NC-STeP

Using Telepsychiatry to Improve Access to Evidence-Based Care

Sy Saeed, M.D., FAC*Psych*,
Professor and Chairman
Department of Psychiatry and Behavioral Medicine
Brody School of Medicine - East Carolina University

Director
NC Statewide Telepsychiatry Program

East Carolina UNIVERSITY

Tomorrow starts here.

Disclosure

Neither I nor any member of my immediate family have any relevant financial relationship with the manufacturers of any commercial products and/or providers of commercial services discussed in this CME activity.

VIDANT™ Medical Center

East Carolina UNIVERSITY

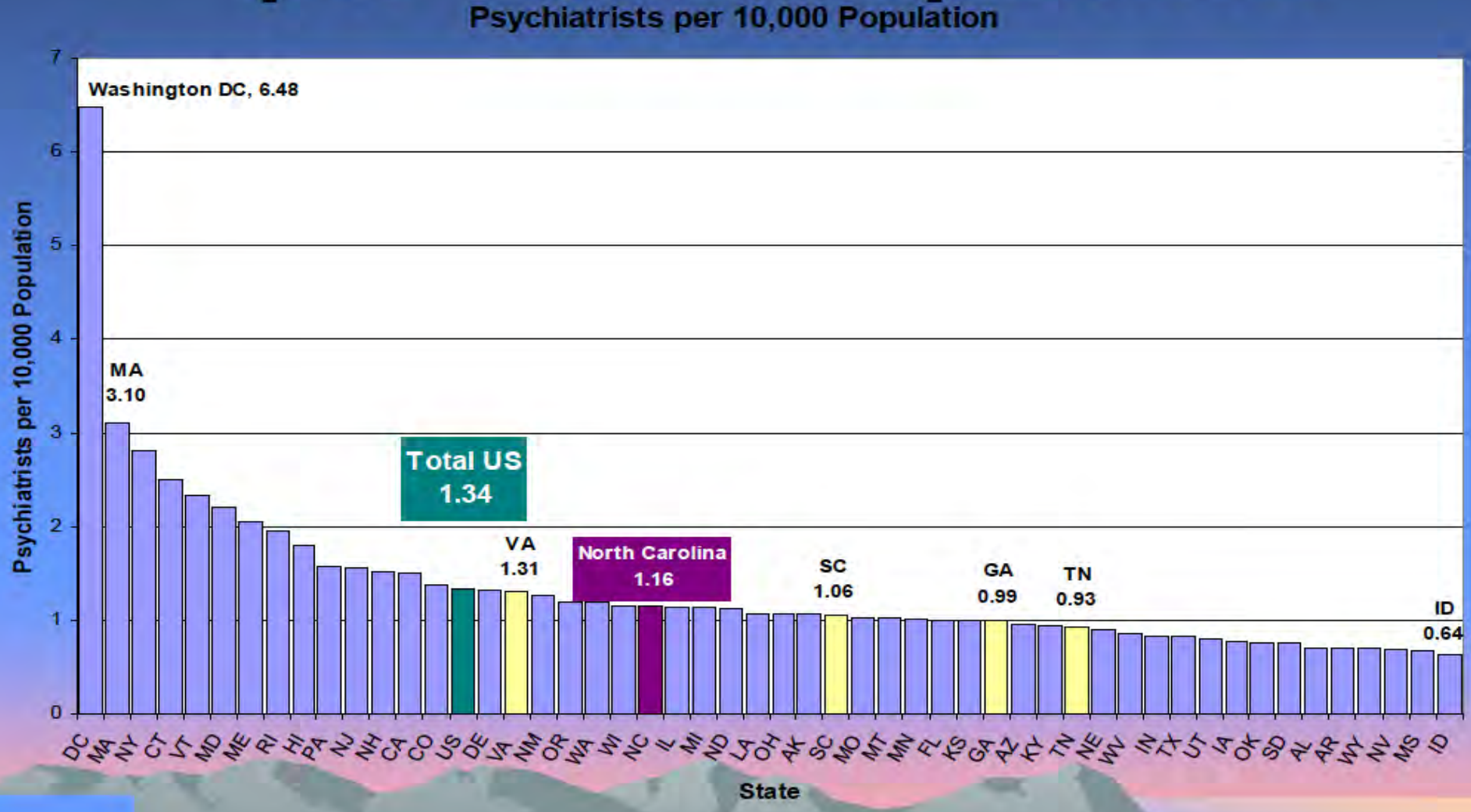
Mental disorders are common

- An estimated 26.2% of Americans ages 18 and older (about 1 in 4) Americans have a mental disorder in any one year[1].
  - When applied to the 2004 U.S. Census residential population estimate for ages 18 and older, this figure translates to 57.7 million[2].
- The main burden of illness is concentrated in a much smaller proportion — about 6 percent, or 1 in 17 (13.2 million) — who suffer from a serious mental illness[1].

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. U.S. Census Bureau Population Estimates by Demographic Characteristics. Table 2: Annual Estimates of the Population by Selected Age Groups and Sex for the United States: April 1, 2000 to July 1, 2004 (NC-EST2004-02) Source: Population Division, U.S. Census Bureau Release Date: June 9, 2005. http://www.census.gov/popest/national/asrh/

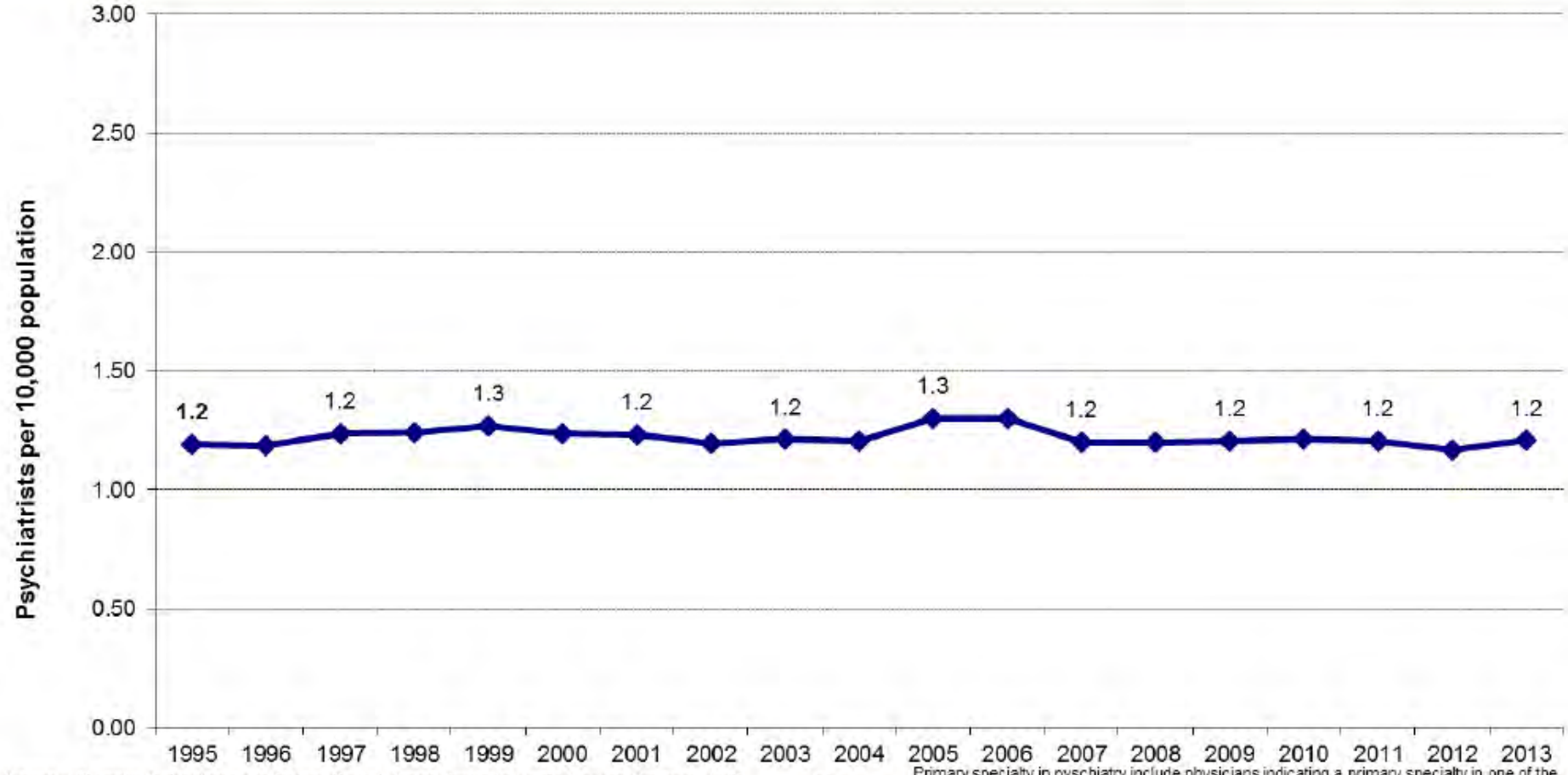
East Carolina University
CENTER FOR TELEPSYCHIATRY

Psychiatrists per 10,000 Population



Source: AMA Masterfile; US Census Bureau (http://www.census.gov/popest/states/tables/NST-EST2005-01.xls, .

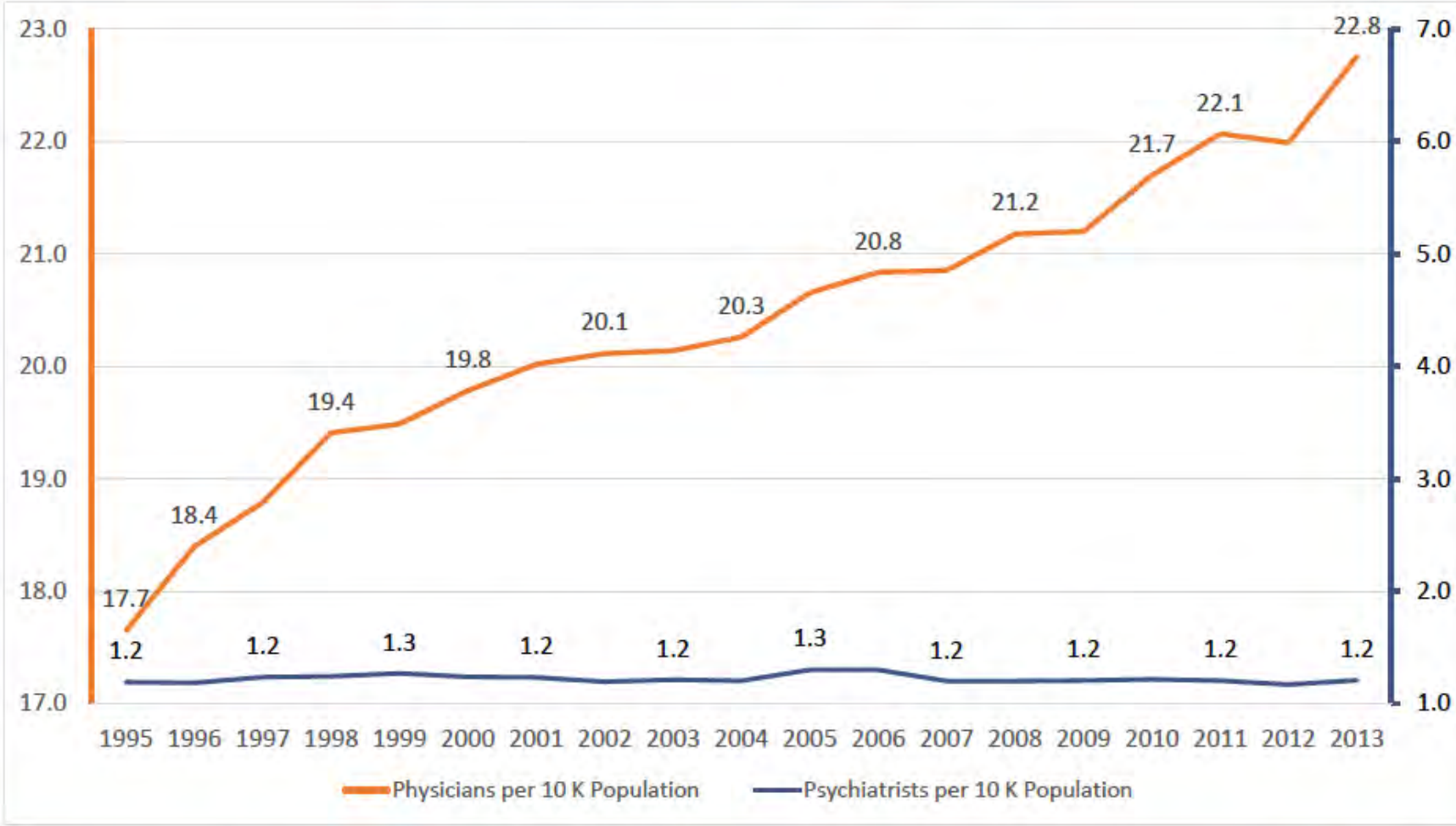
Psychiatrist numbers per capita stable over time in North Carolina 1995-2013



