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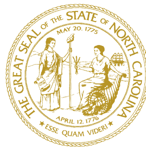


STATE OF NORTH CAROLINA
DEPARTMENT OF HEALTH AND HUMAN SERVICES

ROY COOPER
GOVERNOR

KODY H. KINSLEY
SECRETARY

February 25, 2022

SENT VIA ELECTRONIC MAIL

The Honorable Donny Lambeth, Chair
Joint Legislative Oversight Committee on
Health and Human Services
North Carolina General Assembly
Room 620, Legislative Office Building
Raleigh, NC 27603

The Honorable Jim Burgin, Chair
Joint Legislative Oversight Committee on
Health and Human Services
North Carolina General Assembly
Room 308, Legislative Office Building
Raleigh, NC 27603

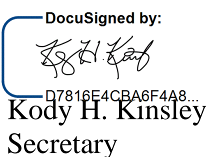
The Honorable Larry Potts, Chair
Joint Legislative Oversight Committee on
Health and Human Services
North Carolina General Assembly
Room 307B1, Legislative Office Building
Raleigh, NC 27603

Dear Chairmen:

NC General Statute §143B-139.4B, requires the Department of Health and Human Services to report to the Joint Legislative Oversight Committee on Health and Human Services and the Fiscal Research Division, on the operation and effectiveness of the Statewide Telepsychiatry Program. This annual report includes the number of consulting sites and referring sites participating in the program, the number of psychiatric assessments conducted under the program, the length of stay of patients, and number of involuntary commitments recommended. Pursuant to the provisions of law, the Department is pleased to submit the attached report.

Should you have any questions regarding this report, please contact John Furnari, Program/Policy Analyst, at John.Furnari@dhhs.nc.gov.

Sincerely,



Kody H. Kinsley
Secretary

cc: Mark Collins, Joyce Jones, Katherine Restrepo, Lisa Wilks, Amy Jo Johnson, Jessica Meed, Theresa Matula, Luke MacDonald, Nathan Babcock

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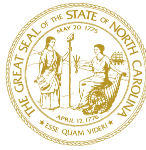

STATE OF NORTH CAROLINA
DEPARTMENT OF HEALTH AND HUMAN SERVICES

ROY COOPER
GOVERNOR

KODY H. KINSLEY
SECRETARY

February 25, 2022

SENT VIA ELECTRONIC MAIL

Mr. Mark Trogdon, Director
Fiscal Research Division
Suite 619, Legislative Office Building
Raleigh, NC 27603-5925

Dear Director Trogdon:

NC General Statute §143B-139.4B, requires the Department of Health and Human Services to report to the Joint Legislative Oversight Committee on Health and Human Services and the Fiscal Research Division, on the operation and effectiveness of the Statewide Telepsychiatry Program. This annual report includes the number of consulting sites and referring sites participating in the program, the number of psychiatric assessments conducted under the program, the length of stay of patients, and number of involuntary commitments recommended. Pursuant to the provisions of law, the Department is pleased to submit the attached report.

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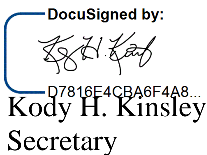

Kody H. Kinsley
Secretary

cc:	Mark Collins	Joyce Jones	Katherine Restrepo	Lisa Wilks	Amy Jo Johnson
	Jessica Meed	Theresa Matula	Luke MacDonald	Nathan Babcock	

Summary Report on SFY 2021 North Carolina Statewide Telepsychiatry Program (NC-STeP) Funds

General Statute 143B-139.4B

Report to the

Joint Legislative Oversight Committee on Health and Human Services

and

Fiscal Research Division

by the

North Carolina Department of Health and Human Services

February 25, 2022

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Executive Summary

There are 94 counties in NC that are classified as Mental Health Shortage Areas (an increase from 90 in SFY 2019). Though not designated, there are additional counties that have a very low supply of mental health professional in proportion to the population. Access to behavioral health services continues to be a statewide challenge. The use of telehealth services allows for rural and underserved communities to access healthcare providers. In keeping with the vision to lead the nation in innovation, in 2013, the North Carolina General Assembly authorized the creation of the North Carolina Statewide Telepsychiatry Program (NC-STeP).

Session Law 2013-360, Senate Bill 616, and subsequently General Statute 143B-139.4B, directed the Department of Health and Human Services'(DHHS) Office of Rural Health (ORH) to partner with East Carolina University (ECU) on a statewide telepsychiatry program. Since 2013, NC-STeP has engaged North Carolina's health care organizations to participate as referring sites in providing psychiatric assessments to patients presenting in the hospital emergency department (EDs), and more recently, at outpatient community-based clinics. ECU's Center for Telepsychiatry and e-Behavioral Health (CTeBH) originally implemented these services in hospital emergency departments (EDs); however, Senate Bill 616, in 2018, allowed for NC-STeP to expand services to community-based sites. The expansion allows psychiatric assessments and behavioral health services to be completed within the community. ORH is responsible for monitoring NC-STeP funds and performance measures. ORH ensures that the program's performance measures align with legislation, in addition to collecting, analyzing, and maintaining all documentation needed for payments, contract creation, and amendments. ORH receives reports regarding NC-STeP from ECU based CTeBH and shares relevant information with rural healthcare partners and safety net providers.

As outlined in the legislative plan, NC-STeP focused on the implementation of referring and consulting sites during its initial years. There was recurring funding of $2,000,000 that was awarded for building and maintaining the program infrastructure. In addition to state appropriations, in 2015, The Duke Endowment awarded a one-time sum of $1,500,000 for two years to pass thru ORH to increase program sites and disseminate information regarding best practices. The Duke Endowment award was not fully expended between 2015-2017, and ORH received several carryforward approvals, including approval to expand the scope to allow for expending remaining funding to establish new community-based sites. The Duke Endowment award formally concluded on June 30, 2019, with a final report of funds submitted. ORH also partnered with the North Carolina Department of Information Technology to secure additional one-time funding of $200,000 that was granted to NC-STeP to assist solely with purchasing equipment necessary for expanding community-based telepsychiatry, with this funding concluding in December 2020.

The NC-STeP budget was further impacted by Session Law 2017-57, Section 11A. 10. This law required DHHS to take a recurring reduction in the amount of $3.2 million. The provision further required DHHS not to reduce funds if doing so would impact services. This was a difficult task, as reductions in the past have typically been non-recurring. DHHS chose to reduce the NC-STeP contract by $180,000 due to historical reversions over the previous five years. NC-STeP objected to this cut and presented their

concerns to the North Carolina General Assembly. The SFY contract for NC-STeP has now totaled $1,820,000 per fiscal year.

During the SFY 2020 state budget process, the NC-STeP budget was proposed to receive an increase; however, when the final budget passed using a series of mini-budget bills, the program remained funded at $1,820,000. At this time, the SFY2021 state budget has not been approved, leaving the NC-STeP program to remain funded at $1,820,000.

The program has generated significant cost savings to the State, its partners, and external stakeholders. Although total cost savings are difficult to quantify due to the number of stakeholders, NC-STeP estimates $39,630,600 in cumulative cost savings to the State. The primary method of cost savings ECU reports from this program is the avoidance of unnecessary hospitalization through overturning unnecessary involuntary commitments. Of the 21,347 patients held under involuntary commitment and served by the program, 7,339 have been discharged for further treatment using community resources. This approach has reduced burden for patients and families and reduced cost to state psychiatric facilities, other hospitals, law enforcement agencies, government, and private payers. There are additional cost savings, as well as revenue enhancements, from impacting the throughput in the hospital emergency departments (EDs) as a result of NC-STeP having been able to significantly reduce the patients' length of stay in those EDs.

With the expansion into community-based settings, NC-STeP projects additional cost savings, although difficult to calculate, on serving patients in the community versus in the more expensive ED setting. Community-based services will provide cost savings by enhancing ED throughput, reducing law enforcement transportation costs due to fewer IVC patients, and enhancing community capacity to treat patients in the community.

In the second year of NC-STeP operation, NCDHHS and ORH incorporated a sustainability measurement tool in the contract. Without including grant support from the State and other sources, the program currently operates at a 0.35:1.00 ratio (revenue: cost). The sustainability ratio of 0.35:1.00 means that for every dollar the program spends, it can recover $0.35. The two main factors driving this ratio are the payor mix, including an average since program inception of 33% uninsured patients, about 45% of patients covered by Medicaid and Medicare, and high provider costs.

