

Building and Sustaining a Statewide Telepsychiatry Program: Lessons Learned from the North Carolina Statewide Telepsychiatry Program (NC-STeP)

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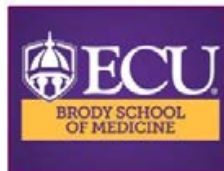
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Building and Sustaining a Statewide Telepsychiatry Program

Lessons Learned from the NC Statewide Telepsychiatry Program (NC-STeP)

Abstract:

Mental disorders are common, and they are associated with high levels of distress, morbidity, disability, and mortality. While there is extensive evidence and agreement on effective mental health practices for persons with these disorders, a large part of population in US does not have access to these services. This has resulted in patients going to hospital emergency departments to seek services resulting in long lengths of stay and boarding of psychiatric patients in hospital emergency departments. A growing body of literature now suggests that the use of telepsychiatry to provide mental health care has the potential to mitigate the workforce shortage that directly affects access to care, especially in remote and underserved areas.

The North Carolina Statewide Telepsychiatry Program (NC-STeP) was launched in 2013 in response to NC Session Law 2013-360. Since then, as of January 1, 2024, NC-STeP has provided over 60,000 telepsychiatry consults in hospital EDs and has prevented over 10,000 unnecessary psychiatric hospitalizations, with associated savings of more than \$55,900,000. Given the success of the program, in 2018 the North Carolina legislature expanded the scope of services provided to beyond emergency departments to the community-based settings. Since then, NC-STeP has serves over 20,000 patients at 27 outpatient sites.

This presentation will present data from NC-STeP published research that focuses on ED boarding of psychiatric patients; cost savings associated with the use of telepsychiatry; multidisciplinary use of telehealth to serve high-risk pregnant women (MOTHeRS Project); and how the COVID-19 crisis has led to a heightening demand for telepsychiatry consultations in NC, but there is a race disparity in these demands.

Building and Sustaining a Statewide Telepsychiatry Program

Lessons Learned from the NC Statewide Telepsychiatry Program (NC-STeP)

Learning Objectives:

1. Describe the magnitude of the mental health workforce shortage and how it impacts access to care.
2. Describe how North Carolina Statewide Telepsychiatry Program (NC-STeP) is addressing problems in areas of access to quality (evidence-based) mental health services.
3. Summarize the recent research findings regarding ED boarding, cost savings, technological advances, and race/gender differences from the NC Statewide Telepsychiatry program.

Mental disorders are common

- An estimated 26.2% of Americans ages 18 and older (about 1 in 4) Americans have a mental disorder in any one year¹
 - 88 million adults, when applied to the U.S. Census population estimate on January 2, 2024²

1. Kessler RC, Chiu WT, Demler O, Walters EE. Prevalence, severity, and comorbidity of twelve-month DSM-IV disorders in the National Comorbidity Survey Replication (NCS-R). *Archives of General Psychiatry*, 2005 Jun;62(6):617-27
2. The United States population on January 2, 2024. Available at <https://www.census.gov/popclock/>. ACCESSED January 3, 2024



Mental disorders are often untreated

In the past year in the US:

- More than 50% of the 57.8 million adults with any mental illness, did not receive mental health services*
- Approximately 82% of the estimated 21 million individuals aged 12 years or older needing substance use disorder treatment did not receive it *

* Available at: <https://www.samhsa.gov/data/sites/default/files/2022-12/2021NSDUHFFRHighlights092722.pdf>. Accessed September 14, 2023

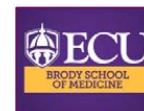
In North Carolina

- 54.7% of adults with mental illness receive no mental health treatment.¹
- 72.2% of the children with a treatable mental health disorder did not receive needed treatment. US average was 49.4%.²
- 93 counties qualify as Mental Health Professional Shortage Areas.³

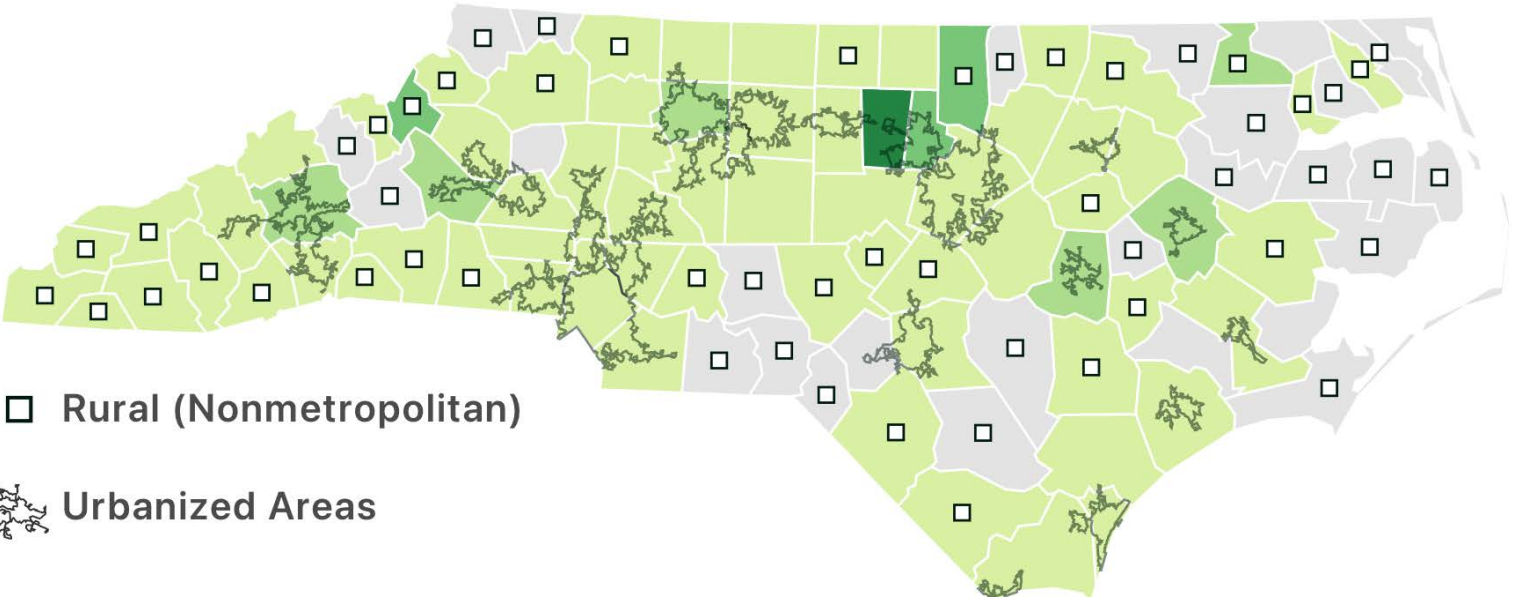
1. SAMHSA

2. Whitney DG, Peterson MD. JAMA Pediatr. 2019 Apr 1;173(4):389-391

3. North Carolina Health Professional Shortage Area. 2022 Profile (current HPSA Data as of 06/01/2023).
<https://www.ncdhhs.gov/nc-dhhs-orh-hpsa-one-pager/open>. Accessed February 5, 2024.

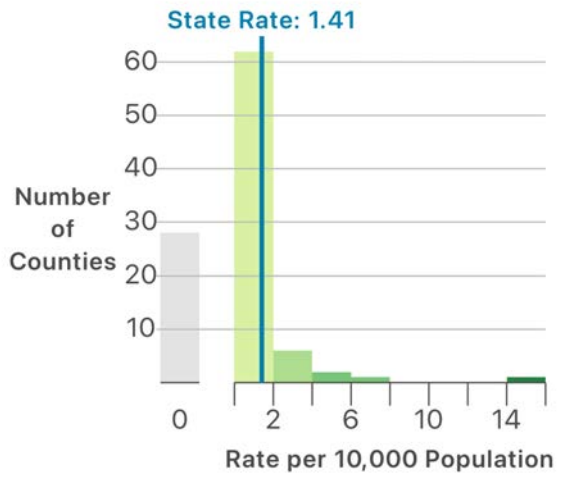
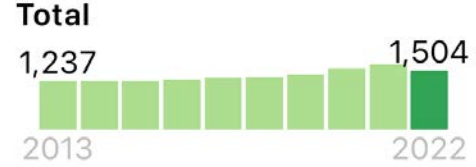
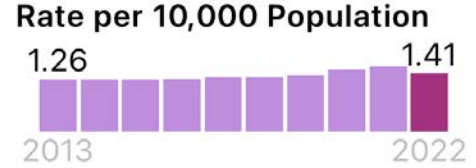


North Carolina, 2022. Physicians with a Primary Area of Practice of Psychiatry, All Specialties per 10,000 Population by County