Source: NC Health Professions Data System, Cecil G. Sheps Center for Health Services Research, UNC-

Primary specialty in pyschiatry include physicians indicating a primary specialty in one of the following disciplines: psychiatry, child psychiatry, psychoanalysis, psychosomatic medicine, addiction/chemical dependency, alcoholic and drug abuse, hypnosis, forensic psychiatry or

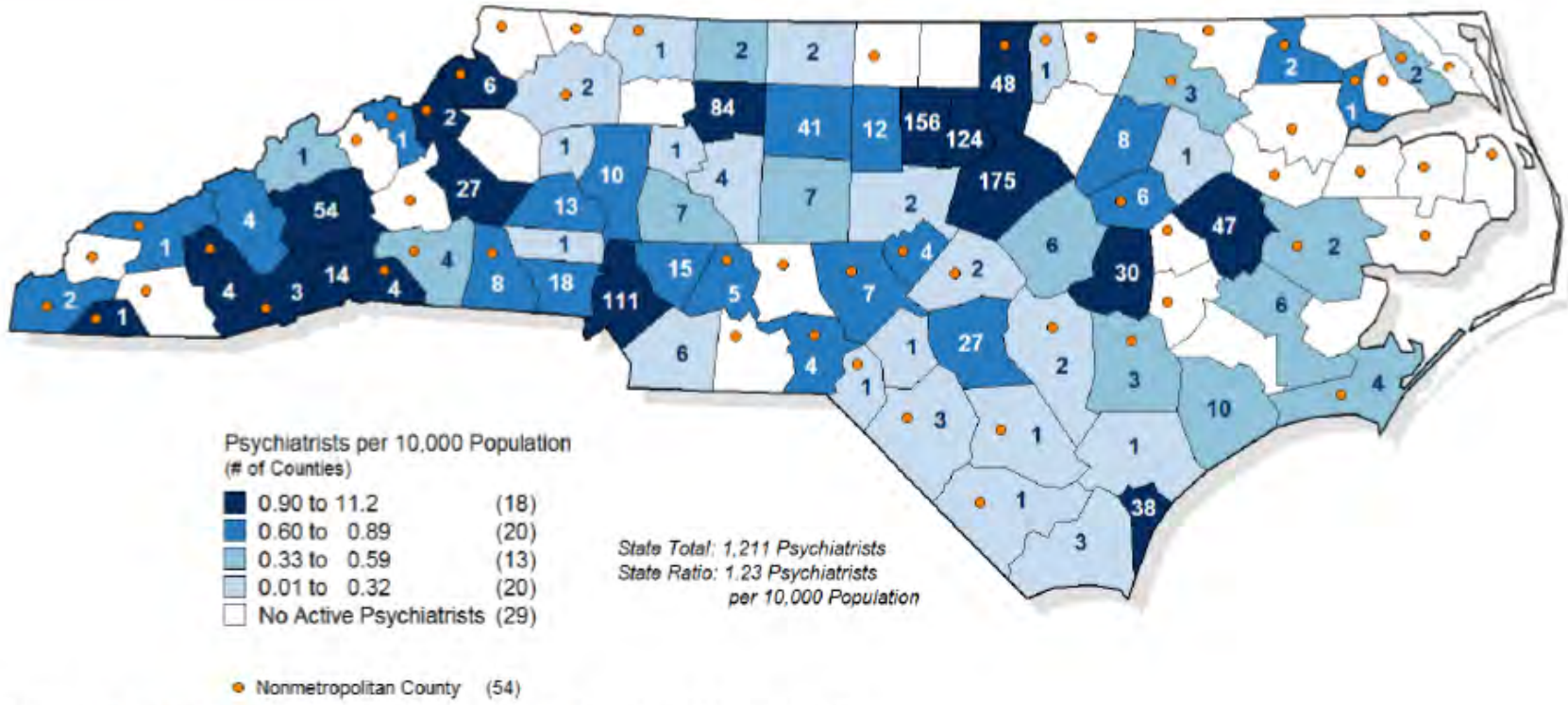
Overall physician numbers however, increase over time



Data from HPDS Data System at Cecil G. Sheps Center, University of North Carolina at Chapel Hill

UNC THE CECIL G. SHEPS CENTER FOR HEALTH SERVICES RESEARCH

Psychiatrists per 10,000 Population North Carolina, 2013



Source: North Carolina Health Professions Data System, with data derived from the North Carolina Medical Board, 2013; US Census Bureau and Office of Management and Budget, March 2013.

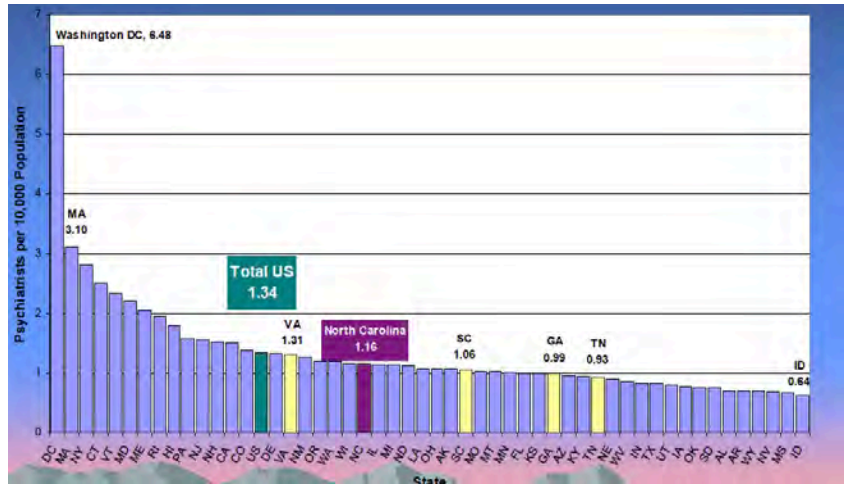
Note: Data are based on primary practice location and include active, instate, nonfederal, non-resident-in-training MDs and DOs licensed in NC as of October 31, 2013 who indicate that their primary area of practice is psychiatry, child psychiatry, psychoanalysis, psychosomatic medicine, addiction/chemical dependency, forensic psychiatry or geriatric psychiatry."Core Based Statistical Area" (CBSA) is the OMB's collective term for Metropolitan and Micropolitan Statistical areas. Here, nonmetropolitan counties include micropolitan and counties outside of CBSAs.

Produced by: Program on Health Workforce Research and Policy, Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill.

Map labels reflect the number of psychiatrists within the county.

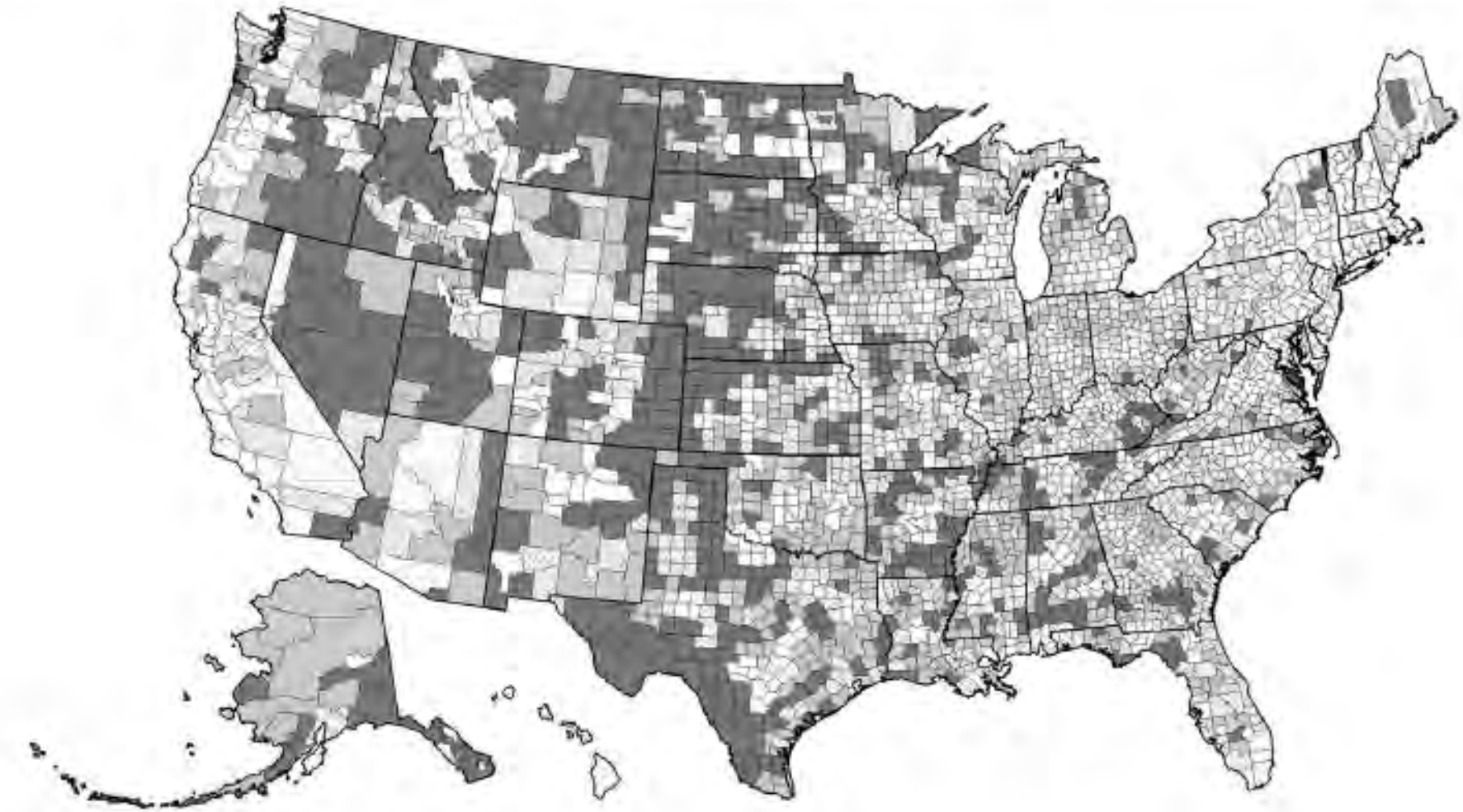
Distribution of psychiatrists statewide is such that many counties have a shortage

- 29 out of 100 counties in NC have no psychiatrists
- 58 out of 100 counties have a shortage of MH services
  - According to federal guidelines, 58 counties in North Carolina qualify as Health Professional Shortage Areas because of shortages of mental health providers to meet population needs.



Unmet need for mental health professionals among counties with an overall shortage[a]

PSYCHIATRIC SERVICES October 2009 Vol. 60 No. 10 1323



Darker shades signify counties with a high percentage of unmet need

- Globally, the median number of mental health workers is 9 per 100,000 population.
- The absolute number of MH workers per 100,000 population varies enormously, for example:
  - 6.6 psychiatrists per 100,000 population in the sampled high-income countries, compared to less than 0.5 per 100,000 population in low- and lower-middle income countries.

