Summary Report on SFY 2015 North Carolina Statewide Telepsychiatry Program (NC-STeP) Funds

Section 12A.2B of North Carolina Session Law 2013-360

submitted to

Joint Legislative Oversight Committee on Health and Human Services

and

Fiscal Research Division

by

N.C. Department of Health and Human Services

November 01, 2015

Acknowledgements

The North Carolina Department of Health and Human Services would like to thank Governor McCrory and the North Carolina General Assembly for their vision and support for the program.

Additionally, the North Carolina Department of Health and Human Services would like to thank The Duke Endowment for its generous award and support, which have enabled the Department to expand and further develop the program.

The program has had positive outcomes for the State of North Carolina and it has created an opportunity to integrate the Office of Rural Health, the NC Division of Medical Assistance, the NC Department of Mental Health, Developmental Disabilities, and Substance Abuse Services, State-operated facilities, and external partners to improve the care continuum for mental health patients in North Carolina.

Executive Summary

In Session Law 2013-360, the Office of Rural Health (ORH) was directed to create a plan for a statewide telepsychiatry program. The North Carolina Statewide Telepsychiatry Program (NC-STeP) allows North Carolina hospitals to participate as referring sites (hospital emergency departments) or consulting sites (psychiatric practices) in providing psychiatric assessments to patients experiencing an acute mental health or substance abuse crisis. Through a contractual agreement with the East Carolina University Center for Telepsychiatry and e-Behavioral Health (C-TeB) to implement these services into hospitals, ORH is responsible for overseeing the creation and operations of NC-STeP. ORH ensures the program's performance measures align with legislation as well as collects, analyzes, and maintains all documentation needed for payments, contract creation, and amendments. Also, ORH monitors the program's hospital enrollment and completes reports for various requesting organizations.

As of June 30, 2015, 54 referring sites have implemented telepsychiatry. Additionally, there were five consulting sites enrolled in the program that were providing psychiatric assessments during SFY 2015. These consulting sites include Cape Fear Valley Health System, Coastal Carolina Neuropsychiatric Center (CCNC), Cone Health, Mission Health, and Novant Health.

As required by contract with ORH, C-TeB submitted quarterly reports regarding specific performance measurements. As of the most recent report, submitted to ORH on August 17, 2015, most legislative performance targets have been met or exceeded.

In accordance with the law, ORH conducted site visits to all referring sites supported by state funding, as well as to all five consulting sites. During these visits, sites reported high staff satisfaction, but still issues that require future attention, including physician credentialing policies, cumbersome equipment, and internet connectivity.

While state funding was essential to the creation of the statewide program, leaders of NC-STeP pursued additional funding from The Duke Endowment to expand and further develop the program through an additional contract with ORH. Funds in the amount of $1.5 million from The Duke Endowment were awarded to ORH to be disbursed in SFY 2015 and 2016. Through use of this award, NC-STeP will expand to provide services to an estimated 18 additional referring sites. Funding will also be leveraged to disseminate information regarding best practices of telepsychiatry through technical assistance, informational website, provider training modules, publications, and conferences. ORH will also retain 10% of total funding from The Duke Endowment to support administrative and monitoring functions. Although this funding was available for SFY 2015, C-TeB chose not to expend the funds until SFY 2016. As of this date, very little has been accomplished as a result of this award, but C-TeB reports that it is on-track to complete its pre-determined work plan during SFY 2016.

As laid out in the legislative plan, NC-STeP has focused on implementation of referring and consulting sites during its first and second year. In SFY 2015, $1,230,160.23 of the $2,000,000 in state-appropriated funding was spent. A carryover request of $769,840 was submitted and approved to be used during SFY 2016. ORH has amended its contract with C-TeB to reflect these changes. Although the recurring amount of $2,000,000 has been necessary to create the program infrastructure, leaders of NC-STeP have calculated that the program will require an annual $1,700,000 for ongoing maintenance.

The program has resulted in cost savings to the State, its partners, and external stakeholders. The primary method of cost savings C-TeB reports from this program is overturning unnecessary involuntary commitments. Of the 5,403 patients held under involuntary commitment and served by the program, 1,320 have been discharged into their own communities to receive treatment using community resources. This has reduced burden and cost for state psychiatric facilities, law enforcement agencies, government payers, private payers, and patients and their families. Although total cost savings are difficult to quantify, savings through overturned involuntary commitments is estimated to be $17,468,352 based on the following:

- The number of IVCs overturned in SFY 2015: 1,320[1]
- The average cost per day for an inpatient stay: $1,838[2]
- The average length of a psychiatric inpatient stay: 7.2 days[3]
- Estimated cost savings for overturned IVCs: 1,320 x 1,838 x 7.2 = $17,468,352

At the end of its second year of operation, the program has still not obtained self-sustainability. DHHS and ORH requested that sustainability be an additional factor incorporated into the contract. At the end of Year 1 (SFY 2014), the program's sustainability ratio was 0.37:1, up from a baseline of 0.32:1. Currently, the program, without including grant support from the State and other sources, is operating at a 0.61:1 ratio (revenue:cost) while the desired objective is a 1:1 ratio. That is to say, for every dollar the program spends, it is able to recover 61 cents. These costs are recovered in three ways: 1) charging a fee for using the service, which is currently set at $34.25 for each telepsychiatry assessment conducted, 2) charging an average $1,000 monthly subscription fee paid by hospitals, and 3) billing public and private payers for each assessment. C-TeB reports difficulty in part as the number of individuals served that have no insurance coverage has ranged from 40.5% to 28.95%. To improve the ratio of revenues to costs, ORH proposes that NC-STeP increase its fees or decrease operating costs, such as overhead, once the program completes its implementation phase.

Overall, NC-STeP has had a successful first and second year, but there is still much to be completed. The Telepsychiatry Web Portal is in the pilot phase of development. It is estimated the finished portal will be deployed to all participating sites by December 31, 2015. Additionally, the second portion ($700,000) of The Duke Endowment award will be disbursed during SFY 2016, which will enable more referring sites to enroll in the program.

