ECU HEALTH | UNC HEALTH

NC Care Legislative Report

April 1, 2024

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SECTION 1:

Letter from Drs. Waldrum & Burks

EXECUTIVE SUMMARY

We thank and appreciate our state leaders for their vision and historic investment in the future of rural healthcare in our state through the NC Care initiative. As the following pages of this report will highlight, we are committed to a thoughtful approach to transforming healthcare delivery to our state's most vulnerable communities so that they benefit from equitable and sustainable healthcare and improved access and outcomes for generations to come.

Although North Carolina is one of the fastest growing states in the country with urban areas experiencing unprecedented development, our state's rural population is the second largest in the nation and, according to the NC Rural Center, 78 of our 100 counties are still considered rural. Despite current efforts, patients in rural areas continue to experience higher rates of chronic conditions, inadequate access to care, and poorer health outcomes compared to state and national benchmarks. We take seriously the role of our health systems and public universities in the economic vitality and social well-being of the communities we are privileged to serve. As described in this report, the investment in the NC Care initiative's regional systems of care will enhance healthcare access, improve health outcomes for patients, and reimagine opportunities for faculty, students, and providers who serve our state's rural communities.

One-third of rural North Carolina calls Eastern North Carolina home. 22 of the 29 counties in the region are among the state's most economically distressed. For this reason, the initial focus of the NC Care initiative will be Eastern North Carolina, but our goal is to create a model that can be extended to rural areas across the state, including Western North Carolina. Healthcare transformation demands more than solving for any one challenge presented by the current delivery system; transformation necessitates building a new, innovative system of care — one that can serve as *the* model for rural healthcare. The NC Care initiative provides the required fuel for our systems to embark on the journey ahead of us, and we look forward to the impact the collaboration of our health systems can create for rural communities across our state, beginning but not ending in Eastern North Carolina.

We could not be more excited and honored for the opportunity to shape rural healthcare in North Carolina and we are grateful that the North Carolina General Assembly has entrusted us with this important work.

Thank you,

Michael Waldrum, MD, MSc, MBA
CEO, ECU Health
Dean, Brody School of Medicine at ECU

Wesley Burks, MD
CEO, UNC Health
Dean, UNC School of Medicine

SECTION 2:

Introduction and Description of the Current State

MISSION OF THE NC CARE INITIATIVE

As academic health systems, working closely with North Carolina's two public schools of medicine — the Brody School of Medicine at East Carolina University and the UNC School of Medicine — ECU Health and UNC Health share a common mission to improve the health and well-being of all North Carolinians.

Our health systems proudly accepted the opportunity given by the North Carolina General Assembly in the 2023 Appropriations Act to collaborate to solve the challenges threatening the sustainability of healthcare delivery in rural areas of our state.

The General Assembly's passage of Medicaid expansion and HASP (Health Care Access and Stabilization Program) will benefit patients and health care system financial sustainability, particularly in rural areas. Indeed, it was these acts of the General Assembly which made possible the funding for the NC Care initiative as well as significant investments in behavioral health and health care workforce needs. While the focus of this report is the NC Care initiative, the General Assembly's investments in behavioral health and health care workforce will further strengthen our efforts to improve the quality of health care in rural North Carolina.

Per Session Law 2023-134, NC Care is an "initiative to improve access to high quality healthcare for citizens and communities located in rural areas of North Carolina by establishing outcome driven regional systems of care, beginning in eastern North Carolina." To support the NC Care initiative, the General Assembly appropriated $420M for the following purposes:

1. The sum of ten million dollars ($10,000,000) for a Clinically Integrated Network.
2. The sum of two hundred ten million dollars ($210,000,000) for three rural health clinics, of which the sum of one hundred five million dollars ($105,000,000) has been appropriated.
3. The sum of one hundred fifty million dollars ($150,000,000) for hospital investment.
4. The sum of fifty million dollars ($50,000,000) for a behavioral health facility.

As directed by the General Assembly, these funds are to be used to achieve the following:

1. Invest in strengthening and providing operational support for community hospitals affiliated with ECU Health and UNC Health that will be integrated into the new regional systems of care developed through the NC Care initiative.
2. Clinically integrate these community hospitals into the new regional systems of care developed through the NC Care initiative.

In response to the state's establishment of the NC Care initiative ECU Health and UNC Health, under the direction of the UNC System, have been collaborating to design a new regional system of care in Eastern North Carolina. This report is just the beginning, and we expect our strategy and recommendations to evolve accordingly. As required in the statute, we will jointly report on our progress, beginning April 1, 2024, and every six months thereafter.

THE NC CARE INITIATIVE'S APRIL 1ST REPORT

In this report, we describe the key considerations for rural healthcare delivery redesign and outline our strategic approach to achieving the desired outcomes of access and quality for residents located in rural parts of the state.

This work is informed by robust data and research on Eastern North Carolina, including current and projected demographic and health status indicators, medical and non-medical challenges influencing care access and health outcomes, and markers of inefficiency and instability of the current delivery landscape. With these factors and challenges in mind, this report describes our vision for how the components of the NC Care initiative — a redesigned regional system of care, development of a Clinically Integrated Network, and enhanced behavioral health access — will improve short and long-term outcomes for Eastern North Carolinians.