World Health Organization

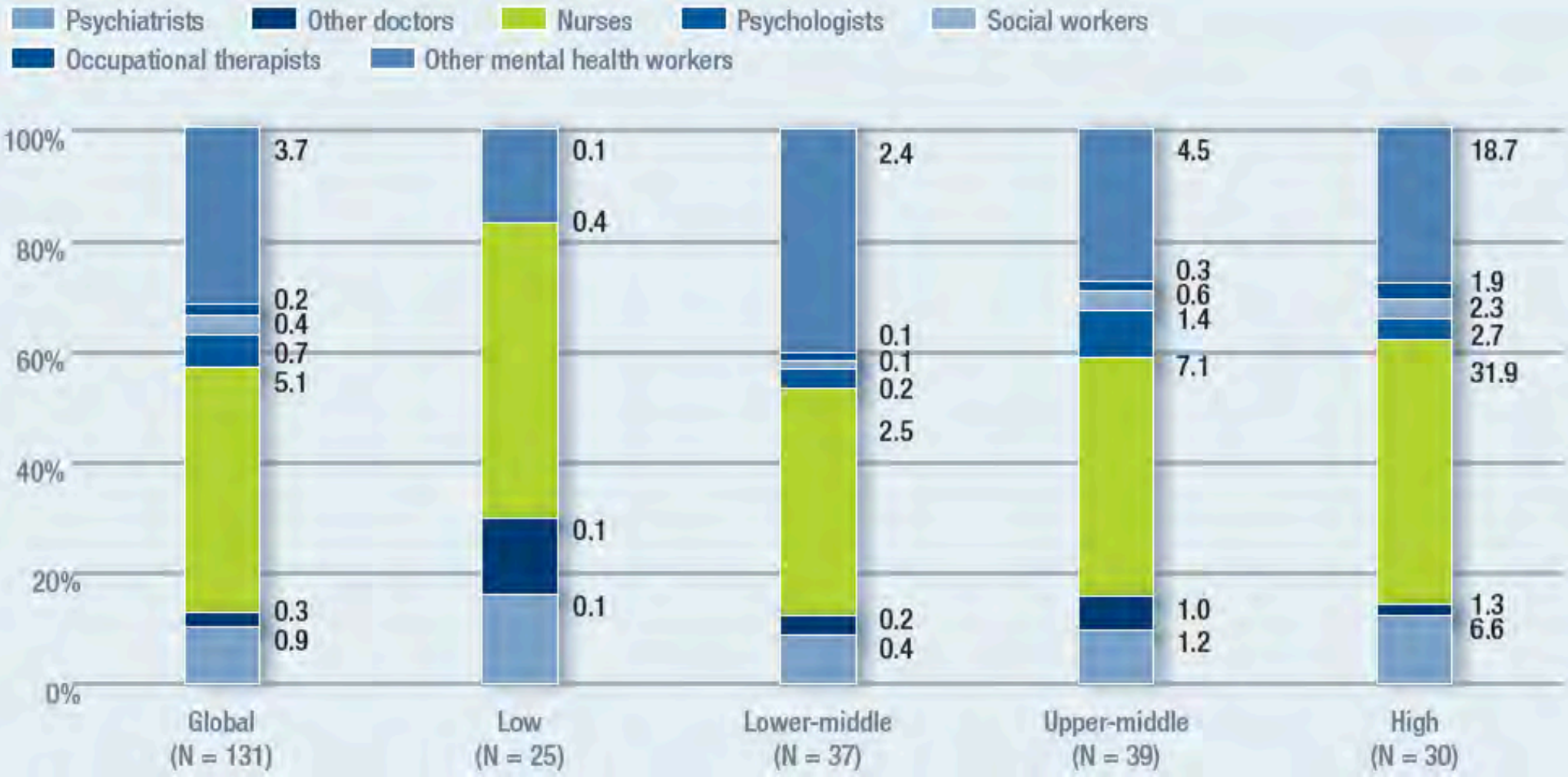


FIG. 3.3.4 Mental health workforce breakdown, by World Bank income group (values alongside the bars are health worker rates per 100,000 population)

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

In recent years North Carolina has seen high emergency department admissions related to behavioral health issues and extended lengths of stays (LOS), ranging from long hours to multiple days[1].

1) Akland, G. & Akland, A. (2010). State psychiatric hospital admission delays in North Carolina. Retrieved from http://naminc.org/nn/publications/namiwakerpt.pdf. (Accessed October 2, 2014)

NC-STeP

East Carolina University
CENTER FOR TELEPSYCHIATRY

The majority of NC Emergency Departments do not have access to a full-time psychiatrist

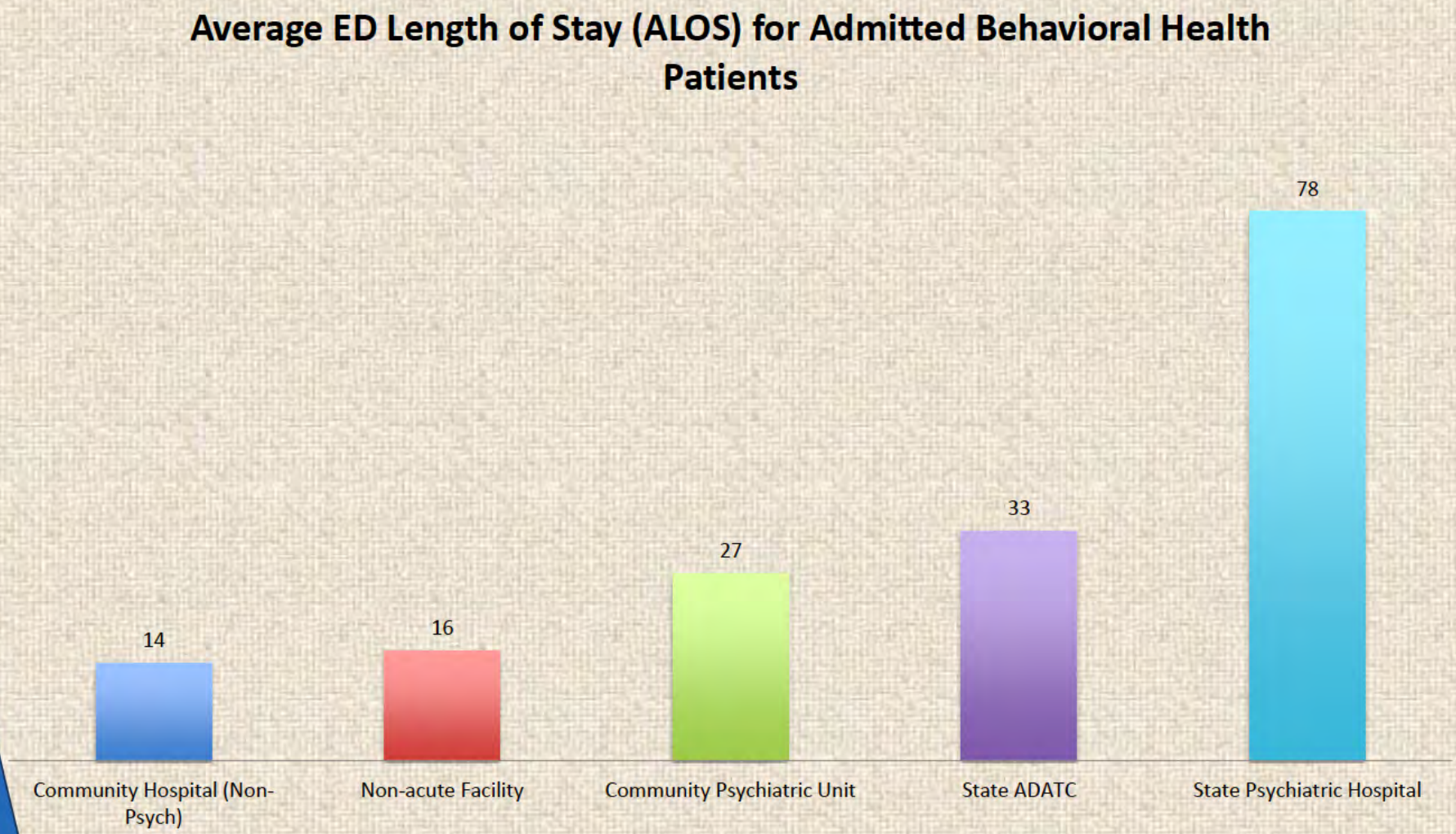
- Currently, there are 108 hospitals with either single ED's, or in some cases, multiple site ED's across the state with varying degrees of psychiatric coverage.

- The majority of ED's do not have access to a full-time psychiatrist.

NC-STeP

East Carolina University
CENTER FOR TELEPSYCHIATRY

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



Source: NCHA ED Tracker. 2012 Data.

Gap between what we know and what we practice

- A large gulf remains between what we know and what we practice*.
- Failure to follow best evidence highlights issues of underuse, overuse, and misuse of drugs** and has led to widespread interest in the safety of patients***.

*Eisenberg MJ, Garzon P. *Am J Cardiol* 1997;79: 867-72.

** Chassin MR, Galvin RW. *JAMA* 1998;280: 1000-5.

*** Institute of Medicine. *Crossing the quality chasm: a new health system for the 21st century.* Washington, DC: National Academy Press, 2001.

Studies Documenting the "Quality Gap"

- Literature reviews conducted by RAND
  - Over 70 studies documenting quality shortcomings
- Large gaps between the care people should receive and the care they do receive
  - true for preventive, acute, and chronic
  - across all health care settings
  - all age groups and geographic areas

Schuster et al., MMFQ,1998 ;updated 2000

Reports Documenting Gap Between Knowledge and Practice

- PORT Project Report, 1998.
- Surgeon General's Report, 2000.
- IOM Report (Crossing the Quality Chasm), 2001.
- Final Report of the *President's New Freedom Commission on Mental Health,* 2003.
- Committee on Crossing the Quality Chasm Adaptation to Mental Health and Addictive Disorders (IOM, 2005).
- Etc.

Quality of Health Care Delivered to Adults in the United States

- Only 55% chance of getting appropriate care
  - little difference among the proportion of recommended:
    - Preventive care (54.9 %)
    - Acute care (53.5 %)
    - Care for chronic conditions (56.1%)

McGlynn et al, 2003

The NEW ENGLAND JOURNAL of MEDICINE

Problems

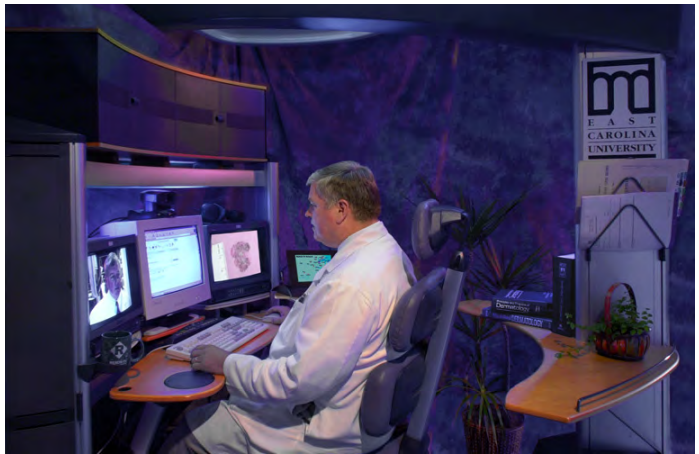
- Access
- Gap between science and practice

Can telemedicine and telepsychiatry help?

East Carolina University
CENTER FOR TELEPSYCHIATRY

Telepsychiatry can offer help!

Telepsychiatry is defined in the statute as *the delivery of acute mental health or substance abuse care, including diagnosis or treatment, by means of two-way real-time interactive audio and video by a consulting provider at a consultant site to an individual patient at a referring site.*



Demonstrated Benefits of Telepsychiatry

(Saeed SA, Diamond J, Bloch RM. (2011)

- ↑ access to mental health services
- ↓ geographic health disparities
- ↑ consumer convenience
- ↓ professional isolation
- ↑ recruiting and retaining MH professionals in underserved
- Improved consumer compliance.
- Improved education of mental health professionals.
- Improved coordination of care across mental health system.
- Reduction of stigma associated with receiving mental health services.

NC-STeP

East Carolina University
CENTER FOR TELEPSYCHIATRY

Telemedicine:
No longer just a rural area concept

- Improve Efficiency
- Expand service delivery
- Improve Outcomes

Telepsychiatry and e-Mental Health:
Clinical Applications

- Diagnostic, therapeutic, and forensic modalities across the age span.
- Points of delivery may include hospitals and their EDs, clinics, offices, homes, nursing homes, schools and prisons.
- Common applications include pre-hospitalization assessment and post-hospital follow-up care, medication management, psychotherapy, and consultation.

TECHNOLOGY

- Historically, interactive telepsychiatry applications have used point-to-point network connections, usually as full or fractional T-1 or Integrated Services Digital Network (ISDN) circuits.
- However, the rapid diffusion of Internet and Ethernet networks has led to the development of videoconferencing systems that can work over these types of networks, i.e. Internet Protocol (IP) networks.
- Most interactive telepsychiatry applications use a minimum of 384 kbps bandwidth, regardless of whether dedicated circuits or IP networks are used.