While the overturned IVC numbers are definitive, the cost savings for IVC are an estimate. In SFY 2017, ORH will contractually require NC-STeP to develop an annual business plan and provide the data necessary to continue to further refine the State's return on investment. In the event the General Assembly wishes to achieve sustainability, it is likely ORH would need to contractually require NC-STeP to increase revenue and fees. ORH anticipates this action will disproportionately affect rural hospitals.

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1. C-TeB performance reports
2. Hospital Adjusted Expenses per Inpatient Stay (2013). *The Henry J. Kaiser Family Foundation.* Retrieved October 28, 2015 from http://kff.org/other/state-indicator/expenses-per-inpatient-day/
3. FastStats – Mental Health (N.d.). *Centers for Disease Control and Prevention.* Retrieved October 28, 2015 from http://www.cdc.gov/nchs/fastats/mental-health.htm

It is unclear if increased fees would impact rural hospitals' ability to participate in NC-STeP. Without significantly increasing alternate funding, this program will likely require some continued appropriations to maintain the current service levels.

Leaders of NC-STeP have estimated that $1.7 million will be required annually for program maintenance. Once NC-STeP has completed successfully implementing the program and confirms fixed costs, DHHS recommends ORH use the remaining appropriations to expand its telehealth program to include integrated outpatient services for behavioral health. This program should allow all disciplines to work at the top of their licenses so as not to further exacerbate workforce shortages and unnecessarily increase cost. The scope of work for licensed clinical social works (LCSWs), licensed professional counselors (LPCs), and psychologists should be modified to include risk screenings, mental health, tobacco cessation, substance abuse services, and behavioral changes necessary to improve medical conditions. This will allow a population health approach that is whole-person focused.

In SFYs 2017 and 2018, provided implementation is complete, ORH recommends that the State use unexpended funds from NC-STeP for expanding the telehealth program to include outpatient services for behavioral health. ORH also recommends that the State continue funding NC-STeP until sustainability is achieved. ORH currently does not have state appropriations for administrative costs such as: staffing, contracting, monitoring, and travel as telehealth systems are developed to meet the needs of rural and underserved populations. These resources are currently provided through The Duke Endowment funding, which will cease in SFY 2016.

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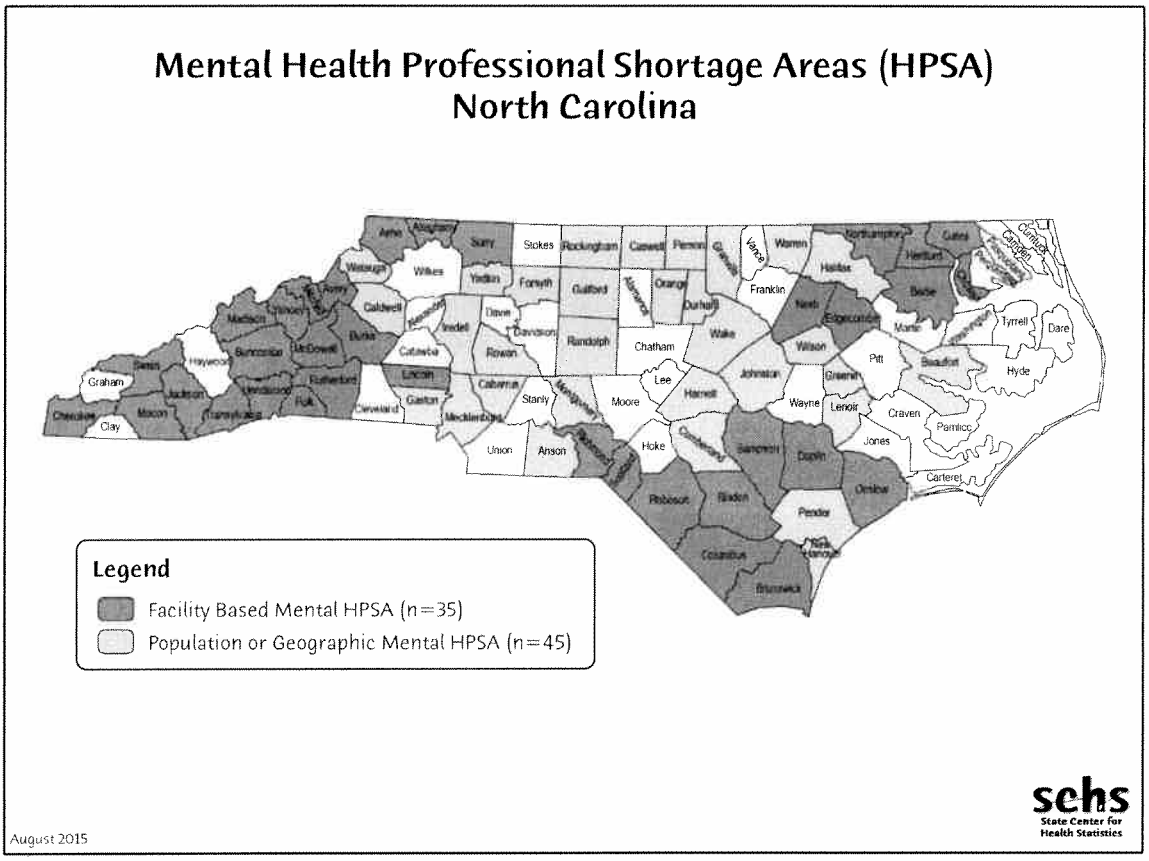
Background

Many rural North Carolina communities have a shortage of mental health providers. Areas can become designated 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 mental health professionals in North Carolina. Currently, 35 of 100 counties have at least one facility-based HPSA for mental health. Forty-five counties have a mental health HPSA based on population or geographic data. The state application process to the federal government for designating HPSAs is changing, which could result in even more areas being identified as lacking mental health providers in the future.

