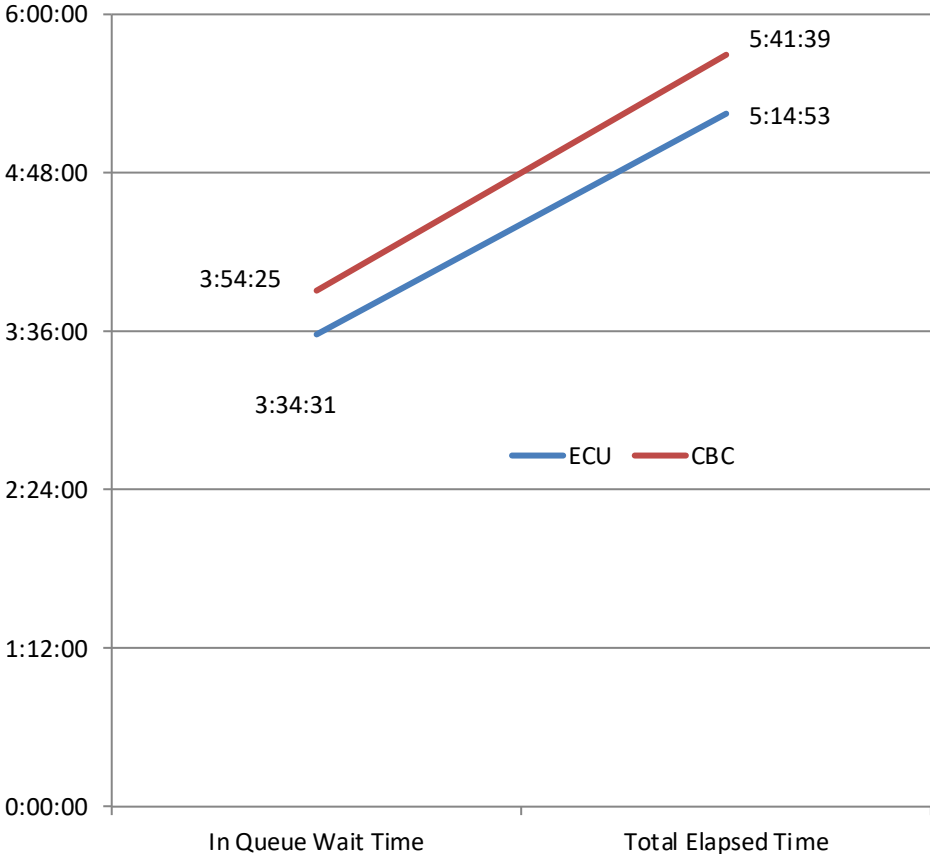
Average Consult Exam Elapsed Time
 In Queue to Exam Complete
 FY22-Q3 January – March 2022
 (5 hrs. 32 min.)



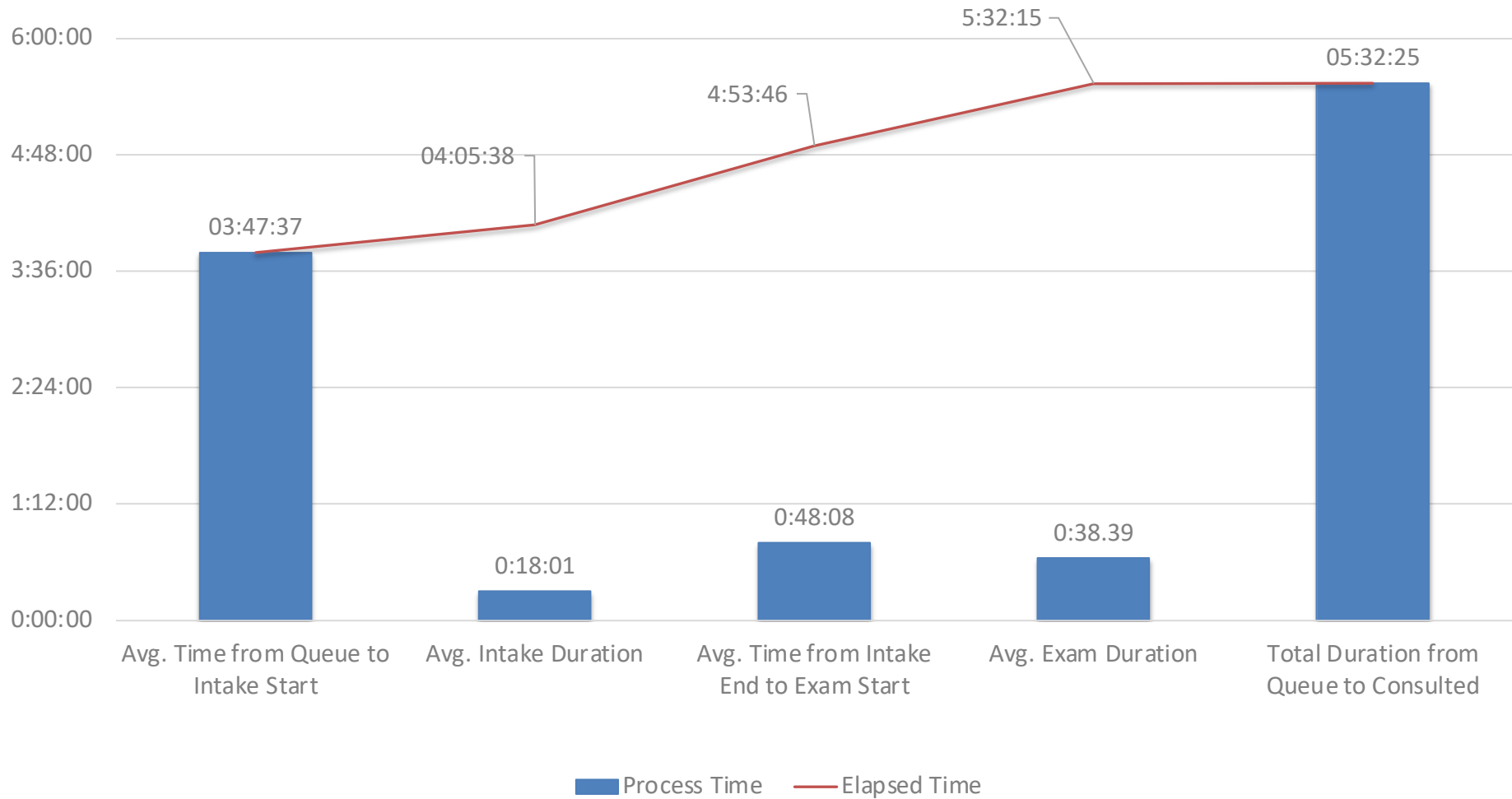
■ In Queue Wait Time ■ Exam Elapsed Time

Comparison CBC & ECU

Average Consult Elapsed Time
 In Queue to Exam Complete
 FY22-Q3 January - March 2022

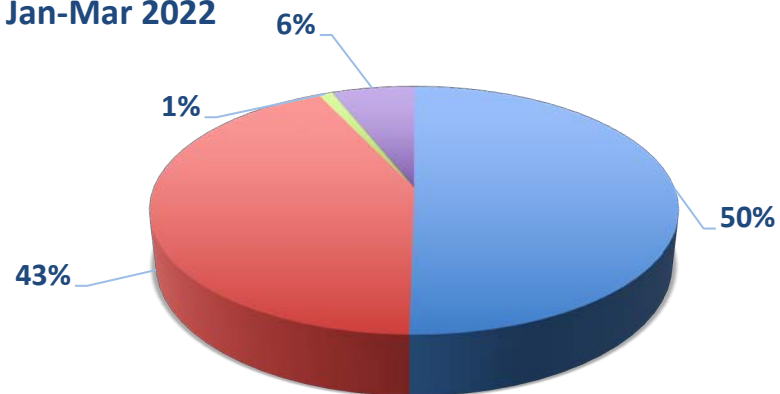


Key Processes and Elapsed Times Averages CBC and ECU: January – March 2022



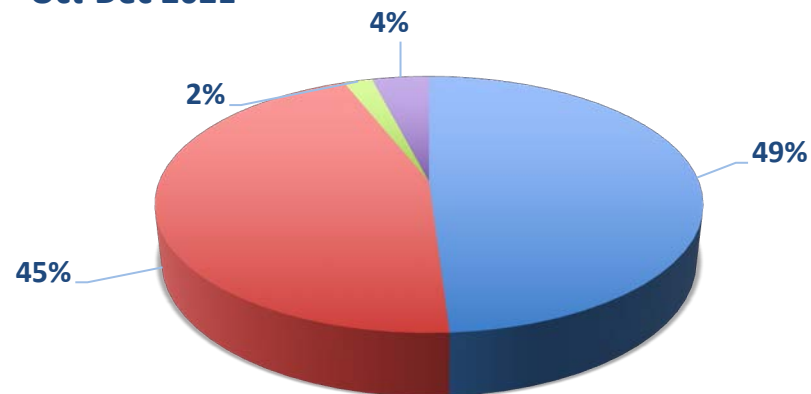
Percent of Patients by Discharge Disposition

Jan-Mar 2022

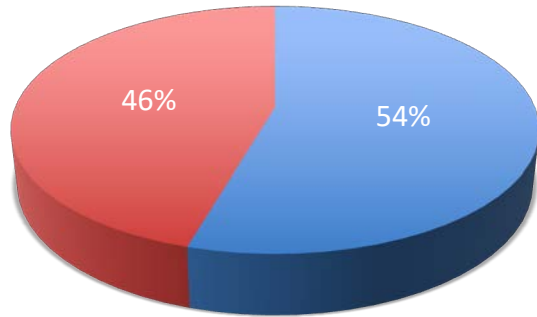


■ Home ■ Transfer ■ Admit ■ Other

Oct-Dec 2021



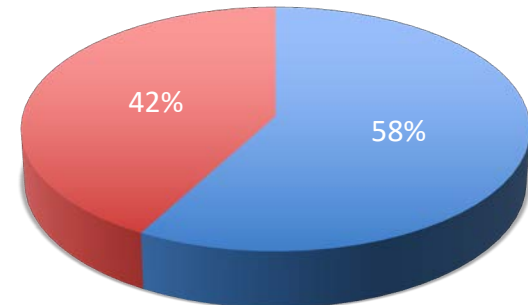
Jan-Mar 2022



**IVCs –
By Release Status**

- IVCs - percent not released
- IVCs - percent released

Oct-Dec 2021





Investigating the Impact of Covid-19 on Telepsychiatry Use Across Sex and Race: A Study of North Carolina Emergency Departments

Yajiong Xue, PhD¹, Sy A. Saeed, MD², Huigang Liang, PhD³, Kathrine Jones, PhD⁴, and Kalyan S. Muppavarapu, MD²

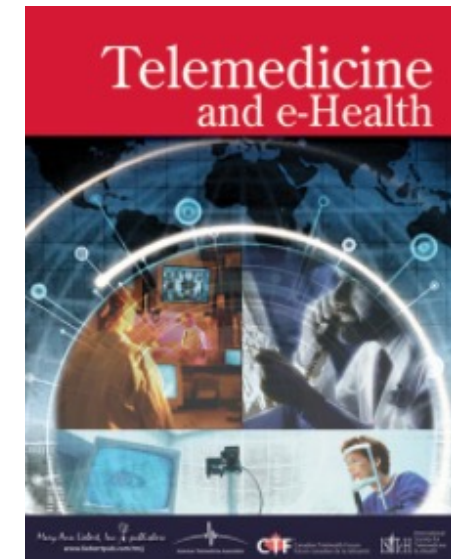
Abstract

Introduction: The COVID-19 pandemic and the intervention measures have increased mental health problems among Americans. Telepsychiatry provides a safe and efficient way to serve mental health patients in emergency departments (EDs). The objective of this study is to evaluate the impact of COVID-19 on telepsychiatry consultations in North Carolina (NC) and analyze the differences across sex and race.

Methods: This longitudinal observational study used data from the NC Statewide Telepsychiatry Program to examine temporal changes in ED telepsychiatry consultations from January 2019 to March 2021 (117 weeks), including 4,739 telepsychiatry consultations conducted by 27 hospitals in 24 counties in NC during the period. The outcome measures were telepsychiatry consultation counts. Weekly ED telepsychiatry consultation counts were calculated overall and stratified by sex and race.