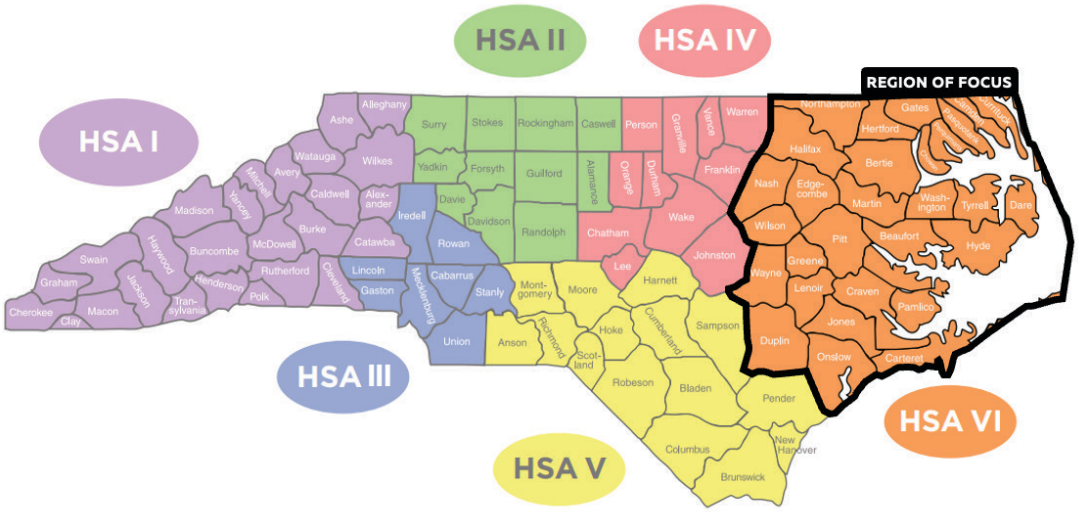
First, we have collaboratively created the following principles to inform how we will design a new regional system of care for rural Eastern North Carolina, emphasizing our dedication to improving the health and well-being of the patients and the communities we serve:

- **Consistent, high quality patient experience and outcomes:** Provide care that is effective, safe, patient-centered, timely, efficient, and equitable.
- **Access to care in local rural communities:** Offer more alternative ways for people to access care closer to home, including no-appointment primary care, virtual care, and in-home options, while also expanding non-medical services such as population health programs that improve how people access the care they need. Access also includes expanding on partnerships with local health departments.
- **Affordability of care:** Make care more affordable for patients by improving efficiency and building out new channels to receive care, such as telehealth.
- **Financial sustainability for the healthcare system:** Identify ways to optimize capacity across existing and new sites of care by driving efficiency and creating strategic partnerships.
- **Continued economic growth in rural communities:** Consider the impact of our actions on employment, small businesses, and local governments, minimize disruption, support our communities' success, invest in advanced capability community hospitals, and design care teams and learning environments that expand career paths for medical professionals who live and work in our communities.
- **Increased academic medical training and research in rural health:** Leverage UNC School of Medicine and ECU's Brody School of Medicine and other capabilities within our universities to expand access to research and clinical trial opportunities, particularly for historically under-served and under-studied communities. Partner with community colleges, UNC institutions, and other higher education organizations for workforce development and the expansion of in-system teaching and placement so that we invest in students who seek learning, training, and practice in the communities that raised them.

ECU Health and UNC Health are committed to the success of our partnership. Our aspiration is for this collaboration in North Carolina to serve as a national model for rural healthcare delivery.

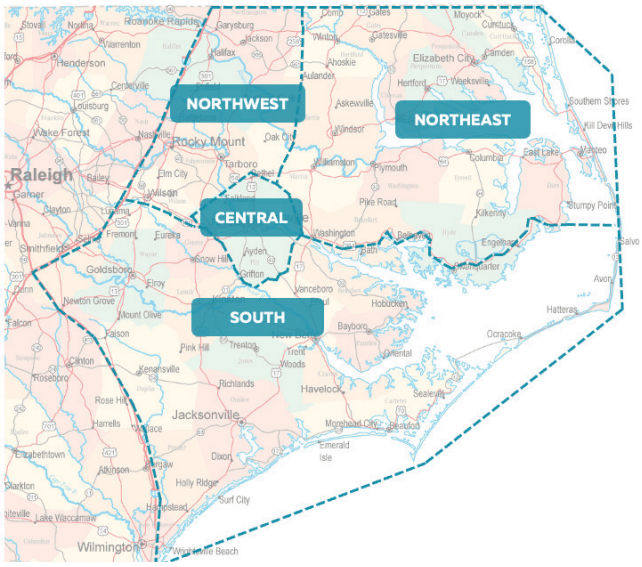
THE NC CARE INITIATIVE'S REGION OF FOCUS

As defined in the law, the NC Care initiative will establish outcome-driven regional systems of care, beginning in Eastern North Carolina. For the purposes of our collaboration, we use the North Carolina Department of Health and Human Services' Health Service Area VI to define Eastern North Carolina.