Figure 1: Map of Mental Health Professional Shortage Areas



These mental health professional shortages are acutely felt in emergency department (ED) settings. When a person in the community presents the potential to harm themselves or others, a magistrate may order that the person be taken to an ED for an assessment by a trained individual. However, many ED physicians have not received the training necessary to comfortably conduct such an assessment; thus, many of these patients are transferred to mental health institutions. Under this model of care, the average

length of stay (LOS) in an ED for this kind of patient can be between 48 and 72 hours.[1] A very long LOS can also have other negative consequences, including increased wait times for other patients, diversion of ED staff resources, and increased use of law enforcement resources, as law enforcement agents must remain with the patient onsite during the waiting period.

In an attempt to resolve this issue, many EDs in the United States have begun to utilize telepsychiatry, which is a technology that enables a mental health professional to provide a consultation to a patient from a remote location. In recent years, emerging technologies in video communication and high-speed connectivity have created an environment that has enabled telepsychiatry networks to expand.

In the summer of 2013, the North Carolina General Assembly decided to replicate the success of previous telepsychiatry initiatives in the state and elsewhere. In Session Law 2013-360, Section 12A.2B, the North Carolina General Assembly tasked the Office of Rural Health (ORH) with creating a plan for a statewide telepsychiatry program. The North Carolina Statewide Telepsychiatry Program (NC-STeP) would allow North Carolina hospitals to participate as referring sites or consulting sites in providing psychiatric assessments to patients experiencing an acute mental health or substance abuse crisis. Through a contractual agreement with the East Carolina University Center for Telepsychiatry and e-Behavioral Health (C-TeB) to implement these services into hospitals, ORH oversees the operations of NC-STeP while monitoring the program's expenditures, hospital enrollment, and performance measures.

The plan for NC-STeP was modeled after the Albemarle Hospital Foundation Telepsychiatry Project, which was made possible with a grant from The Duke Endowment in 2010. The grant was awarded for the implementation of telepsychiatry services into the EDs of Vidant Health hospitals, which experienced a decreased average LOS, a greater than 80% patient satisfaction rating, and a 33.6% rate in overturned involuntary commitments.[2]

Telepsychiatry has proven to be a successful solution for states with rural populations lacking behavioral health resources. Other successful telepsychiatry programs include the South Carolina Department of Mental Health Telepsychiatry Program[3] and the University of Virginia Telepsychiatry Program[4], which both continue to provide telepsychiatry services throughout their respective states.

Program Implementation

The program began October 1, 2013 with the execution of a contract between ORH and C-TeB. As of June 30, 2015, there are 54 live referring sites in the network. There are 17 additional sites that are enrolled in the program, but have yet to go-live due to various reasons. Some sites await equipment, physician credentialing, and contract negotiation. A complete list of the live and enrolled hospitals can be

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[1] 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/

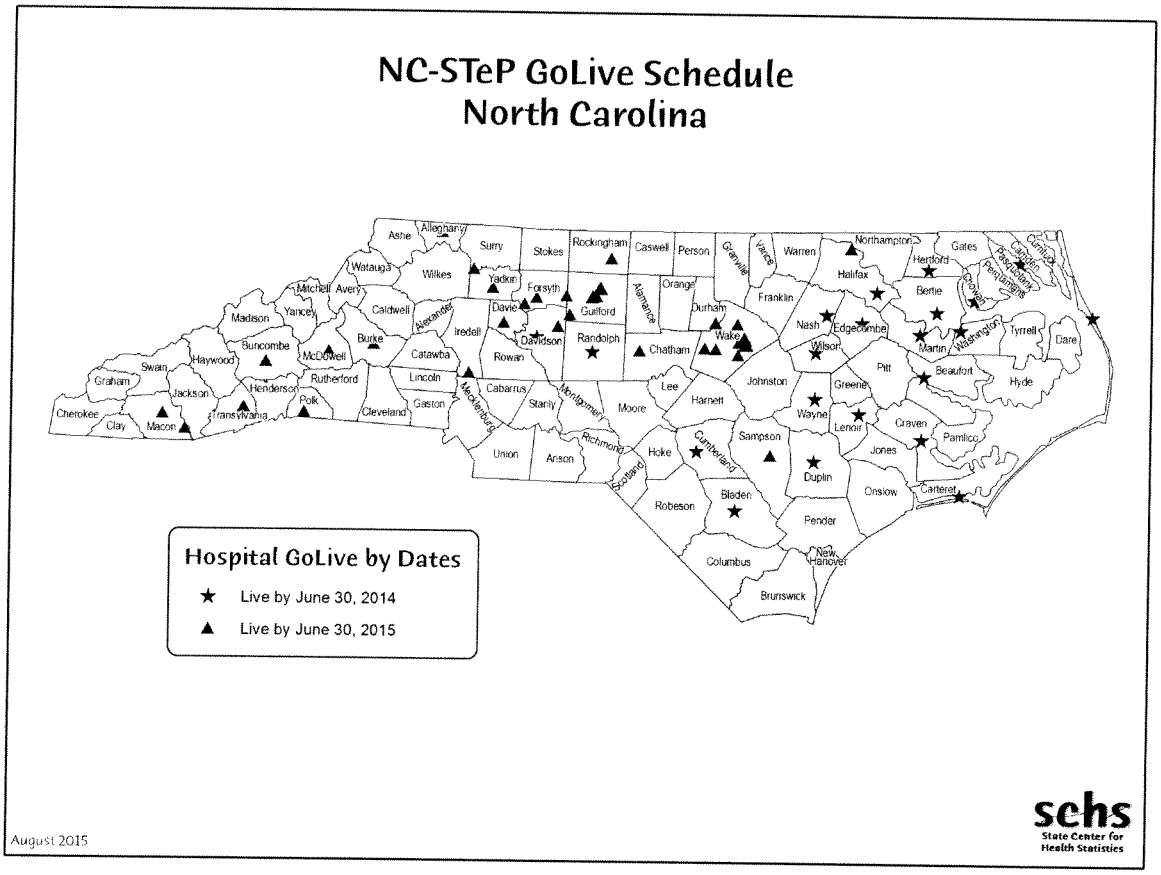
[2] Davies, S. (2012, August 23). Vidant Health / Duke Endowment Telepsychiatry Project. *North Carolina Institute of Medicine.* Retrieved August 11, 2014, from http://www.nciom.org/wp-content/uploads/2012/06/Bed-Boarding-Davies.pdf

[3] 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/

[4] 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

found in Appendix A of this document. Figure 2 displays a map of site locations and information regarding go-live dates.