Results: The overall weekly ED telepsychiatry consultation counts were decreasing before the national lockdown but started increase after the lockdown. Moreover, the counts of telepsychiatry consultations for white patients had a stronger increasing trend than that for black patients. Comparing telepsychiatry counts during the lockdown period (March and April) in 2020 and the same period in 2019, male patients had higher counts while female patients had lower counts, and white patients had higher counts while black patients had lower counts.

Discussion: It seems that the COVID-19 crisis has led to a heightening demand for telepsychiatry consultations in NC, and there is a possible race disparity in these demands between black and white mental health patients. These findings underscore the need to further develop telepsychiatry services and enhance access to black patients.



TELEMEDICINE AND E-HEALTH

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The Impact of NC Statewide Telepsychiatry Program (NC-STeP) on Cost Savings by Reducing Unnecessary Psychiatric Hospitalizations During a 6½ Year Period

Sy Atezaz Saeed¹  · Katherine Jones² · Kalyan Muppavarapu¹

Accepted: 26 October 2021

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Abstract

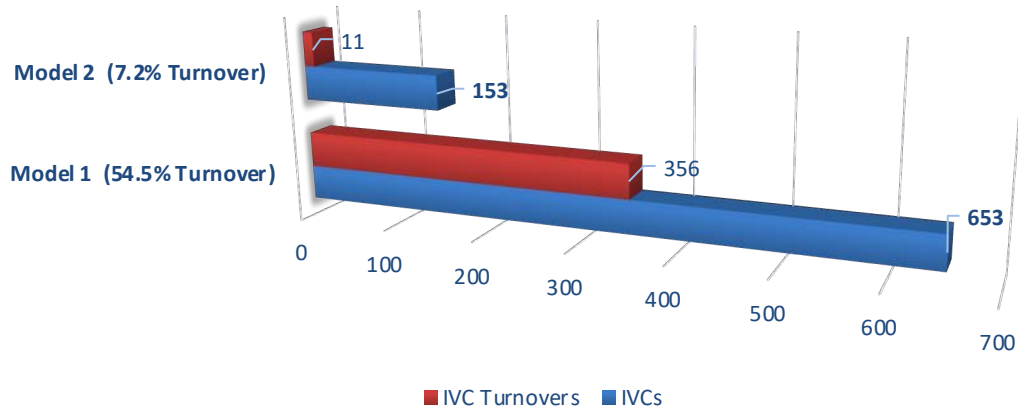
Objective To study the impact of the North Carolina Statewide Telepsychiatry Program in reducing unnecessary psychiatric hospitalizations and cost savings during a 6½ year period.

Methods Patient encounter data was extracted from the NC-STeP database that captured records of 19,383 patients who received services over a 6½ -years' period. We analyzed the data to calculate the total number of patient encounters, the number of encounters with an IVC, and the number of encounters with an IVC that was overturned. For encounters with an overturned IVC, we also determined the patient discharge disposition. We estimated the cost of a typical mental health hospitalization to measure the savings generated by the overturned IVCs in the NC-STeP program.

Results Over the 6½ year period there were 19,383 NC-STeP patient encounters at partner hospital emergency departments. There were 13,537 encounters where the patient had an IVC in place during the ED stay, and 4,627 where the IVC was overturned (34%). For patients where there was an IVC that was overturned, 85.9% of those patients were ultimately discharged home. Using the “three-way bed” cost estimate of \$4,500 for each overturned IVC, the cost savings generated by the NC-STeP program from November 2013 to June 2020 were \$20,821,500.

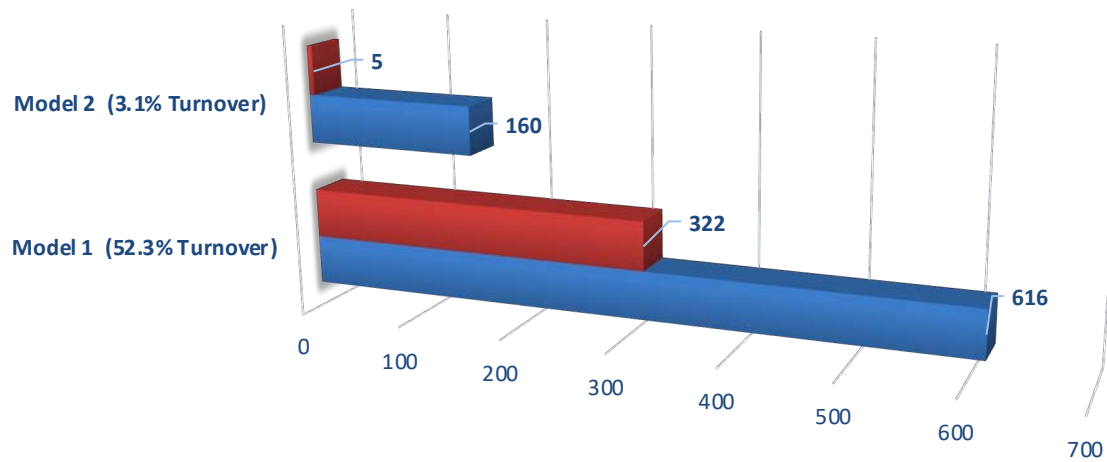
Conclusions Telepsychiatry consultation services in the emergency departments can decrease unnecessary psychiatric hospitalizations and contribute to significant cost savings to the healthcare system and society and improve the outcomes for patients and families by decreasing financial burden and stress associated with a hospital stay.

Jan-Mar 2022

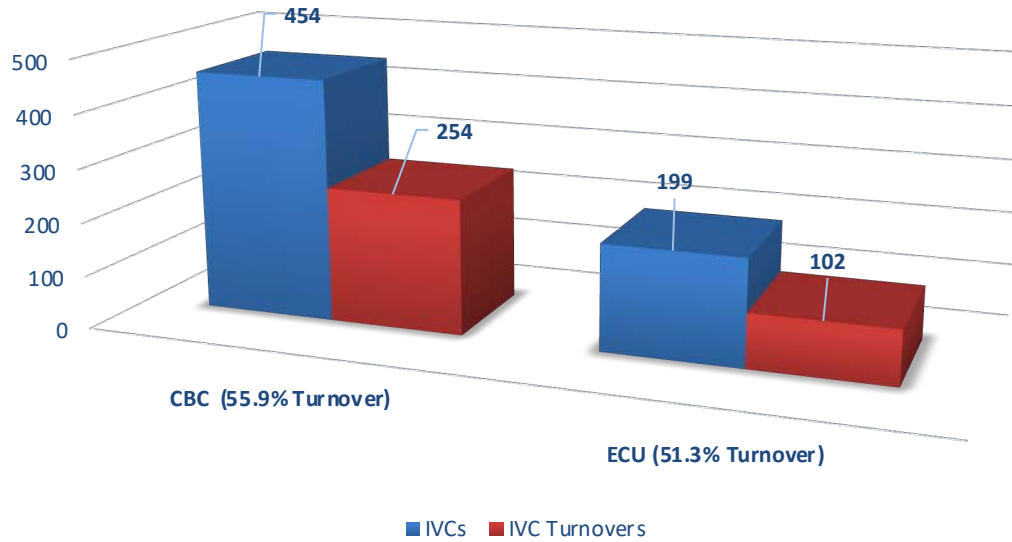


Number of IVCs and IVC Turnovers by Model

Oct-Dec 2021

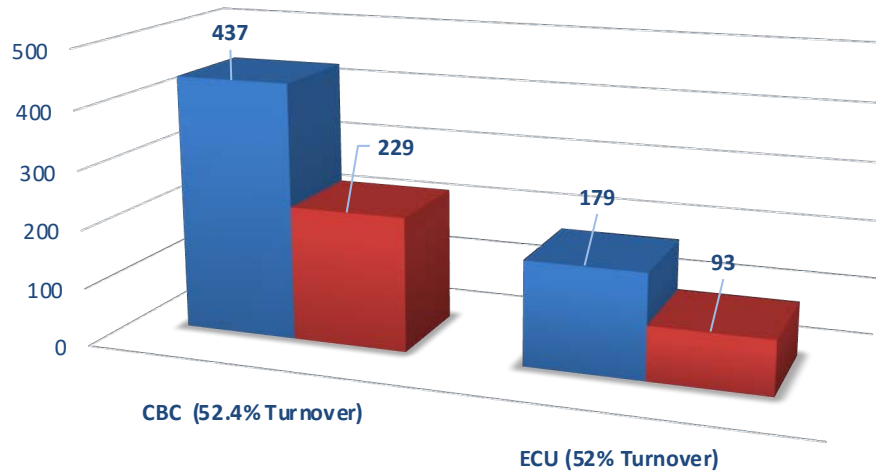


Jan-Mar 2022



Number of IVCs and IVC Turnovers by Provider

Oct-Dec 2021



Satisfaction Surveys

- Satisfaction surveys are done twice a year.
- Most recent surveys were conducted in March 2022.
- Invitations to participate were sent via electronic mail
- For groups that use the portal (Model 1 ED staff, psychiatrists, and intake specialists) there was a link to the survey on the portal log-in page.
- Surveys were completed online via Qualtrics software
 - 41 individuals responded to the survey (N = 41).
 - **The overall satisfaction rate is 76%.**



Satisfaction Surveys Methodology

Satisfaction surveys were conducted in March 2022 with 9 groups

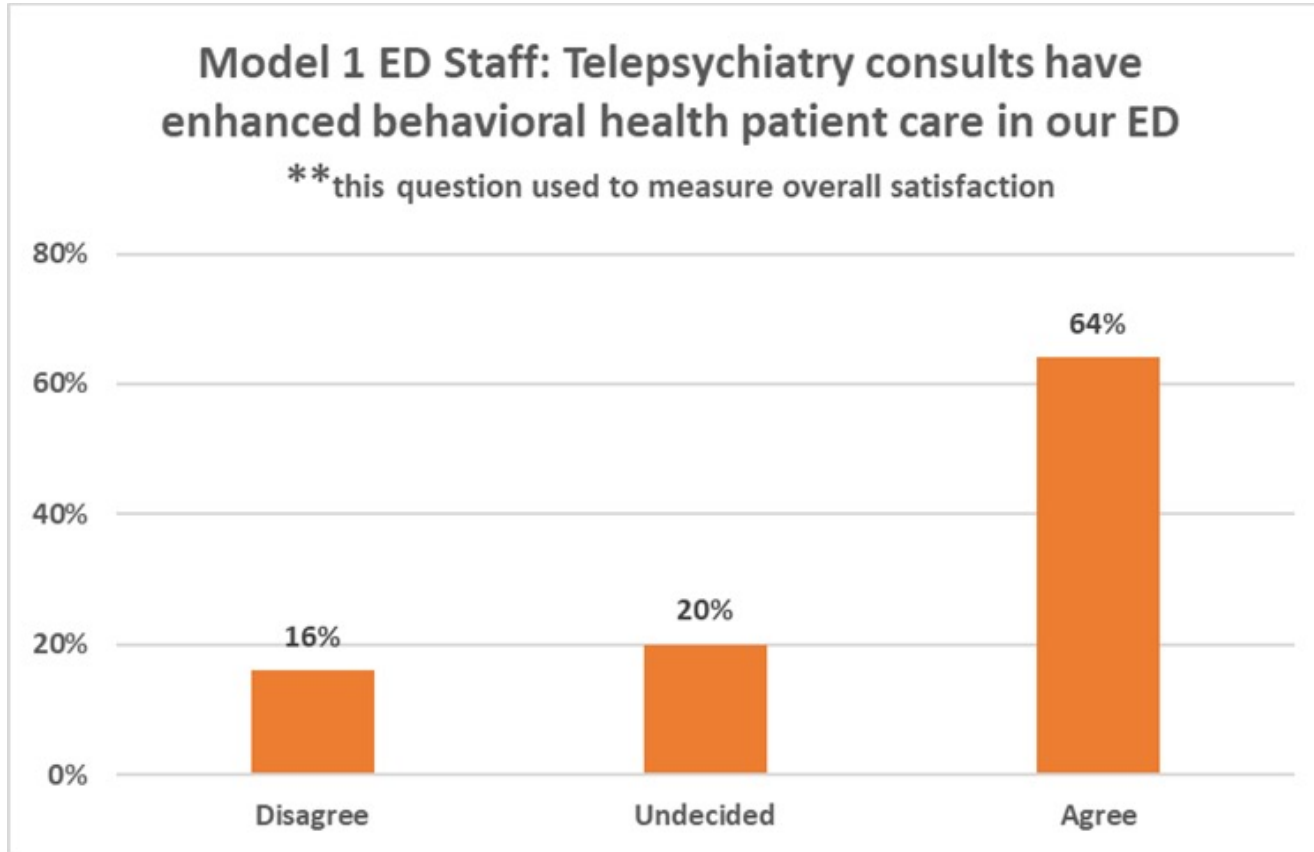
1. Model 1 Emergency Department Physicians
2. Model 1 Emergency Department Staff
3. Model 1 Provider Psychiatrists
4. Model 1 Psychiatric Intake Specialists
5. Model 1 Hospital CEOs
6. Model 2 Emergency Department Physicians
7. Model 2 Emergency Department Staff
8. Model 2 Provider Psychiatrists
9. Model 2 Hospital CEOs

Each group was given a different survey (with different questions) based on their role in the program.