As of June 30, 2021, 40 referring hospital sites across the state were connected to NC-STeP. There are also now 16 community-based sites that have become connected. It is expected that the continual growth of the program will be drawn from community-based settings. There has also been an expansion of the consulting psychiatric sites in the past two years, which now include Carolina Behavioral Care (CBC), Cape Fear Valley Health, Mission Health, Old Vineyard Behavioral Health Services, UNC Johnston, and East Carolina University (ECU). As required by contract with ORH, ECU's CTeBH submits quarterly reports regarding specific performance measures. These can be publicly accessed at the following site: https://ncstep.ecu.edu/reports/.

In March 2020, due to the COVID-19 pandemic, DHHS determined that all non-essential staff would begin working remotely, and non-essential travel was prohibited. Session Law 2013-360 directed ORH to

conduct site visits to referring and consulting sites supported by state funding. Due to travel restrictions, ORH conducted virtual site visits in the form of phone or video calls to all Model 1 hospitals. Most ED managers and staff interviewed were satisfied with the service and the support they have received from the program and the most recent NC-STeP Satisfaction Survey (March 2021) resulted in an overall Satisfaction rating of 89%. The results of these site visits also identified some issues that require further attention, such as streamlining patient intake processes, improving wait times, and improving internet connectivity.

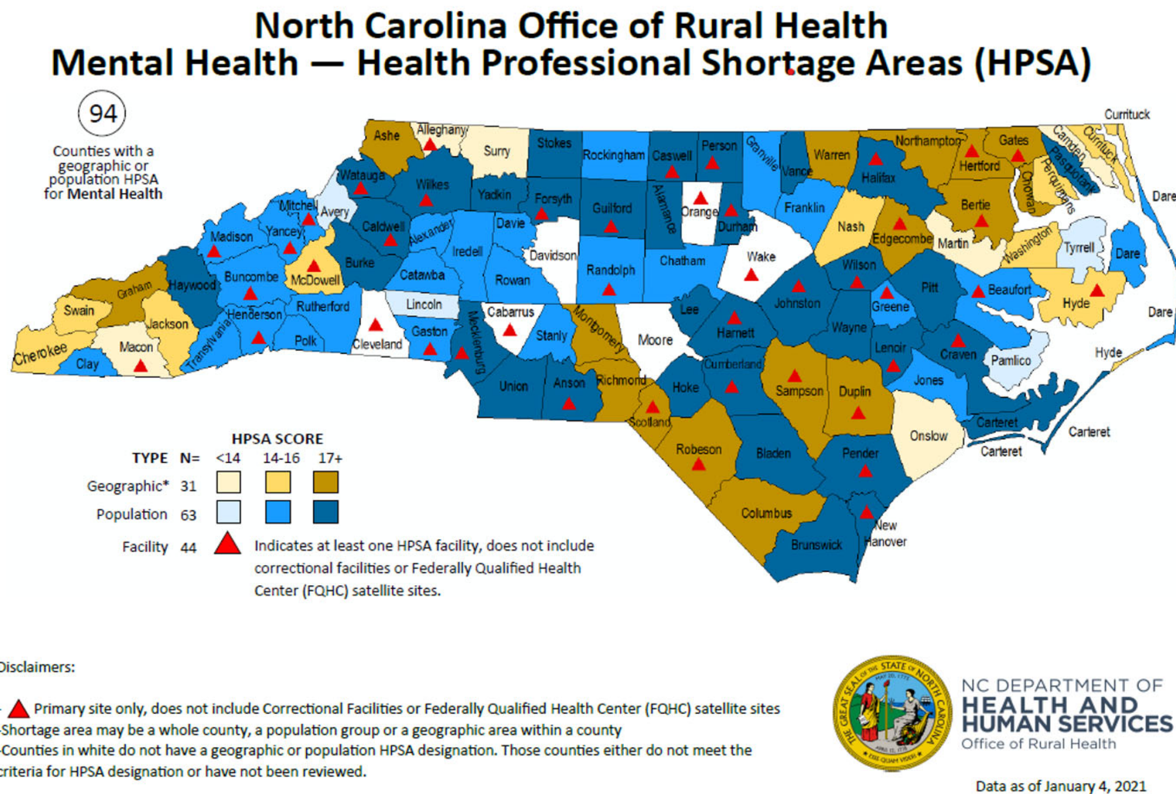
The COVID-19 pandemic has shown the importance of telehealth and how the NC-STeP program is primed to assist with the surge of mental health needs that occur during the pandemic as well as the long-term effects. As Dr. Sy Saeed, from East Carolina University (ECU), who helped lead a workgroup of stakeholders, stated in a recent interview, "Tele-mental health services are perfectly suited to this pandemic situation, giving people in remote locations access to important services without increasing risk of infection.[1]"

[1] Saeed SA. (2020) Post Pandemic Care: ECU to Address Post-Pandemic Mental Health. 2020 July 1. Retrieved 8.14.20. from https://news.ecu.edu/2020/07/01/post-pandemic-care/

Background

Overwhelmingly, rural North Carolina communities have a shortage of behavioral health providers. Areas can become designated as Health Professional Shortage Areas (HPSAs) due to very low ratios between the number of providers and an area's population. Figure 1 is a map displaying the areas that are currently designated HPSAs specifically for behavioral health professionals in North Carolina. As the map reflects, 44 of 100 counties have at least one facility-based Mental Health HPSA. In addition, 94 counties have a Mental Health HPSA based on population or geographic data.

Figure 1: Map of Mental Health Professional Shortage Areas



These behavioral health professional shortages are acutely felt by the community and contribute to increased visits to emergency department (ED) settings. When a person in the community is petitioned for involuntary commitment (IVC), a magistrate may order that the person be taken for evaluation. Many times, individuals are taken to an ED for this evaluation. However, many ED physicians do not have the training or adequate experience with psychiatric evaluations or access to psychiatrists or other qualified mental health professionals. As a result, in 2009, the North Carolina General Assembly (NCGA) passed two key pieces of legislation. One was to make a permanent program that allows other mental health professionals to conduct evaluations in the ED. The other was to allow these evaluations to be done by a physician or eligible psychologist via telemedicine. In addition to being in the ED for the initial evaluation, individuals often remain in the ED awaiting transfer to an inpatient psychiatric hospital. The average length of stay (LOS) in an ED for an involuntary patient awaiting transfer to another hospital ranges from 48 to 72 hours.[2] A

[2] The DMH Telepsychiatry Program. (2013, July 31). *South Carolina Department of Mental Health*. Retrieved August 11, 2014, from http://www.state.sc.us/dmh/telepsychiatry/

prolonged LOS can lead to other negative consequences, including increased wait times for other patients, diversion of ED staff resources, and poor patient outcomes for those needing mental health treatment.

To help address this issue, many EDs in the United States have begun to use telepsychiatry. Telepsychiatry is a modality that enables a behavioral health professional to provide a patient assessment from a remote location using live, interactive, videoconferencing in real-time. In recent years, emerging technologies in video communication and high-speed internet connectivity have created an environment that has enabled telepsychiatry networks to expand.

In the summer of 2013, the NCGA decided to replicate the success of previous telepsychiatry initiatives. Session Law 2013-360, Section 12A.2B, the NCGA directed the NC Department of Health and Human Services (DHHS) Office of Rural Health (ORH) to implement a statewide telepsychiatry program to be administered by East Carolina University Center for Telepsychiatry and e-Behavioral Health (ECU Center for Telepsychiatry). The plan was developed in collaboration with a workgroup of key stakeholders led by ECU's Dr. Sy Saeed and modeled after the Albemarle Hospital Foundation Telepsychiatry Project which was made possible by a 2010 Duke Endowment grant. This grant was awarded to implement telepsychiatry services into the EDs of Vidant Health and other hospitals, which experienced a decreased average LOS, a greater than 80% patient satisfaction rating, and a 33.6% rate in overturned involuntary commitments.[3] The initial aim of NC-STeP was to allow North Carolina hospitals to participate as referring sites or consulting sites in providing psychiatric assessments to patients experiencing acute behavioral health or substance abuse crises. NC-STeP accomplishes this through a contractual agreement between East Carolina University Center for Telepsychiatry and e-Behavioral Health (CTeBH) and ORH. ECU CTeBH implements these services in hospital emergency departments—more recently in community settings—and ORH oversees the operations of NC-STeP while monitoring the program's expenditures, hospital enrollment, and performance measures.

Telepsychiatry has proven to be a successful resource for states with rural populations lacking behavioral health resources. Other successful telepsychiatry programs include the South Carolina Department of Mental Health Telepsychiatry Program[4] and the University of Virginia Telepsychiatry Program,[5] which both continue to provide telepsychiatry services throughout their respective states.