Sources: NCDHHS

While this 29-county area is mostly rural, it is not homogenous. Therefore, we have divided these counties into **four sub-regions: Northeast, South, Northwest, and Central**. By sub-dividing the service area, we can ensure our approach to our regional system of care accounts for the distinct characteristics of the region, such as **major roadways, patients' travel patterns, and the current footprint of our two health systems**. These sub-regions are referenced throughout this report.



Major dividing highways

Western boundary: I-95
Southern boundary: I-40
North/south divider: I-587 and US-264
East/west divider: NC-11

Counties by sub-region

Northeast: Beaufort, Bertie, Camden, Chowan, Currituck, Dare, Gates, Hertford, Hyde, Martin, Pasquotank, Perquimans, Tyrell, Washington
Northwest: Edgecombe, Halifax, Nash, Northampton, Wilson
Central: Pitt
South: Carteret, Craven, Duplin, Greene, Jones, Lenoir, Onslow, Pamlico, Wayne

DEMOGRAPHICS AND HEALTH STATUS OF EASTERN NORTH CAROLINA RESIDENTS

To create our regional system of care with patients and communities at the forefront, and to fulfill our mission and design principles, we first completed an analysis of Eastern North Carolina's demographics and health status. This research covers current and 2030 projections of demographics and health status of Eastern North Carolina.

Rural populations across the United States face more disparities and barriers to care than do residents of urban areas. However, as the following data points illustrate, **Eastern North Carolina is a unique region** that faces more barriers to care than the North Carolina statewide average:

(Please see the Appendix for additional statistics and details.)

- **Population forecast for 2030 projects low growth** in Eastern North Carolina of 0.4% growth versus the state average of 1.1%. Despite this low growth, demand for healthcare services is increasing as the population ages and chronic conditions become more prevalent.
- Eastern North Carolina has a **higher share of elderly residents at 20%** versus the state average of 16.7%. This aging population requires increased checkups and screenings, age-appropriate vaccinations, chronic disease management, and mental health support.
- Eastern North Carolina has a **higher share of poverty at 18%** versus the state average of 13.6%, and poverty rates are the highest in the Northwest sub-region. This financial stress burdens patients and providers.
- Like the rest of the state, Eastern North Carolina suffers from **high levels of chronic diseases**. For example, in almost all Eastern North Carolina counties, heart disease incidence is above the state average, including Lenoir County and Martin County where incidence rates are well above the state average. Chronic disease is expensive for patients and providers as it requires more intensive management and creates complex care needs.
- While chronic disease incidences are similar on average to the rest of the state, **death rates for chronic diseases are higher**. For example, cancer deaths in Eastern North Carolina are 5% higher than the state average. As the table below shows, diabetes, heart disease, chronic liver, and chronic respiratory deaths are also higher in Eastern North Carolina than the state average, implying that patients in this region have more complex health needs and require ongoing management of care.

Age-adjusted Death Rate by Disease

	CANCER	DIABETES	HEART DISEASE	CHRONIC LIVER	CHRONIC RESPIRATORY
Eastern NC compared to **NC state average**	1.09x	1.30x	1.16x	1.16x	1.03x
Eastern NC compared to **Select Triangle Counties**	1.27x	1.87x	1.54x	1.87x	1.68x
Eastern NC compared to **other 71 NC Counties**	1.09x	1.27x	1.15x	1.12x	0.99x

- North Carolina's maternal mortality rate is 26.5 deaths per 100,000 births (2018-2021) which is higher than the US average rate of 23.5. Of those 26.5 deaths, more than 1 in 3 were from rural areas. Actions such as increasing the recruitment of OBGYNs, expanding maternal health programming, and providing additional support during the immediate labor process can improve outcomes for women in our community.
- Lastly, much of North Carolina struggles with mental health, and suicide and depression, especially since the COVID-19 pandemic. In Eastern North Carolina, **suicide and depression rates are higher**. An expansion of telepsychiatry, peer support groups, and educational programs will improve access to behavioral health services.

SECTION 3:

Challenges to Address with the Regional System of Care for Eastern North Carolina

EASTERN NORTH CAROLINA'S EXISTING AND GROWING HEALTHCARE CHALLENGES

Based on our research and knowledge of Eastern North Carolina, including existing healthcare infrastructure, we have collaboratively categorized Eastern North Carolina's healthcare challenges into five groupings: Supply, Access, Quality, Cost, and Non-Medical Factors.

These challenges complicate care delivery, negatively influence health outcomes, and create strain on the region's healthcare delivery system. Our regional system of care design accounts for these challenges.

(Please see the Appendix for additional statistics and details.)

SUPPLY	ACCESS	QUALITY	COST	NON-MEDICAL
• Mismatch between supply and demand • Inadequate access to key care services across geographies • Expected retirement of physician supply	• Significant driving distance for certain populations • Physician gaps in primary care and specialties	• Low site volumes • Care coordination challenges	• Financial challenges for providers • Financial challenges for sponsors and patients	• Low health literacy • Affordability of care • Lack of technology and other needed services

Supply

Healthcare supply in Eastern North Carolina is not optimized for the expected needs of our region in the coming years and decades. The population is aging and increasingly suffers from chronic conditions. Addressing their health needs will require that we improve access to care and increase the utilization of our healthcare facilities and workforce. Eastern North Carolina has a shortage of care providers with only 13 physicians per 10,000 residents while the rest of the state has 25. Nurses are also in relatively short supply, with only 8.2 per 10,000 population while the rest of the state has 9.8. Further complicating this challenge, the provider workforce is aging, with 18.2% of physicians in the region nearing retirement. This threatens to worsen existing healthcare worker shortages, particularly in specialized fields. Impacts of this shortage could include delayed diagnoses, increased vulnerability for chronic conditions, and poorer health outcomes.