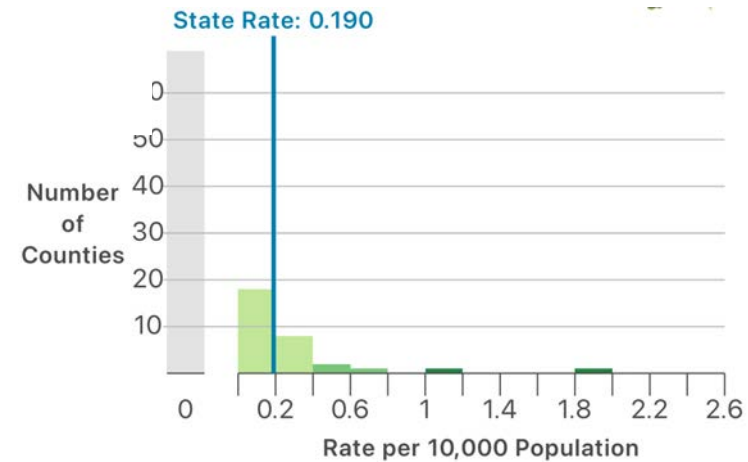
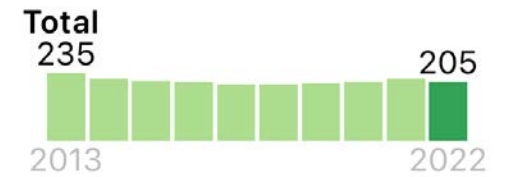
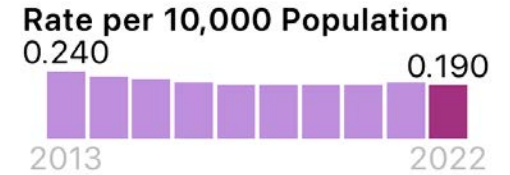
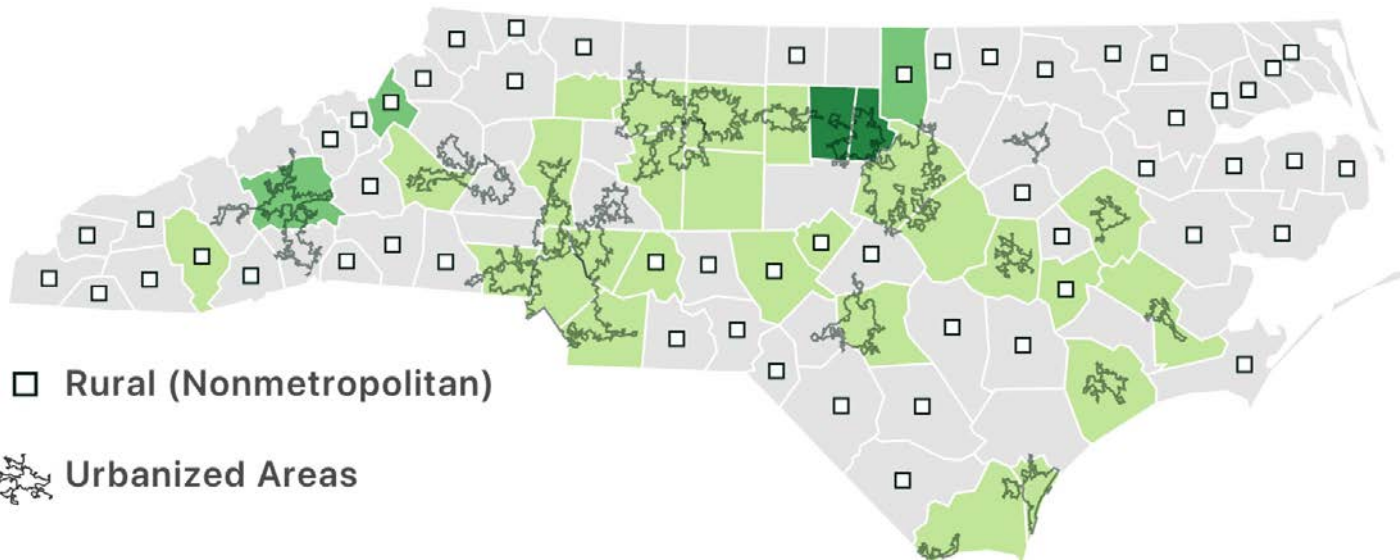
□ Rural (Nonmetropolitan)

 Urbanized Areas



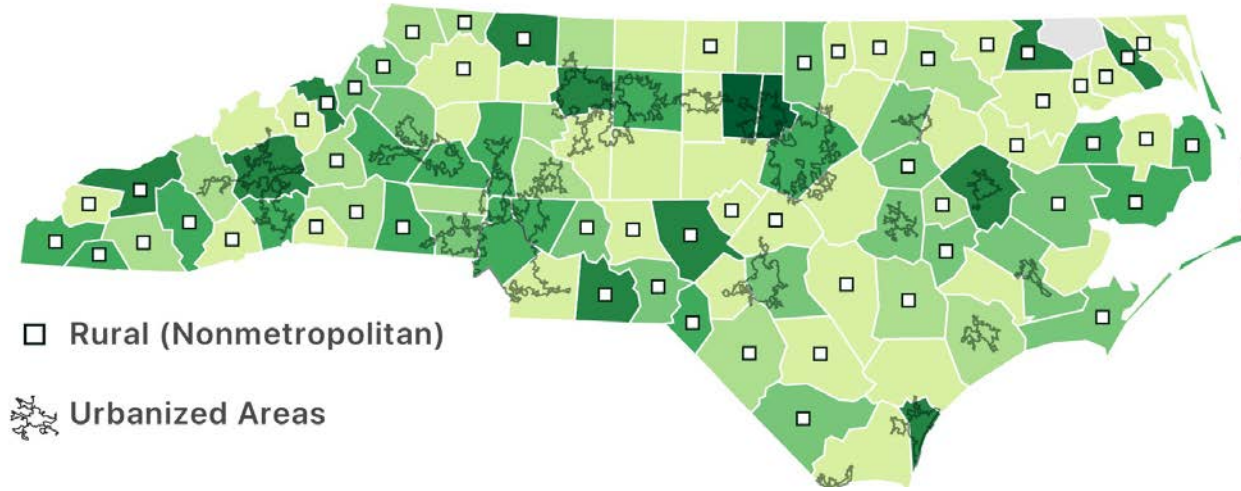
SHEPS Health Workforce NC. Available at: <https://nhealthworkforce.unc.edu/interactive/supply/>. Accessed January 3, 2024

North Carolina, 2022. Physicians with a Primary Area of Practice of Psychiatry, Child & Adolescent per per 10,000 Population by County

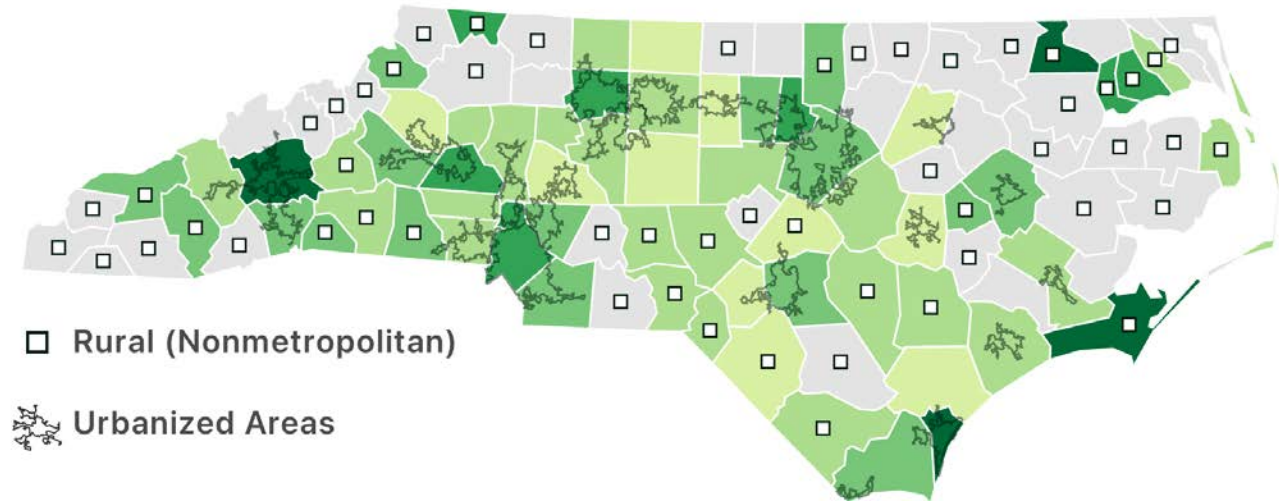


SHEPS Health Workforce NC. Available at: <https://nhealthworkforce.unc.edu/interactive/supply/>. Accessed January 3, 2024