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[3] Davies, S. (2012, August 23). Vidant Health / Duke Endowment Telepsychiatry Project. *North Carolina Institute of Medicine*. Retrieved August 11, 2014, from http://www.nciom.org/wp-content/uploads/2012/06/Bed-Boarding-Davies.pdf

[4] The DMH Telepsychiatry Program. (2013, July 31). *South Carolina Department of Mental Health*. Retrieved August 11, 2014, from http://www.state.sc.us/dmh/telepsychiatry/

[5] Telepsychiatry. (n.d.). *School of Medicine at the University of Virginia*. Retrieved August 11, 2014, from http://www.medicine.virginia.edu/clinical/departments/psychiatry/sections/clinical/telepsychiatry/telepsychiatry

Program Implementation

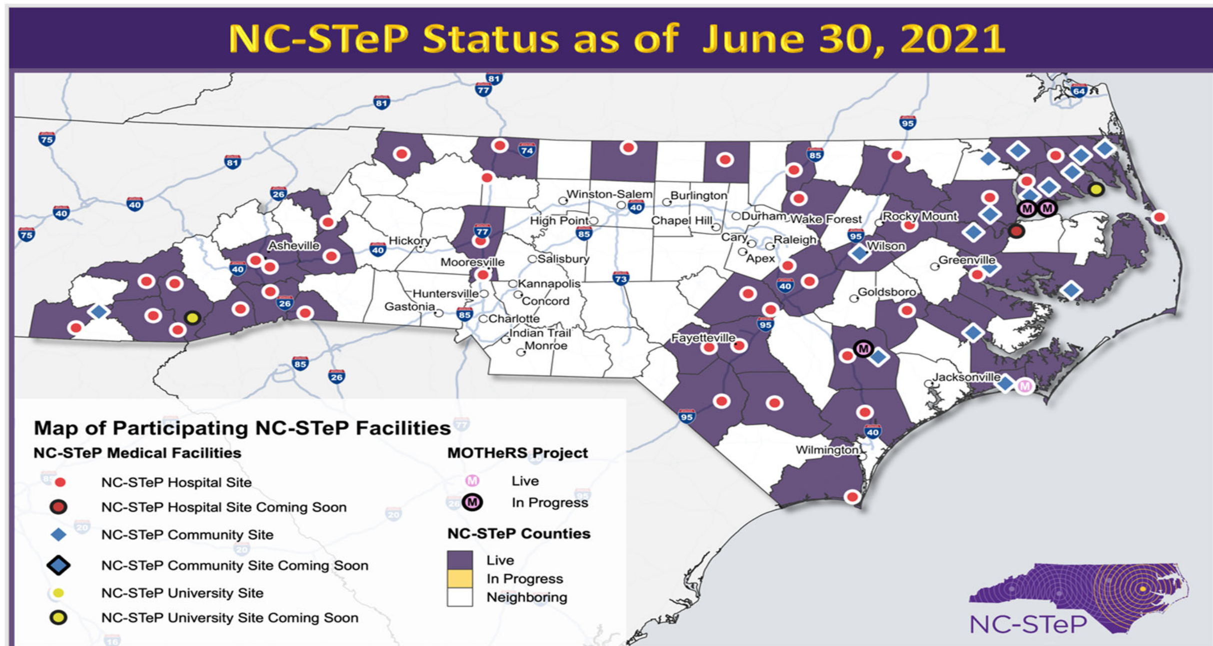
The program began October 1, 2013, with the execution of a contract between ORH and East Carolina University's CTeBH. In accordance with Session Law 2013-360, subsequently General Statute 143B-139.4B, ECU CTeBH role was to implement the service into enrolled hospitals and administer the operations of NC-STeP. As of June 30, 2021, there were 40 hospital referring sites live in the network. With Senate Bill 616 (2019-2020 Session), there are now 16 additional community-based sites working with NC-STeP psychiatric consultants.

The community-based sites, which started operations in 2019, are in the following Albemarle Regional Health Services locations at Camden, Chowan, Currituck, Pasquotank, Perquimans, Bertie, Hertford, and Gates County. Additional locations include Hyde County Health Department, Martin County Health Department, Craven County Health Department, Duplin County Health Department, Erlanger Health - Andrews, Beaufort County Health Department, Vidant Family Medicine – Chocowinity, and Carteret OB-Gyn Associates. There was no increase in legislative funding for this community-based expansion.

NC-STeP obtained supplemental funding from the Fullerton Foundation Grant to begin services in the Macon County Health Department. The MOTHeRS Project from United Healthcare Foundation allowed for 3 community sites: Carteret Community site is live with Edenton and Kenansville in the process of going live. The United Healthcare Foundation funding covers all telepsychiatry cost associated with these 3 sites for one year.

During SFY 2019, there were 2 additional consulting sites enrolled in the program, bringing the total of consulting sites to 8, however 2 of the Model 2 consulting sites terminated in SFY 2021, bringing the total number of consulting sites to 6. These consulting sites include Carolina Behavioral Care (CBC), Cape Fear Valley Health, Mission Health, Old Vineyard, UNC Johnston and ECU. A complete list of the live and enrolled hospitals can be found in Appendix A of this document. Figure 2 displays the most recent map of site locations for telepsychiatry referring sites (EDs) and consulting sites (provider hubs).

Figure 2: Map of NC-STeP Enrolled Sites



NC-STeP anticipates to “graduate” more of the Model 2 hospitals in coming years. Model 2 hospitals are the hospitals that utilize their own psychiatrists for providing consultations in their EDs. These hospitals initially joined NC-STeP to develop or enhance expertise in telepsychiatry and to receive technical assistance from the program, in addition to one-time funding for equipment. At a point when these hospitals are comfortable sustaining the telepsychiatry operations on their own, without technical assistance from NC-STeP, they can choose to “terminate” the contract with NC-STeP. NC-STeP considers such terminations as a success story and refers to them as “graduation” from NC-STeP for these Model 2 hospitals.

State funding was essential to the creation of the statewide telepsychiatry program. Leaders of NC-STeP also pursued additional funding from The Duke Endowment to expand the program. The Duke Endowment awarded $1.5 million as a pass thru, in which ORH would disburse the funds from SFY 2015 to 2018. Through this award, NC-STeP expanded services to additional referring sites. The Duke Endowment funding was used for ORH overhead to meet the unfunded requirements of SL 2013-360. This funding also supported the dissemination of best practices of telepsychiatry through technical assistance, an informational website, provider training modules, publications, and conference presentations. The Duke Endowment contract was under a no-cost extension that ended June 30, 2019.

With funding from The Duke Endowment concluding, ORH proactively sought and received approval to use a share of its Health Resources and Services Administration (HRSA) funds (totaling approximately $82,800 for salary, fringe, and benefits) to support a portion of an ORH staff position's time to oversee NC-STeP, since many Critical Access Hospitals benefit from these services. Currently, ORH does not receive any state appropriations to support the legislatively mandated oversight functions.

Performance Measures

As required by contract with ORH, ECU’s CTeBH submits quarterly reports regarding specific performance measures. Most performance measures were defined in SL 2013-360, Section 12A.2B and are displayed in Table 1 with their respective targets and outcomes. DHHS also incorporated additional measures pertaining to user satisfaction and sustainability.

Some performance measures are designed for measuring the program's impact but are not in the direct control of program administrators. One of these performance measures pertains to length of service (LOS) times. Average LOS times are often skewed due to outlying patients with complex medical and behavioral needs. To clarify the impact of these outliers, the median LOS time was also calculated and provided. Additionally, the program now reports the average "elapsed time" for the consultations performed, which is a measure of time it took for a consultation to be completed from the point of patient referral to the program to the completion of the consultation. The elapsed time is a measure of the time it takes for NC-STeP to start and finish a consult once a referral is received from an emergency physician. The total elapsed time currently is 3 hours and 56 minutes.