Access

As in many areas of the country, urban or rural, access to care can be a challenge in Eastern North Carolina. This can manifest in long wait times for a patient to get an appointment with a provider and can delay their ability to get necessary care. Many of these challenges are driven by a shortage of physicians in primary care practice in the region. 86% of Eastern North Carolina counties have a shortage, or gap, in primary care. This pattern repeats with specialists. Eastern North Carolina has a shortage, or gap, in psychologists, cardiologists, neurologists, OBGYNs, and more. For example, Martin County is understaffed versus the state average in eleven different categories of specialists. Lenoir County is understaffed in all specialists except general surgery and OBGYN. Halifax County is understaffed in all specialists but general surgery.

Quality

Inpatient and outpatient volumes can be low for certain specialties at certain sites and in certain regions of Eastern North Carolina. Low volumes can make it hard to sustain a dedicated physician specialist presence in certain regions, and low volumes of certain procedures have been demonstrated to have negative impacts on the consistency of care.

Cost

Eastern North Carolina's healthcare footprint heavily emphasizes inpatient services. Operating these services requires substantial investments and ongoing costs. In addition, much of the healthcare infrastructure in the region is aging, with some facilities nearing 80 years old, driving a need for significant ongoing maintenance. As discussed, the population of Eastern North Carolina is aging and experiences chronic health conditions. Managing the health of these patients often requires more complex and resource-intensive care. These factors together create economic pressure on providers as they seek to deliver high-quality care in a financially sustainable way.

Non-Medical

As much as 80% of an individual's health outcomes are driven by factors outside of the care they receive in the healthcare system. Factors like health literacy, economic and housing security, individual behavior, and genetics are all significant contributors to outcomes. The population of Eastern North Carolina experiences challenges with many of these factors, including relatively low health literacy compared to the rest of the state, lack of access to transportation and long travel distances, and higher poverty rates than the state average.

SECTION 4:

Our Vision for Rural Care

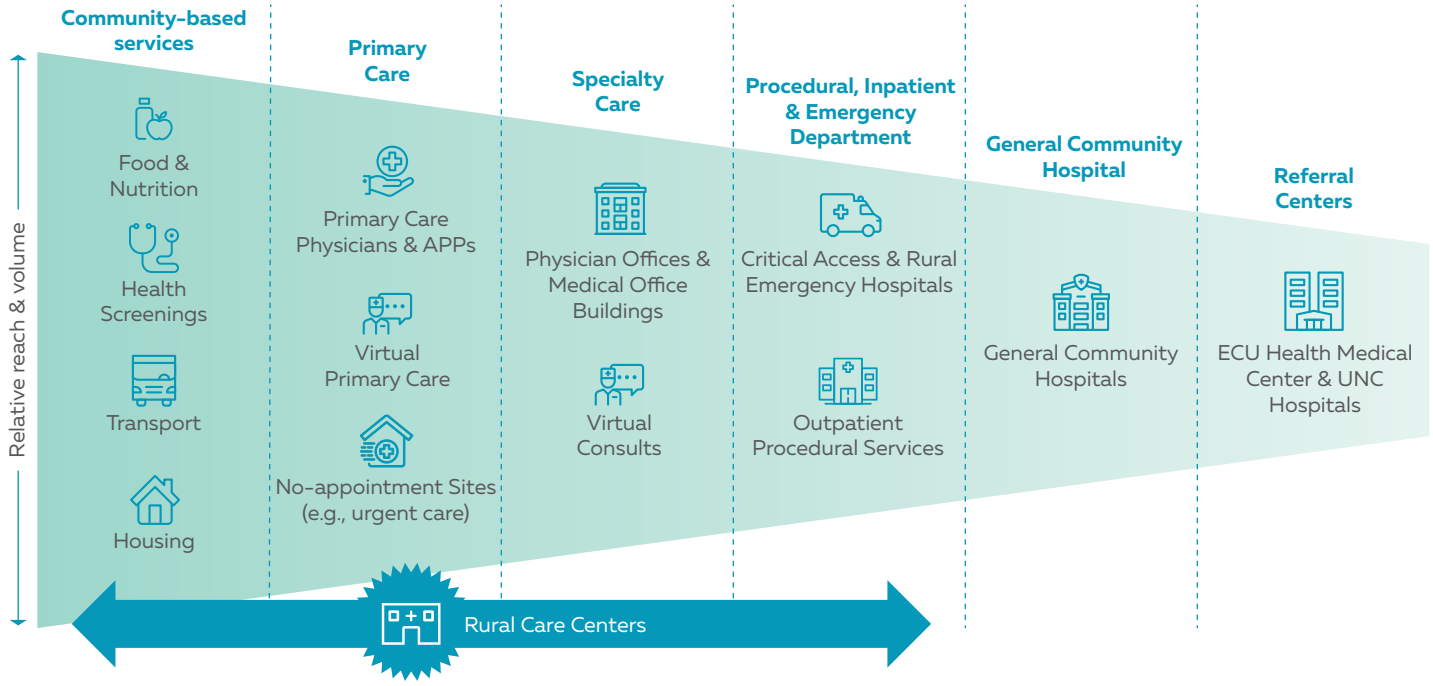
OUR REGIONAL SYSTEM OF CARE DESIGN

Our regional system of care in Eastern North Carolina is designed to address the five key healthcare challenges identified above. We have designed this system as an Integrated Cross-Continuum Care Model intended to fulfill the following principles guiding the NC Care initiative:

1. Consistent high quality patient experience and outcomes
2. Access to care in local rural communities
3. Affordability of care
4. Financial sustainability for the healthcare system
5. Continued economic growth in rural communities
6. Increased academic medical training and research in rural health

An Integrated Cross-Continuum Care Model

An integrated cross-continuum care model is at the core of our regional system of care design. We envision enabling a seamless journey for our patients through a comprehensive array of health services, spanning all levels of acuity, from wellness to quaternary care. By integrating the components of the continuum, and providing critical "connective tissue," the regional system of care will drive more consistency of patient and provider experience, create efficiency in care delivery, better coordinate the care patients receive, improve overall outcomes, and allow providers to recognize gaps in patients' overall care and well-being and address them.



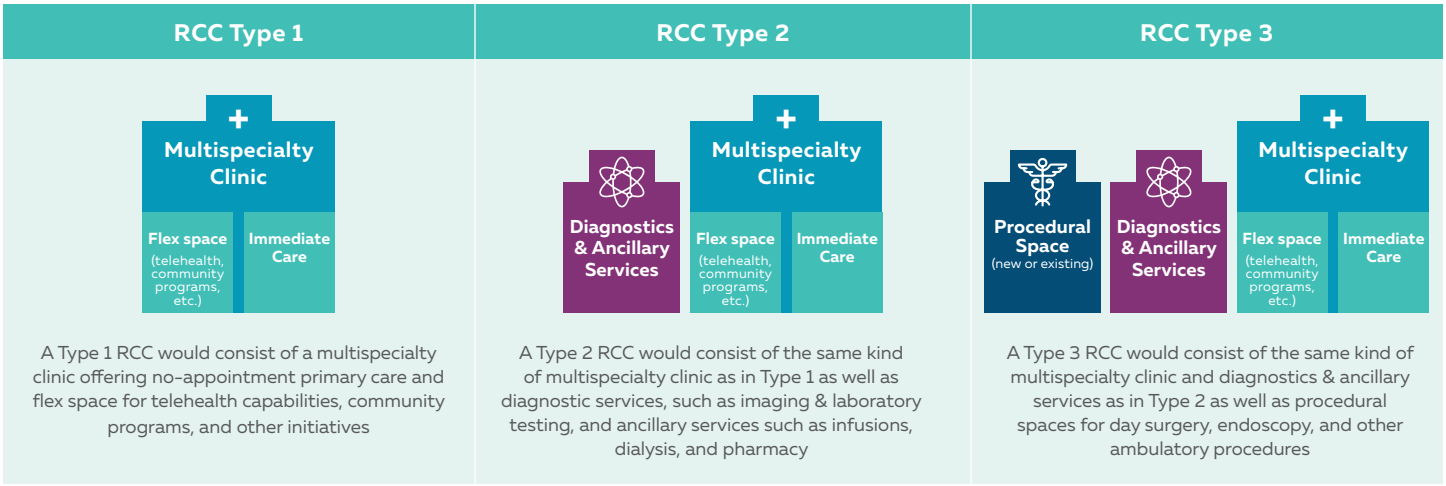
Rural Care Centers (RCCs):
Rural Care Centers are designed to address the specific health challenges of rural markets, incorporating an expanded offering of services from basic primary care to higher-acuity outpatient services in a convenient, community-based setting that will provide cost-effective, high-quality patient care. Residents in Eastern North Carolina need these resources as the current healthcare system is not organized to address the way the healthcare landscape is evolving. Through 2030, we expect significant increases in demand for outpatient services (>20% in some specialties) across the East. We also expect those services to become increasingly complex as new technologies and techniques for providing care make it possible to shift care from inpatient to outpatient settings. The Rural Care Center is designed to fill the projected demand gap for relatively high-complexity care in an outpatient setting.

While each RCC will be tailored to its local market, based on population, disease incidence, workforce availability, travel patterns, existing resource availability, etc., common components **could** include:

- No-appointment primary care
- Multi-specialty clinics
- Ancillary services including infusions, dialysis, and pharmacy
- A set of diagnostic services including imaging and laboratory testing
- Flexible space for telehealth capabilities, community programs, and other initiatives
- If needed, procedural spaces for day surgery, endoscopy, and other ambulatory procedures

These services will allow patients to have many of their health needs addressed at a RCC instead of an advanced capability hospital, and will provide a platform for our health systems to reach further into communities to drive engagement, care coordination, and improved access to care. Our RCCs will also be sites for rural health training for our educational institutions and partnerships.