Figure 2: NC-STeP Go-Live Schedule Map



Additionally, there were five consulting sites enrolled in the program during SFY 2015. These consulting sites include Cape Fear Valley Health System, Coastal Carolina Neuropsychiatric Center (CCNC), Cone Health, Mission Health, and Novant Health.

While state funding was essential to the creation of the statewide program, leaders of NC-STeP pursued additional funding from The Duke Endowment to expand and further develop the program through an additional contract with ORH. Funds in the amount of $1.5 million from The Duke Endowment were awarded to ORH to be disbursed in SFY 2015 and 2016. Through use of this award, NC-STeP will expand to provide services to an estimated 18 additional referring sites. Funding will also be leveraged to disseminate information regarding best practices of telepsychiatry through technical assistance, informational website, provider training modules, publications, conferences, and contract management and oversight. Although this funding was available for SFY 2015, C-TeB chose not to expend the funds until SFY 2016. As of this date, very little has been accomplished as a result of this award, but C-TeB reports that it is on-track to complete its pre-determined workplan during SFY 2016.

Performance Measures

As required by contract with ORH, C-TeB submitted quarterly reports regarding specific performance measurements. These performance measurements were defined in Session Law 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. The program has met or exceeded several of the performance targets specified at the execution of the contract for SFY 2015.

Since the program is still in the implementation phase, some performance targets were not met, such as the number of referring sites, the number of participating consulting providers, the ratio of revenues to costs, and the number of assessments conducted. C-TeB has encountered several challenges, outlined in the Site Visit Results section below, during implementation that have impeded the anticipated speed of progress.

Additionally, some performance measures are present to measure program impact, but are not in the direct control of program administrators. One of these performance measures pertains to LOS times. Average LOS times are often skewed due to outlying patients with complex medical and behavioral needs. Since LOS for these patients is dependent upon available community and state resources, it is unlikely that the program will achieve greater improvement on this measure, given the scope of the program.

Table 1: NC-STeP Performance Measurements

(Outcomes marked with an asterisk (*) have met the corresponding DHHS target)

Evaluation Criteria	Baseline at 10/01/2015	DHHS Target by 06/30/2015	Actual Result by 06/30/2015
To maintain the number of full-time equivalent (FTE) positions supported by this contract at 0.70	0.70 FTEs	0.70 FTEs	0.95 FTEs
To increase the number of telepsychiatry referring sites by 40	19	59	54
To increase the reports of involuntary commitments to an enrolled hospital by 4,631	369	5,000	5,403*

Evaluation Criteria	Baseline at 10/01/2015	DHHS Target by 06/30/2015	Actual Result by 06/30/2015
To increase the number of participating consultant providers by 21	12	33	32
To increase the number of telepsychiatric assessments conducted by 15,618	2,362	18,000	14,056
To increase the number of overturned involuntary commitments by 978	172	1,150	1,320*
To reduce the average Length of Stay for all patients with a primary mental health diagnosis across all dispositions by approximately 10 hours	33.08 hours	23 hours†	Mean: 43.2 hours Median: 26.1 hours
To establish a minimum score of 85% "satisfied" or "strongly satisfied" satisfaction rate among internal and external customers participating in the statewide telepsychiatry program	No baseline data available	85%	73%

Evaluation Criteria	Baseline at 10/01/2015	DHHS Target by 06/30/2015	Actual Result by 06/30/2015
To increase the ratio of the overall revenues (billing, subscription fees), exclusive of grant funding, to program costs (exclusive of start-up costs)	0.45:1.00	>1.00:1.00	0.61:1.00

† Length of stay begins when the patient is admitted to the ED and ends when the patient is discharged from the ED.

Site Visit Results

In accordance with the law, ORH conducted site visits to all state-supported referring sites in which telepsychiatry has been implemented, as well as to all five consulting sites. Most ED providers interviewed during the hospital visits were satisfied with telepsychiatry and the support they had received from the program. Structured questions revealed the majority felt they had received adequate training, were comfortable with the technology, and felt they could perform their jobs better through telepsychiatry.

The results of these site visits have also identified issues that require future attention. All of 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 to resolve these issues, but there are many that are out of the program's control due to its scope. The primary issues discussed during the site visits are summarized below:

Physician Credentialing - Each physician at a consulting site must be credentialed by the referring site in order to provide services at that site. The physician credentialing process usually lasts between 3-6 months for each facility, which delays program implementation.

Length of Stay - There are many factors which affect LOS, some of which are beyond the ED and NC-STeP's control. Despite use of telepsychiatry, a patient's LOS can vary and still remain above average depending upon discharge disposition. Patients with complex medical needs, in addition to behavioral needs, can expect to remain in the ED longer. A patient placed under involuntary commitment may have the order overturned and can be sent home; however, patients whose involuntary commitment orders are upheld 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.

Availability of Service - Several sites informed ORH that they wished these services were provided 24 hours a day. Currently, telepsychiatry services are only offered during business hours. There are insufficient resources to provide 24-hour support, thus patients who arrive in the ED during the evening will be required to spend the night, thereby increasing average LOS.