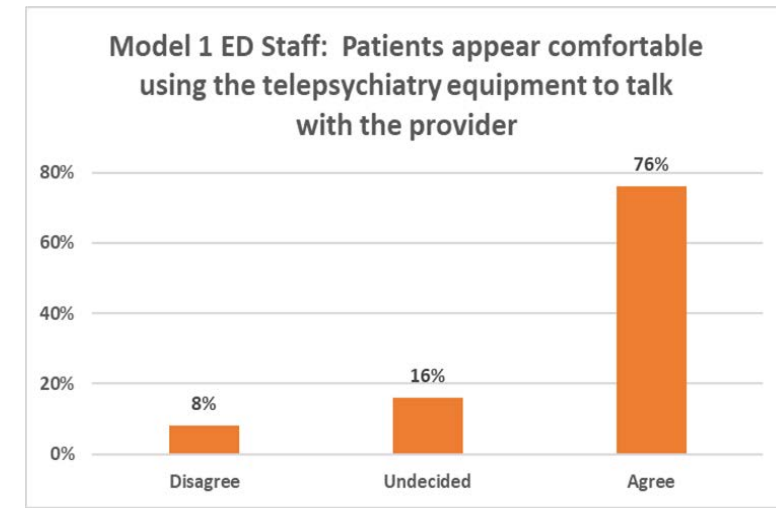
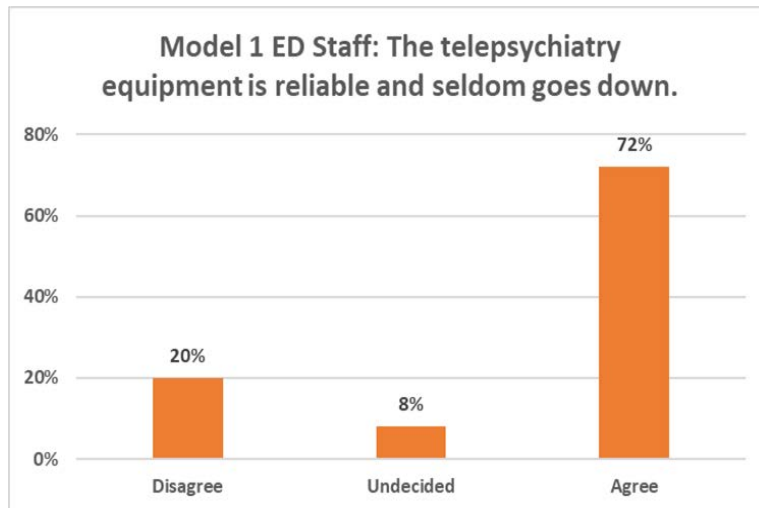
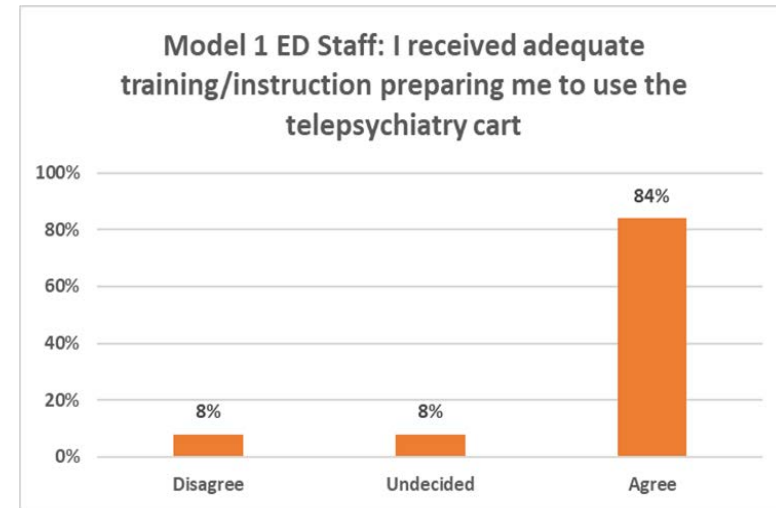
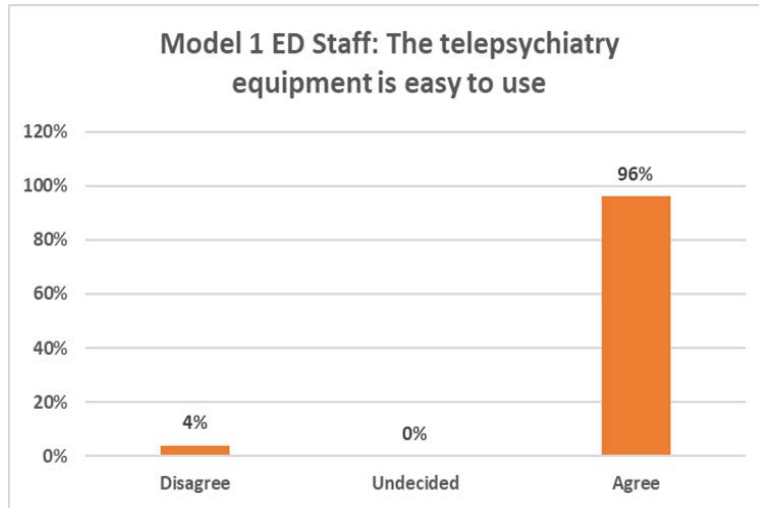
Satisfaction Surveys Methodology

- 41 individuals responded to the survey (N = 41).
- For each group, one summary question is selected for an overall “satisfaction” rate.
- **The overall satisfaction rate is 76%.**

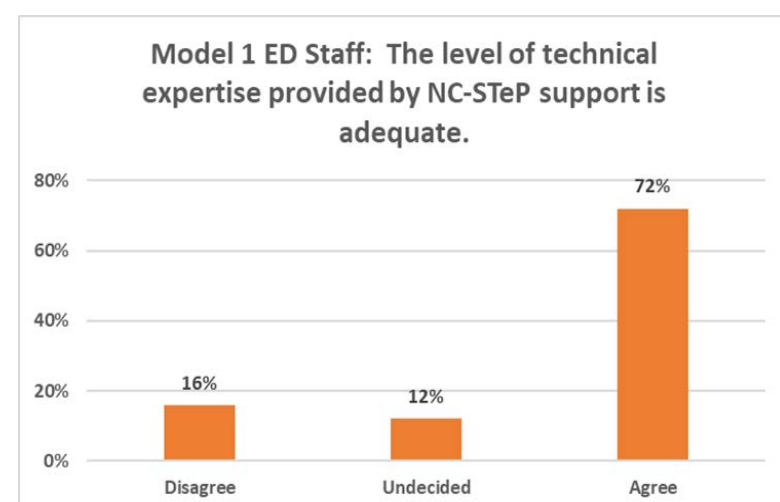
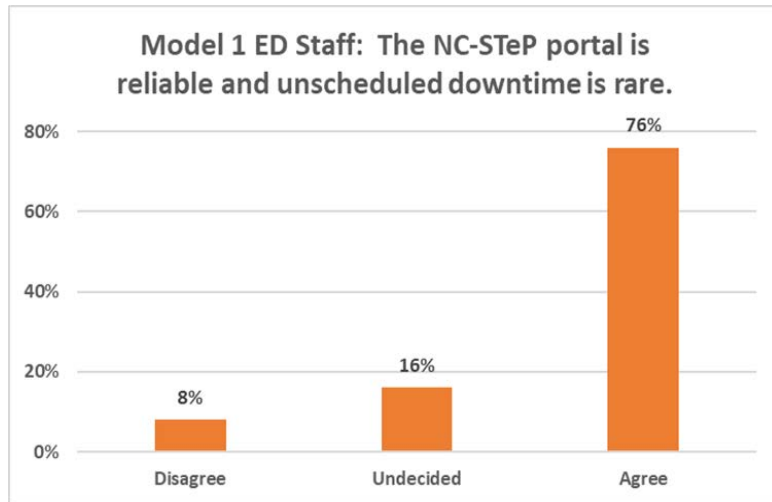
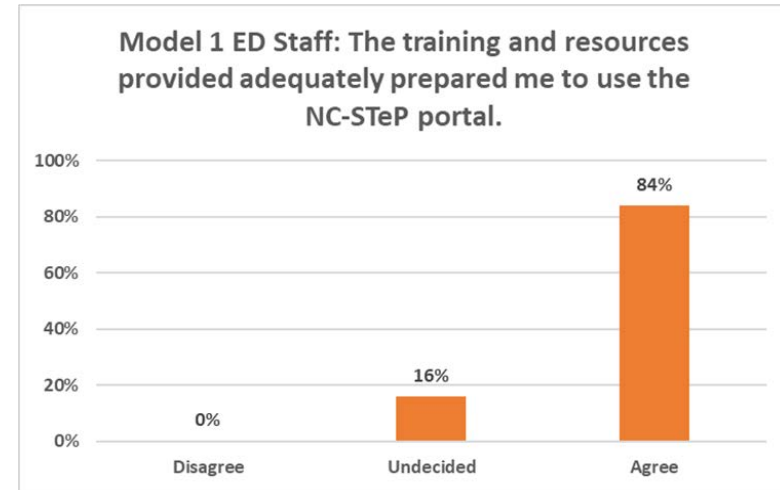
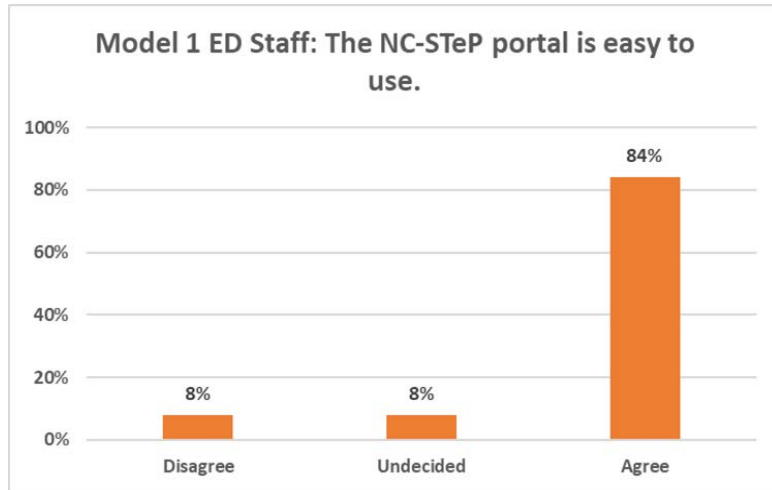
Model 1 Hospital ED Staff Results (n=25)