Nurse Practitioners per 10,000 Population by County, North Carolina, 2022

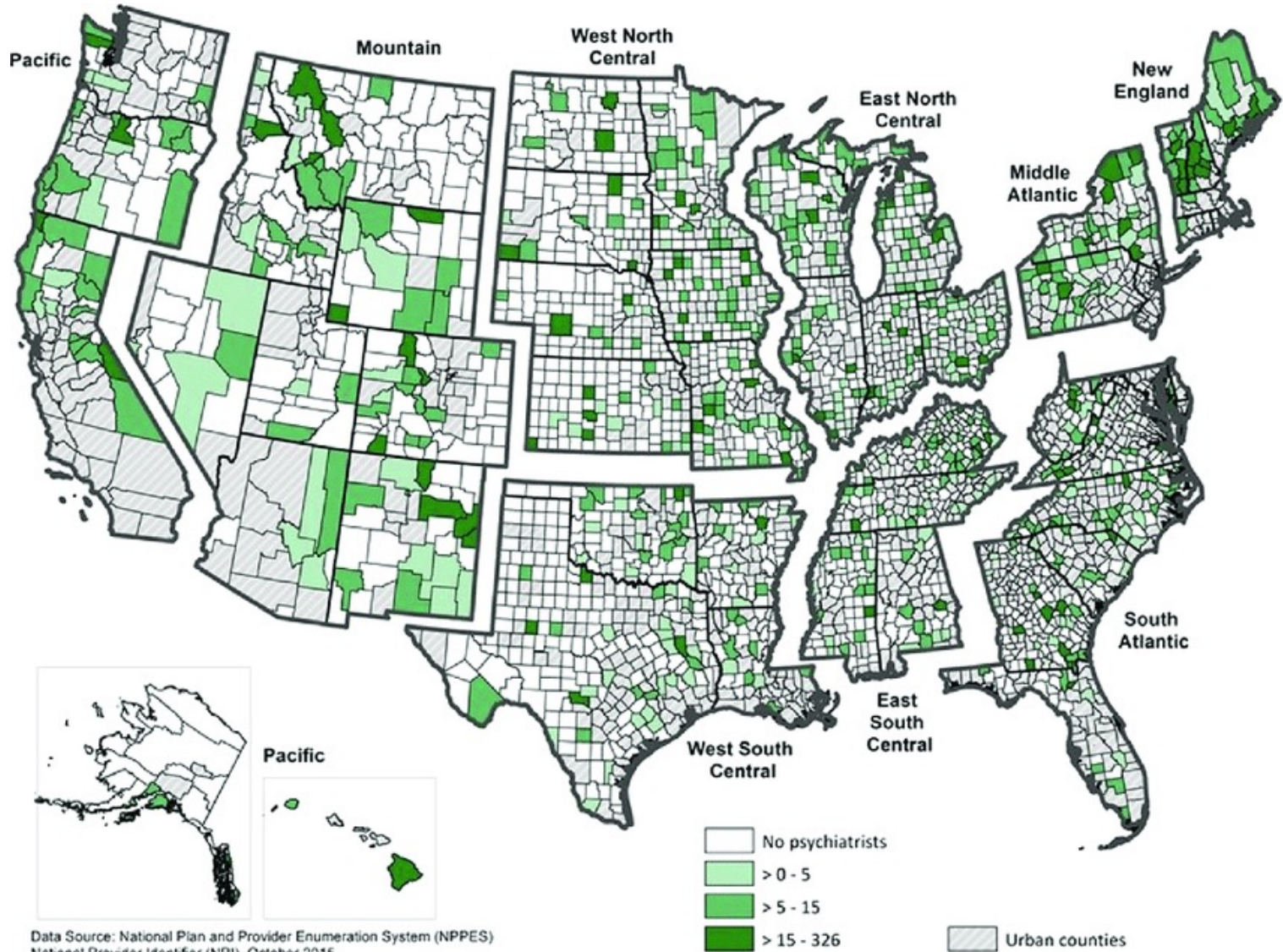


Physician Assistants with a Primary Area of Practice of Psychiatry, All Specialties per 10,000 Population by County, North Carolina, 2022



Psychiatrists in rural U.S. counties per 100,000 population by Census Division.

Andrilla et al. (2018). Am J Prev Med 2018. 54. S199-S207.



Data Source: National Plan and Provider Enumeration System (NPPES)
National Provider Identifier (NPI), October 2015
Map Date: July 2017

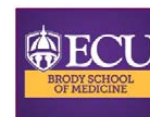


Where can you go if you do not have access to community-based behavioral health care?

- In 2013, NC hospitals had 162,000 behavioral health ED visits.¹
- 2008- 2010, in North Carolina.²
 - 10% of ED visits had one or more mental health diagnosis (MHD) code assigned to visit; twice the estimated national average
 - 17.7% increase in rate of ED visits of patients with MHD; compared to 5.1% increase in overall rate of ED visits
 - People with mental health disorders were admitted to the hospital at twice the rate of those without.

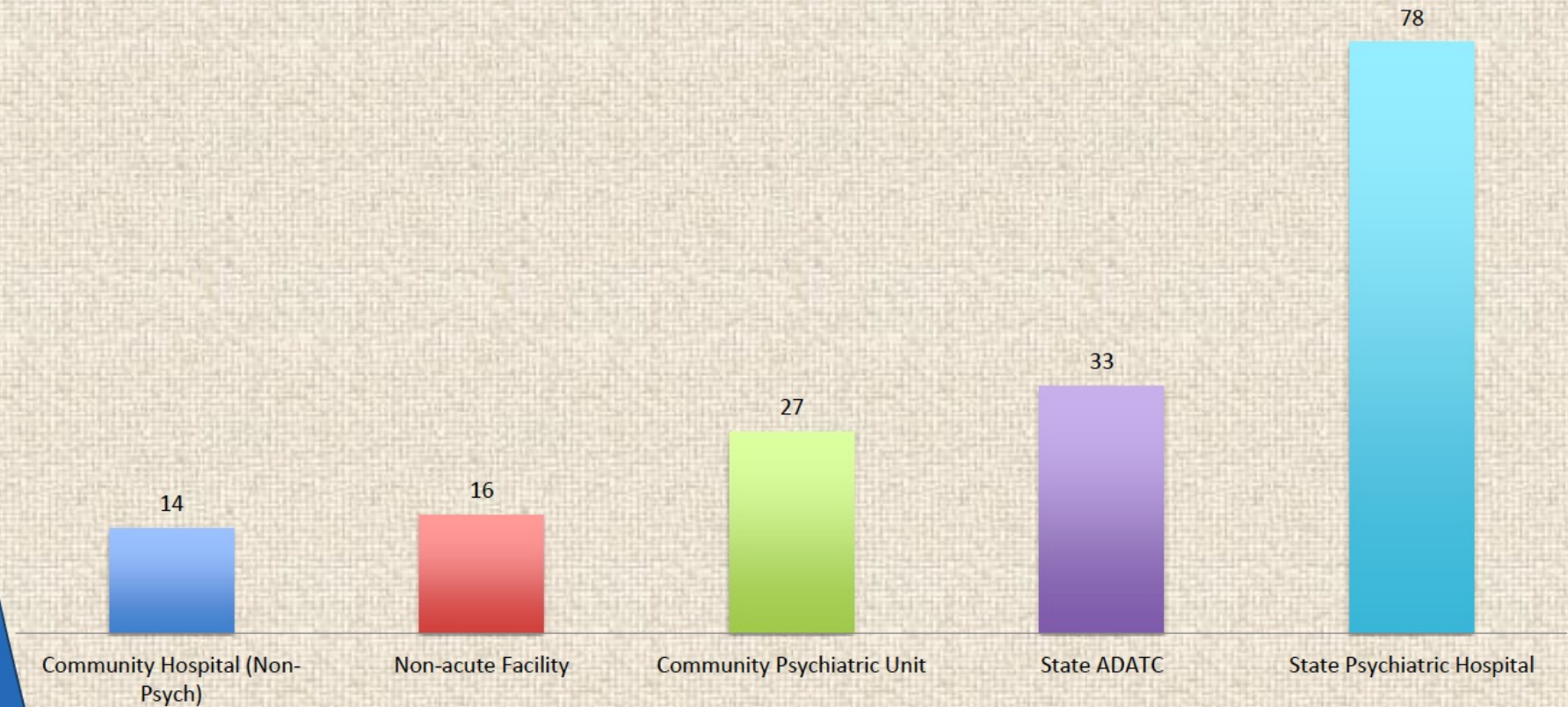
1. NC Hospital Association

2. CDC. Emergency Department Visits by Patients with Mental Health Disorders — North Carolina, 2008–2010. *Morbidity and Mortality Weekly Report (MMWR)* June 14, 2013. 62(23);469-472.



How Long Does It Take to Place BH Patients From NC Hospital EDs?