Table 1: NC-STeP Performance Measurements

EVALUATION CRITERIA	BASELINE AS OF 3/31/2020	TARGET TO BE REACHED BY 6/30/2021	REPORTED MEASURES AS OF 06/30/2021
The number of full-time equivalent (FTE) positions supported by these contracts	4.02 FTEs	4.30 FTEs	4.10 FTEs
The number of overturned involuntary commitments (inpatient admission prevented)	711	505	QTD = 323 YTD = 1,236 PTD = 7,339
The number of participating consultant providers	48	48	42
The number of telepsychiatry assessments conducted	5,105	4,251	QTD = 1,406 YTD Total = 5,249 PTD Total = 48,322
The number of telepsychiatry referring sites	58	48	41 (40 Live)
The reports of involuntary commitments to enrolled hospitals	2,061	1,700	QTD = 799 YTD Total = 3,090 PTD Total = 21,347
The average (mean) Length of Stay for all patients with a primary mental health diagnosis across all dispositions††	55 hours	55 hours	QTD Average = 53.5 QTD Median = 29.0
The rate of "satisfied" or "strongly satisfied" among emergency department staff participating in NC-STeP	80%	80%	Satisfaction surveys not conducted this quarter *
The rate of "satisfied" or "strongly satisfied" among hospital CEOs/COOs participating in the statewide telepsychiatry program	100%	100%	Satisfaction surveys not conducted this quarter *
The rate of "satisfied or "strongly satisfied" among consulting (hub) providers participating in the statewide telepsychiatry program	100%	100%	Satisfaction surveys not conducted this quarter *
The rate of "satisfied or "strongly satisfied" among emergency department physicians participating in the statewide telepsychiatry program	85%	85%	Satisfaction surveys not conducted this quarter *

The ratio of overall revenues (billing, subscription fees), exclusive of grant funding, to program costs (exclusive of start-up costs)	0.36:1.00	>1.00:1.00	QTD = 0.20:1.00 YTD = 0.19:1.00 PTD = 0.39:1.00
Cumulative return on investment to state psychiatric facilities through overturned IVCs (inpatient admissions averted)	$3,839,400	$3,213,403	QTD = $1,744,200 YTD = $6,674,400 PTD = $39,630,600

†† Length of stay begins when the patient is admitted to the ED and ends when the patient is discharged from the ED
* Satisfaction survey are completed twice a year. The most recent survey was completed in March 2021 that reported an overall satisfaction level of 89%.

Currently, there are no performance evaluation criteria for community-based sites, as these will have to differ from hospital evaluation points. For the program and the state to make data-driven conclusions, such as savings and impact, the following evaluation criteria have been selected to monitor.

EVALUATION CRITERIA	BASELINE VALUES/MEASURES AS REPORTED ON 3/31/2020	VALUES/MEASURES REACHED AS OF 06/30/2021
1. Number of full-time equivalent (FTE) positions supported by the contract	0.70 FTEs	0.70 FTEs
2. Number of community-based sites contracted	8	16
3. Number of patient visits with medical (psychiatric) doctor	81	QTD= 58 YTD= 268 PTD= 944
4. Number of return visits	524	QTD= 832 YTD= 3,208 PTD= 6,540
5. Number of patient visits with a mid-level provider	613	QTD= 1,002 YTD= 3,714 PTD= 7,247
6. Number of new patient visits	169	QTD= 211 YTD= 751 PTD= 1,700

Site Visit Results

ORH was unable to complete the required face-to-face site visits to all state-funded hospital sites implementing NC-STeP due to COVID-19 travel restrictions. As a result, ORH conducted virtual site visits in the form of phone calls to all Model 1 hospitals. Of the 23 Model 1 hospitals, 20 were successfully contacted for the site visits. Phone calls are imperfect substitutes for in-person site visits, yet the information collected still provides valuable insight on the implementation and impact of NC-STeP.

Most ED managers and staff interviewed were satisfied with the service and the support they have received from the program and the most recent NC-STeP Satisfaction Survey (March 2021) resulted in an overall Satisfaction rating of 89%. An overwhelming majority found no glaring issues with the physical equipment or the web portal. Structured questions revealed the majority felt they had received adequate training, were comfortable with using the technology, and believed they could perform their jobs better with NC-STeP. The results of these site visits have also identified issues that require further attention. The primary issues discussed during the site visits are summarized below:

Availability of Service –Several sites informed ORH that they wished NC-STeP services were provided for extended hours. Currently, consulting sites offer telepsychiatry services from 8 AM to 6 PM. One hospital reported that more often than desired, patients who were in queue from noon were turned away at 4 PM and required to wait until the next day for a consultation.

Connectivity –Several sites are currently using the telepsychiatry cart's wireless capability to connect to the internet. However, due to the density of building materials used in hospital construction and the lack of high-powered wireless technology in some areas, staff members have trouble connecting to the local wireless network. Other sites connect the telepsychiatry cart to the internet via a cable and wall jack, but this is only possible if wall jacks are available in the patient's room. In addition, some sites have reported difficulty connecting to the consulting provider's machines or Zoom when conducting the consultation. Others have experienced the web portal freezing during intake and were required to restart the information entry process. These connectivity issues have decreased user satisfaction.

Communication with Providers –Several sites reported that a lack of communication between the referring site and the consulting site caused challenges in deciding recommendations for the patients. Referring site providers find it difficult to talk to the providers about patient progress or ask for more detail on their recommendations because consulting providers often do not provide a call-back number and speak only with the patient during consultations. One ED director mentioned that patients often share information with referring site providers that they do not always share with consulting site providers and expressed that improved communication between the providers could enhance the quality of care. Another ED director suggested that scheduling the consultations or at least giving site providers prior notice for when the consultation will occur would be helpful in improving communication as well.

Intake Process—Several locations expressed that the intake process for the web portal was lengthy, complicated, and restricted. The intake process can take upwards of 45 minutes to sign on and input all patient information, and several ED directors requested an evaluation for which information is truly necessary for the intake process. One hospital explained that the web portal has no capability to upload a packet of over 12-20 pages and requires an extra step to fax information to the NC-STeP provider. Additionally, the section that asks for involuntary commitment (IVC) status only allows the application to go through if the answer is "NONE" for each of the questions, even if most patients are indeed IVC status.

Wait Time—A common concern voiced by respondents was an increasingly long wait time after all intake processes are completed. Most hospitals found that many patients are admitted in the late morning or early afternoon yet find themselves waiting until the next day to meet with the provider. One hospital observed that the delay time has lengthened recently compared to pre-COVID times.

Physician Credentialing - Each physician at a consulting site must be credentialed by the referring site to provide services to that site. The physician credentialing process usually takes between 3-6 months for each facility, which delays program implementation. This administrative burden is especially present in rural hospitals or small hospitals, which often do not have the resources to dedicate staff for credentialing as well as in the community-based sites.

Length of Stay – The NC-STeP program has reduced the ED length of stay (LOS) significantly when compared to the NC Healthcare Association (NCHA) data on file.[6] There are many factors that affect patient LOS, some of which are beyond the ED and NC-STeP's control. Despite the use of telepsychiatry, a patient's LOS can vary and remain above average depending upon discharge disposition. Patients with complex medical needs, in addition to behavioral health needs, can expect to remain in the ED longer. A patient not under involuntary commitment may be sent home; however, patients who remain under the involuntary commitment process must await placement in an appropriate facility. This process often takes up to 48 hours and can be even longer if the patient is an adolescent. Pediatric patients have an even more difficult time finding discharge locations due to the limited amounts of services and supports in the state.

Community-Based Support Services – Several hospital sites noted that having a psychiatric evaluation is helpful in overturning an IVC or obtaining medication. If the patient is released from the hospital without any additional follow-up care in the community, the patient often returns to the ED in crisis. Hospitals would like additional options for community-based treatment sites to refer to patients.

All these issues have been present since the start of the program and have affected the speed of program implementation and user satisfaction. ORH has been in discussion with NC-STeP and its Advisory Council to resolve these issues, but many of them are outside of the scope and control of the NC-STeP program and some will require additional funding and stakeholders.

During the Advisory Council meetings, rising uncompensated care has been shared as one of the biggest threats to this program. The program contractor (ECU) is unable to bill over 30% of the patients that using the service due to lack of health insurance coverage. The expansion of Medicaid under the Affordable Care Act (ACA) could have a significant positive financial impact on this program.

Despite various areas of improvement, many hospitals reported that without NC-STeP they would not be able to provide appropriate medical and psychological care for their community, especially in response to an increasing number of behavioral health patients. Many ED directors were very satisfied with NC-STeP's responsiveness and collaboration whenever they reported any technical issues or other concerns.

Financial Report

The North Carolina General Assembly originally appropriated a recurring annual sum of $2,000,000 for this initiative. The initial use of funds included: 1) entering into a contract with ECU's CTeBH, 2) purchasing the necessary equipment for hospitals and consulting sites participating in the program, 3) building administrative and clinical infrastructure for the program, 4) establishing policies and procedures for the clinical operations and training, 5) designing and implementing a functional web portal, and 6) supporting under and uninsured patients. The current primary emphasis is to bring additional sites online over the next year with the web portal implemented at each site.

Session Law 2017-57, Section 11A. 10. required DHHS to take a recurring reduction in the amount of $3.2 million. The provision further required DHHS not to reduce funds if it would impact direct services. This was a difficult task for DHHS, as reductions in the past have typically been non-recurring, making them easier to manage by identifying one-time dollars. DHHS chose to reduce the NC-STeP contract by $180,000 due to historical reversions over the previous 5 years. NC-STeP objected to this cut and presented their concerns to the North Carolina General Assembly. The SFY 2019 contract for NC-STeP totals $1,820,000 resulting from budget reduction.