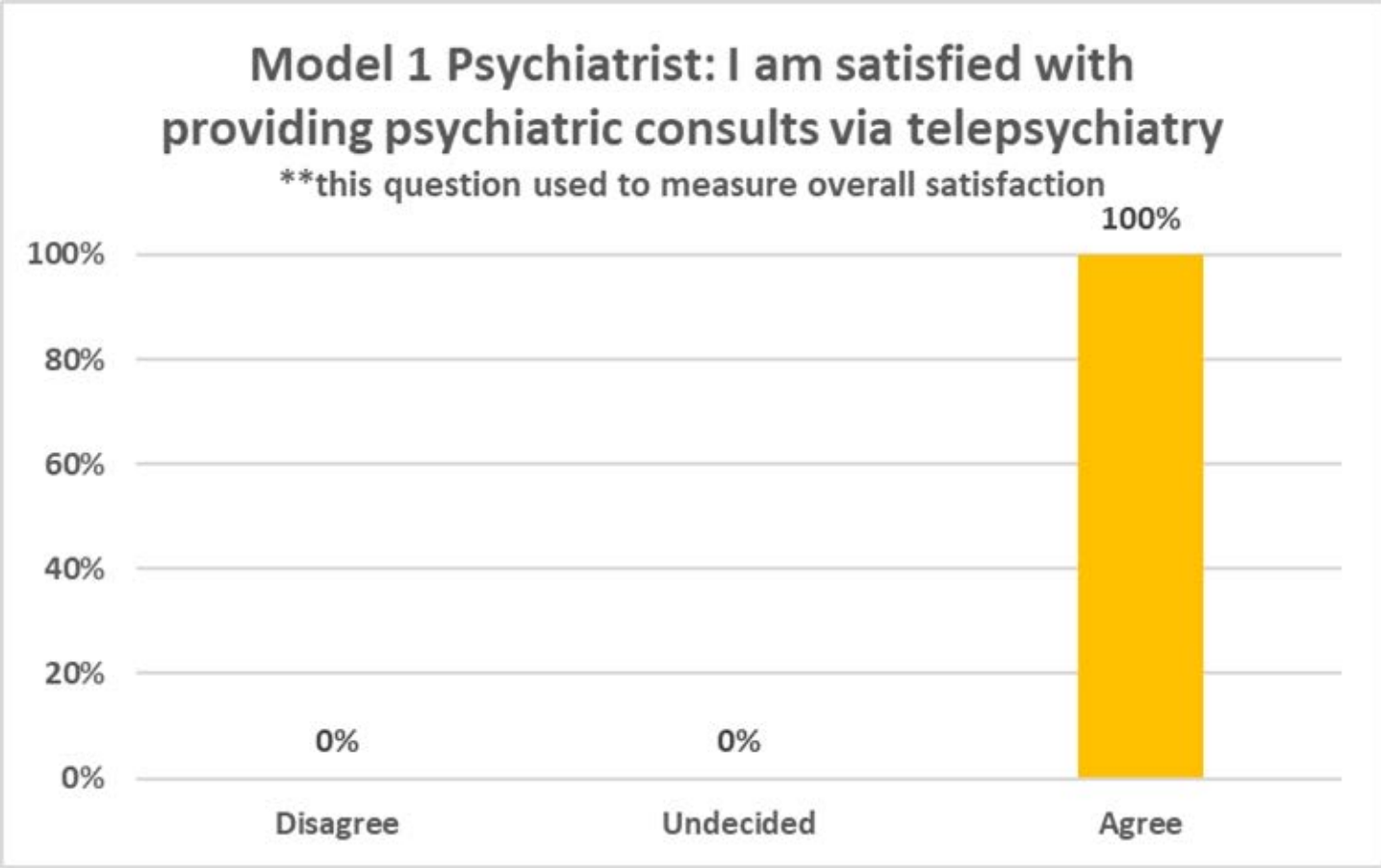
Model 1 Hospital ED Staff Results (n=25)



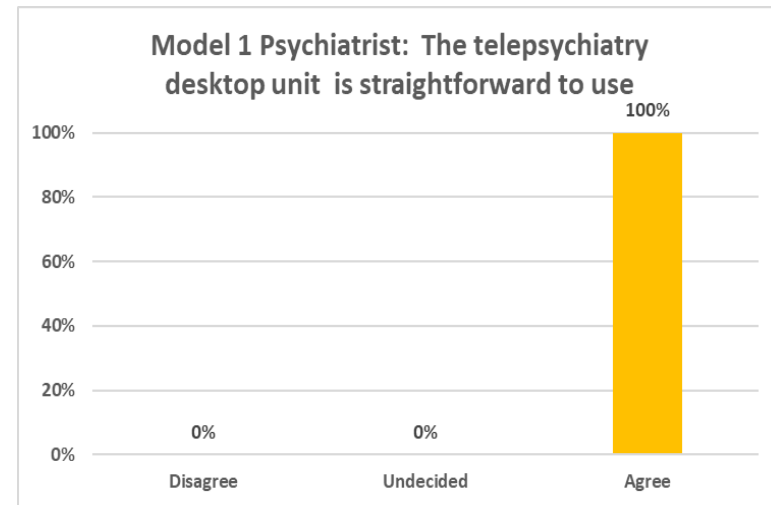
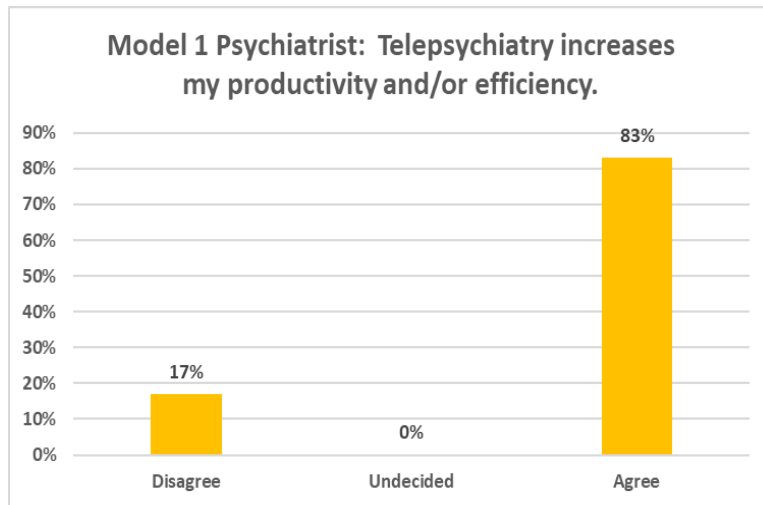
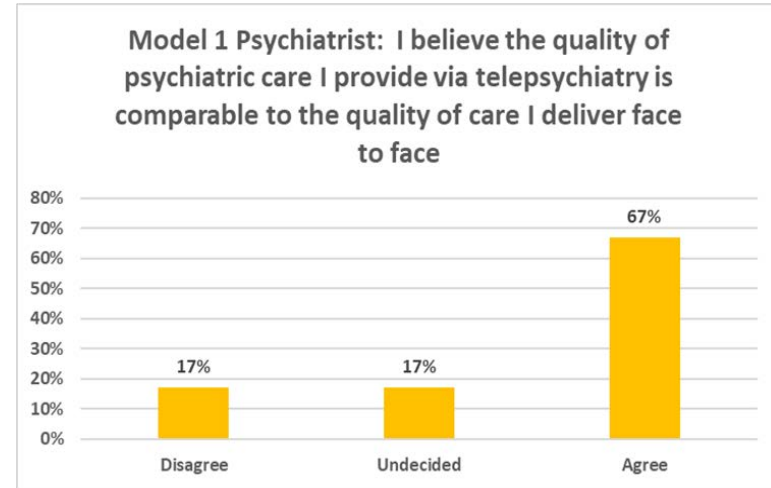
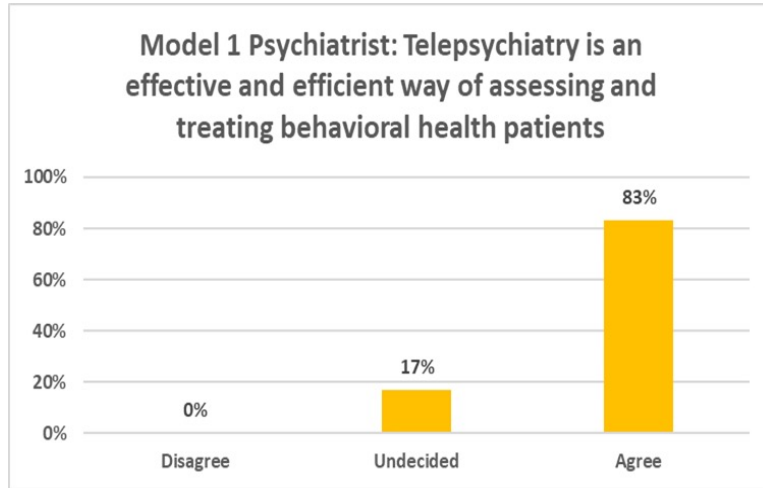
Model 1 Hospital ED Staff Results (n=25)



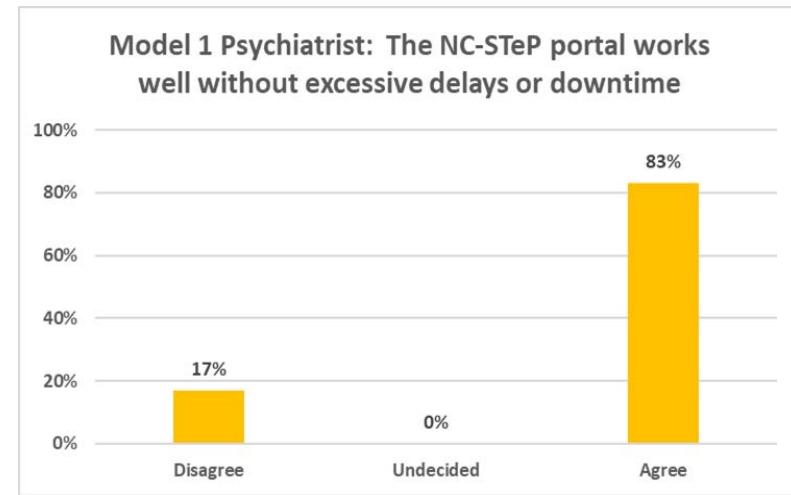
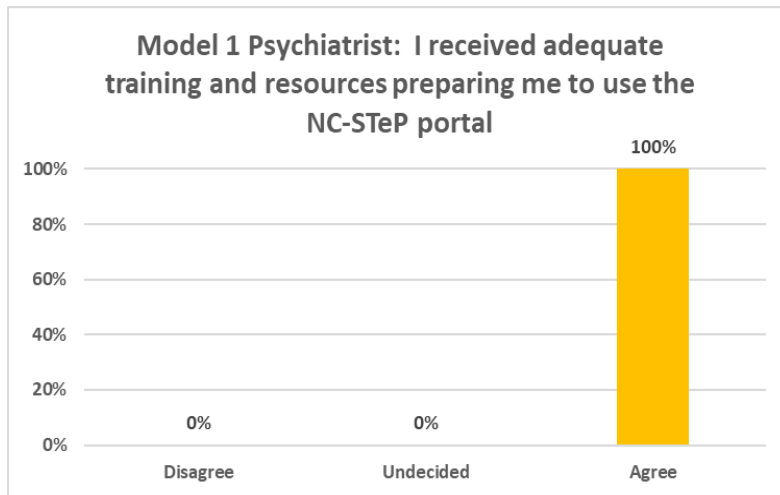
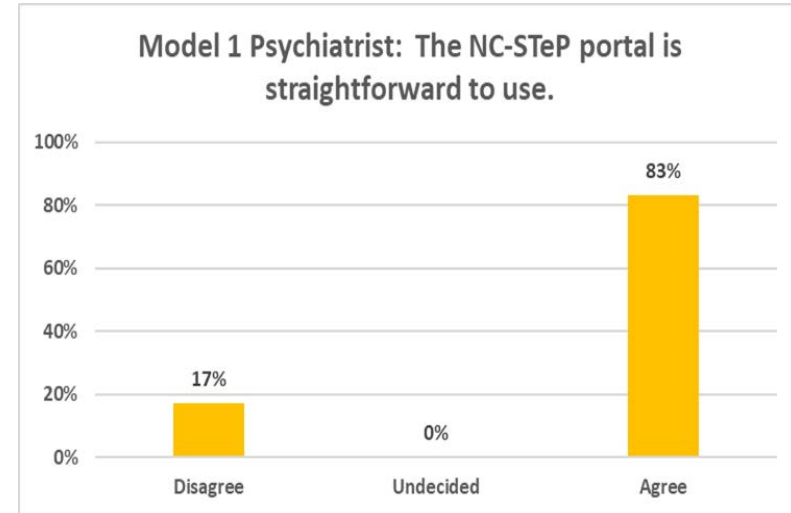
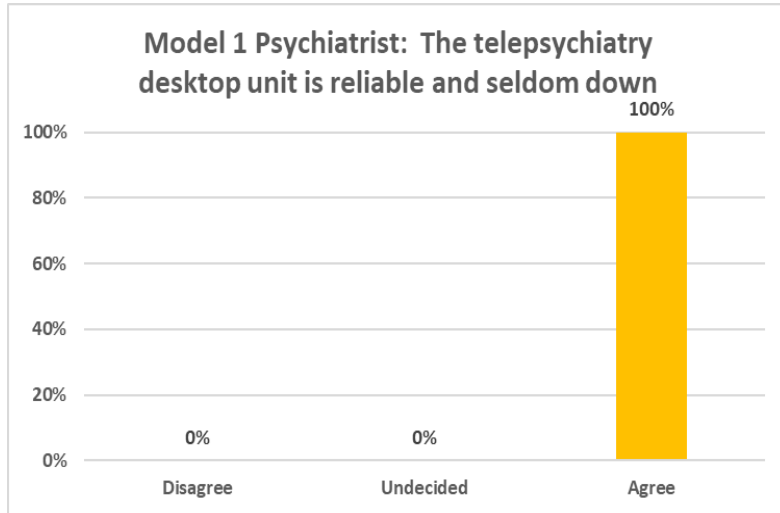
Model 1 Provider Psychiatrist Results (n= 6)