As part of our regional system of care design, we have identified three types of Rural Care Centers, described in the figure below. All three types of RCC would include flexible space for telehealth, community programs, training, etc.



We recognize other rural areas in our state can benefit from our regional system of care and RCC model. In addition to the RCCs built in Eastern North Carolina, an additional RCC will be integrated into another regional system of care in another rural area of the state, potentially in Western North Carolina. In some cases, the RCC may be freestanding. In others, the RCC may be built proximate to an existing healthcare facility and offer a sub-set of services that work in partnership with the existing facility to provide the full range of needed care and avoid duplication.

As we further outline below, our future state design relies on these RCCs to address our healthcare challenges and help improve our patient outcomes across the care continuum.

Community-based services:
Community-based services are a critical connector between individuals and the healthcare system. When implemented holistically, these services can help individuals make progress on their own health journeys, connect to the services they need, and address non-medical factors that drive so much of individuals' health outcomes. A key element of community-based services is outreach—engaging individuals in their communities close to home so they are more likely to get the right care they need, from the right provider, in the right location, and to make transitions within their care journey smoothly. These services can also help to address non-medical factors like transportation needs and food insecurity and improve medical factors like medication and health screening adherence.

ECU Health and UNC Health possess a strong slate of existing community-based programs and services. To create an improved future state, we will (1) continue to scale and advance our programs and services, and (2) provide more new physical space in which to deliver these programs and services in the community. While work is underway to grow and develop our programs and services, we will offer more physical space via flexible areas within our RCCs for community programs and other initiatives that drive engagement, care coordination, and improve access to care. Co-locating these services within the same facility as our providers makes them easier for patients to find and access, and will also offer the opportunity for increased collaboration and resource sharing to improve the delivery of these services.

Primary care:
Primary care acts as the foundation for a healthy life and often functions as a patient's first point of engagement with the healthcare system. Traditional primary care at a physician's office, virtual primary care, and immediate and urgent care each provide the critical services of preventative care, early detection and intervention of medical and non-medical challenges, management of chronic conditions, treatment for illness, and guidance towards specialist care when needed. This comprehensive access point allows for better health outcomes, lower healthcare costs, and an overall empowerment for patients around their well-being.

Currently, Eastern North Carolina faces a shortage of primary care physicians, resulting in limited access to primary care providers. Faced with this barrier, many patients choose to access Emergency Departments as their primary care location. An improved future state involves (1) maintaining access to existing primary care physicians, (2) augmenting primary care physician supply by recruiting additional providers, and (3) providing new, alternative access points like no-appointment primary care and virtual care.

ECU Health and UNC Health will take steps to achieve all three aims — which will expand capacity and access and provide for a more cost-effective treatment of patients — and our RCCs will help in this effort. RCCs will house primary care physicians, no-appointment primary care, and the technology for virtual care. RCCs will also help with the recruitment of new primary care physicians by providing state-of-the-art facilities in which to work and facilitate seamless multi-disciplinary specialist care. The comprehensive service capabilities of the RCCs can also support our ability to decompress our Emergency Departments. Finally, we'll work to maximize the utilization of physician-extenders such as nurse practitioners, physician assistants, and clinical pharmacists across the regional system of care. Together, this will result in an improvement in service quality for patients seeking primary care and higher acuity care, and a lower cost to the patient.

Specialty care:
Specialists provide in-depth expertise as well as extensive training and experience in diagnosing, treating, and managing complex conditions. Whether navigating chronic conditions, undergoing critical procedures, or receiving cutting-edge therapies, specialty care is essential to optimal health outcomes, especially for individuals with complex care needs.

Improving the current state of specialty care in Eastern North Carolina hinges on (1) making targeted investments to co-locate specialist physicians to drive efficiency, coordination of care, and an improved provider experience, (2) implementing alternative access channels like virtual consults and in-person rotations across sub-regions to increase access to specialists in local communities, and (3) augmenting specialist supply by recruiting additional providers.

ECU Health and UNC Health plan for our regional system of care to co-locate specialists in two ways. First, we will make investments to scale key services at community hospitals to concentrate volume and take advantage of "volume-outcome" results. Second, we will provide access to specialists at RCCs so residents do not need to travel far from home to access key specialists. These two types of facilities will systematically coordinate patient care between each other, helping to ensure patients receive the right care at the right location, and to ensure that specialist practices in the community remain sustainable. From a patient's perspective, co-locating multiple specialists at RCCs will provide for more of a "one stop shop" to receive care, improving their experience. Rural Care Centers will also be equipped with the technology for virtual consults and will be located such that in-person rotations to smaller communities are viable for specialists. This interconnectedness between providers and facilities enhances the recruitment and experience of specialists as information, clinical protocols, and care pathways can be shared to drive value through lower cost, higher quality care.