Average ED Length of Stay (ALOS) for Admitted Behavioral Health Patients

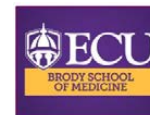


Source: NCHA ED Tracker. 2012 Data.

Rationale for Use of Telepsychiatry

- ↑ Access to care
- ↓ Geographic health disparities
- ↑ Consumer convenience
- ↑ Efficiency of care provision
- ↓ Time to treatment
- ↑ Professional communication
- ↑ Cost savings

Saeed SA, Diamond J, and Bloch RM (2011). Use of telepsychiatry to improve care for people with mental illness in rural North Carolina. *NCMJ*, 72(3), 219-222.





NORTH CAROLINA

STATEWIDE TELEPSYCHIATRY PROGRAM



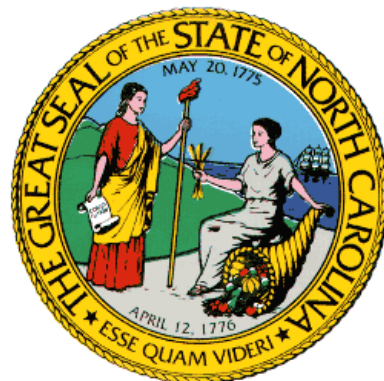


NORTH CAROLINA

STATEWIDE TELEPSYCHIATRY PROGRAM

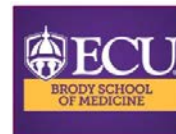
Developed in response to Session Law 2013-360.

- G.S. 143B-139, 4B
- Recodified as G.S. 143B-139.4B(a)(1b) by Session Laws 2018-44, s. 15.1, effective July 1, 2018



NC-STeP Vision

If an individual experiencing an acute behavioral health crisis enters an emergency department or community-based site, s/he will receive timely specialized psychiatric treatment through the statewide network in coordination with available and appropriate clinically relevant community resources.



Psychiatr Q (2018) 89:489–495
<https://doi.org/10.1007/s11126-017-9551-6>

ORIGINAL PAPER

Tower of Babel Problem in Telehealth: Addressing the Health Information Exchange Needs of the North Carolina Statewide Telepsychiatry Program (NC-STeP)

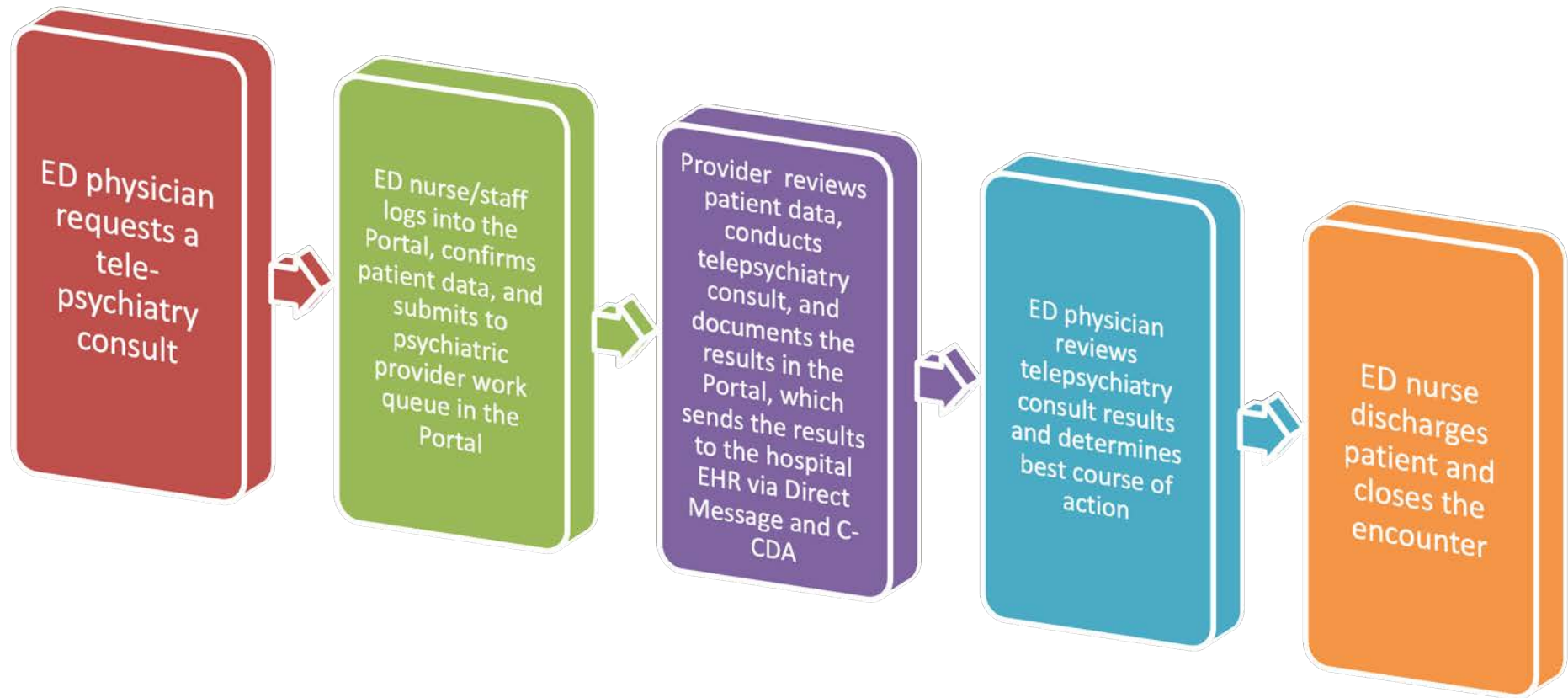
Sy Atezaz Saeed¹

Volume 89 • Number 3 • September 2018

**Psychiatric
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Using Technology to Develop Smart Workflows



TECHNOLOGY IN MENTAL HEALTH



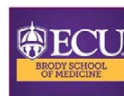
Successfully Navigating Multiple Electronic Health Records When Using Telepsychiatry: The NC-STeP Experience

Sy Atezaz Saeed, M.D., M.S.

Telepsychiatry is a viable option for providing psychiatric care to those who are currently underserved or who lack access to services, but barriers to its widespread utilization remain. Use of different electronic health record systems (EHRs) by various health care systems is one such barrier. Utilization of different EHRs makes it difficult for providers to review patient data and to document clinical encounters. This column describes a Web

portal developed by the North Carolina Statewide Telepsychiatry Program that connects participating hospital emergency departments and remote psychiatric providers, allowing them to share secure electronic health information regarding patient encounters across different EHRs.

Psychiatric Services 2018; 69:948–951; doi: 10.1176/appi.ps.201700406



Mental Health-Related ED Visits

- Between 2006 – 2014, ED visits increased by **14.8%**.
- During this same period, mental health- and substance abuse-related ED visits increased by **44.1%**.
- Between 2017 and 2019, approximately **12.3%** of all adult ED visits were for a mental health-related reason.

1. Moore BJ, Stocks C, Owens PL. Trends in Emergency Department Visits, 2006-2014. Statistical brief no 227. Rockville, MD. Agency for Healthcare Research and Quality, 2017.
2. Santo L, Peters Z, DeFrances CJ. Emergency Department Visits Among Adults with Mental Health Disorders: United States, 2017 – 2019. NCHS Data Brief No. 426, 2021.

**Quick Safety 19: ED
boarding of psychiatric
patients – a continuing
problem**

Emergency rooms are at ‘breaking
point,’ physicians say

Emergency Department Boarding: Nowhere Else to Go

**Update on the ED Boarding Crisis: ACEP and 34
Other Organizations Send Letter to President
Biden Calling for a Summit**

Emergency department
crowding hits crisis levels,
risking patient safety

**ED boarding of psychiatric patients – a
continuing problem**

**Medical groups to Biden: ED boarding at a
'crisis point'**

Boarding of Psychiatric Patients

In hospitals without psychiatrists or ED physicians who feel comfortable treating mental health crises, patients with psychiatric symptoms are often boarded until they can be adequately assessed or treated by a psychiatrist.

- **Boarding**

- Time from completion of ED exam to discharge from the ED (discharged home, admitted, transferred, etc.)
- Extended length of stay (LOS) is generally used as a proxy for patient boarding times, often 24-48 hours

The Impact of the North Carolina Statewide Telepsychiatry Program (NC-STeP) on Patients' Dispositions From Emergency Departments



Radhika Jamanadas Kothadia, M.D., Katherine Jones, Ph.D., Sy Atezaz Saeed, M.D., M.S., Matthew J. Torres, B.S.

Objective: The number of patients seeking treatment in emergency departments (EDs) for mental health reasons is rising, and these patients are often kept in the ED until they can be treated or discharged, leading to overcrowding. Telepsychiatry may alleviate overcrowding by increasing the rate of discharges home.