Telepsychiatry Carts - The telepsychiatry carts are designed to be mobile, but the carts are reportedly cumbersome for many staff to maneuver. Some sites requested that tablet or laptop computers be adopted in the future so that equipment may be more easily brought to the patient's location.

Connectivity - Several sites are currently using the telepsychiatry cart's wireless capability to connect to the internet. However, due to the thickness of building materials used in hospital construction and the lack of high-powered wireless technology in some areas, staff members are experiencing difficulty in 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 machine. These connectivity issues have decreased user satisfaction.

Financial Report

The North Carolina General Assembly appropriated an annual sum of $2,000,000 for SFY 2014, 2015, and 2016. The initial use of these funds included: 1) entering into a contract with C-TeB, and 2) purchasing the necessary equipment for hospitals participating in the program. Now that the service has gone-live in most referring sites, the emphasis has shifted to construction of a Web Portal and provider support services (please see the Next Steps section for additional details regarding the Web Portal).

In addition to the state funds, The Duke Endowment also awarded a sum of $1,500,000 to ORH. The first portion ($800,000) of this award was disbursed and budgeted for SFY 2015 in order to bring additional sites to the program and disseminate information regarding best practices. The remaining $700,000 will be disbursed in SFY 2016.

ORH has also utilized $12,836.79 in funds awarded through the Federal Medicare Rural Hospital Flexibility Grant to provide Mental Health First Aid (MHFA) training to ED staff of Critical Access Hospitals (CAHs). These trainings instruct staff to recognize the signs and symptoms of mental illness, which decreases stigma and increases overall quality of care for behavioral health patients in EDs. Post-training surveys demonstrate that these MHFA trainings have been successful in increasing staff satisfaction and effectiveness when working with behavioral health patients. In addition to MHFA trainings, ORH has provided ongoing support to CAHs to help them participate in NC-STeP.

Although the recurring amount of $2,000,000 has been necessary to create the program infrastructure, NC-STeP leaders' most recent calculations are that the program will require an annual $1,700,000 for ongoing maintenance. Once NC-STeP has completed successfully implementing the program and confirms fixed costs, DHHS has recommendations for the use of any remaining funds, which is detailed in the Recommendations section of this document.

Budget Carryover - Of the $2,000,000 appropriated in SFY 2015 funding, $1,230,160.23 was expended by June 30, 2015. Although expenses were incurred for unexpended funds, invoicing was delayed due to long payment cycles for the following budget line items:

- The Contingency for Indigent Care can take up to six months to invoice, as NC-STeP must wait for all collections to come in before identifying unreimbursed care and billing ORH for this line item. This includes collections for services provided up to June 30, 2015.

- The creation of the Telepsychiatry Web Portal/Health Information Exchange suffered from a long payment cycle, as the subcontractor did not bill for services until each phase of the project was complete.

In response to this issue, a carryover request was submitted and approved so that the remaining $769,840 can be used during SFY 2016. ORH has amended its contract with C-TeB to reflect these changes.

Budget Detail - While NC-STeP is still in a phase of implementation, the transition to the next phase has begun in order to provide on-going management and evaluation of the program. The budget for Year 3 of the program reflects this change. Table 2 summarizes the budget detail of state-appropriated funds for SFY 2015 (Year 2) compared to SFY 2016 (Year 3).

Table 2: NC-STeP SFY 2015 and 2016 Budget Detail

Category	Narrative	Budgeted Year 2	Accrued Year 2	Budgeted Year 3
Capital Equipment	Telepsychiatry Equipment	$198,854	$201,338.39	$224,000
Operating Expenses	Provider Support, Billing, Travel, etc.	$922,552	$684,985.56	$1,312,862
Staffing	Employee Salaries/Wages	$178,176	$167,796.28	$165,238
Telepsychiatry Web Portal	NC-STeP Web Portal / Health Information Exchange	$700,418	$176,040	$297,900
Total		**$2,000,000**	**$1,230,160.23**	**$2,000,000**

The program has resulted in cost savings to the State, its partners, and external stakeholders. The primary method of cost savings C-TeB reports from this program is overturning unnecessary involuntary commitments. Of the 5,403 patients held under involuntary commitment and served by the program, 1,320 have been discharged into their own communities to receive treatment using community resources. This has reduced burden and cost for state psychiatric facilities, law enforcement agencies, government payers, private payers, and patients and their families. Although total cost savings are difficult to quantify, savings through overturned involuntary commitments is estimated to be $17,468,352 based on the following:

- The number of IVCs overturned in SFY 2015: 1,320[5]
- The average cost per day for an inpatient stay: $1,838[6]
- The average LOS for a psychiatric inpatient stay: 7.2 days[7]
- Estimated cost savings for overturned IVCs: 1,320 x 1,838 x 7.2 = $17,468,352

Next Steps

Overall, NC-STeP has had a successful first two years, but there is still much to be completed. Session Law 2013-360 and The Duke Endowment have created tasks listed below for NC-STeP, and there are additional opportunities for expansion of telehealth initiatives in North Carolina.

Program Developments for SFY 2016

NC-STeP is currently in a phase of implementation as more referring sites go-live. During this time there will be operational spending related to increasing videoconferencing capabilities, credentialing providers with State-approved LME/MCOs (Local Management Entities/Managed Care Organizations), and exchanging data.

The creation of the Telepsychiatry Web Portal is in the pilot phase of development and C-TeB has planned to deploy it to all sites by December 31, 2015. The Telepsychiatry Web Portal will enable provider scheduling, billing, and exchange of health information, allowing hospitals to transmit clinical outcomes to C-TeB.

The remaining $700,000 of The Duke Endowment award will be disbursed during SFY 2016. Of this total, $625,000 has been awarded to C-TeB by ORH. These funds will enable an additional 18 referring sites to join the program as well as provide for research on best practices. This body of research will likely be disseminated via publications, professional conferences, and a website maintained by C-TeB.