Procedural, inpatient and emergency services:
Procedural services provide a convenient and cost-effective space for patients to receive higher-acuity outpatient care, like day surgery, gastrointestinal screenings, and other same-day procedures. Emergency services offer immediate care for injury and sudden illness, and advanced diagnostics, including imaging and laboratory testing. In tandem, these services ensure accessible and appropriate care such that patients receive what they need. It is critical that the regional system of care provide both, because without high acuity outpatient sites, hospital Emergency Departments can be overused, increasing wait times for patients and the total cost of care for providers.

Given the expected significant growth in outpatient volume, it is essential that our regional system of care provide increased capacity for procedural care in local communities. ECU Health and UNC Health will drive much of that increased capacity and access through RCCs, which will be designed for high-acuity outpatient care, including key procedural spaces. RCCs will reduce the demand for general community care at key hospitals in the region.

General community hospital:
Our actions around community-based services, primary care, specialty care, and outpatient and emergency services necessitate a redesign in how our inpatient services at community hospitals are organized so that our overall regional system of care works in harmony with the needs and flow of patients.

Currently, many patients from Eastern North Carolina are treated at ECU Health Medical Center in Greenville or at UNC Hospitals in Chapel Hill. While in some cases this is appropriate for those patients requiring the tertiary or quaternary capabilities at those locations, in many cases patients could be cared for closer to home in a facility that focuses on general community acute care. This reliance on care at these major hospitals happens for a number of reasons, including, but not limited to, the challenge small community hospitals face in maintaining advanced clinical services and provider coverages. Our regional system of care design intends to support patients in remaining within the community for the majority of their care needs, thus improving experience, lowering total cost of care, and improving access to tertiary and quaternary referral centers for patients uniquely requiring complex care.

In the future, we will enhance each sub-region's access to an advanced capability community hospital. These hospitals will likely need to be expanded and augmented to approximately 100-150 inpatient beds to handle this increase in referral volume. It will also be critical to invest in the ancillary services required to allow patients to be treated at these community sites, rather than be transferred to a referral center. We will also increase our coverage of integrated care teams such that we provide a holistic experience with shared responsibility across providers.

Referral centers:
Referral centers are highly specialized sites that provide advanced treatments for complex medical conditions, ensuring patients receive the optimal level of care when their needs cannot be met elsewhere. They are dedicated to the treatment of the most complex inpatient needs and special cases. The significant investment in staff, equipment, and other capabilities at these locations make them expensive sites at which to receive care. In cases where patients do not require the full set of advanced capabilities, there is an opportunity to improve their cost of care by being treated elsewhere.

As mentioned, the referral centers in our regional system of care in Eastern North Carolina are ECU Health Medical Center in Greenville and UNC Hospitals in Chapel Hill. Our actions to expand and improve the capabilities of key community hospitals will ensure that both ECU Health Medical Center and UNC Hospitals can remain focused on delivering tertiary and quaternary care. This is essential as both sites are operating at or near their capacity limits today, and redirecting general community acute care away from these sites will create capacity to treat more complex conditions at these locations. This will expand access and our patient's ability to get the high complexity care they need, when they need it. To further ensure this is the case, ECU Health and UNC Health will provide enhanced care coordination, care navigation, and patient transport and transfer operations for safe and timely access to the appropriate level and site of care. As medical campuses and nationally recognized facilities, ECU Health Medical Center and UNC Hospitals focus on the highest levels of need allowing for more specialization, research, and new treatment methods for the diseases and patients who need it most.

Integration across the continuum:
Collectively, our regional system of care, designed as an Integrated Cross-Continuum Care Model integrating Rural Care Centers and other key components, will address our five healthcare challenges, and uphold our defined design principles. Our actions and investments within the continuum will compound across geographies to create large-scale change. As our plans for the NC Care initiative continue to develop, we envision this interconnectedness could lead to further transformation across the communities we are honored to serve.

THE OVERARCHING BENEFITS OF OUR REGIONAL SYSTEM OF CARE

Below is a summary of the impact and overarching benefits our regional system of care will have on patients and providers across Eastern North Carolina related to the five challenges identified: supply, access, quality, cost, and non-medical factors.

Supply

There is an imbalance between the demand for outpatient care, the demand for inpatient care, and the types and number of facilities in our current system. This imbalance prevents patients from receiving the right care from the right provider at the right location. Specialty care is often more spread out than primary care, increasing drive times for patients and decreasing collaboration between providers. There is also a shortage of primary care physicians and specialists in Eastern North Carolina. This shortage decreases access for patients and increases the workload for existing physicians. Lastly, projections indicate a significant portion of physicians will soon retire (18.2% in Eastern North Carolina), which threatens to worsen the physician and specialist shortage.

Our regional system of care will ensure that Eastern North Carolina's rural population has access to an advanced capability community hospital to receive high-quality, high acuity care close to home, allowing ECU Health Medical Center in Greenville and UNC Hospitals in Chapel Hill to supply more tertiary and quaternary care. We will meet the expected increase in outpatient demand primarily through our Rural Care Centers (RCCs), which will be located in communities of need and will co-locate primary care physicians, specialists, and community-based and other healthcare delivery services. These facilities will have the technology for telehealth visits with specialists, including behavioral health, and will aid in the recruitment of providers as information, clinical protocols, and care pathways can be shared more easily to drive value through lower cost, higher quality care.