During the SFY 2020 state budget process, the NC-STeP budget was proposed to receive an increase; however, when the final budget passed using a series of mini-budget bills, the program remained funded at $1,820,000. During the SFY 2021 budget year, ORH maintained the $1,820,000 program budget.

In addition to State funds, The Duke Endowment also awarded a sum of $1.5 million to ORH to support NC-STeP through funding additional equipment and additional sites. It also enabled the program to identify and disseminate information regarding best practices. This award supported program augmentation for 5 years.

DHHS also received an additional $200,000, one-time transfer from the Institute of Museum and Library Services from the NC Department of Information Technology, to expand telepsychiatry services into community settings. A Memorandum of Agreement ("Agreement" or "MOA") was made and entered by and between the North Carolina Department of Information Technology, an agency of the State of North Carolina hereinafter referred to as "NC-DIT," and ORH to distribute these funds to East Carolina University for Telepsychiatry and e-Behavioral Health to expand NC-STeP. These funds were used to equip new community sites with computers, technology, and related items, as well as to support the development and implementation of the community site web portal housed in the existing NC-STeP web-based technology. This new community site web portal will allow seamless scheduling and exchange of health information records regardless of the EHR platform used by the community site.

In supporting the augmentation of the NC-STeP program, The Duke Endowment funding supported a portion of a staff position to conduct the legislatively mandated program monitoring and fiscal oversight. When the Duke Endowment funding concluded, ORH secured permission to use a portion of the Health Resources and Services Administration Medicare Rural Hospital Flexibility Program funds to continue to support a portion of an ORH staff position's time to oversee NC-STeP, since the majority of critical access hospitals benefit from these services.

NC-STeP estimates that the program will require an annual $2,000,000 for ongoing implementation and maintenance, not including the costs associated with the new community-based telepsychiatry programs.

NC-STeP continues implementation while transitioning into ongoing management, evaluation, and program expansion phases. With the amendment to GS 143B-139.4B in June 2018, NC-STeP has expanded its telepsychiatry beyond emergency departments and into community-based settings, which shows an emphasis on staffing and provider support with the continued growth of the program. Table 2 summarizes the anticipated budget detail of state-appropriated funds for SFY 2021 (Year 8) compared to accrued SFY 2021 (Year 8).

Table 2: NC-STeP SFY 2020 and 2021 State Budget Detail

Category	Narrative	Budgeted Year 8 SFY 2021 7/1/20 – 6/30/21	Accrued Year 8 SFY 2021 7/1/20 – 6/30/21	Budgeted Year 9 July 1, 2021 – June 30, 2022
Capital Equipment	Telepsychiatry Equipment	$0.00	$0.00	$0.00
Operating Expenses	Provider Support, Indirect Cost, Travel, Indigent care	$887,516	$880,160	$807,080
Staffing	Employee Salaries/Wages	$692,484	$699,840	$772,920
Telepsychiatry Web Portal	Web Portal/Health Information Exchange	$240,000	$240,000	$240,000
Total		**$1,820,000**	**$1,820,000**	**$1,820,000**

The program has resulted in significant cost savings to the State, its partners, and external stakeholders. ECU's CTeBH reports the primary method of cost savings from this program is overturning unnecessary involuntary commitments. Of the 21,347 patients held under involuntary commitment and served by the program, 7,339 have been discharged into their communities to receive treatment using community resources. This has reduced burden to patients and their families and lowered costs for state psychiatric facilities, other hospitals, law agencies, government payers, and private payers. Although total cost savings are difficult to quantify due to the number of stakeholders, NC-STeP estimates $39,630,600 in cumulative cost savings to the State.

The expansion into community-based settings will also contribute significantly to state cost savings. Although these cost savings will also be difficult to quantify due to the nature of services, allowing psychiatric consultation within the community will reduce the number of ED visits and stays for behavioral health concerns. The focus of savings will now be focused up-stream and within the patient's community versus during an emergent crisis, saving the North Carolina Healthcare systems more than can be easily calculated by this program.

Next Steps

Overall, NC-STeP has had a successful first 8 years, but there is still much to be accomplished. The SL 2013-360 was recodified as G.S. 143B-1494B (a)(1b) by Session Laws 2018-44, s. 15.1, effective July 1, 2018. The NC General Assembly shows continued support with legislative changes and continued funding for the NC-STeP program. The program has shown significant cost savings to NC hospitals that do not have psychiatric services available otherwise.

The leveling of hospital-based telepsychiatry sites happened in SFY 2020 at approximately 51 sites, with that number dropping to 40 in SFY 2021. This is consistent with the 2012-13 original proposal to the legislature that suggested that 59 hospital sites (of 108 hospitals in North Carolina) may need a program like NC-STeP. When new hospital sites are added, this is sometimes countered by existing hospital sites choosing to stop services or develop in-house psychiatry services. NC-STeP considers hospitals' development of in-house psychiatric services a success due to NC-STeP's initial support of hospitals developing local expertise and comfort in providing psychiatric services. As described earlier, NC-STeP refers to this as "graduating" a hospital from the program to become self-sustaining. This allows NC-STeP to free up funds for developing new community-based sites.

The growth of the program will come from expanding community-based sites. The evaluation of these sites is challenging as the program captures individuals before a mental health crisis that requires a hospital-level IVC assessment. If the community sites are preventing an unnecessary hospital-based IVC assessment, then cost savings are realized by preventing an IVC from occurring. This upstream approach aligns with the DHHS Healthy Opportunities initiative, as well as Medicaid Transformation, to address health before it progresses to high-cost services and time for both individuals and providers.

The expansion of NC-STeP to community-based settings represents a new telepsychiatry delivery model for the program. The community-based sites are located in the following locations:

- Albemarle Regional Health System: Camden, Chowan, Currituck, Pasquotank, Perquimans, Bertie, Hertford and Gates
- Hyde County Health Department
- Martin County Health Department
- Craven County Health Department
- Duplin County Health Department
- Erlanger Health -Andrews
- Beaufort County Health Department
- Vidant Family Medicine – Chocowinity
- Carteret OB-Gyn Associates
- Edenton and Kenansville (going live soon)

In conjunction with primary care and a behavioral health provider at the referring site, NC-STeP will provide psychiatric consultation as well as direct patient care. This approach affords an opportunity for rural partners to maintain patients in the community rather than send them far distances or to the ED for care.

The Telepsychiatry Web Portal has been developed,[6,7] and ECU's CTeBH is implementing it to all sites as part of the go-live process. The web portal enables provider scheduling, billing, and exchange of health information, allowing hospitals and community-based sites to transmit clinical outcomes to CTeBH. The contract between ORH and ECU's CTeBH will continue to allow expenses for annual hosting and maintenance costs.

Program Developments for SFY 2022

The COVID-19 Pandemic is continuing to have an impact on patient's mental health and these issues will continue throughout SFY 2022. As the founding head of the NC-STeP Program, Dr. Saeed offers the following insights and predictions:

> The coronavirus disease 19 (COVID-19) pandemic has impacted lives globally, posing unique challenges in all walks of life and for all fields of medicine. With the pandemic affecting lives in so many ways, psychological endurance is a challenge that many will continue to face in the coming months. Physical and social isolation, the disruption of daily routines, financial stress, food insecurity, and numerous other potential triggers for stress response have all been intensified due to this pandemic, setting up a situation in which the mental well-being and stability of individuals is likely to be threatened. The uncertain environment is likely to increase the frequency and/or severity of mental health problems worldwide. North Carolina will be no exception. It has also been widely discussed by professional organizations that a surge in mental health and substance use disorder patients, both during the pandemic and in its aftermath, is likely. A national poll released by American Psychiatric Association in late March found that more than 36% of Americans say that coronavirus is having a serious impact on their mental health.[8] The long-term impact of COVID-19 on mental health and well-being is likely to take months before it becomes fully apparent. In the meantime, managing this impact will require a concerted effort from the health care system at large, not just from mental health care providers.

It will be important to identify patients with existing illnesses who present in acute crisis, to diagnose new cases of mental illness in individuals not previously diagnosed, and to provide support for those who do not meet criteria for a mental disorder but will need therapy. Increased screening will be necessary for these 3 groups to be identified and services made available. Once patients have been identified, the appropriate psychiatric services and therapies will need to be tailored to presenting problems. This includes education on coping mechanisms, stress adaptation, cognitive behavioral therapy, and pharmacotherapy, to name a few. With this surge in psychiatric disorders, increasing pharmacotherapy will need to be monitored for adverse effects and drug interactions. For therapy-based services, patients will need to be assessed adequately to identify which therapies are indicated and available. For individuals who do not

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[6] Saeed SA. (2018). Successfully Navigating Multiple Electronic Health Records When Using Telepsychiatry: The NC-STeP Experience. Psychiatric Services. 2018 May 15: appips 201700406. doi: 10.1176/appi.ps.201700406. [Epub ahead of print].