TECHNOLOGY

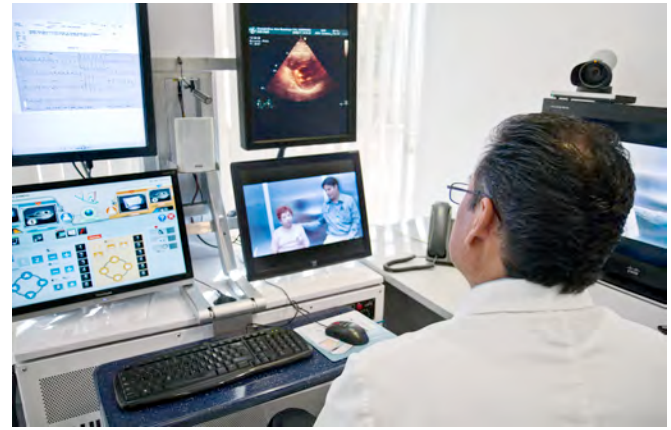
- If the telepsychiatry application uses IP networks, then security must be ensured – this can be accomplished by using encrypted codecs or by setting up a virtual private network (VPN) and/or virtual local area networks (VLAN).
- The principal advantage of IP networks is that they can be shared by multiple applications, e.g. Internet access, e-mail, LAN, etc., given that the aforementioned security solutions are employed.

TECHNOLOGY

- Telepsychiatry primarily involves interactive audiovisual conferencing systems over high capacity (high-bandwidth) networks.
- The central component of interactive telepsychiatry is the codec (coder/decoder), which provides the requisite compression and decompression, and synchronization of audio and video signals.
- Most often, a codec is a separate device (appliance), but personal computer (PC)—based codecs are increasingly employed as their capabilities improve.
- A codec is required at both the patient and consultant ends of the system.

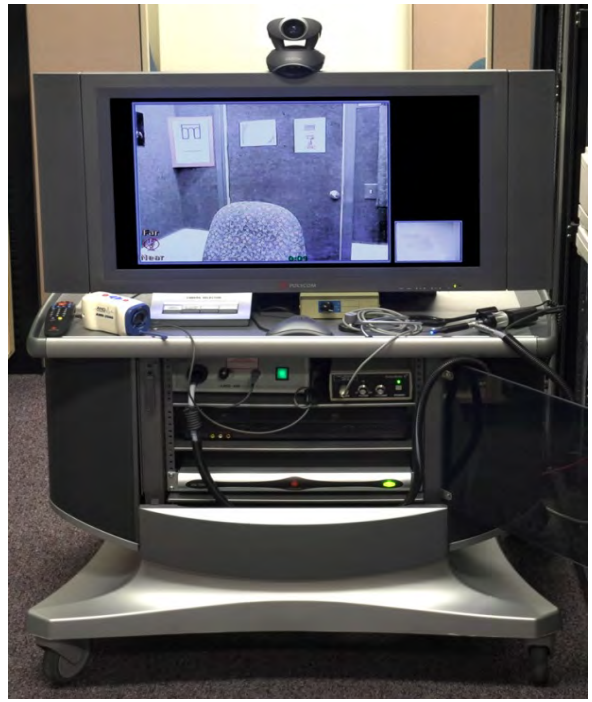
TECHNOLOGY

- A typical telepsychiatry setup also includes a video camera, microphone, speakers (or headset), and one or two displays (monitors) at each end of the system.
- Often, separate displays or a picture-in-picture (if one display) are used to enable participants to see both outgoing (preview) and incoming video.
- Another consideration is pan-zoom-tilt control of video cameras.



Technical Configuration

- Mobile capability: IP technologies equipped with encryption for interactive
- Patient Room Pan/Zoom/Tilt camera w/far-end control
- Mobile desktop unit for clinic connectivity



NC-STeP

NORTH CAROLINA

STATEWIDE TELEPSYCHIATRY PROGRAM

This statewide program was developed in response to Session Law 2013-360 directing the N.C. Department of Health and Human Services' Office of Rural Health and Community Care to "oversee and monitor establishment and administration of a statewide telepsychiatry program." (G.S. 143B-139, 4B).

General Assembly of North Carolina Session 2013
Session Law 2013-360
Senate Bill 402

Governor McCrory announced funding of Statewide Telepsychiatry Program (NC-STeP) at ECU in August of 2013

NC- STeP Vision

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

East Carolina University
CENTER FOR TELEPSYCHIATRY

- ECU Center for Telepsychiatry is the home for statewide program (NC-STeP) that is anticipated to connect 75-85 hospital emergency departments across the state of North Carolina to provide psychiatric assessments and consultations to patients presenting at these Eds.

NC-STeP NORTH CAROLINA STATEWIDE TELEPSYCHIATRY PROGRAM

NC-STeP Status as of June 2015

- 71 hospitals in network
  - 56 hospital currently live
  - 2 hospitals ready to go live, waiting on credentialing
  - 13 additional hospitals in process (i.e. contract negotiations, equipment being ordered, etc)
- Over 12,000 total Telepsychiatry Assessments have been conducted under the program since its inception in October 2013.

NC-STeP

East Carolina University
CENTER FOR TELEPSYCHIATRY

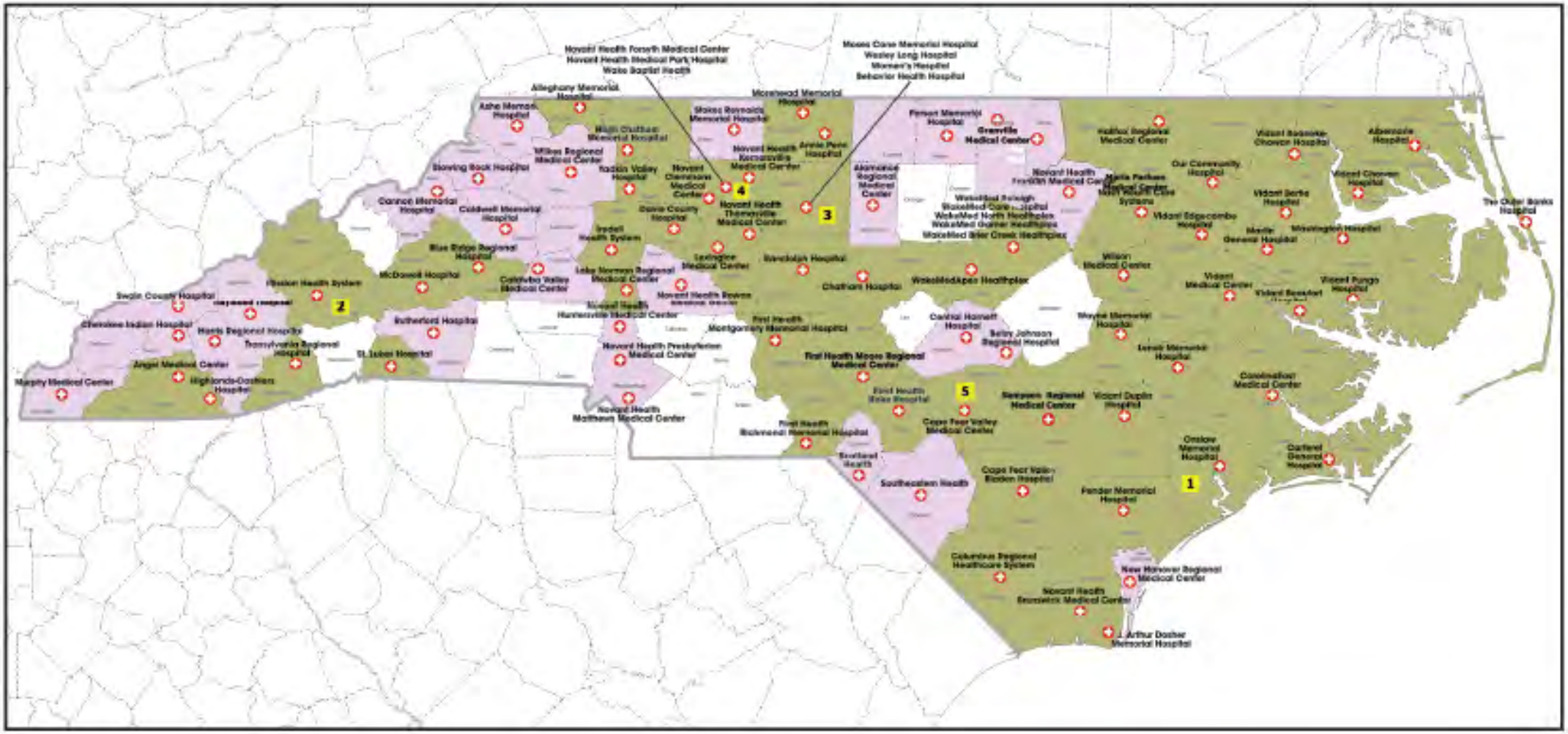
NC-STeP Status as of June 2015

- Five Clinical Providers' Hubs
    - Cape Fear Valley
    - Coastal Carolina Neuropsychiatry
    - Cone Health
    - Mission
    - Novant

NC-STeP

East Carolina University
CENTER FOR TELEPSYCHIATRY

NC-STeP Status - June 2015



Provider Hubs

1. **Coastal Carolina Neuropsychiatric Center**
2. **Mission**
3. **Cone Health**
4. **Novant**
5. **Cape Fear**

NC-STeP

East Carolina University
CENTER FOR TELEPSYCHIATRY

NORTH CAROLINA
STATEWIDE TELEPSYCHIATRY PROGRAM

Quality Management and Outcomes Monitoring

- All participating clinical providers:
  - Participate in a Peer review process
  - Meet quality and outcome standards

Telepsychiatry Portal

NC-STeP NORTH CAROLINA STATEWIDE TELEPSYCHIATRY PROGRAM

- "Health Information Exchange System" for NC-STeP
- Support all the HIT functions required of the program
- Portal is a group of separate but related technologies that serves as the primary interface through which data is reviewed and created regarding patient encounters
- Uses Direct Messaging and CCD/CCDA to deliver clinical information via DirectTrust HISP, using MU standards

Telepsychiatry Portal

NC-STeP NORTH CAROLINA STATEWIDE TELEPSYCHIATRY PROGRAM

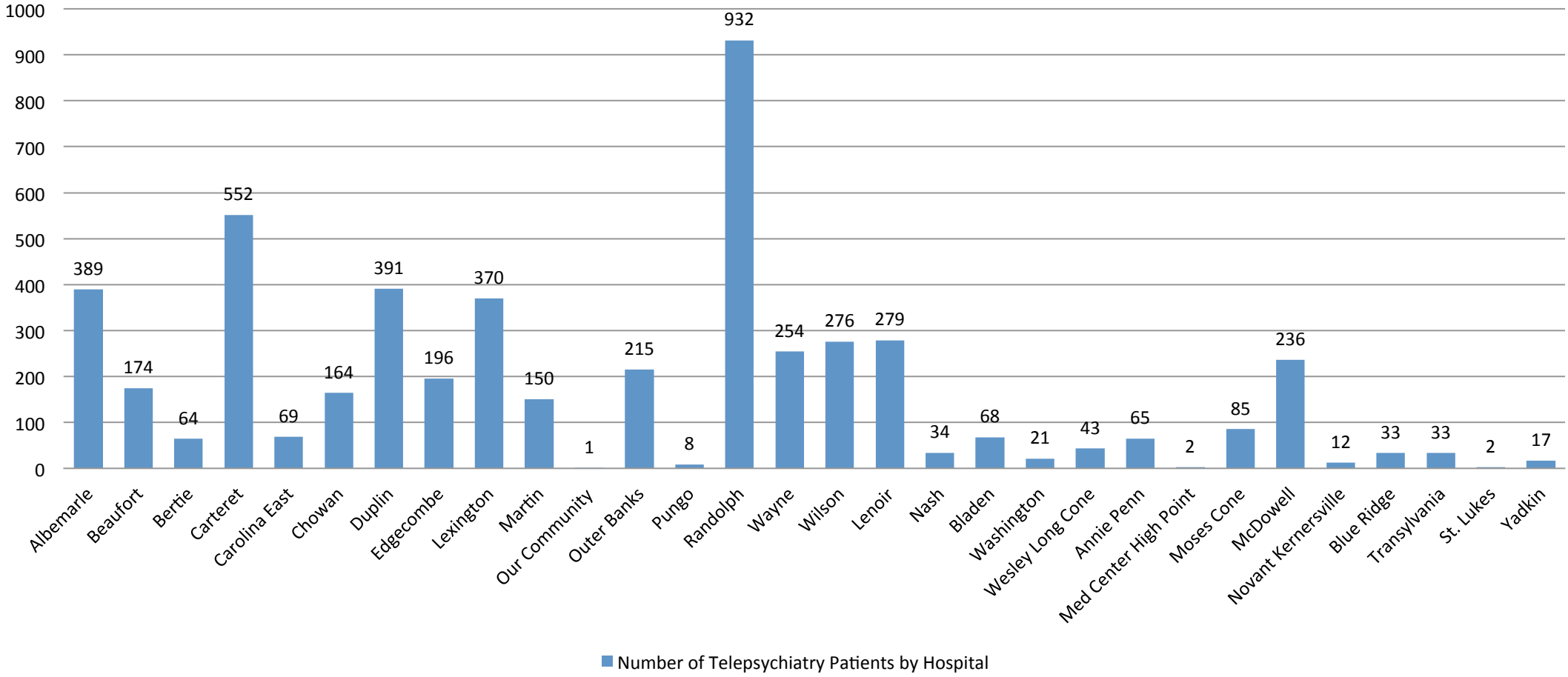
- Data collected and reviewed regarding:
  - Scheduling of patients and providers
  - Exchanging clinical data for patient care
  - Data for billing agents and to support timely referrals
  - Reporting of utilization, program needs, and population health
- NCHA Psychiatric and Substance Abuse Bed Board linkage

NC-STeP Quality Management and Outcomes Monitoring Processes

- The Center aggregates the referral site data for each quarterly reporting period and conducts analysis to determine the metrics below. Analysis is conducted for each individual site and for the program overall.
    - Total number of assessments
    - Length of stay
    - Length of stay by discharge disposition
    - Number of IVCs
    - IVC turnover rate
    - Percent of patients by discharge disposition
- The Center reports this data quarterly and develops ongoing procedures (graphs, charts, progress reports) so that these metrics can be monitored and compared over time to assess the program outcomes and monitor program quality.