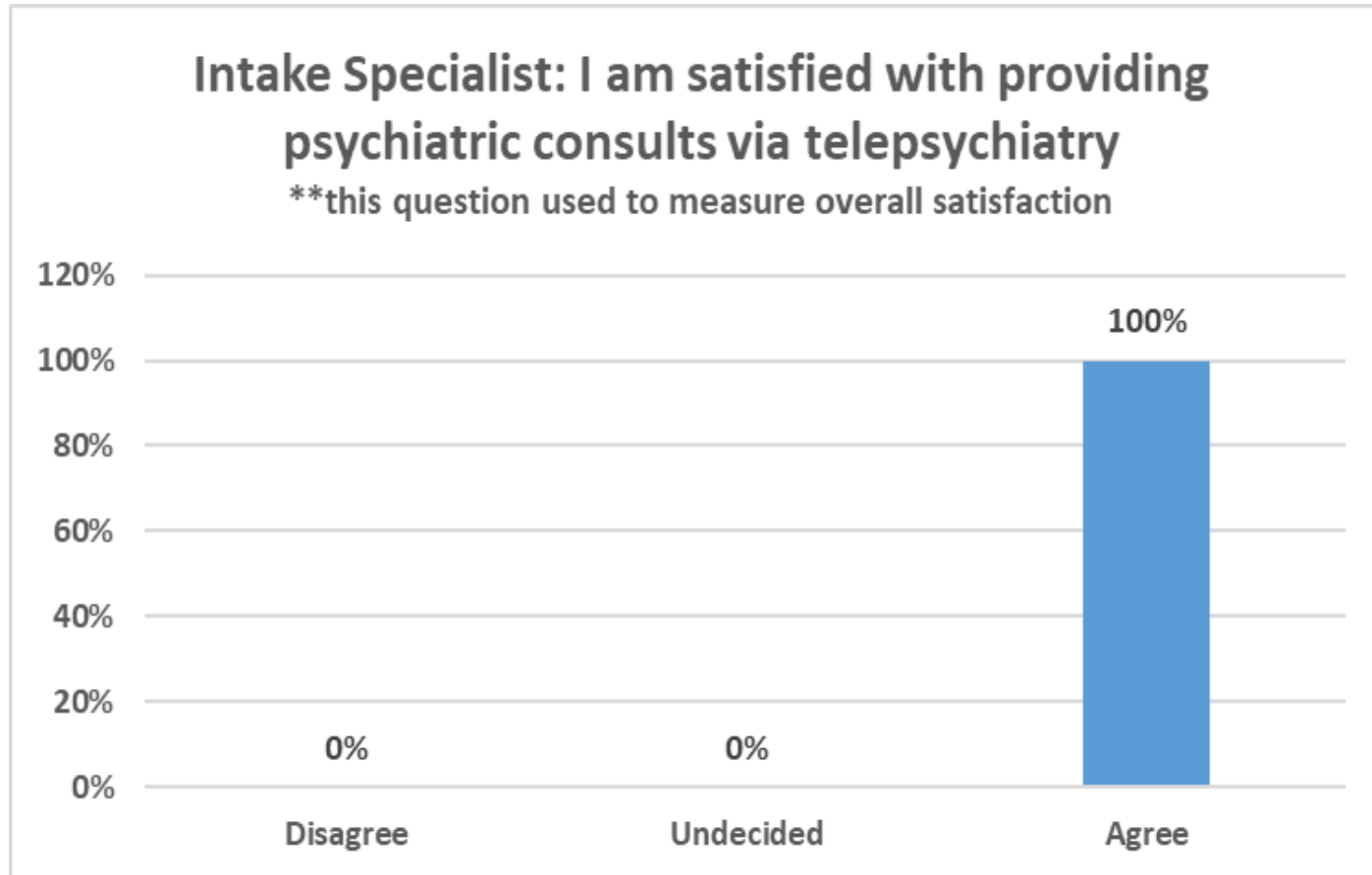
Model 1 Provider Psychiatrist Results (n= 6)



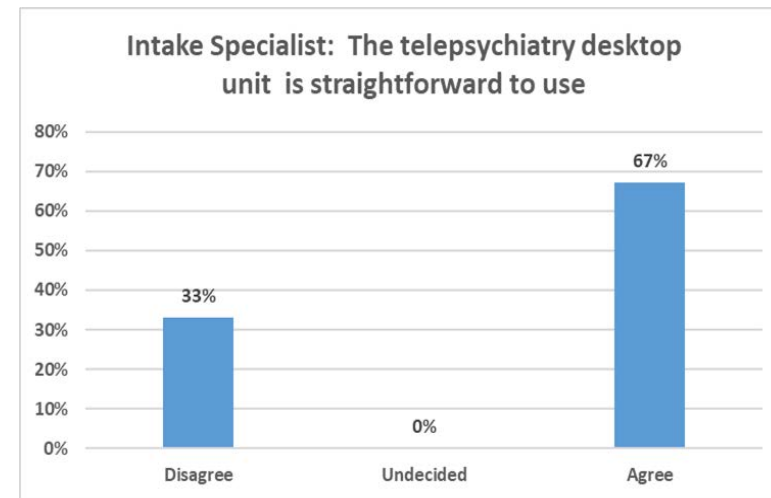
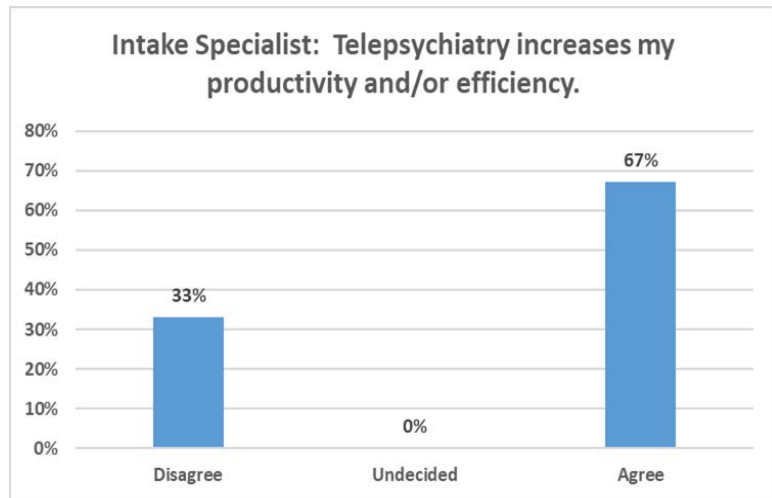
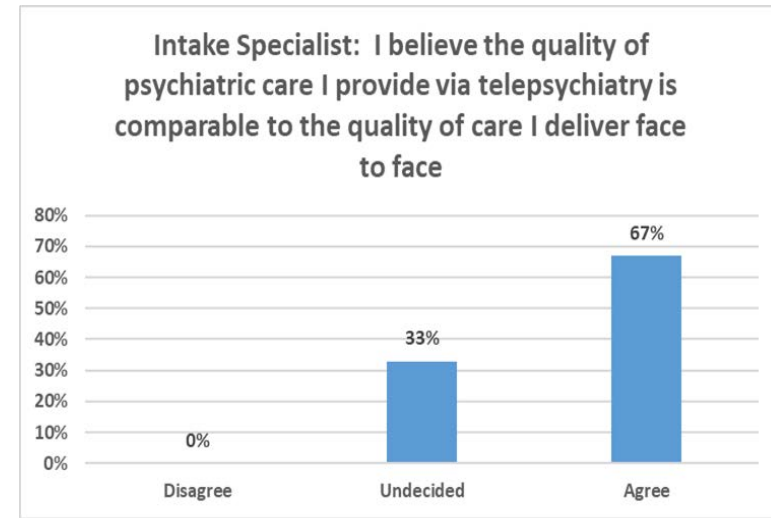
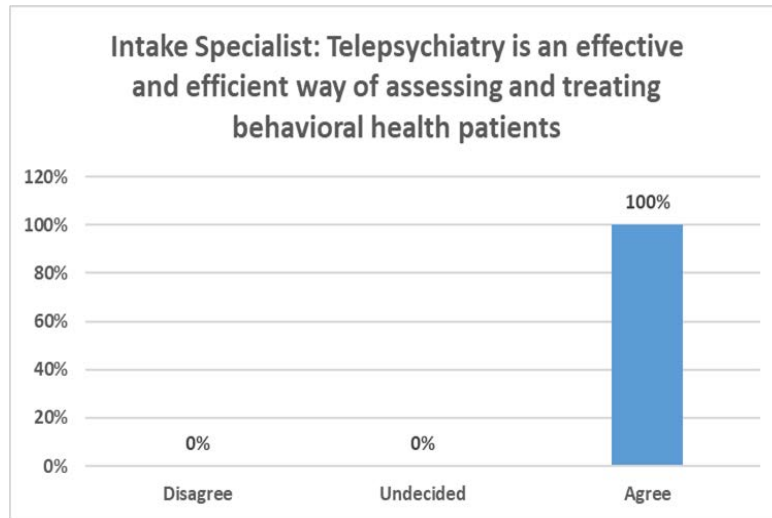
Model 1 Provider Psychiatrist Results (n= 6)