Program Developments for SFY 2017

In SFY 2017, NC-STeP is scheduled to be finished with implementation and will enter a maintenance phase for ongoing program management and evaluation. There will be ongoing maintenance for the Telepsychiatry Web Portal and for the existing telepsychiatry equipment. Physician credentialing will continue as staff turnover demands.

Long-Term Sustainability

DHHS and ORH requested that sustainability be an additional factor incorporated into the contract. C-TeB reports difficulty in part as the number of individuals served that have no insurance coverage has ranged from 40.5% to 28.95%. At the end of Year 1 (SFY 2014), the program's sustainability ratio was 0.37:1, up from a baseline of 0.32:1. Currently, the program, without including grant support from the State and other sources, is operating at a 0.61:1 ratio (revenue:cost) while the desired objective is a 1:1 ratio. That is to say, for every dollar the program spends, it is able to recover 61 cents These costs are recovered in three ways: 1) charging a fee for using the

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[5] C-TeB performance reports

[6] Hospital Adjusted Expenses per Inpatient Stay (2013). *The Henry J. Kaiser Family Foundation.* Retrieved October 28, 2015 from http://kff.org/other/state-indicator/expenses-per-inpatient-day/

[7] FastStats – Mental Health (N.d.). *Centers for Disease Control and Prevention.* Retrieved October 28, 2015 from http://www.cdc.gov/nchs/fastats/mental-health.htm

service, which is currently set at $34.25 for each telepsychiatry assessment conducted, 2) charging an average $1,000 monthly subscription fee paid by hospitals, and 3) billing public and private payers for each assessment. To improve the ratio of revenues to costs, ORH proposes that NC-STeP increase its fees to hospitals, which utilize the service, or decrease operating costs, such as overhead, once the program completes its implementation phase.

Although NC-STeP has saved the State of North Carolina, hospitals, private payers, and law enforcement agencies money resulting from overturning involuntary commitment orders and reducing patient readmissions to the ED, there is no formal arrangement with the State to offset program costs with those savings. Legislation should support ORH's efforts in working with C-TeB to explore options that move toward long term sustainability, including but not limited to: increasing the hospital assessment fee, reviewing billing and coding procedures, decreasing startup costs, and exploring other resources.

This program remains in the implementation stage and is working with pricing models that require adjustments to get to a fair and equitable cost established.

Recommendations

While the overturned IVC numbers are definitive, the cost savings for IVC are an estimate. In SFY 2017, ORH will contractually require NC-STeP to develop an annual business plan and provide the data necessary to continue to further refine the State's return on investment. In the event the General Assembly wishes to achieve sustainability, it is likely that ORH would need to contractually require NC-STeP to increase revenue and fees. ORH anticipates this action will disproportionately affect rural hospitals. It is unclear if increased fees would impact rural hospitals' ability to participate in NC-STeP. Without significantly increasing alternate funding, this program will likely require some continued appropriations to maintain the current service levels.

Once all interested hospitals are connected, the Web Portal has been deployed, fixed costs are determined, and the program moves into maintenance phase, DHHS recommends that ORH use any remaining appropriations to expand its telehealth program to include integrated outpatient services for behavioral health. Currently, there are many independent sites in North Carolina providing telepsychiatry services to partners within primary care; however, there remains need within the safety net system (local health departments, community health centers, rural health centers, school-based health centers, free clinics, and other non-profits) for increased access to behavioral health services. If ORH is able to expand its telehealth program, it will still continue to monitor NC-STeP. ORH will continue to use its resources to ensure program performance alignment with current legislation, proper reporting of cost savings and hospital enrollment and participation, and compliance with contractual requirements.

In designing an outpatient telebehavioral health program, the following system issues should be given serious consideration:

- There is a significant workforce shortage in North Carolina with regards to psychiatrists.
- This expanded program should allow all disciplines to work at the top of their licenses so as not to further exacerbate workforce shortages and unnecessarily increase cost. For example, a therapist can assist a primary care provider with teletherapy until such time a referral to a psychiatrist is warranted. A

primary care practice that employs an integrated therapist may secure telepsychiatry consults for complex medication management.

- Policy should be modified so that, internally or through telebehavioral health, primary care providers can access the services of midlevel providers, such as LCSWs, LPCs, and psychologists, to work at the top of their licenses. Their scope of work in the primary care setting should include risk screenings, mental health, tobacco cessation, substance abuse services, and behavioral changes necessary to improve medical conditions. This will allow a population health approach that is whole-person focused.
- In order to prevent duplication of services, duplication of funding, and in the interest of creating access to enhanced specialty mental health services when appropriate, this expanded effort must be closely linked with the DHHS Division of Mental Health, Developmental Disabilities, and Substance Abuse Services (DMHDDSA) and the regional LME/MCO.

Funding Recommendations for SFY 2017

In SFY 2017, ORH recommends that the State continue funding support of NC-STeP while C-TeB and DHHS work to achieve independent sustainability. ORH recommends that NC hospitals are charged a subscription and assessment fee and that NC-STeP eliminate costs associated with implementation. Funds received from The Duke Endowment will expire at the end of SFY 2016, and it is unclear whether ORH will seek additional funding from the organization.

ORH also recommends that the State use the unexpended funds from the current program to develop a telehealth program for outpatient services for behavioral health. The new telebehavioral health program should be targeted at providing access to behavioral health services for primary care providers serving vulnerable populations and promoting integrated care. These funds would allow for provider contracting, equipment purchases, and other necessary start-up costs.

As mentioned previously, ORH and C-TeB are working to achieve long-term sustainability with NC-STeP. As sustainability is achieved, any unexpended funds for NC-STeP should be used to expand outpatient telehealth services. The original telepsychiatry legislation, Section 12A.2B of North Carolina Session Law 2013-360, would need to be modified to allow for this service expansion.