NC-STeP NORTH CAROLINA STATEWIDE TELEPSYCHIATRY PROGRAM

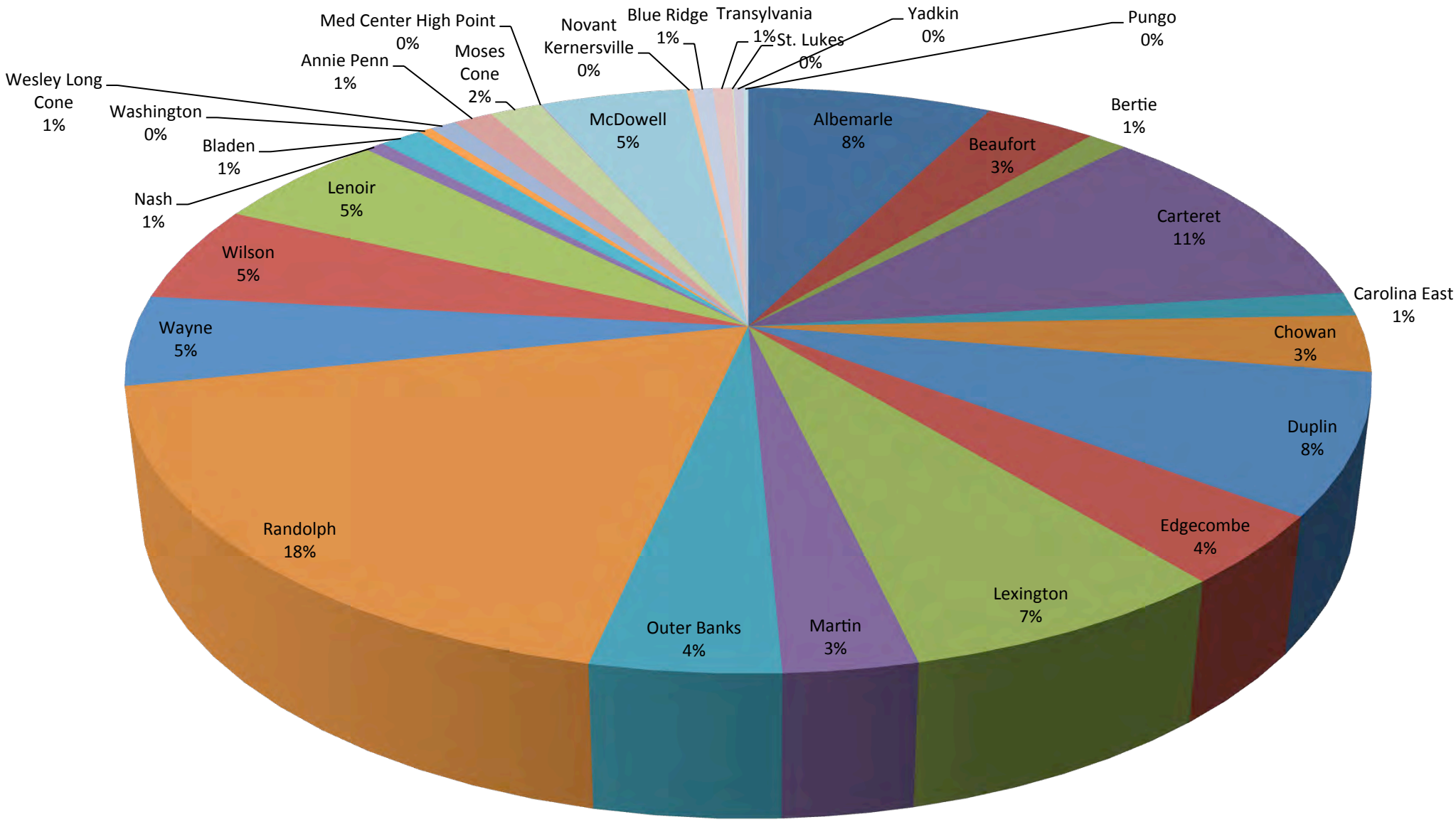
Total Number of ED Telepsychiatry Patients by hospital - for January - December 2014



NC-STeP

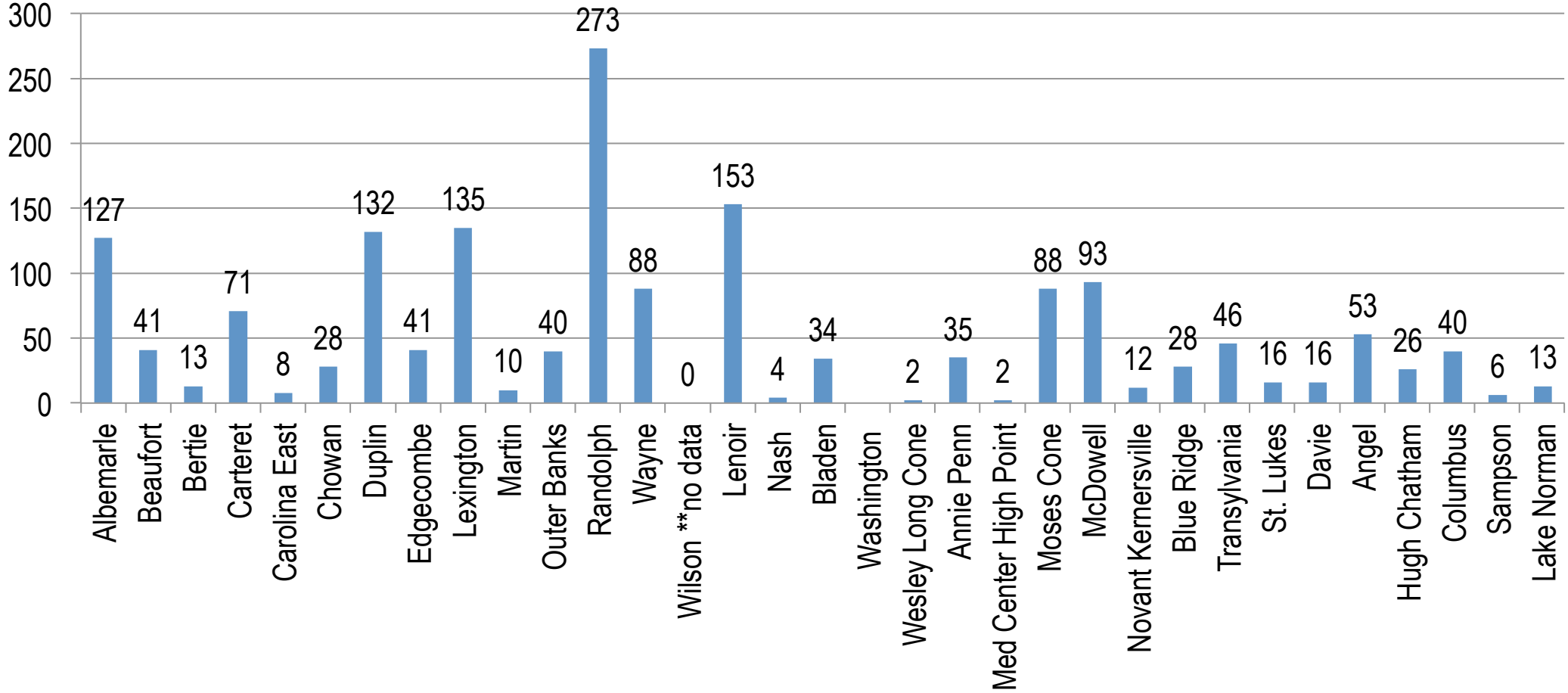
East Carolina University
CENTER FOR TELEPSYCHIATRY

Hospital EDs and Percent of Use - January - December 2014



NC-STeP NORTH CAROLINA STATEWIDE TELEPSYCHIATRY PROGRAM

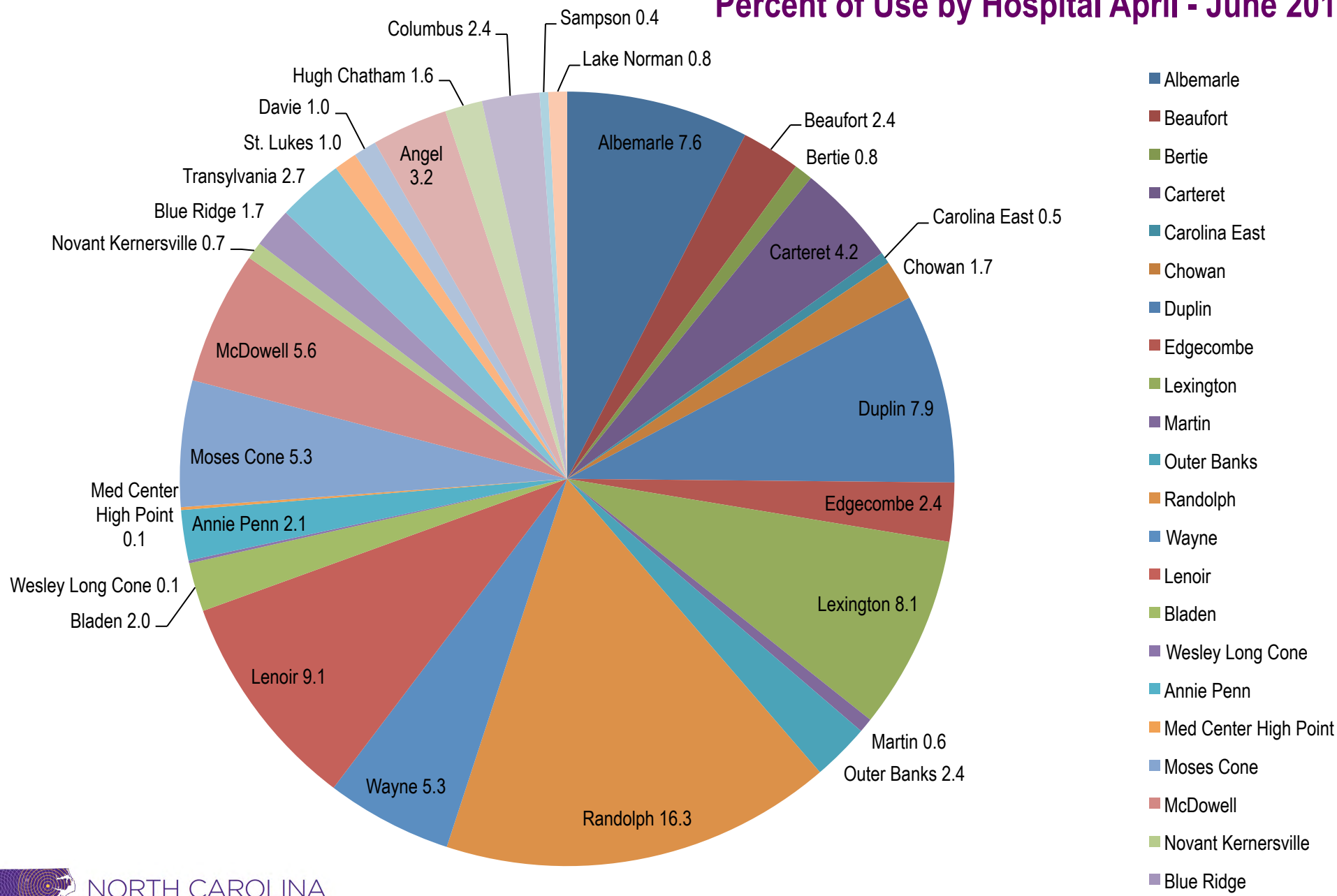
Total Number of ED Telepsychiatry Patients by Hospital - for April - June 2015