[7] Saeed SA (2018). Tower of Babel Problem in Telehealth: Addressing the Health Information Exchange Needs of the North Carolina Statewide Telepsychiatry Program (NC-STeP). Psychiatric Quarterly. 2018 Jun;89 (2):489-495.

[8] O'Neal G, Grant R. New poll: COVID-19 impacting mental well-being: Americans feeling anxious, especially for loved ones; Older Adults are Less Anxious. APA. 2020. https://www.psychiatry. org/newsroom/news-releases/new-poll-covid-19-impacting-mental-well-being-americans-feeling-anxiousespecially-for-loved-ones-older-adults-are-less-anxious.

meet criteria for a medical diagnosis, coping strategies, support, and resources should be provided.[9] NC-STeP is well-positioned to help with all these aspects as we deal with a surge of patients who need services for mental health and substance use disorders.

Long-Term Sustainability

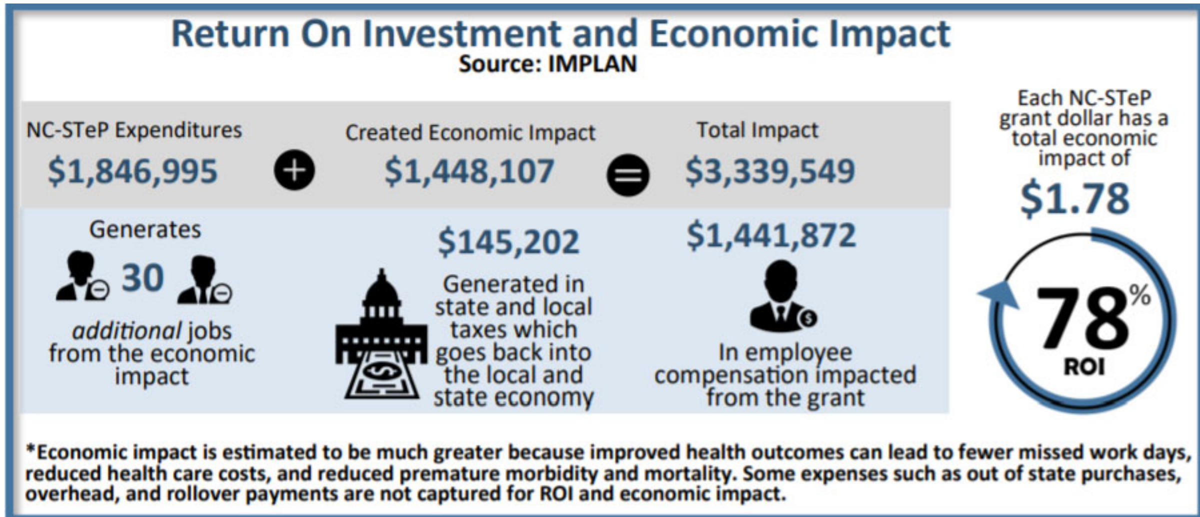
ECU's CTeBH reports a challenge as the number of individuals served who have no insurance coverage has ranged from 30% to 42%. Currently, the program, including grant support from the State and other sources, is operating at a 0.35:1.00 ratio (revenue: cost) of return on investment, which is far below the desired objective of >1:1. However, the program has demonstrated savings by reducing unnecessary hospitalization, improving ED throughput, reducing patient transportation costs for the sheriff departments, and reducing ED boarding times. The program more than pays for itself in terms of sustainability when these savings are compared to unnecessary use of hospital ED bed holds and avoided admission to state psychiatric facilities.

The sustainability ratio of 0.35:1.00 means that, for every dollar the program spends, it recovers $0.35. These costs are recovered in four ways: 1) charging hospitals a subscription fee to use the service, which is currently set at $43 for each telepsychiatry assessment conducted (which is about a third of the cost of the consult), 2) billing public and private payors for each assessment, 3) State funding, and 4) grant funding.

The expansion to community-based settings could impact long-term sustainability by presenting new opportunities for healthier populations, early treatment, and prevention, as well as new revenue options.

[9] Saeed SA. (2015). Current Challenges and Opportunities in Psychiatric Administration and Leadership. Psychiatric Quarterly. Volume 86, Issue 3, September: pp 297-300/

Appendix A: Economic Impact of the program



Appendix B: FY2020 IVC Overturn Ratio

This use of technology can reduce patients' length of stay in the emergency department (which can last for days in some cases) and **overturn unnecessary involuntary commitments (IVCs),** thereby reducing the burden on staff and reducing costs to the state and federal governments, as well as the private sector.

The expansion into community-based settings will reduce costs by engaging individuals before a mental health crisis that requires a hospital level IVC assessment. If the community sites are preventing an unnecessary hospital-based IVC assessment, then costs savings are realized by preventing an IVC from occurring. This upstream approach works to address health issues before it progresses to high-cost service and time, for both individual and provider.

34%
Involuntary Commitments Overturned

910 patients avoided unnecessary hospitalizations due to overturned IVCs in SFY 2020

Appendix C: List of Enrolled Hospitals and Go-Live Status

As of June 30, 2021. Sorted by county, then by hospital.

County	Hospital	Provider	Status
Ashe	Ashe Memorial Hospital Model 1	Old Vineyard	Live
Beaufort	Vidant Beaufort Hospital Model 1	Carolina Behavioral Care	Live
Bertie	Vidant Bertie Hospital Model 1	Carolina Behavioral Care	Live
Bladen	Cape Fear Valley- Bladen County Hospital Model 2	Cape Fear	Live
Brunswick	J. Arthur Dosher Memorial Hospital Model 1	Old Vineyard	Live
Buncombe	Mission Memorial Hospital Model 2	Mission	Live
Buncombe	Mission Children's Hospital Model 2	Mission	Live
Cherokee	Murphy Medical Center Model 1	Old Vineyard	Live
Chowan	Vidant Chowan Hospital Model 1	Carolina Behavioral Care	Live
Cumberland	Cape Fear Valley Medical Center Model 2	Cape Fear	Live
Dare	Outer Banks Hospital Model 1	Carolina Behavioral Care	Live
Duplin	Vidant Duplin Hospital Model 1	Carolina Behavioral Care	Live

County	Hospital	Provider	Status
Edgecombe	Vidant Edgecombe Hospital Model 1	Carolina Behavioral Care	Live
Franklin	DLP Franklin Hospital Model 1	Carolina Behavioral Care	Live
Halifax	Vidant North - Halifax Model 1	Carolina Behavioral Care	Live
Harnett	Betsy Johnson Regional Model 1	Carolina Behavioral Care	Live
Harnett	Harnett Hospital Model 1	Carolina Behavioral Care	Live
Henderson	Advent Health Henderson (Park Ridge) Model 1	Carolina Behavioral Care	Live
Hoke	Cape Fear Valley Health Hoke Model 2	Cape Fear	Live
Iredell	Lake Norman Regional Medical Center Model 1	Carolina Behavioral Care	Live
Iredell	Iredell Hospital Model 1	Carolina Behavioral Care	Live
Jackson	Harris Regional Medical Center Model 1	Carolina Behavioral Care	Live
Johnston	UNC Johnston Clayton Model 2	UNC Johnston Health	Live
Johnston	UNC Johnston Smithfield Model 2	UNC Johnston Health	Live

County	Hospital	Provider	Status
Lenoir	Lenoir Memorial Hospital Model 1	Carolina Behavioral Care	Live
Macon	Angel Medical Center Model 2	Mission	Live
Macon	Highlands-Cashiers Hospital Model 2	Mission	Live
McDowell	McDowell Hospital Model 2	Mission	Live
Mitchell	Blue Ridge Regional Hospital Model 2	Mission	Live
Pasquotank	Sentara Albemarle Medical Center Model 1	Old Vineyard	Live
Pender	Pender Memorial Hospital Model 1	Old Vineyard	Live
Person	Person Memorial Hospital Model 1	Carolina Behavioral Care	Live
Polk	St Luke's Hospital Model 1	Old Vineyard	Live
Robeson	Southeastern Hospital Model 1	Old Vineyard	Live
Rockingham	Morehead Memorial Hospital (UNC Rockingham) Model 1	Old Vineyard	Live

County	Hospital	Provider	Status
Surry	Northern Hospital of Surry County Model 1	Old Vineyard	Live
Swain	Swain Community Hospital Model 1	Carolina Behavioral Care	Live
Transylvania	Transylvania Regional Hospital Model 2	Mission	Live
Vance	Maria Parham Medical Center Model 1	Carolina Behavioral Care	Live
Wilkes	Hugh Chatham Memorial Hospital Model 1	Carolina Behavioral Care	Live

*Model 1 Hospitals are hospitals that do not have access to psychiatric services within their health system and exclusively rely on NC-STeP to provide services to hospital.