Funding Recommendations for SFY 2018

In SFY 2018, ORH recommends that the State continue funding support of NC-STeP. ORH also recommends that the State continue funding to further develop telehealth outpatient services for behavioral health. Additionally, ORH will need to identify funds for administrative costs such as: staffing, contracting, monitoring, and travel as telehealth systems are developed to meet the needs of rural and underserved populations. These resources are currently provided through The Duke Endowment funding, but this funding will cease in SFY 2016.

Additional Opportunities for Telehealth

Annual site visits and external research have identified several opportunities for telehealth initiatives to expand into various areas of medicine. Below is a short list of opportunities for expansion of healthcare services in North Carolina using recent innovations. If allowed to expand its telehealth program, ORH may address some of the services noted below.

Telepsychiatry – Initiated in October 2013, the NC statewide telepsychiatry initiative has provided over 10,000 psychiatric assessments through videoconferencing to ED patients experiencing a behavioral health crisis. After

these assessments are conducted, ED physicians can consult with the psychiatrist to overturn unnecessary involuntary commitments and to create a care plan that is more appropriate for the patient.

Telebehavioral Health - Currently, there are many independent sites providing telepsychiatry services to partners within primary care. However, not every session with a patient requires a psychiatrist. A system established in primary care environments should allow all disciplines to work at the top of their licenses so as not to further exacerbate workforce shortages and unnecessarily increase cost. For example, a therapist can assist a primary care provider with teletherapy until such time a referral to a psychiatrist is warranted.

Telestroke – This form of telehealth has been adopted by facilities such as the Mayo Clinic and Mass General Hospital. Under this service, an ED physician engages in videoconference with a consulting provider to help determine the best course of action for a patient experiencing acute stroke. One of the most common treatments is the use of FDA-approved therapy to remove the blood clot causing the stroke; however, the decision to administer this therapy is time-sensitive, as patient outcomes are generally better the sooner the therapy is administered. According to a recent study, providing decision support via telehealth has been successful in reducing the time between the patient presenting this condition and the physician administering the therapy.[8]

Telecardiology - This form of cardiology has been applied to treat many types of cardiovascular disease, including congestive heart failure, arrhythmias, and acute coronary syndromes. Healthcare facilities can either broadcast tests in real time, such as electrocardiograms (ECGs), or they may send coronary CT scans through a store-and-forward method for later review by a cardiologist. A recent Israeli study found the practice of telecardiology to be effective in achieving better patient outcomes and lowering costs.[9]

Teleophthalmology - In a recent publication, a group of ophthalmologists developed a smartphone adapter that was effective for taking photos to identify retinopathy in developing or rural areas.[10] These photos can be sent via a store-and-forward method to an ophthalmologist for assessment. Additionally, clinicians have found applications for teleophthalmology in prevention and patient education.[11] These services would create access to optical care that is a critical component in the treatment of diabetes, which is a major health concern in North Carolina.

Specialty Consults in Primary Care - Telemedicine can be deployed in primary care to gain immediate access to many types of specialty providers. Telerheumatology, teledermatology, teleneurology, teleoncology, etc. can all be used to address specific patient needs immediately while reducing the cost of transportation, preventing unnecessary referrals, and providing effective discharge instructions.

School-based Telemedicine – By implementing videoconference technology into school-based health clinics, children can receive primary care assessments by a physician without leaving school. School nurses can operate

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[8] Rubin, M., & Demaerschalk, B. (2014). The use of telemedicine in the management of acute stroke. *Journal of Neurosurgery, 36*(1), E4.

[9] Birati, E., & Roth, A. (2011). Telecardiology. *Israel Medical Association Journal, 13*, 498-503.

[10] Maamari, R., Ausayakhun, S., Margolis, T., Fletcher, D., & Keenan, J. (2014). Novel Telemedicine Device for Diagnosis of Corneal Abrasions and Ulcers in Resource-Poor Settings. *JAMA Ophthalmol, 132*(7), 894-895.

[11] Zvornicanin, E., Zvornicanin, J., & Hadziefendic, B. (2014). The Use of Smart phones in Ophthalmology. *ACTA Inform Med, 22*(3), 206-209.

electronic otoscopes and stethoscopes that transmit data to the remote physician. The physician can then provide instructions to the nurse and child or the physician can also call specialists to provide a consult using the equipment. These services help to keep children in school, reduce transportation costs, and reduce unnecessary missed time at work for parents.

Telemedicine in Long Term Care – When patients in skilled nursing facilities experience acute health concerns, facilities often initiate a transfer to an acute care facility to conduct an assessment of the problem and to provide treatment. However, many of these transfers are unnecessary, as care can sometimes be provided at the skilled nursing facility without the need of a higher level of care. Through engaging in remote consultations with acute care physicians before transfers are made, skilled nursing facilities can help prevent unnecessary transfers. If it is deemed that a transfer should be made, these assessments can also empower staff to intervene early to prevent complications during transfer.

Telehospitalist Services – As rural hospitals face barriers with physician recruitment and low inpatient volumes, the needs to maximize physician productivity and prevent waste are paramount. Using mobile carts that can be operated remotely, hospitalists can conduct rounds and provide consultations to hospital units without the need for travel to the facility. This service can prove especially effective in Intensive Care Units (ICUs), in which patients with a high level of acuity need to be under constant monitoring.

Mobile Health Apps and Wearables – As the prevalence of smartphones and wearables increase, a higher number of individuals already carry electronic equipment that monitors vital signs and daily activity. Various interfaces and apps have been created to collect, monitor, and analyze this data. Proper engagement in using these apps can lead to improved glycemic control of diabetes patients, increased level of activity of overweight patients, and early detection of dramatic changes in vital signs that could be indicators of illness. In a 2003 program, the Veterans Health Administration began to offer a set of primary care telehealth services for management of chronic conditions. Patients accessed these services from home via videoconferencing, while also wearing devices that kept track of their vital signs. The program was successful in reducing costs in the form of hospital visits and was focused on encouraging self-management of chronic conditions.[12]

[12] How can telehealth technology benefit primary care?. (n.d.). Health Resources and Services Administration. Retrieved August 25, 2014, from http://www.hrsa.gov/health/toolbox/RuralHealthITtoolbox/Telehealth/howcantelehealth.html

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

As of June 30, 2015. Sorted by county, then by hospital.