NC-STeP

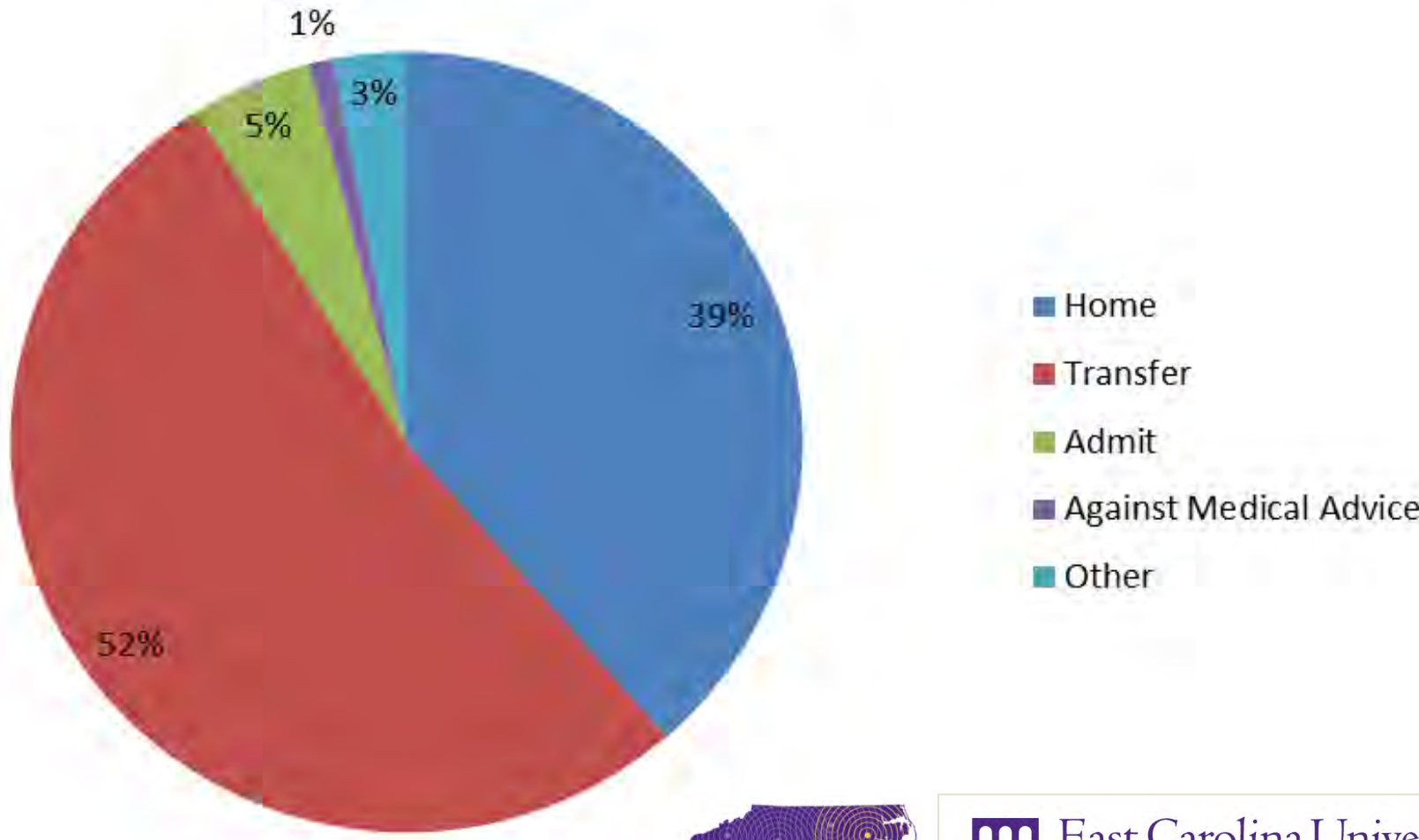
East Carolina University
CENTER FOR TELEPSYCHIATRY

Percent of Use by Hospital April - June 2015



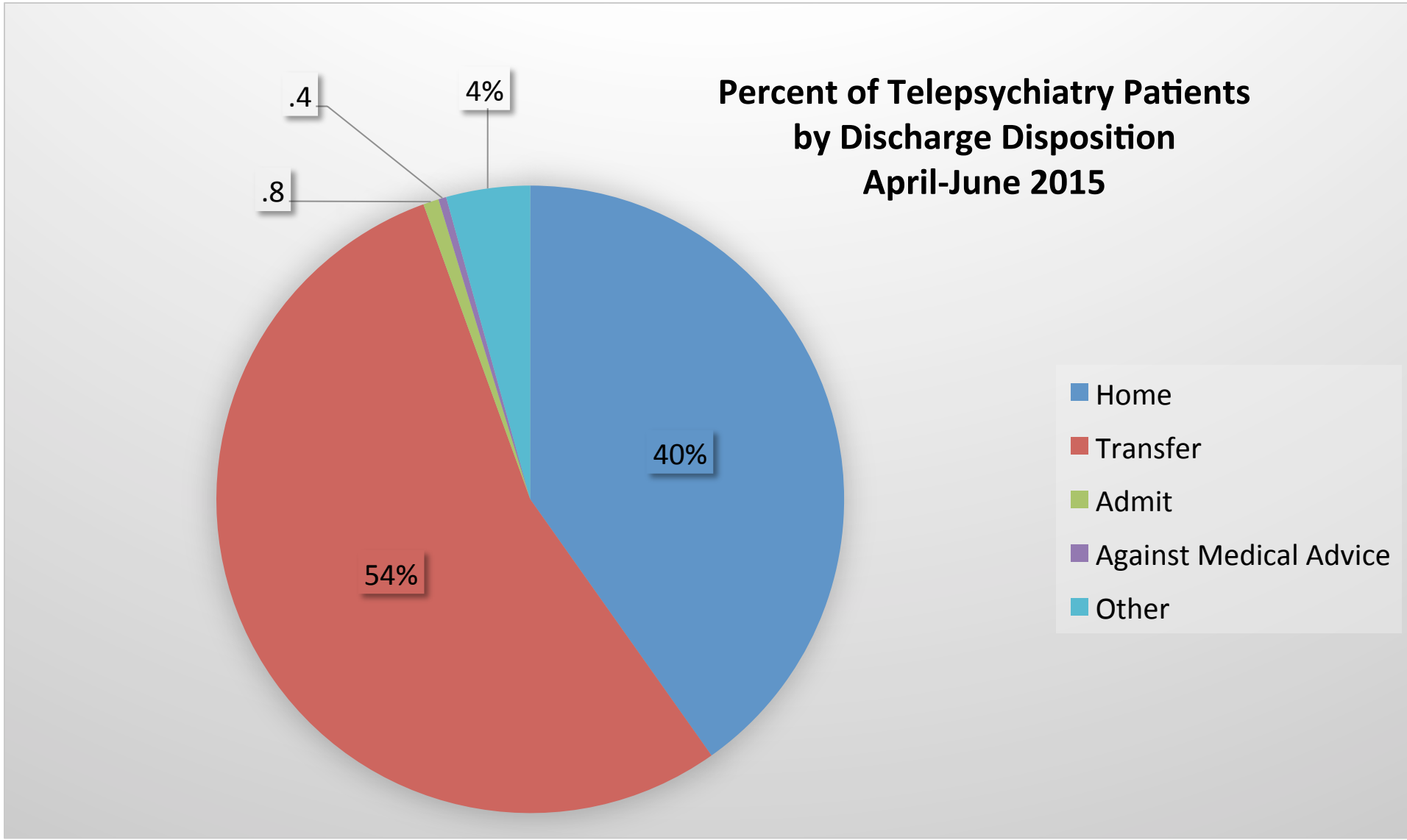
NC-STeP NORTH CAROLINA STATEWIDE TELEPSYCHIATRY PROGRAM

Percent of ED Telepsychiatry Patients by Discharge Disposition January - December 2014



NC-STeP

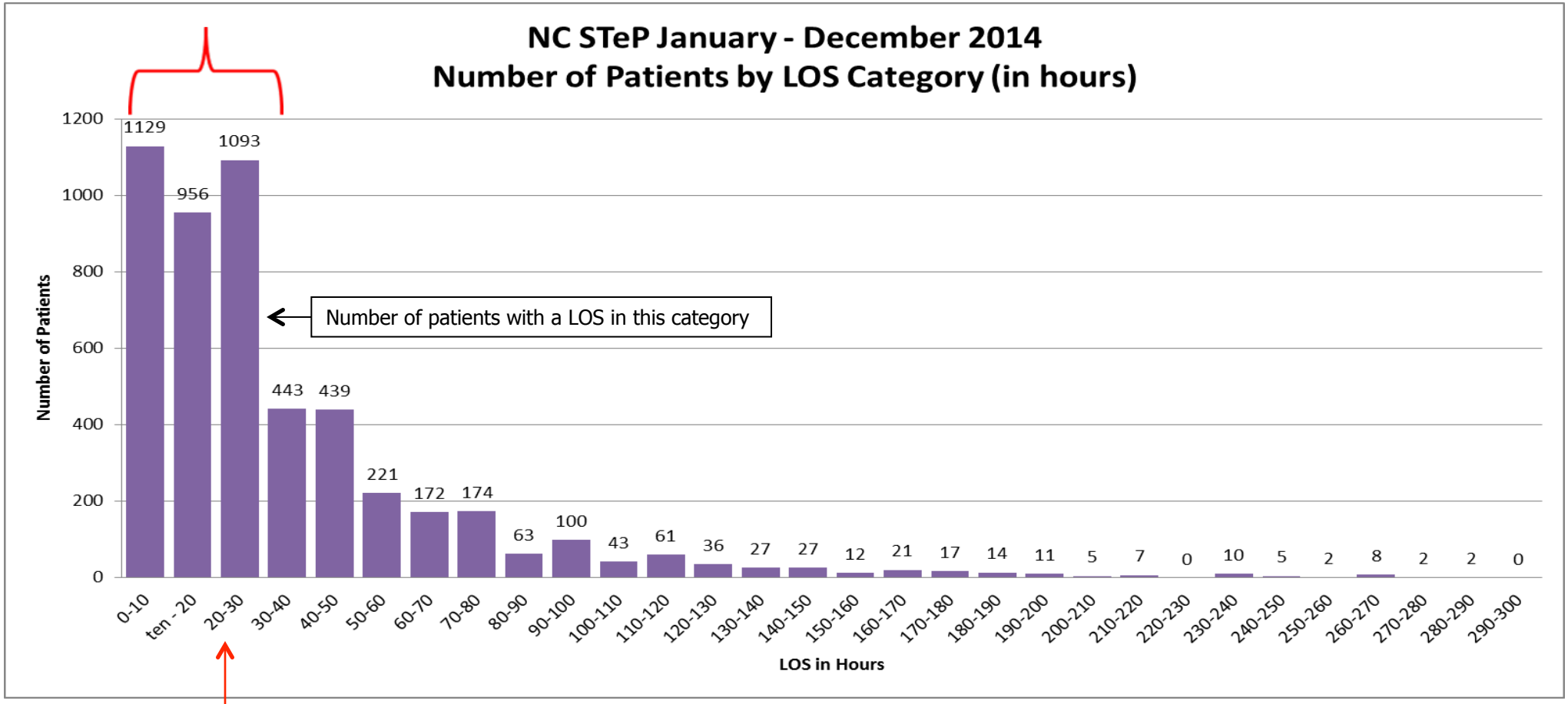
East Carolina University
CENTER FOR TELEPSYCHIATRY