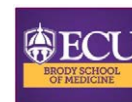
Methods: ED discharge records for 86,931 patients with psychiatric symptoms were examined to compare patient disposition and length of stay (LOS) between times when the North Carolina Statewide Telepsychiatry Program (NC-STeP) program was available or unavailable.

Results: For patients with a LOS of >2 days (N=3,144) and when NC-STeP was available, 62% (N=1,941) were discharged home, and 29% (N=922) were transferred to a psychiatric facility. When NC-STeP was unavailable (N=2,662), 43% (N=1,139) of these patients were discharged home, and 46%

(N=1,230) were transferred to a psychiatric facility. For patients with a LOS of 1–2 days and when NC-STeP was available (N=41,713), 77.0% (N=32,131) were discharged home, and 15.4% (N=6,441) were transferred to a psychiatric facility, compared with 74.2% (N=29,237) discharged home and 13.9% (N=5,495) transferred to a psychiatric facility when NC-STeP was unavailable (N=39,412). The increases in discharges home and decreases in referrals to psychiatric facilities when NC-STeP was available were statistically significant for patients in both groups ($p<0.001$).

Conclusions: Results suggest that telepsychiatry programs such as NC-STeP increase the number of discharges home and decrease transfers to psychiatric facilities, likely promoting patient satisfaction and improving ED efficiency.

Psychiatric Services 2020; 71:1239–1244; doi: 10.1176/appi.ps.201900431



Results (LOS > 2 Days)

Disposition	NC-STeP Active (n=3,144)	NC-STeP Inactive (n=2,662)	p-value
Discharged home	62% (n=1,941)	43% (n=1,139)	<0.001
Transferred to a psychiatric hospital	29% (n=922)	46% (n=1,230)	<0.001

Key Points

Telepsychiatry programs, like NC-STeP, can result in:

- ✓ Decreased ED overcrowding
- ✓ More patients discharged home
- ✓ Less patients transferred to a psychiatric facility
- ✓ Improvement in patient satisfaction
- ✓ Financial benefits to both patients and hospital systems

Number of ED Visits for a Mental Health or Substance Abuse Reason is on the Rise

- Community Behavioral Healthcare system has gaps, so patients seek care in ED
- Approximately 1 in 8 ED visits is for a Mental Health and/or Substance Abuse reason
- This is a challenge for ED physicians; ED's vary widely in their capacity to deliver psychiatric care

Emergency Departments have become de facto providers of behavioral healthcare in the US

- Many psychiatric emergencies can be resolved in ED with proper evaluation and treatment
- ED physicians may lack experience or training to treat psychiatric emergencies
- ED physician may “overprescribe” hospitalization recommendations to be safe → leading to unnecessary hospitalizations
- ED-based telepsychiatry is one possible solution. It may decrease hospitalizations, reduce costs



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.

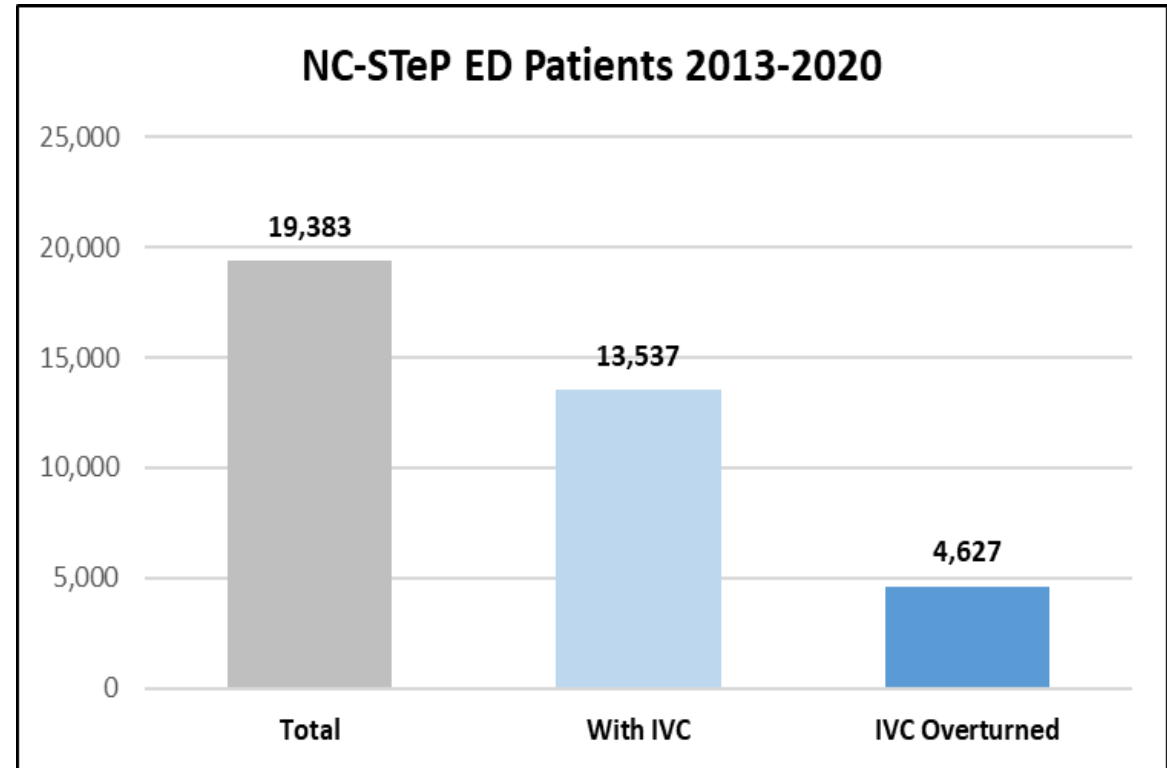
Methods Patient encounter data was extracted from the NC-SteP database that captured records of 19,383 patients who received services over a 6½ -years' period. We analyzed the data to calculate the total number of patient encounters, the number of encounters with an IVC, and the number of encounters 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.

Examined patient encounter data for 6 ½ years (2013 – 2020)

- 19,383 patients received NC-SteP Telepsychiatry consults in 53 hospital ED's
- 13,537 of those patients had an IVC in place during ED stay
- 4,627 (34%) of these IVCs were overturned
 - 86% of these were discharged home



Results

NC-STeP Encounters and Involuntary Commitments (IVCs) for the Period November 2013-June 2020	
Encounters and IVCs November 2013-June 2020	Number
Encounters	19,383
Encounters with an IVC	13,537
IVCs that were overturned	4,627
NC-STeP Estimated Cost Savings	
4,627 x \$900 x 5 days=	\$20,821,500



Key Points

- Small, rural community hospitals often lack resources. ED physicians may “overprescribe” and send patients to inpatient facilities
- Telepsychiatry consultation services in the EDs can decrease unnecessary psychiatric hospitalizations and contribute to significant cost savings
- Avoiding unnecessary psychiatric hospitalization can promote patient satisfaction, reduce costs, and improve outcomes for the patients and families

NC-STeP Saving to the State as of January 1, 2024

- 61,427 total psychiatry assessments since program inception
- 10,367 IVCs overturned
- Cumulative return on investment = \$57,105,000 (savings from reducing unnecessary hospitalizations)

- Telepsychiatry provides a safe and efficient way to serve mental health patients in emergency departments (ED).
- Has there been an impact of COVID-19 on telepsychiatry consultations and are there differences in its utilization across sex and race?

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

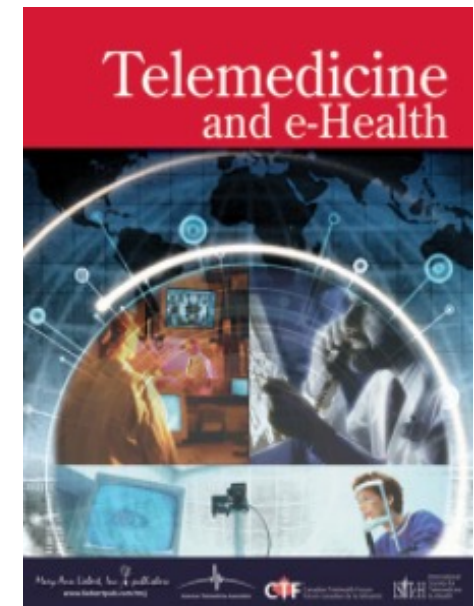
Abstract

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.*



Methods

- This study describes changes in North Carolina ED telepsychiatry consultation counts before, during, and after the state lockdown policy.
- Longitudinal observational study examined temporal changes in ED telepsychiatry consultations from January 2019 to March 2021 (117 weeks) examining:
 - 4,739 telepsychiatry consultations at 27 hospitals in 24 counties

Xue, Y., Saeed, S. A., Liang, H., Jones, K., & Muppavarapu, K. S. (2022). Investigating the impact of covid-19 on telepsychiatry use across sex and race: A study of North Carolina emergency departments. *Telemedicine and e-Health*, 28(10), 1431-1439.