*Model 2 Hospitals are hospitals that have access to psychiatric services within their healthcare system and report IVC and assessments to NC-STeP to demonstrate cost savings of having services available for acute care patients.

Appendix D: List of Enrolled Consulting Sites and Go-Live Status

As of December 2020. Sorted by county and site.

County	Consulting Site	Status
Buncombe	Mission Health System	Live
Cumberland	Cape Fear Valley Health System	Live
Durham, Moore, Orange	Carolina Behavioral Care	Live
Forsyth	Old Vineyard and Behavioral Health Services	Live
Johnston	UNC Johnston Health	Live
Pitt	East Carolina University	Live

Appendix E: NC-STeP Advisory Workgroup Member Organizations

ORH and NC-STeP expresses gratitude to the following organizations for their commitment and participation in quarterly NC-STeP Advisory Council meetings:

Monarch North Carolina
North Carolina Psychiatric Association
Carolinas HealthCare System
Cone Health System
Duke University
East Carolina University
Harnett Health System
MedAccess Partners
Mission Health System
Murphy Medical Center
NC DHHS Division of Medical Assistance
NC DHHS Division of Mental Health
Developmental Disabilities, and Substance Abuse Services
NC DHHS Office of Rural Health
North Carolina Healthcare Association
Novant Ashe Memorial Hospital
St. Luke's Hospital
Trillium Health Resources
UNC- Chapel Hill
Vidant Health
Wake Forest School of Medicine

Appendix F: NC-STeP Publications in Journals

1. Saeed, S.A., Masters, R.M. Disparities in Health Care and the Digital Divide. Curr Psychiatry Rep. 23, 61 (2021).
2. Saeed SA, Lluberes N, Buwalda VJA (2021). Applications of Technology. In Sowers WE and Ranz JM (Editors) Seeking Value: Balancing Cost and Quality in Psychiatric Care. Chapter 10, pp 245-273.
3. Saeed SA. (2020) Post Pandemic Care: ECU to Address Post-Pandemic Mental Health. 2020 July 1. Retrieved 8.14.20. from https://news.ecu.edu/2020/07/01/post-pandemic-care/.
4. Esterwood E, Saeed SA. (2020). Past Epidemics, Natural Disasters, COVID19, and Mental Health: Learning from History as we Deal with the Present and Prepare for the Future. Psychiatric Q. 2020 August. DOI 10.1007/s11126-020-09808-4.Online First.
5. Kothadia RJ, Jones K, Saeed SA, Torres MJ, (2020). The Impact of NC-Statewide Telepsychiatry Program (NC-STeP) on Patients' Dispositions from Hospital Emergency Departments. Psychiatric Services. (in Press).
6. Saeed SA (2020). North Carolina Statewide Telepsychiatry Program (NC-STeP): Using telepsychiatry to improve access to evidence-based care. European Psychiatry, Volume 33, Issue S1: Abstracts of the 24th European Congress of Psychiatry, Cambridge University Press: 23 March 2020, pp. S66. DOI: https://doi.org/10.1016/j.eurpsy.2016.01.968.
7. Saeed SA, Hebishi K. (2020). The psychiatric consequences of COVID-19: 8 Studies. Vol. 19, No. 11, pp. 23-35.
8. Saeed SA. (2018). Successfully Navigating Multiple Electronic Health Records When Using Telepsychiatry: The NC-STeP Experience. Psychiatric Services. 2018 May 15: appips 201700406. doi:10.1176/appi.ps.201700406. [Epub ahead of print].
9. Saeed SA (2018). Tower of Babel Problem in Telehealth: Addressing the Health Information Exchange Needs of the North Carolina Statewide Telepsychiatry Program (NC-STeP). Psychiatric Quarterly. 2018 Jun;89 (2):489-495.
10. Saeed SA, Johnson TL, Bagga M, Glass O. (2017). Training Residents in the Use of Telepsychiatry: Review of the Literature and a Proposed Elective. Psychiatric Quarterly. Volume 88. No.2. June. pp. 271-283.
11. Saeed, S. A. (2016). North Carolina Statewide Telepsychiatry Program: Using Telepsychiatry to Improve Access to Evidence-Based Care. Presented in *Shaping the Future of Healthcare through Innovation and Technology.* 24th European Congress of Psychiatry, Madrid, Spain, March 15, 2016. Program proceedings available at: http://www.epa-congress.org/presentation/abstract-book. *Abstract.*
12. Saeed, S. A. (2015). *Innovations in the Emergency Department-Based Care of the Mentally Ill.* American College of Emergency Physicians Annual Meeting, Boston, Massachusetts, October 25, 2015. *Abstract.*
13. Saeed SA, Anand V. (2015). Use of Telepsychiatry in Psychodynamic Psychiatry. Psychodynamic Psychiatry: Vol.43, No.4, pp.569-583.
14. Saeed SA. (2015). Current Challenges and Opportunities in Psychiatric Administration and Leadership. Psychiatric Quarterly. Volume 86, Issue 3, September: pp 297-300.
15. Saeed SA. (2015). Telebehavioral Health: Clinical Applications, Benefits, Technology Needs, and Setup. *NCMJ:* Vol. 76, Number 1, pp 25-26.

Appendix G: NC-STeP Awards and Recognitions

NC-STeP was the 2020 Breaking Barriers Through Telehealth Award winner from the Mid-Atlantic Telehealth Resource Center (MATRC).

NC-STeP was highlighted in the June 2020 issue of the Current Psychiatry, a peer-reviewed professional journal, as a model program.

Dr. Saeed received the 2019 Oliver Max Gardner Award, highest UNC System honor, for his innovative work in the field of telepsychiatry

September 2019 issue of the Healthcare Innovations journal referred to NC-STeP as a model for Statewide coverage.

NC-STeP has been invited to present at several national and international venues including:

- Vermont Program for Quality in Health Care.
- Mid Atlantic Telehealth Resource Center (MATRC) 2021 Summit. March 2021
- The 5th National Telehealth Summit, Chicago, July 2020
- HIMSS Global Conference, Orlando, Florida, March 2020
- The 3rd National Telehealth Summit, Miami, May 2019
- Weill Cornell Medicine | New York-Presbyterian, New York, April 2019
- The US News and World Reports, Washington DC, November 2017
- UNC Kenan-Flagler Business School, Chapel Hill, NC, November 2017
- The White House, March 2016
- Avera e-Care, Sioux Falls, South Dakota, September 2017.
- IPS: The Mental Health Services Conference, Washington DC, October 8, 2016
- European Congress of Psychiatry, Madrid, March 2016
- St. Elizabeth Hospital, Washington DC, February 2016
- NC Academy of Family Physicians (NCAFP). Asheville, NC. December 2015.
- Center for Evidence-Based Policy, Oregon Health Sciences Univ., Portland, Oregon. October 2015.
- American College of Emergency Physicians' Annual Meeting. Boston, October 2015.
- North Carolina Institute of Medicine (NCIOM) August 2015.
- State Offices of Rural Health (SORH), July 2015.

Appendix H: NC-STeP Scientific Posters

1. Muppavarapu K, Saeed SA (2020). Use of telepsychiatry to Improve mental health access for rural population. Poster presented at the Office of Ruralhealth Conference, Greenville, NC, 2020
2. Muppavarapu K, Saeed SA (2020). Using NC Statewide Telepsychiatry Program to Address Access to Critical Behavioral HealthCrises for the Populated Coast. Poster presented at the Hurricon, NSF Conference, Greenville, NC, 2020
3. Saeed SA; Muppavarapu K; Jones K; Baker R. (2020). North Carolina Statewide Telepsychiatry Program (NC-STeP): Using Telepsychiatry to Improve Access to Evidence-Based Care: 6-year Update. Poster presented at the Mid-Atlantic Telehealth Resource Center (MATRC) 2020 Annual Telehealth Summit.
4. Radhi Kothadia, Mathew Torres, Katherine Jones, Sy Saeed. The Role of the North Carolina Statewide Telepsychiatry Program (NC-STeP) in Boarding Outcomes for Adult Patients Presenting to North Carolina Emergency Departments with Acute Behavioral Health Crises. Poster presented at North Carolina Psychiatric Association Conference, Myrtle Beach, SC, September 2019.