County	Hospital	Provider	Status
Alleghany	Alleghany Memorial Hospital	CCNC	Live
Ashe	Novant Ashe Memorial Hospital	Novant	Enrolled
Beaufort	Vidant Beaufort Hospital	CCNC	Live
Bertie	Vidant Bertie Hospital	CCNC	Live
Bladen	Cape Fear Valley- Bladen County Hospital	Cape Fear	Live
Brunswick	Dosher Hospital	CCNC	Enrolled
Buncombe	Mission Memorial Hospital	Mission	Live
Burke	Blue Ridge HealthCare	Mission	Live
Carteret	Carteret County General Hospital	CCNC	Live
Chatham	Chatham Hospital	CCNC	Live
Cherokee	Murphy Medical Center	Mission	Enrolled
Chowan	Vidant Chowan Hospital	CCNC	Live
Columbus	Columbus Regional Hospital	CCNC	Live
Craven	Carolina East Hospital	CCNC	Live
Cumberland	Cape Fear Valley Medical Center	Cape Fear	Live
Dare	Outer Banks Hospital	CCNC	Live
Davidson	Lexington Medical Center	CCNC	Live
Davidson	Novant Thomasville Hospital	Novant	Live
Davie	Davie Hospital	CCNC	Live

County	Hospital	Provider	Status
Duplin	Vidant Duplin Hospital	CCNC	Live
Edgecombe	Vidant Edgecombe Hospital	CCNC	Live
Forsyth	Novant Clemmons Hospital	Novant	Live
Forsyth	Novant Forsyth Medical Center	Novant	Live
Forsyth	Novant Kernersville Hospital	Novant	Live
Franklin	Novant Franklin Hospital	Novant	Enrolled
Guilford	Cone Health - Behavioral Health	Cone Health	Live
Guilford	Cone Health - MedCenter High Point	Cone Health	Live
Guilford	Cone Health - Moses Cone	Cone Health	Live
Guilford	Cone Health - Wesley Long	Cone Health	Live
Guilford	Cone Health - Women's Hospital	Cone Health	Live
Halifax	Halifax Regional Medical Center	CCNC	Live
Halifax	Our Community Hospital	CCNC	Live
Harnett	Betsy Johnson Hospital	Cape Fear	Enrolled
Harnett	Harnett Hospital	Cape Fear	Enrolled
Hertford	Vidant Roanoke-Chowan Hospital	CCNC	Live
Iredell	Lake Norman Regional Medical Center	CCNC	Live
Jackson	Harris Regional Medical Center	Mission	Enrolled
Lenoir	Lenoir Memorial Hospital	CCNC	Live
Macon	Angel Medical Center	Mission	Live

County	Hospital	Provider	Status
Macon	Highlands-Cashiers Hospital	Mission	Live
Martin	Martin County General Hospital	CCNC	Live
McDowell	McDowell Hospital	Mission	Live
Moore	FirstHealth-Moore	CCNC	Enrolled
Nash	Nash Health Care	CCNC	Live
Pasquotank	Albemarle Medical Center	CCNC	Live
Pender	Pender Memorial Hospital	CCNC	Enrolled
Person	Person Memorial Hospital	CCNC	Enrolled
Polk	St Luke's Hospital	CCNC	Live
Randolph	Randolph Hospital	CCNC	Live
Robeson	Southeastern Hospital	CCNC	Enrolled
Rockingham	Cone Health - Annie Penn Hospital	Cone Health	Live
Rockingham	Morehead Memorial Hospital	CCNC	Enrolled
Rowan	Novant Rowan Hospital	Novant	Enrolled
Rutherford	Rutherford Hospital	CCNC	Enrolled
Sampson	Sampson Hospital	CCNC	Live
Stokes	Pioneer Community Hospital of King	CCNC	Enrolled
Stokes	Pioneer Community Hospital of Stokes	CCNC	Enrolled
Surry	Hugh Chatham Memorial Hospital, Inc.	CCNC	Live
Swain	Swain County Hospital	CCNC	Enrolled

County	Hospital	Provider	Status
Transylvania	Transylvania Regional Hospital	Mission	Live
Wake	WakeMed Apex Healthplex	CCNC	Live
Wake	WakeMed Brier Creek Healthplex	CCNC	Live
Wake	WakeMed Cary Hospital	CCNC	Live
Wake	WakeMed Garner Healthplex	CCNC	Live
Wake	WakeMed Psychiatric Observation Unit	CCNC	Live
Wake	WakeMed North Healthplex	CCNC	Live
Wake	WakeMed Raleigh Hospital	CCNC	Live
Wake	WakeMed Raleigh Children's ED	CCNC	Live
Washington	Washington County Hospital	CCNC	Live
Wayne	Wayne Memorial Hospital	CCNC	Live
Wilson	Wilson Medical Center	CCNC	Live

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

As of June 30, 2015. Sorted by county and site.

County	Consulting Site	Status
Buncombe	Mission Health System	Live
Cumberland	Cape Fear Valley Health System	Live
Forsyth	Novant Health System	Live
Guilford	Cone Health System	Live
Onslow	Coastal Carolina Neuropsychiatric Center	Live

Appendix C: North Carolina Telepsychiatry Workgroup Member Organizations

Carolinas HealthCare System
Community Care of North Carolina
Cone Health Behavioral Medicine
Duke University
East Carolina Behavioral Health
East Carolina University
MedAccess Partners
Mission Health Systems
NC DHHS Division of Mental Health
NC Office of Rural Health
North Carolina Hospital Association
UNC-Chapel Hill
Vidant Health
Wake Forest Baptist Health