NC-STeP

East Carolina University
CENTER FOR TELEPSYCHIATRY

62% percent of patients
Had a LOS of 30 hours or less

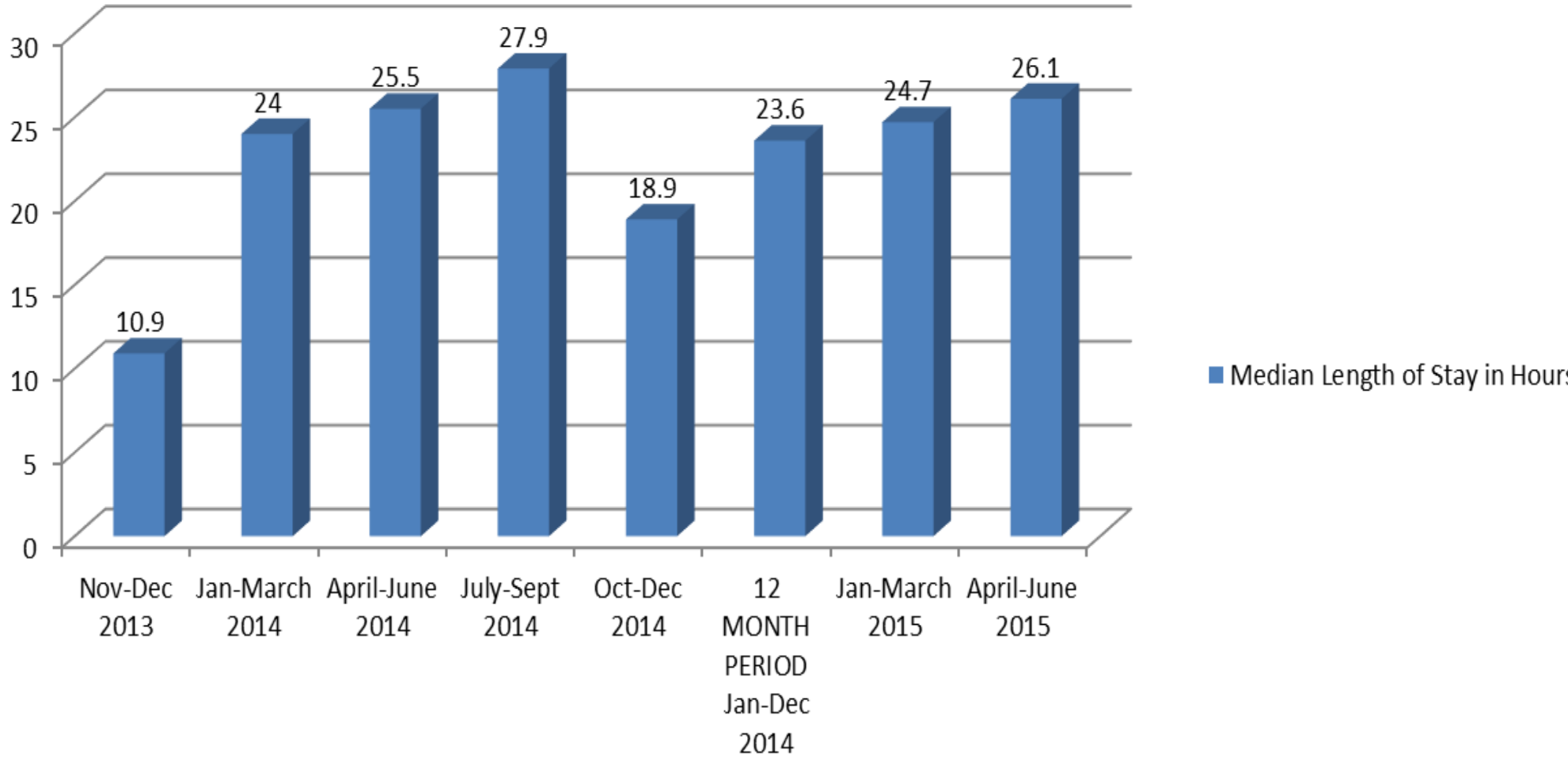


Median Length of Stay for Jan 2014 – Dec 2014 = 23.6 Hours

NC-STeP

East Carolina University
CENTER FOR TELEPSYCHIATRY

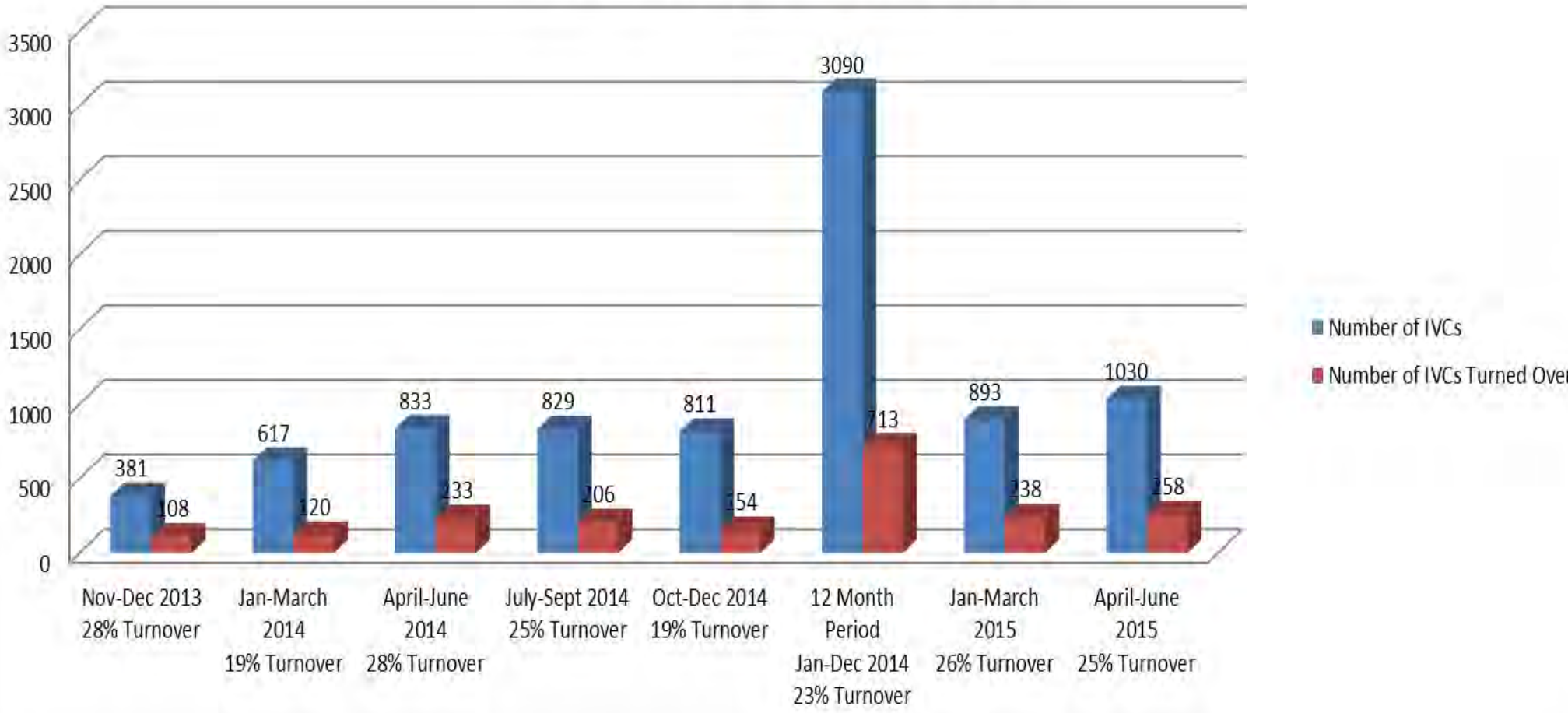
Median Length of Stay in Hours



NC-STeP

East Carolina University
CENTER FOR TELEPSYCHIATRY

NC STeP: Number of IVCs for Particpating Hospitals by Quarter and for Year 2014



NC-STeP

East Carolina University
CENTER FOR TELEPSYCHIATRY

Satisfaction Data

Satisfaction surveys are conducted with 4 groups:

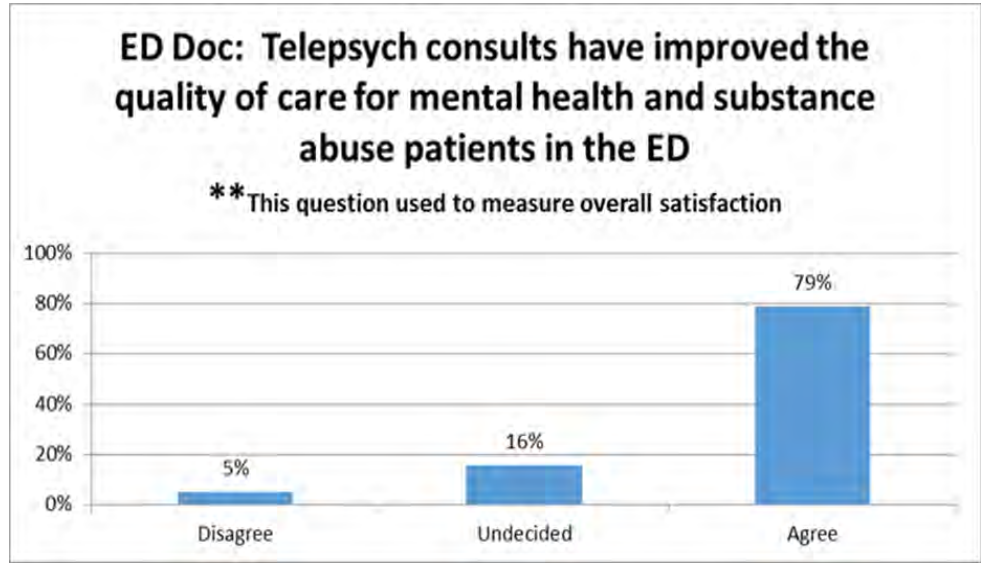
- Emergency Department Physicians
- Hospital Emergency Department Staff
- Hospital CEOs/COOs
- Provider (HUB) Physicians

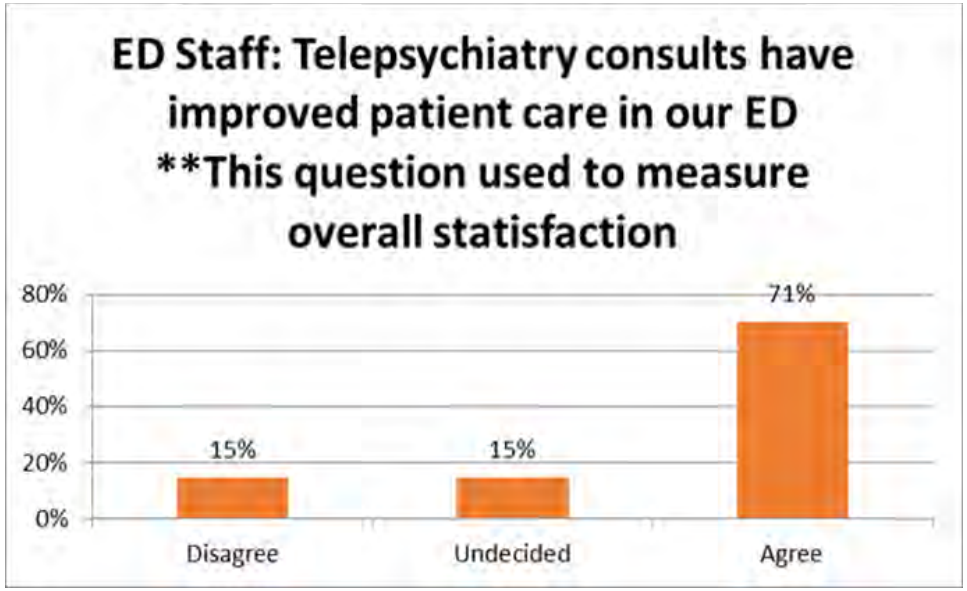
- Invitations to participate are sent via electronic mail
- Surveys are completed online via Qualtrics software
- Each group is given a different survey (with different questions) based on their role in the telepsychiatry program

For each group, one summary question is selected for an overall "satisfaction" rate. These are then averaged for a total rate.

Overall Satisfaction: Determined by a weighted average of the satisfaction measures for the user groups. The weighted average for April-June 2015 was 73% satisfied.

- Provider Psychiatrists = 67%.
- ED Physicians = 79%.
- ED staff = 71%.