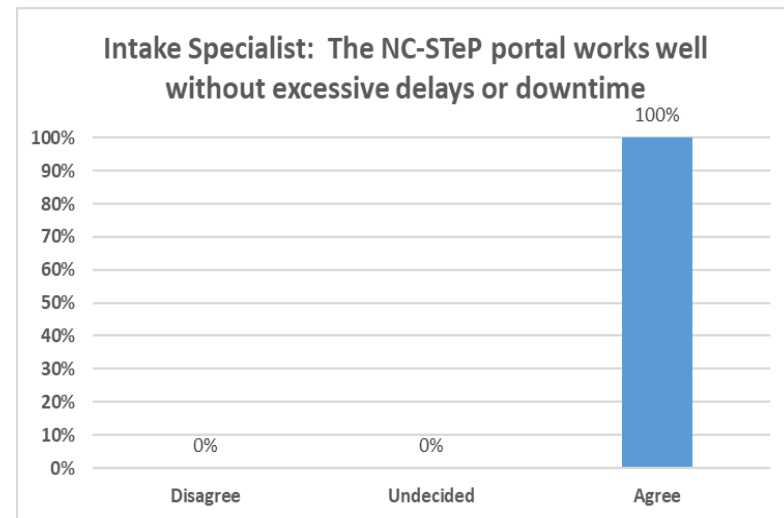
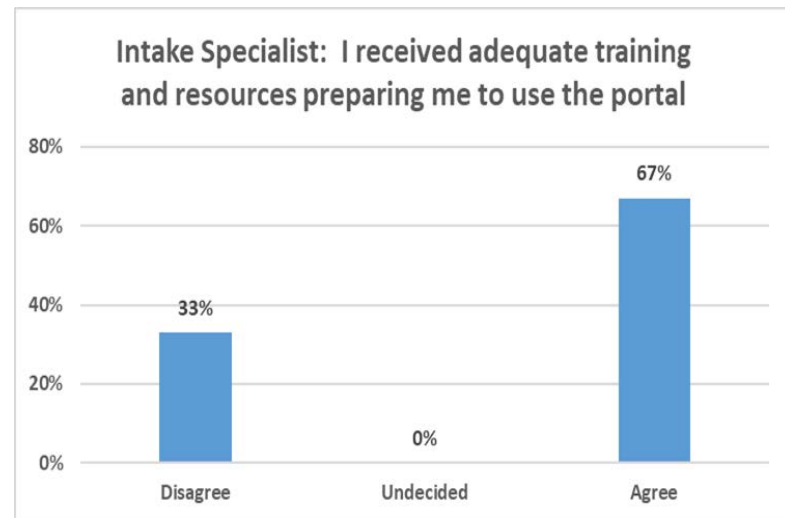
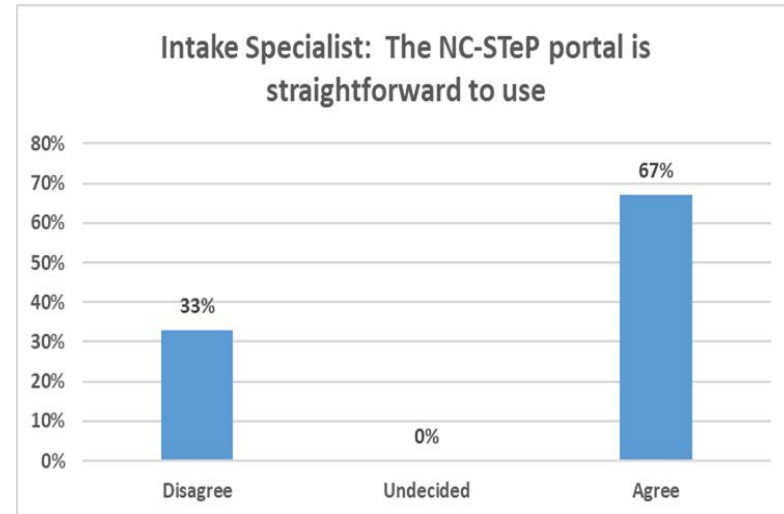
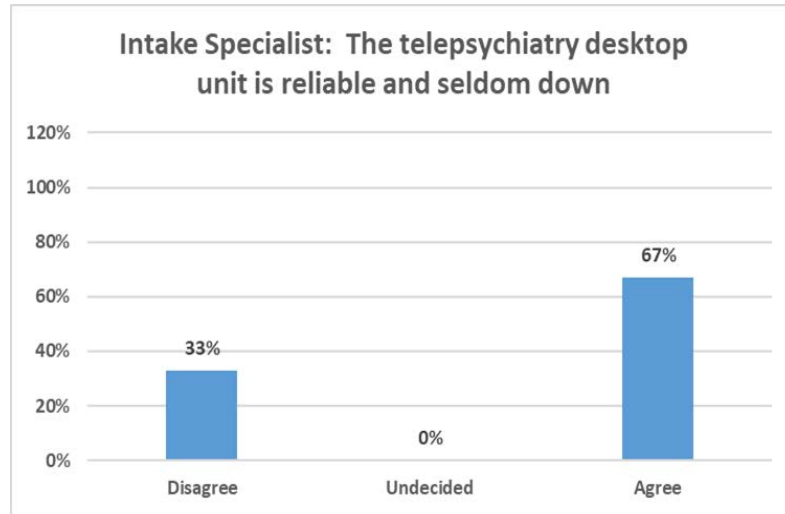
Model 1 Psychiatric Intake Specialist Results (n=3)



Model 1 Psychiatric Intake Specialist Results (n=3)



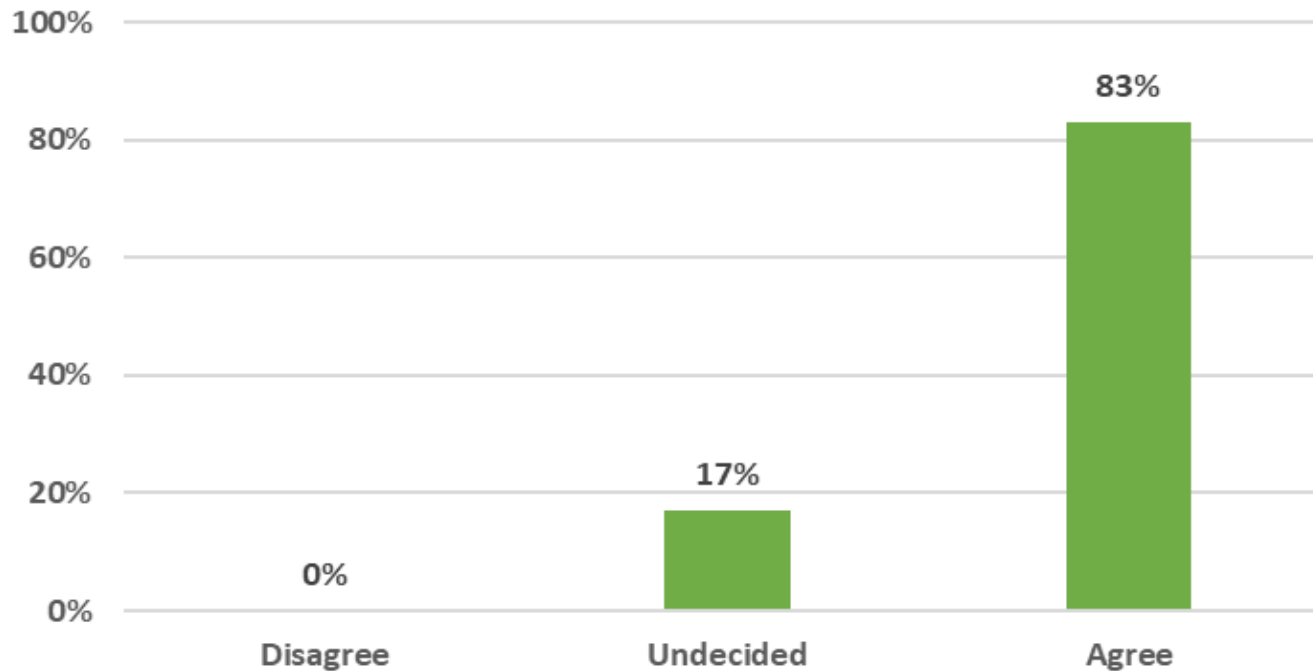
Model 1 Psychiatric Intake Specialist Results (n=3)



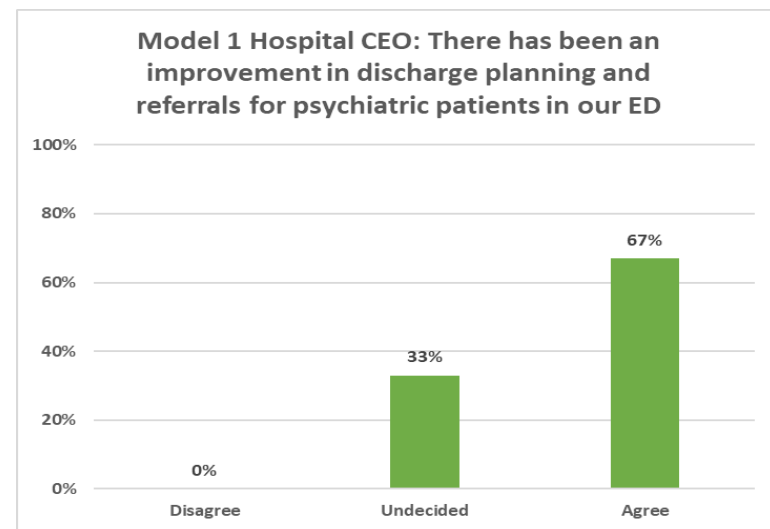
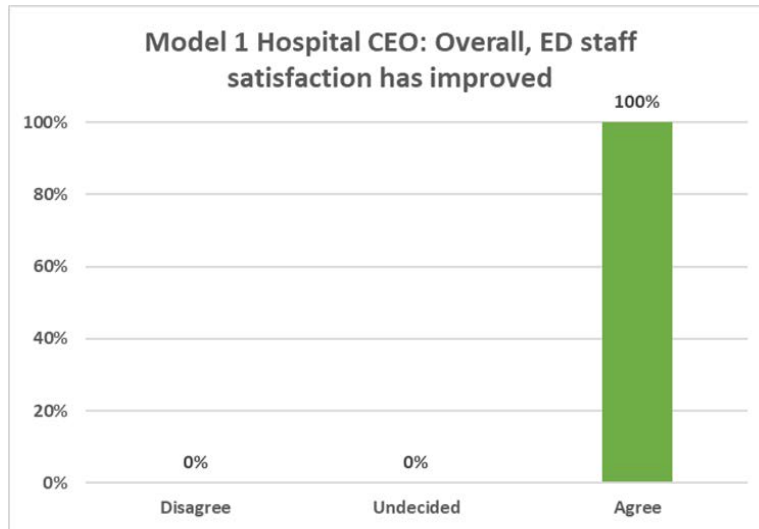
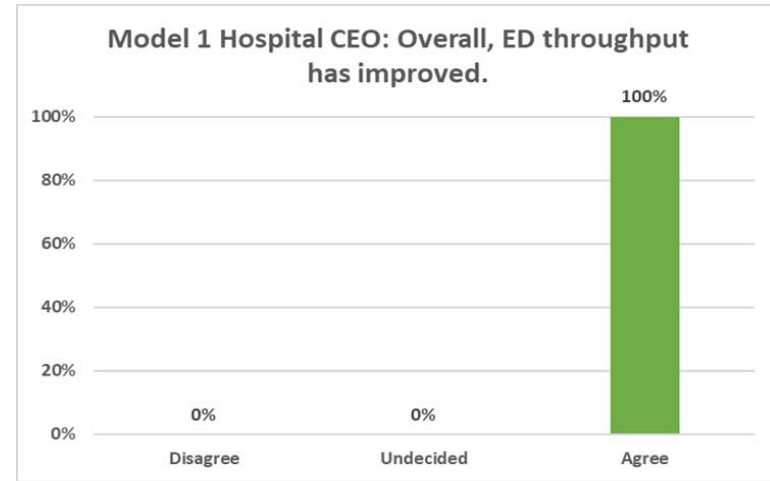
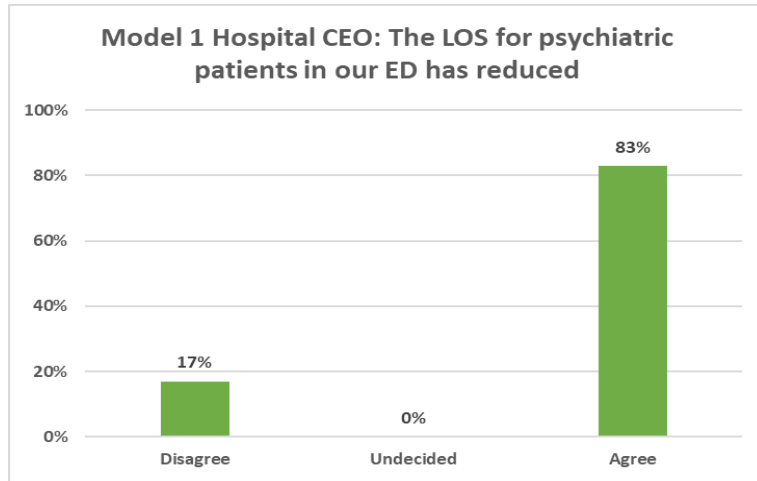
Model 1 CEO/CNO/CFO Results (n=6)

Model 1 Hospital CEO: The overall quality of care for psychiatric patients utilizing our ED has improved