Results: Patient volume trends

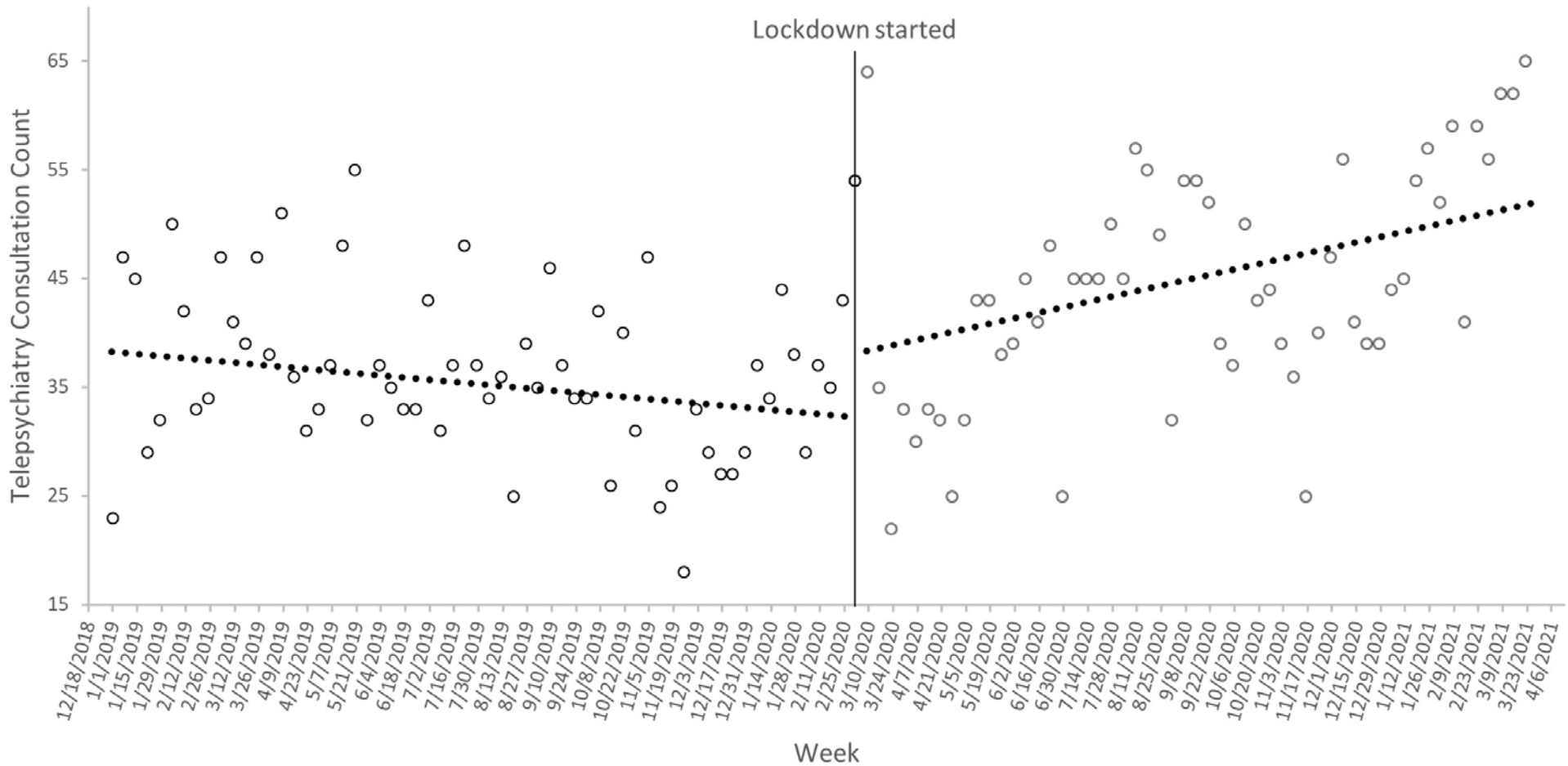
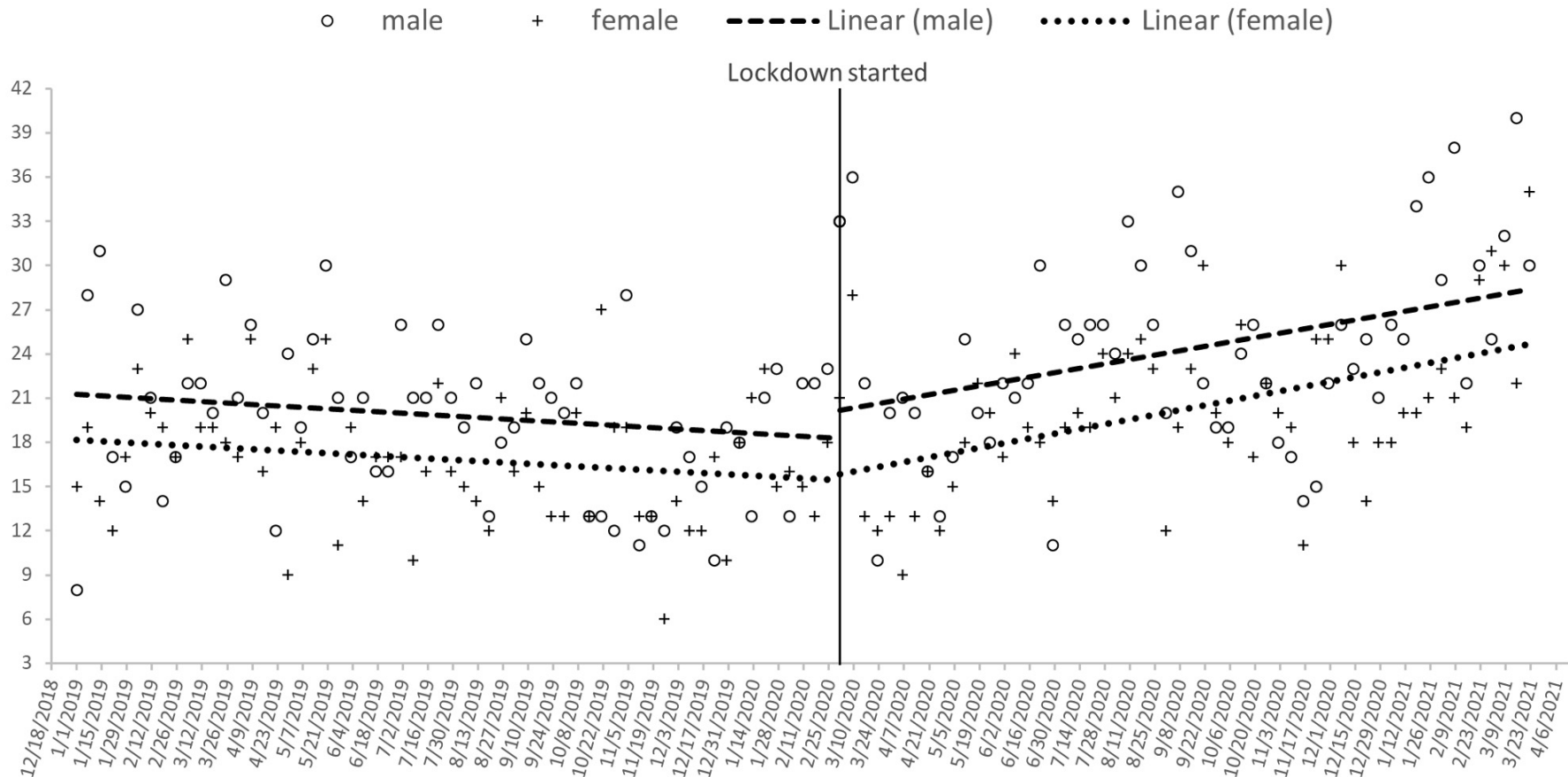