Appendix I: NC-STeP Presentations

1. **Saeed SA**. 2021. Covid-19 and its Impact on the Brain and Mind: The Toll on Health Care Workers, Patients, and the General Public. Presented the keynote address at the EAHEC Adult Mental Health Conference. April 29, 2021. Virtual.
2. Albero K, Hubbard D, **Saeed SA**, Wiggins W. 2021 Statewide Telebehavioral Health Network Development. Presented at the Mid Atlantic Telehealth Resource Center (MATRC) 2021 Summit. March 30, 2021. Virtual.
3. **Saeed SA**. 2021. An Update on the North Carolina Statewide Telepsychiatry Program. Presented at the NC Senate Appropriations Committee on Health and Human Services, March 18, 2021. Virtual.
4. **Saeed SA**. 2021. Leadership. Presented as part of the Physician Leadership Program. American Psychiatric Association. January 13, 2021. Virtual. Available at https://education.psychiatry.org/diweb/catalog/item?id=6323901.
5. **Saeed SA** 2021. Using Telepsychiatry to Enhance Access to Evidence-Based Care. Presented at the North Carolina Commission for Mental Health, Developmental Disabilities, and Substance Abuse Services Advisory Committee Meeting. January 28, 2021.
6. **Saeed, S.A.** 2020. Using Telepsychiatry to Reduce Emergency Departments' Length of Stay and Enhancing Value: 5- Years' Experience of the North Carolina Statewide Telepsychiatry Program (NC-STeP). Presented at the 2020 HIMSS Global Conference. Virtual. Originally scheduled for Orlando, Florida.
7. **Saeed, S.A.** 2020. Using Telehealth Across the Behavioral Health Continuum of Care: 6- Years' Experience of the North Carolina Statewide Telepsychiatry Program (NC-STeP). Presented at the 5th National Telehealth Summit. Virtual. July 17, 2020. Originally Scheduled for Chicago.
8. **Saeed, S.A.** 2020. Using Telepsychiatry to Enhance Access to Evidence-Based Care. Psychiatry Grand Rounds, Temple University School of Medicine. Virtual. October 14, 2020. Originally scheduled for Philadelphia.
9. **Saeed, S.A.** 2020. Partnering to Make an Impact – Roundtable Discussions on Patient-Physician Relationship. United Health Group. Virtual. October 21, 2020.
10. **Saeed, S.A.** (2020). Using Telehealth to Bridge Social Distancing During the COVID-19 Pandemic. Statewide live webinar organized by Eastern AHEC, April 28 and May 20, 2020.
11. **Saeed, S.A.** (2020). Ensuring Access, Quality, and Availability of Psychiatric Services During and After the Pandemic. Presented at the NC General Assembly House Select Committee, Health Care Working Group, April 14, 2020, via videoconference.
12. **Saeed, S.A.** (2020). North Carolina Statewide Telepsychiatry Program: Using Telepsychiatry to Provide Evidence-Based Care. HIMSS Global Conference, Orlando, Florida., March 2020
13. **Saeed, S.A.** (2020). Building a Statewide Telepsychiatry Network: NC-STeP Experience. Presented at the 2nd annual ECU/UNC NC Teledentistry Symposium, Durham, NC, March 6, 2020.
14. **Saeed, S.A.** (2020). Using Telepsychiatry and Health Technologies to Provide Evidence-Based Care. 2 Part Webinar provided for APRN RURAL Scholar HHRSA Grant, February 4 and 11, 2020.
15. **Saeed, S.A.** (2020). North Carolina Statewide Telepsychiatry Program: Using Telepsychiatry to Provide Evidence-Based Care. NC HIMSS Winter meeting, Greensboro, NC, January 30, 2020.
16. **Saeed, S.A.** (2019). Using Telepsychiatry to Reduce Emergency Departments' Length of Stay. Presented at the NCHICA 25th Annual Conference, Winston-Salem, NC, September 16, 2019.
17. **Saeed, S.A.** (2019). Presenting at the Duke EMBA HSM Seminar Team: Discussions on Telepsychiatry with Healthcare Leaders. Duke University, the Fuqua School of Business, Durham, September 10, 2019.

18. **Saeed, S.A.** (2019). Using Telepsychiatry to Reduce Emergency Departments' Length of Stay and Enhancing Value: 5- Years' Experience of the North Carolina Statewide Telepsychiatry Program (NC-STeP). Presented at the 3rd National Telehealth Summit, Miami, May 2019.
19. **Saeed, S.A.** (2019). Using Telepsychiatry to Provide Evidence-Based Mental Health Care. Presented Weill Cornell Medicine | New York-Presbyterian, New York, April 2019
20. **Saeed, S.A.** (2019). Using Telehealth to Enhance Access to Evidence-Based Care. Keynote address at the NC Rural Health Leadership Alliance's Regional Telehealth Summit. Wilmington, NC. January 18, 2019
21. **Saeed, S.A.** (2018). Telepsychiatry: A New Way of Delivering Behavioral Health Services. North Carolina Medical Society, Webinar, October 16, 2018.
22. **Saeed, SA**, and Buwalda VJ (2018). The Bridge Between Administrative Psychiatry and Research on Outcome Measurement and New Technology. Presented at the American Psychiatric Association Annual Meeting, May 7, 2018, New York, NY.
23. Sapra, M, Wasser, T, **Saeed, SA**, Goldberg, L, Herman, B, Jayaram, G. Diverse Career Pathways to Leadership in Psychiatry. Presented at the American Psychiatric Association Annual Meeting, May 8, 2018, New York, NY.
24. **Saeed, S.A.** (2018). Using Telepsychiatry to Provide Evidence-Based Psychiatric Care: An Update on the North Carolina Statewide Telepsychiatry Program. Presented Grand Rounds, Wake Forest University School of Medicine, Winston-Salem, NC, February 28, 2018.
25. **Saeed, S.A.** (2017). Provider shortage and the North Carolina Statewide Telepsychiatry Program. Presented at the UNC Kenan-Flagler Business School 7th Annual Healthcare Conference, Chapel Hill NC, November 17, 2017.
26. Breland-Noble, AM; **Saeed, SA**: Briggs, R; Gorman, KC. Behavioral Health: The Next Frontier in Pediatric Care. The US News and World Reports' the Healthcare of Tomorrow summit, Washington DC, November 2, 2017.
27. **Saeed, S.A.** (2017). Replicating North Carolina Statewide Telepsychiatry Program. Presented at the Avera e-Care, September 12, 2017, Sioux Falls, SD.
28. **Saeed, S.A.** (2017). Expanding North Carolina Statewide Telepsychiatry Program into Community-Based Settings. Presented at the NC Association of Local Health Directors, August 16, 2017, Raleigh, NC.
29. **Saeed, S.A.** (2017). North Carolina Statewide Telepsychiatry Program. Presented at the NC Bar Association's Health Law Section's Annual Meeting, April 28, 2017, Raleigh, NC.
30. **Saeed, SA.** (2016). Establishing and Sustaining a Statewide Program: NC-STeP Experience. Presented at IPS: The Mental Health Services Conference October 8, 2016, Washington D.C.
31. **Saeed S.A.** (2016). Role of Leadership in Narrowing the Gap Between Science and Practice: Improving Treatment Outcomes at the Systems' Level. Presented at IPS: The Mental Health Services Conference October 6, 2016, Washington D.C.
32. **Saeed, S.A.** (2016). Statewide Telepsychiatry Program. Presented at the North Carolina Digital Government Summit. August 31, 2016, Raleigh, North Carolina.
33. **Saeed, S.A.** (2016). Enhancing Access and Quality of Psychiatric Care to Patients Presenting in Emergency Departments Across the State: NC-STeP Experience. Presented Grand Rounds at Central Regional Hospital. June 16, 2016, Butner, North Carolina.
34. **Saeed, S.A.** (2016). Enhancing Access and Quality of Psychiatric Care to Patients Presenting in Emergency Departments Across the State: NC-STeP Experience. Presented Grand Rounds at Duke University, June 16, 2016, Durham, North Carolina.

35. **Saeed, S.A.** (2016). Current Challenges and Opportunities in Psychiatric Administration and Leadership. Presented at the American Psychiatric Association Annual Meeting, May 16, 2016, Atlanta, Georgia.
36. Schwarting, K.; **Saeed, S.A.**; Mutrux, R.E. Successes and Lessons Learned from State-Funded Telehealth Initiatives. Presented at the MATRC 2016 Telehealth Summit, Cambridge, Maryland. April 11, 2016.
37. **Saeed, S.A.** Spotlight on Innovation: NC-STeP. Invited presentation at the White House Rural Council Convening on Telehealth, Washington DC. March 30, 2016.
38. **Saeed, S.A.** Shaping the Future of Healthcare through Innovation and Technology. Presented at the 24th European Congress of Psychiatry, Madrid, Spain. Via Videoconferencing. March 15, 2016.
39. **Saeed, S.A**. NC-STeP: Using Telepsychiatry to Provide Evidence-Based Care. Presented Grand Rounds at the Saint Elizabeth's Hospital-DBH, Washington DC. February 10, 2016.