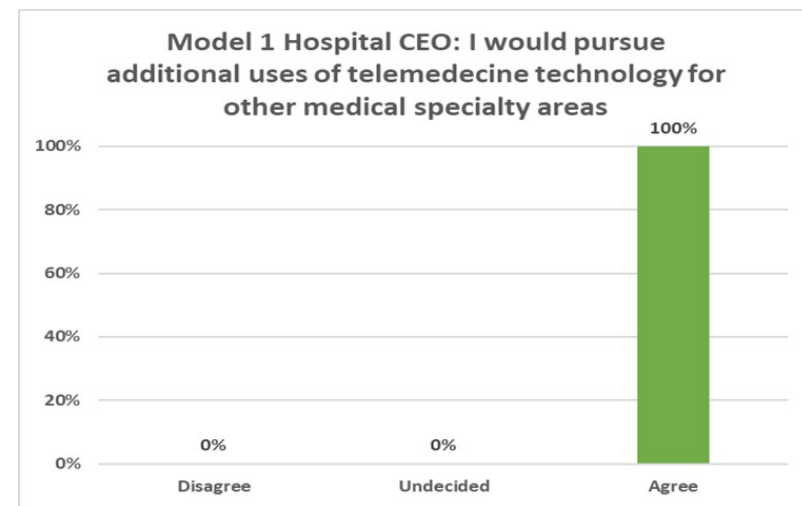
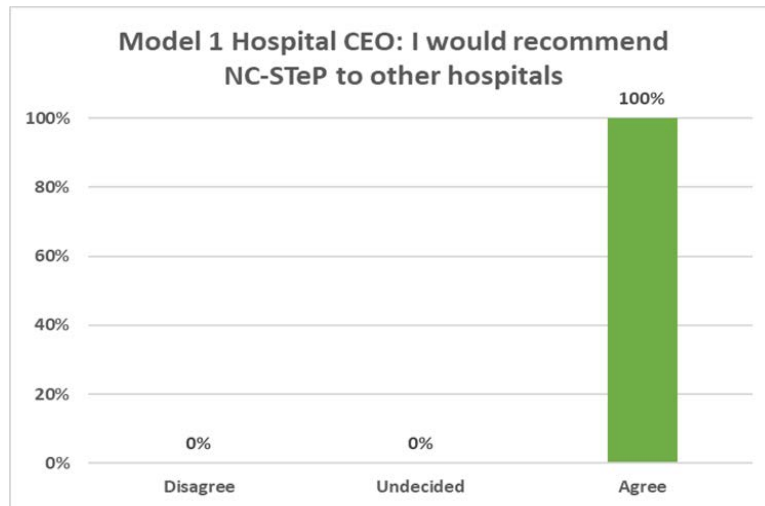
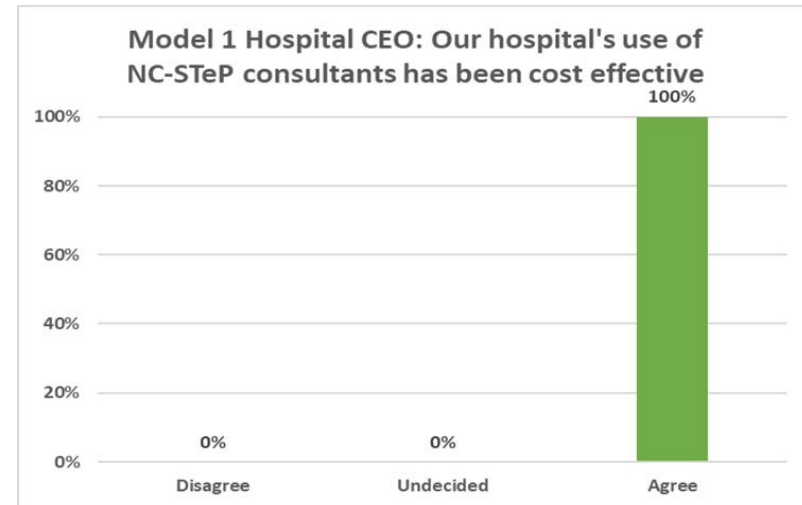
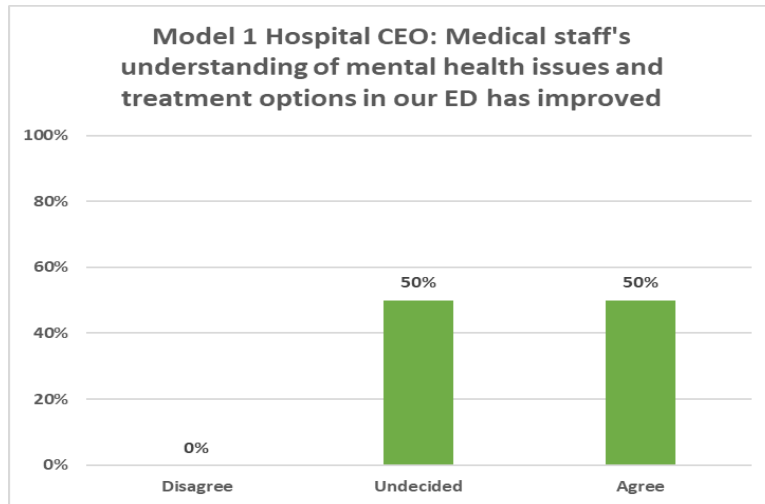
****this question used to measure overall satisfaction**



Model 1 CEO/CNO/CFO Results (n=6)

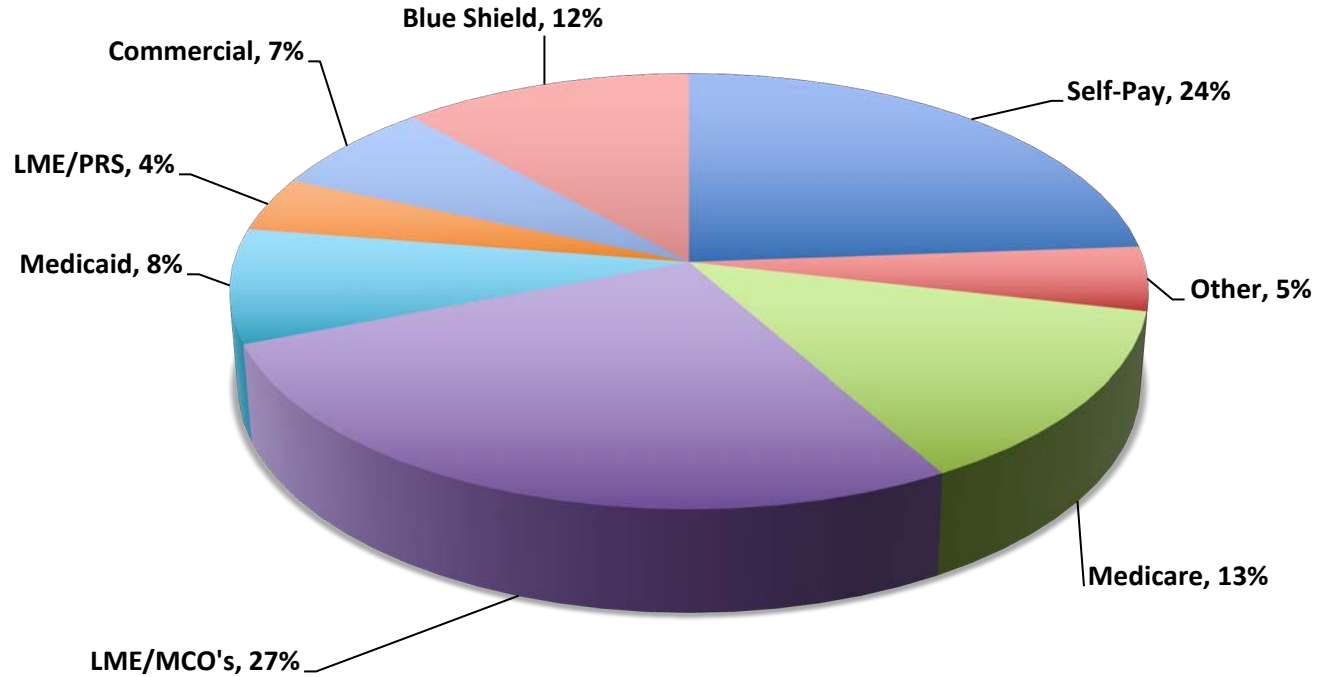


Model 1 CEO/CNO/CFO Results (n=6)



NC-STeP Charge Mix

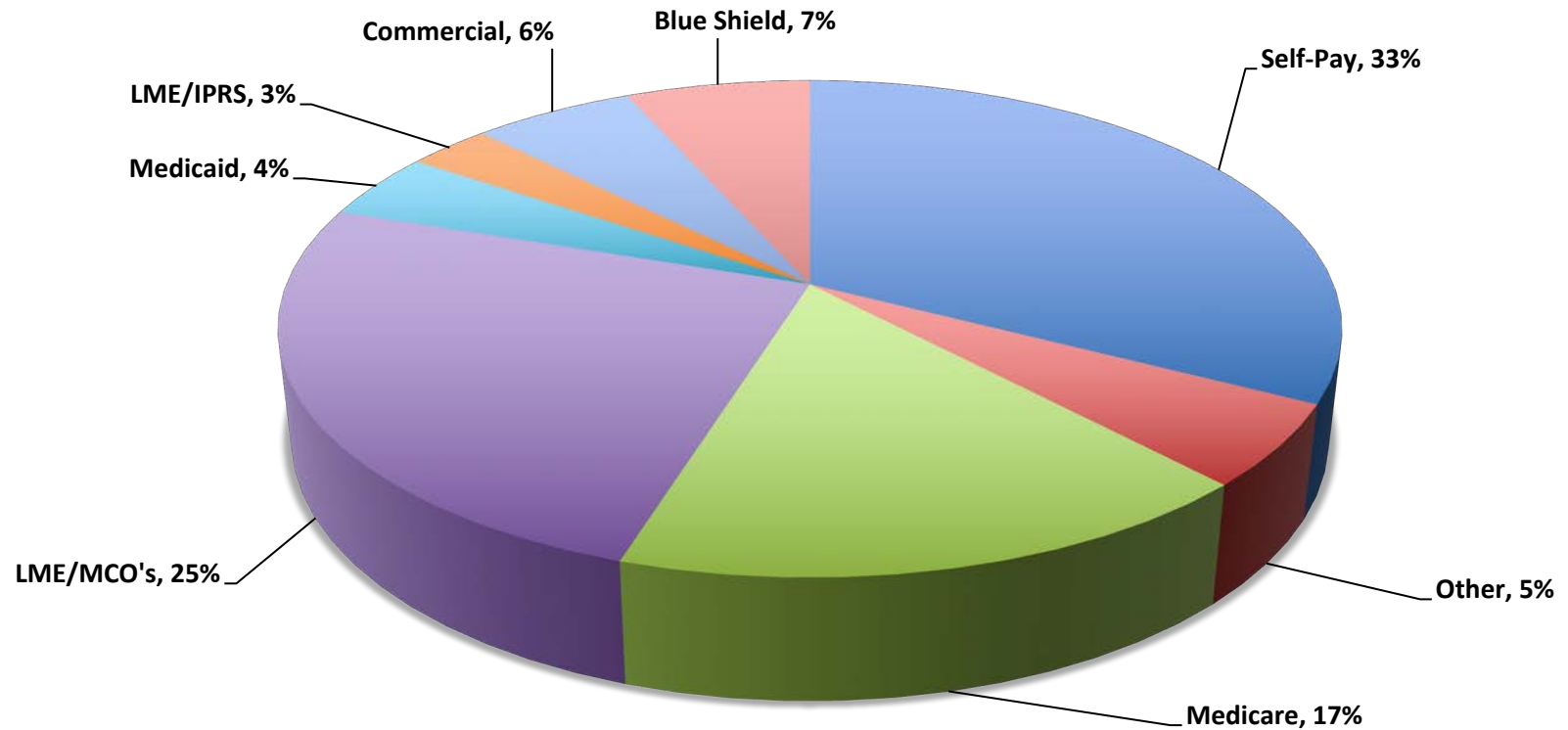
QTD FY2022 - Quarter 3



■ Self-Pay ■ Other ■ Medicare ■ LME/MCO's ■ Medicaid ■ LME/PRS ■ Commercial ■ Blue Shield

NC-STeP Charge Mix - Project to Date

Service Dates: October 1, 2013 – March 31, 2022



■ Self-Pay ■ Other ■ Medicare ■ LME/MCO's ■ Medicaid ■ LME/IPRS ■ Commercial ■ Blue Shield

NC-STeP Community-Based Sites' Patient Visits

	Since project inception in October 2018	During Calendar Year 2018	During Calendar Year 2019	During Calendar Year 2020	During Calendar Year 2021	During Quarter Jan- Mar 2022	During Quarter Apr-Jun 2022
Patient Visits with Medical Doctor	1,228	8	536	265	316	103	
Patient Visits with Mid-Level Provider	10,388	7	2,006	3,217	4,122	1,036	
Total Patient Visits	11,704	15	2,633	3,477	4,440	1,139	

Since project inception there are 93 visits that listed no provider and 5 visits that listed both a mid-level and a doctor. As a result, the number total patient visits is higher than the doctor visits and mid level visits summed.