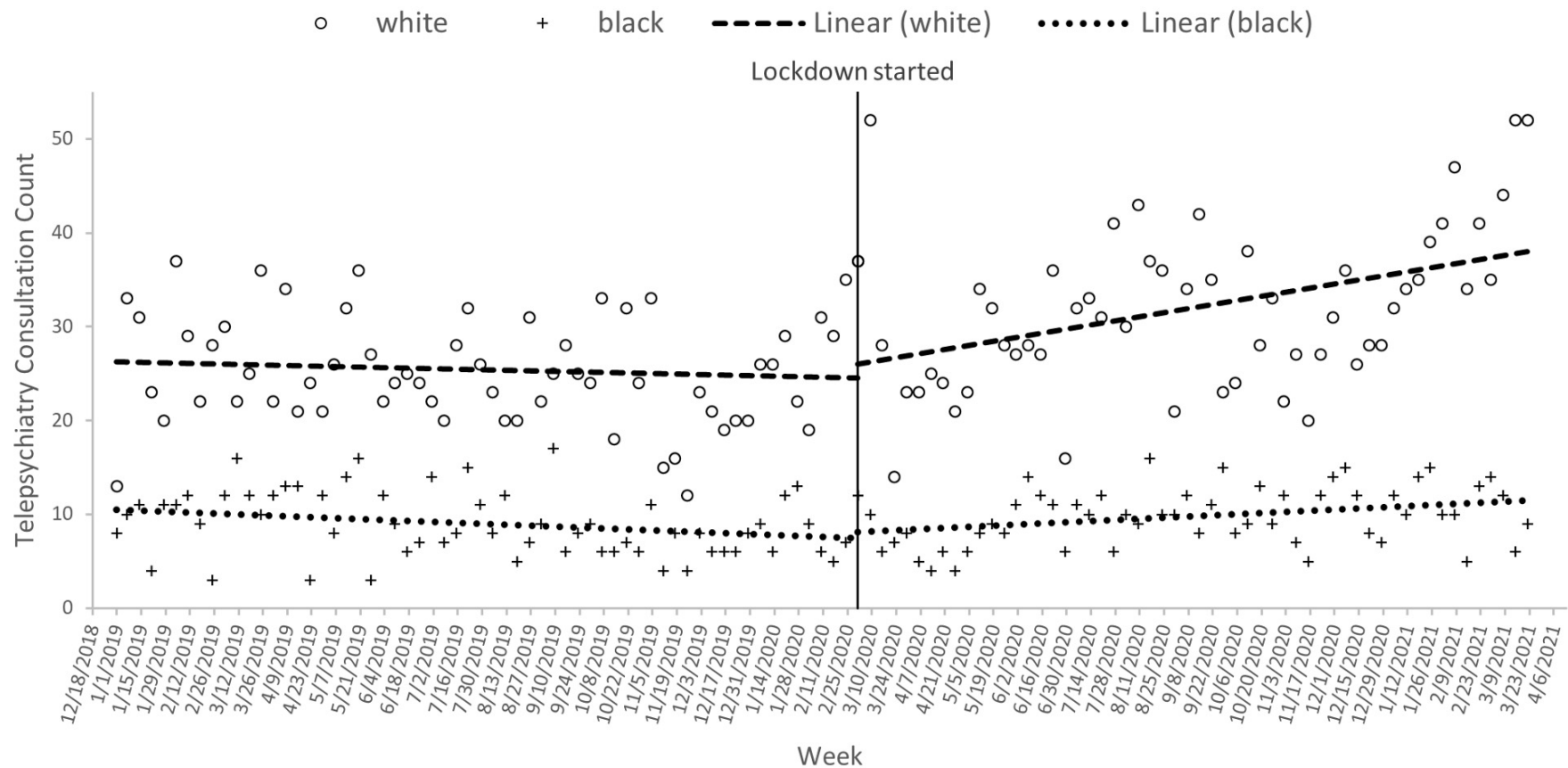
Figure 1. Growth trends of telesychiatry consultation counts before and after lockdown. The vertical line indicates the first week of March 2020. The dashed lines are trends adjusted for seasonality

Results: Weekly telepsychiatry consultations for male vs. female patients



Weekly telepsychiatry consultations for male versus female patients from January 2019 to March 2021. The vertical line indicates the first week of March 2020. The dashed lines are trends adjusted for seasonality.

Results: Weekly telepsychiatry consultations for black vs. white patients



Weekly telepsychiatry consultations for black versus white patients from January 2019 to March 2021 (117 weeks). The vertical dashed line indicates the first week of March 2020. The dashed lines are trends adjusted for seasonality.

Conclusion

The findings reveal that the demand for telepsychiatry consultations has increased and continued to increase during the COVID-19 crisis.

However, the low increasing trend for telepsychiatry consultations provided to black patients raises the concern of possible race disparity in telepsychiatry services in the United States.

Xue, Y., Saeed, S. A., Liang, H., Jones, K., & Muppavarapu, K. S. (2022). Investigating the impact of covid-19 on telepsychiatry use across sex and race: A study of North Carolina emergency departments. *Telemedicine and e-Health*, 28(10), 1431-1439.

Community-Based Program

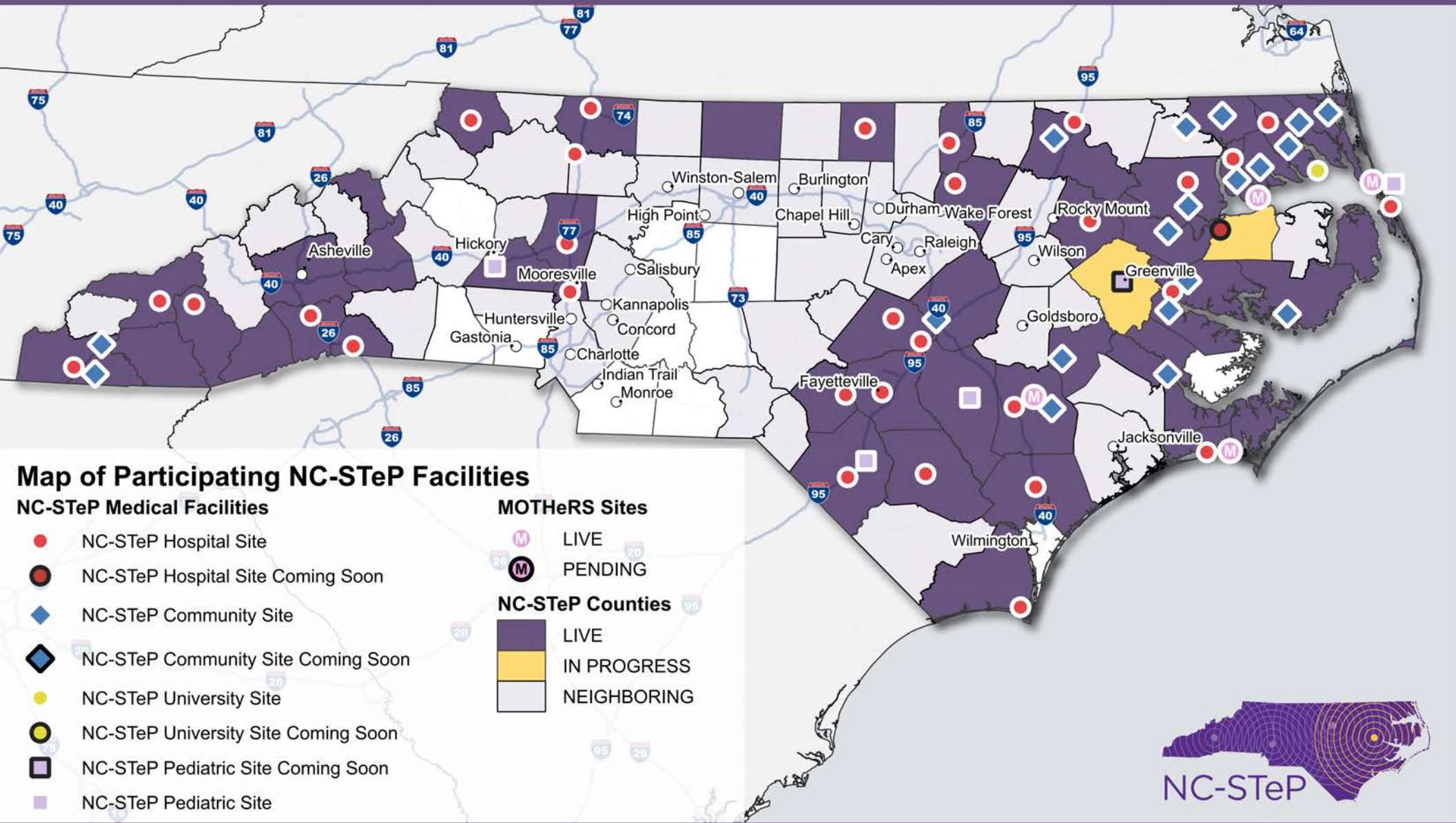
- Creating collaborative linkages and developing innovative models of mental health care:
 - Primary Care Providers
 - Primary Ob-Gyn Clinics
 - Health Department Clinics
- NC-STeP web portal, accessible by participating providers, as a central point for coordinated care.
- Evidence-based practices to make recovery possible.

NC-STeP Status as of January 1, 2024

- 29 hospitals in the network
- 61,427 total psychiatry assessments (in hospital EDs) since program inception
- Cumulative return on investment = \$57,105,000 (savings from preventing unnecessary hospitalizations)
- Over 31% of the patients served had no insurance coverage
- 22 community-based sites.
- 23,886 patient visits since community-based program inception in October 2018.