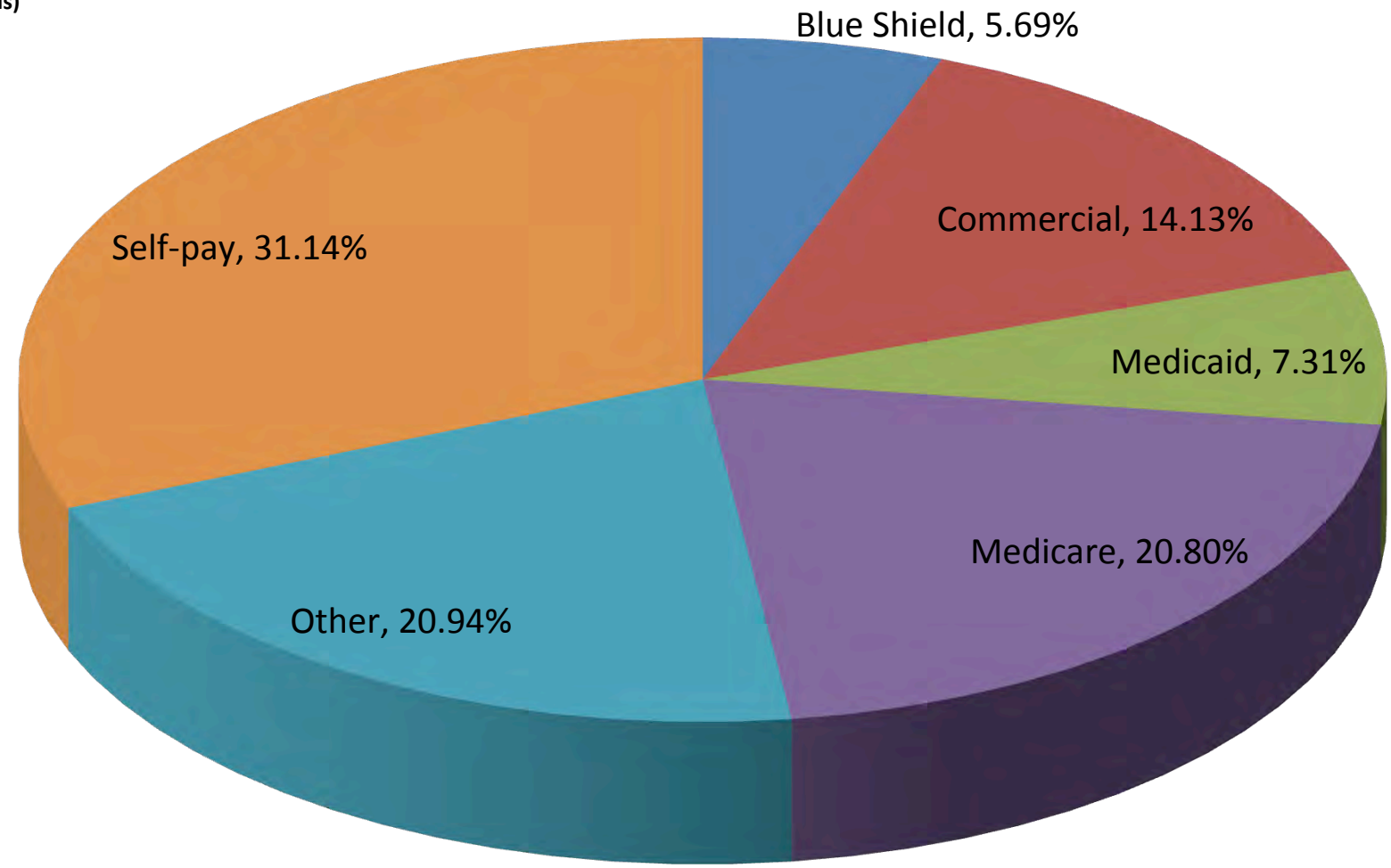




NC-STeP

East Carolina University
CENTER FOR TELEPSYCHIATRY

NC-STeP CHARGE MIX
PROJECT TO DATE
10/1/13 - 6/30/15
(based on initial status)



NC-STeP

East Carolina University
CENTER FOR TELEPSYCHIATRY

Who are the beneficiaries?
(Who should pay for it?)

Entity	Cost Savings
Patients and Families	How to quantify reduced distress/disability, functional improvement, quality of life, gainful employment, etc.
Communities	How to quantify better "citizenship", reduced homelessness, crime reduction, more self reliance, etc.
NC-Medicaid + "Indigent Care" (? MCOs)	NC State projected cost savings from over turned IVC's for self-pay and Medicaid =$4,441,239 Cost savings from reduced recidivism = ?
Third Party Payors	Projected cost savings from overturned IVC's = $1,133,261 Cost savings from reduced recidivism + ?
Sheriff Department	Projected cost savings to Sheriff Department from overturned IVCs= $535,404
Hospitals	Costs savings from increased throughput in the ED.

Opportunities

- While telepsychiatry makes it possible to transcend geographical boundaries and utilize workforce nationally, even globally, we'll never be successful in resolving NC workforce shortages if our MH workforce was located outside our geographical boundaries.
- We must build capacity for caring for these patients in our communities.
  - Creating collaborative linkages across continuums of care
- NC-STeP can be expanded to taking care of patients in community-based settings.

NC-STeP

East Carolina University
CENTER FOR TELEPSYCHIATRY

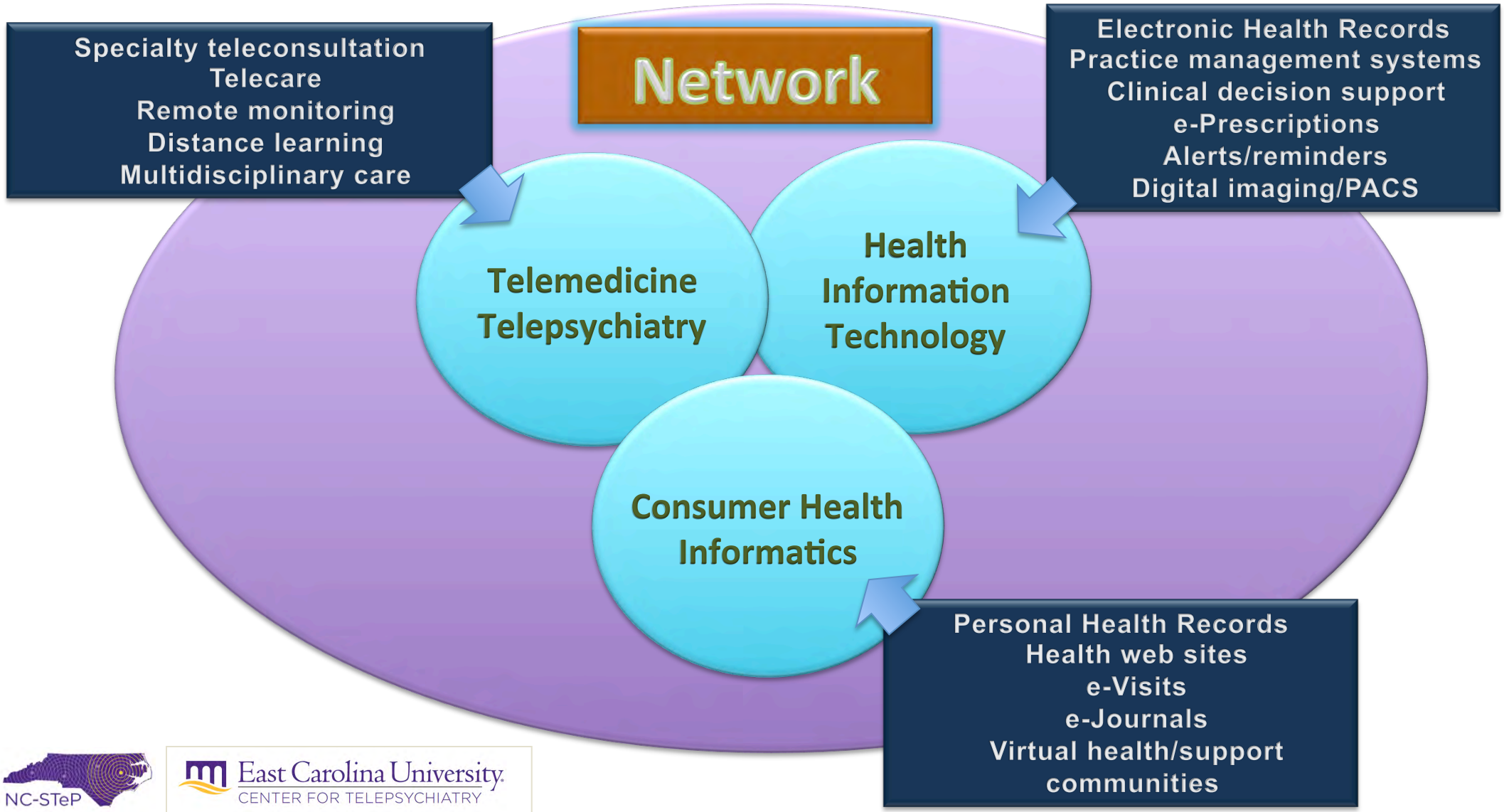
Opportunities

- NC-STeP is positioned well to create collaborative linkages and develop innovative models of mental health care:
    - EDs and Hospitals
    - Communities-based mental health providers
    - Primary Care Providers
    - FQHCs and Public Health Clinics
    - Others
- NC-STeP web portal, accessible by participating providers, as a central point for coordinated care.
- Evidence-based practices to make recovery possible.

NC-STeP

East Carolina University
CENTER FOR TELEPSYCHIATRY

Connected Health



NC-STeP

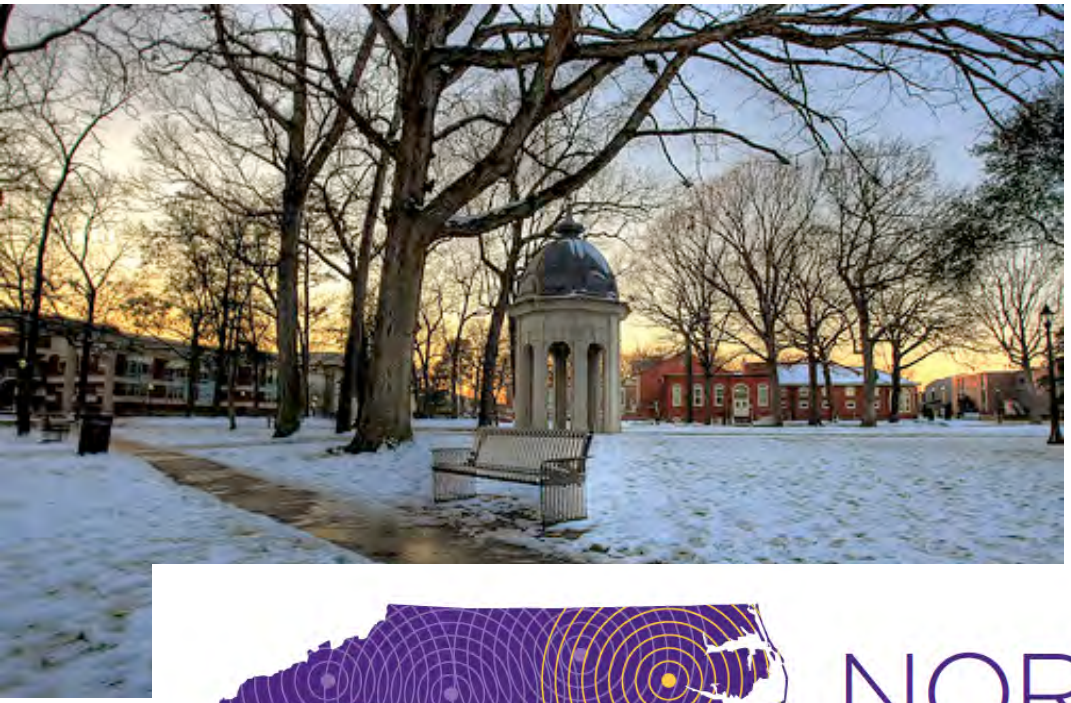
East Carolina University
CENTER FOR TELEPSYCHIATRY

Contact

Sy Saeed, M.D., M.S., FAC*Psych*
Professor and Chairman
Department of Psychiatry and Behavioral Medicine
Brody School of Medicine | East Carolina University

Director
North Carolina Statewide Telepsychiatry Program (NC-STeP)

Phone: 252.744.2660 | e-mail: saeeds@ecu.edu | Website: http://www.ecu.edu/psychiatry
Mail: Brody School of Medicine, 600 Moye Boulevard, Suite 4E-100, Greenville, NC 27834



NC-STeP

NORTH CAROLINA

STATEWIDE TELEPSYCHIATRY PROGRAM