NC-STeP Community Patient Visits

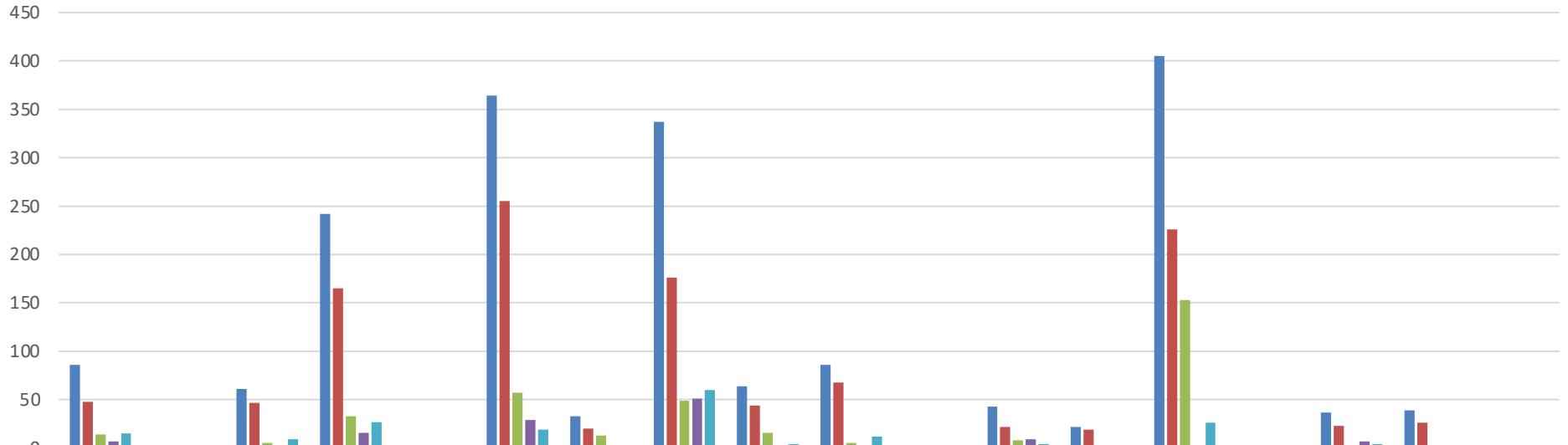
Patient Visits	Since project inception in October 2018	During Calendar Year 2018	During Calendar Year 2019	During Calendar Year 2020	During Calendar Year 2021	During Quarter Jan-Mar 2021	During Quarter Apr- Jun 2021	During Quarter Jul- Sep 2021	During Quarter Oct- Dec 2021	During Quarter Jan- Mar 2022
With Medical Doctor	1,228	8	536	265	316	77	59	71	109	103
With Mid-Level Provider	10,388	7	2,006	3,217	4,122	1,015	1,001	997	1,109	1,036
Total Patient Visits	11,704	15	2,633	3,477	4,440	1,092	1,060	1,069*	1,219	1,139

* There was 1 visit that didn't say whether it was with MD or LCSW, and it is in the total but not in the breakouts.

NC-Step Appointments by Site

Appointments, Visit Kept, Rescheduled, Cancelled, No Show

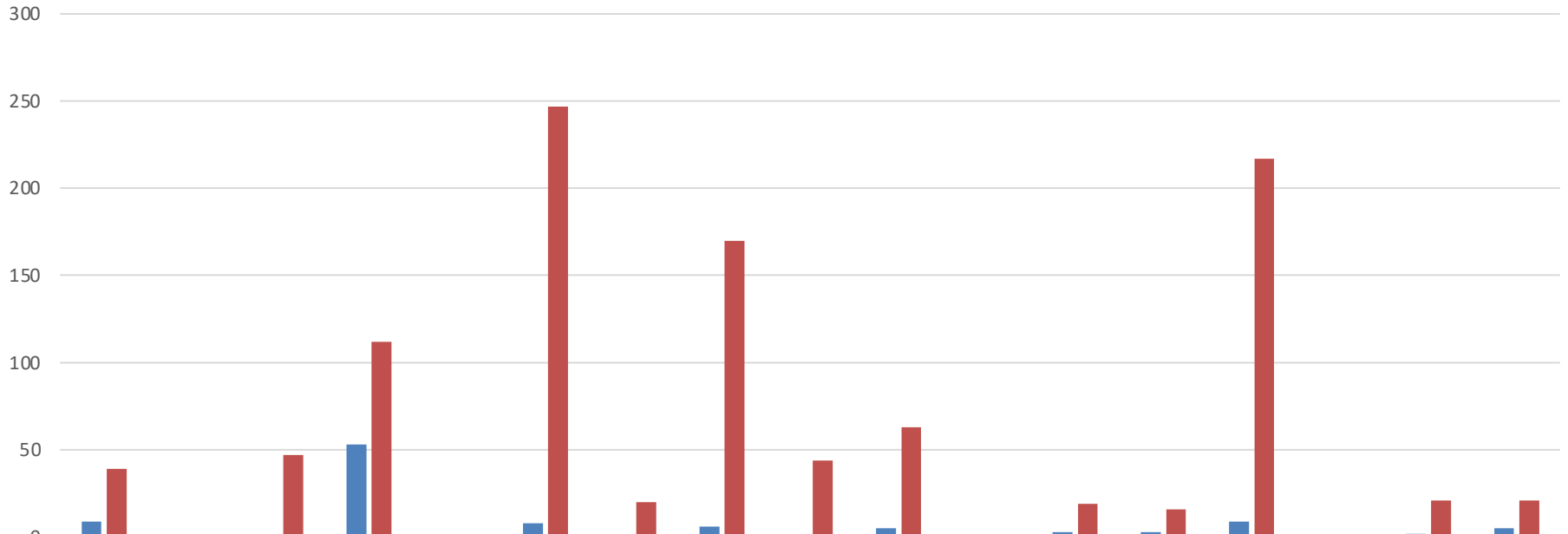
January - March 2022



	Beaufort	Bertie	Camden	Carteret	Cherokee	Chocowinity	Chowan	Craven	Currituck	Duplin	Gates	Hyde	MTW	Pasquotank	Perquimans	Vidant Kenansville	Vidant Edenton	Hertford
Total Apts	86		61	242		364	33	337	64	86		43	22	405		37	39	1
Apts Kept	48		47	165		255	20	176	44	68		22	19	226		23	26	
Apts Rescheduled	14		5	33		57	13	49	16	5		8	1	153		3		
Apts Cancelled	7			16		29		51		1		9				7		
Apts No Show	15		9	27		19		60	4	12		4	2	26		4		1

■ Total Apts
 ■ Apts Kept
 ■ Apts Rescheduled
 ■ Apts Cancelled
 ■ Apts No Show

NC-STeP Community Visits by Site by Provider Type January - March 2022

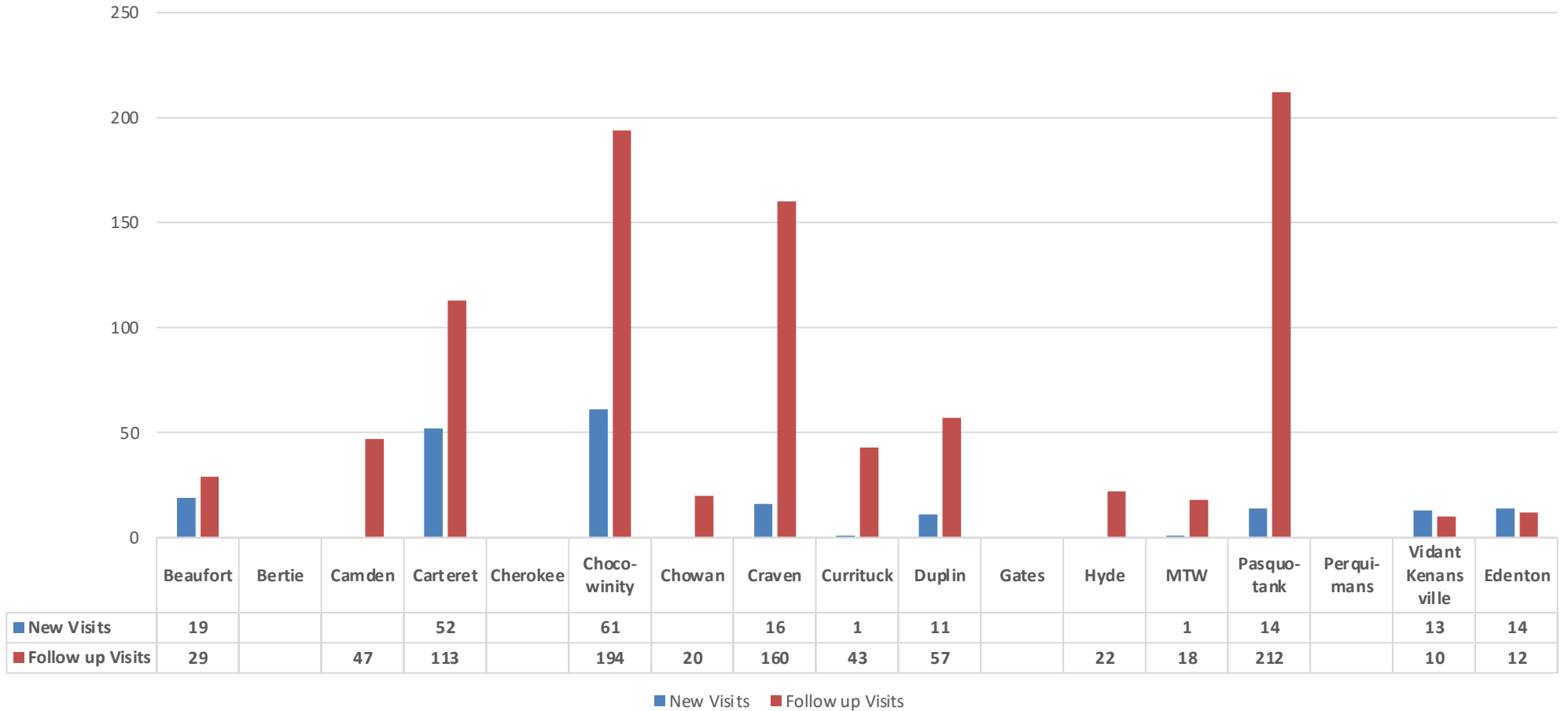


	Beaufort	Bertie	Camden	Carteret	Cherokee	Chocowinity	Chowan	Craven	Currituck	Duplin	Gates	Hyde	MTW	Pasquotank	Perquimans	Vidant Kenansville	Edenton
■ Psychiatric Provider Visits	9			53		8		6		5		3	3	9		2	5
■ BH Mgr Visits	39		47	112		247	20	170	44	63		19	16	217		21	21

■ Psychiatric Provider Visits ■ BH Mgr Visits



NC-STeP Community Visits by Site New and Follow-Up January - March 2022



NC-STeP Status as of March 31, 2022

- 39 hospitals in the network. 38 live.
- 52,764 total psychiatry assessments since program inception
- 8,392 IVCs overturned
 - Cumulative return on investment = \$45,316,800
(savings from preventing unnecessary hospitalizations)
- Four Clinical Provider Hubs with 52 consultant providers
- Over 32% of the patients served had no insurance coverage

NC-STeP Status as of March 31, 2022

- 21 community-based sites.
- 11,704 total patient visits since program inception in October 2018.
 - 1,228 total patient visits with a psychiatrist
 - 10,388 total patient visits with a mid-level provider



East Carolina University
CENTER FOR TELEPSYCHIATRY



Contact

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