NC-STeP Status as of January 1, 2024



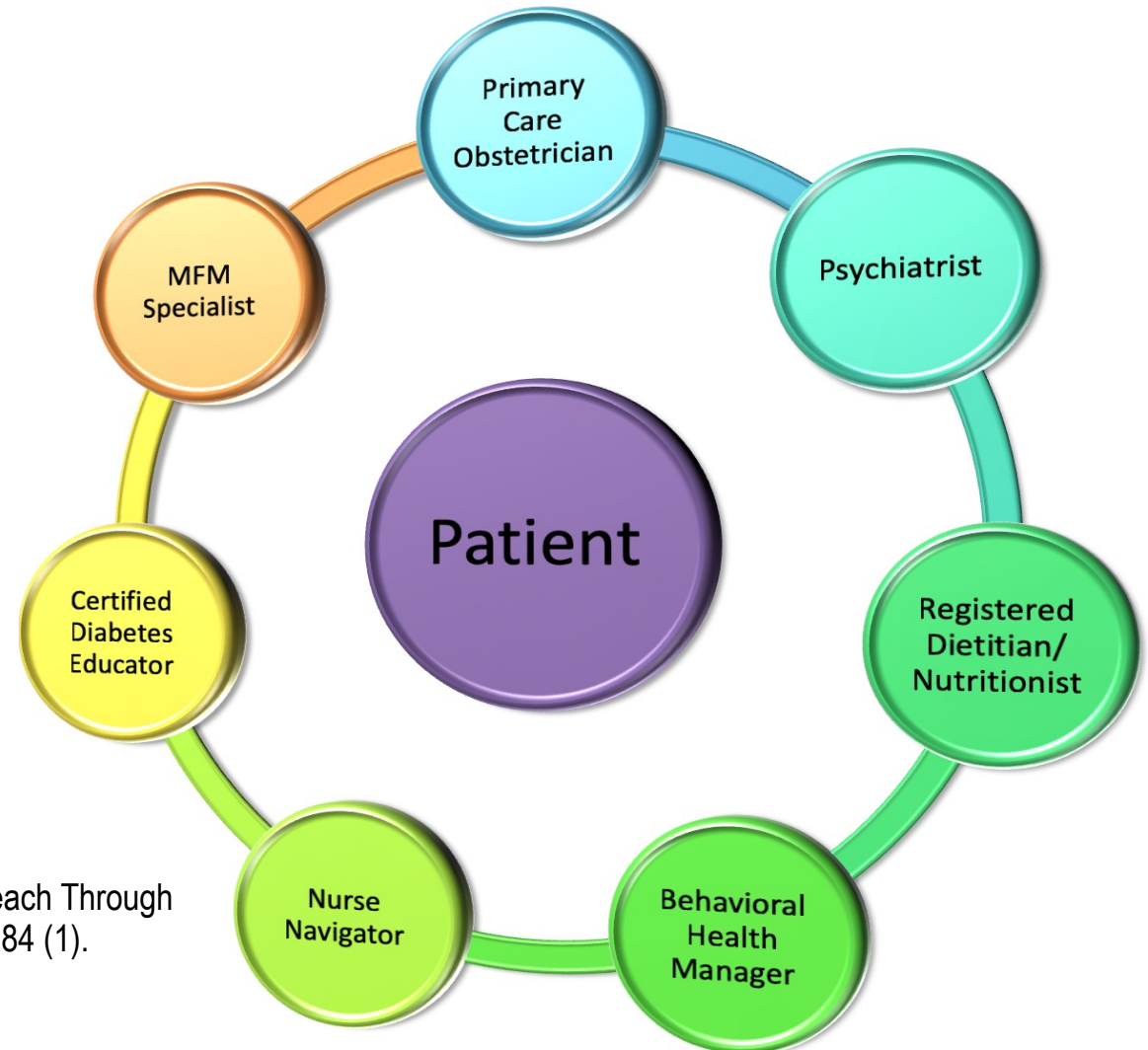
The Challenge

- The Covid-19 pandemic forced healthcare providers to rethink and quickly reinvent the delivery of care, particularly in rural settings.
- Fear of COVID-19 and the lack of definitive and timely information have caused many patients to be no-shows at clinic appointments, and, as a result, not receive the care they need.
- This posed an especially critical issue for pregnant women and their newborns in the 29-county area that ECU) serves
- ECU, the safety net provider for 1.4 million people in eastern North Carolina, is the only source for high-risk prenatal care in the region.



MOTHeRS Project

Maternal Outreach Through Telehealth for Rural Sites



Saeed SA, Jones K, Sacks AJ, Craven K, Xue Y. Maternal Outreach Through Telehealth for Rural Sites: The MOTHeRS Project. NCMJ. 2023;84 (1).

MOTHeRS Project Results January 2021– March 2023

Impact on Patient Access	Number of perinatal visits with MFM specialist		122
	Impact on patient access (calculated as driving miles saved per MFM specialist visit and diabetes educator visit: Carteret - 157, Kenansville - 130, Edenton -156, Outer Banks -252)		36,784 driving miles saved
	Number of patient visits with Certified Diabetes Educator or Registered Dietitian Nutritionist		116
	Number of women served for mental health reasons	LCSW visits:	1,122
		Psychiatrist visits:	401
Total Mental Health visits:		1,523	
Impact on patient access (calculated as driving miles saved per Psychiatrist and LCSW visit: Carteret - 157, Kenansville - 130, Edenton -156, Outer Banks -252)		259,473 driving miles saved	

Food Insecurity	Number of Food Bags Sent to Clinics*	1,030
	Number of Patients Screened for Food Insecurity	27,723
	Number of Food Bags Distributed**	695

Saeed SA, Jones K, Sacks AJ, Craven K, Xue Y. Maternal Outreach Through Telehealth for Rural Sites: The MOTHeRS Project. NCMJ. 2023;84 (1).



MOTHeRS Project

Maternal Outreach Through Telehealth for Rural Sites

- There are significant challenges facing rural women in accessing comprehensive, affordable, high-quality maternal health and mental health care.
 - Evidence points toward disproportionately high maternal deaths of Black and other minority women, especially in rural areas.
- Leveraging technology to develop a collaborative co-management model can create a patient-centered team approach that results in both improved patient experiences and a positive impact on maternal-fetal health.

New Developments: Mental health services for children and adolescents in six selected pediatric practices in Tier 1 or Tier 2 counties in North Carolina



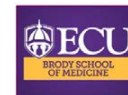
- Embed a licensed behavioral health provider (BHP) into 6 pediatric practices
- Bring a C&A psychiatrist to each practice via telemedicine for consultation
- Using virtual reality, create “NC Rural Kids Get Well,” a 3-D community on the Roblox platform to serve three main purposes: education, peer support, and surveillance
- An artificial intelligence (AI) driven knowledge management (KM) online portal to enhance collaborations among different sites’ healthcare providers; encourage family members’ engagement in children’s mental health care; discover innovative and customized mental health service approaches for NC rural area children; and disseminate timely and relevant mental health knowledge to health care professionals, family members, and local community partners
- Utilize these sites for inter-professional training and collaborate with university and community partners to develop a continuum of care that can include school systems, existing family therapy clinics, and child advocacy centers

NC-STeP Published Papers and Book Chapters

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2. Saeed SA, Shore JH, Yellowlees P. Using Technology for Providing Care. (2023). In Saeed SA, Lauriello J, and Roberts LW (Editors). Textbook of Psychiatric Administration and Leadership, Third Edition. American Psychiatric Association Publishing, Washington, DC. ISBN 978-1-61537-337-6
3. Saeed SA, Kolodner RM, Balog DJ. Health Information Technology. (2023). In Saeed SA, Lauriello J, and Roberts LW (Editors). Textbook of Psychiatric Administration and Leadership, Third Edition. American Psychiatric Association Publishing, Washington, DC. ISBN 978-1-61537-337-6
4. Muppavarapu K, Saeed SA, Jones K, Hurd O, Haley V. (2022). Study of impact of telehealth use on clinic “no show” rates at an academic practice. *Psychiatric Q*. 2022. April 12. Online ahead of print.
5. Saeed SA, Jones K, Sacks AJ, Craven K, Xue Y (Lucky). Maternal Outreach Through Telehealth for Rural Sites: The MOTHeRS Project. *North Carolina Medical Journal*. 2023;84 (1).
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14. 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.
15. Saeed SA, Anand V. (2015). Use of Telepsychiatry in Psychodynamic Psychiatry. *Psychodynamic Psychiatry*: Vol.43, No.4, pp.569-583.
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Conclusions

- Psychiatric disorders are common but the work force for mental health and substance use disorders has been in short supply and it's getting worse.
- Use of technology and telepsychiatry is a viable and reasonable option for providing psychiatric care to those who are currently underserved or who lack access to services.
- NC-STeP is an established model that is nationally known for its work with the underserved communities.



ACKNOWLEDGEMENTS



James R. Dilke
THE DUKE ENDOWMENT



The Fullerton Foundation



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