Access

Too many patients in Eastern North Carolina do not receive the care they need, whether because they require more flexible hours, cannot afford their care, or cannot physically travel to see a provider. This results in individuals not receiving care, which is unacceptable, or in individuals defaulting to Emergency Departments for care, which is inefficient and costly.

Our regional system of care considers these access issues by offering more alternative ways for people to access care, including no-appointment primary care, virtual care, and in-home options via community-based services. RCCs are designed to provide these offerings in a convenient, co-located, community-based setting that will expand access to needed care closer to home for patients. Advanced capability community hospitals increase access to higher acuity care close to home and free up access at ECU Health Medical Center in Greenville and UNC Hospitals in Chapel Hill for the highest acuity care needs. Additionally, throughout the care continuum we will focus on provider recruitment and retainment, and work to maximize the utilization of physician-extenders such as nurse practitioners, physician assistants, and clinical pharmacists. Last, as we continue to scale community-based services more patients will be able to get assistance with non-medical needs such as transportation and food.

Additionally, we will leverage ECU's Brody School of Medicine and UNC School of Medicine capabilities to expand access to research and clinical trial opportunities, particularly for historically under-served and under-studied communities, and partner with community colleges for workforce development and the expansion of in-system teaching and placement so that we invest in students who seek learning, training, and practice in the communities that raised them.

Quality

Ensuring that our patients receive the highest quality of care is an essential part of who we are as organizations. Today there are too many gaps in our care continuum, and patients can be challenged to find the care they need. Emergency Departments are heavily utilized, providing episodic care for acute issues. ECU Health Medical Center in Greenville and UNC Hospitals in Chapel Hill serve a high proportion of low acuity patients, constraining their ability to serve as dedicated tertiary and quaternary centers as they must. Lastly, in certain places in Eastern North Carolina, inpatient and outpatient volumes can be low for certain specialties at certain sites, which can make it difficult to recruit and provide care there.

Our regional system of care increases collaboration and enables higher quality care and a clearer care continuum for transfers and handoffs between steps of the care continuum. Investing to scale key services at community hospitals concentrates volume and takes advantage of "volume-outcome" results modifying smaller facilities to reflect the volume of care they provide today improves their ability to provide care at a high and consistent quality, and co-locating specialists at RCCs prevents residents from having to travel far from home to access key specialists. In addition to clinical care, we will seek to expand our capabilities in community-based services, such as care navigation and coordination, to ensure patients receive needed follow-up care, adhere to post-treatment plans and medications, and understand where to go to get help.

Cost

Financial challenges exist for providers, sponsors, and patients across rural parts of the United States due to high operating costs per patient and higher healthcare costs for employers. Eastern North Carolina is not immune to these challenges.

Our regional system of care will address these cost challenges by enabling patients to be seen at the right facility, for the right care, from the right provider. Currently, Emergency Departments (EDs) in our region are heavily utilized, including by patients whose needs could be met at a primary care physician's office. As a result, ED wait times can be long for all patients, including those with high acuity needs. ED visits are also more costly for patients and providers than visits to a primary care provider. Appropriately shifting visits from EDs to a primary care and/or outpatient facility can save up to $162,000 in healthcare costs per 1,000 visits. Our RCCs will expand capacity and access for preventative primary and outpatient care, and for telehealth, allowing more cost-effective treatment of patients who are currently seen at an inpatient facility. In tandem, our advanced capability community hospitals and referral centers lower the total cost of care. At ECU Health Medical Center in Greenville and UNC Hospitals in Chapel Hill, significant investments have been made to provide state-of-the-art comprehensive care for the most complex patients. In cases when patients do not require the full set of advanced capabilities, there is an opportunity to improve their cost of care and decrease their costs spent on travel and non-medical factors by being treated in advanced capability community hospitals close to home.

Non-Medical Factors

Significant drivers of an individual's health outcomes involve non-medical factors such as diet, exercise, housing stability, and income. Eastern North Carolina, like many rural areas, struggles with these factors and others, such as health literacy, medical debt, and a lack of technology.

Our regional system of care will provide support for individuals by seeking to invest in and scale existing community-based programs and services and by providing space for those programs to operate in the communities they serve. By placing some of these programs in RCCs so that they are under the same roof as providers, patients will be better able to find and access these services. Co-location will also offer the opportunity for seamless collaboration and resource sharing to improve the delivery of these non-medical needs. Additionally, expanding primary care access allows more patients to receive preventative care which saves time, money, and has positive impacts on other non-medical factors in the long run. Outreach and education will aim to empower individuals to interact more with our healthcare system.

OUR INITIAL ROADMAP TO A STEADY FUTURE-STATE

We are excited to implement our regional system of care vision. To achieve this, we will sequence our activities based on the unique sub-region characteristics and requirements to make the regional system of care work, and the overall maximization of funds to create the greatest impact and value for our health systems, patients, and stakeholders. Our first step in this process is for ECU Health and UNC Health to establish our collaborative norms, our clinically integrated network (CIN), and our behavioral health plan as described in Sections 5 and 6 below.

SECTION 5:

Enhancing Clinical Integration via a Super CIN for the NC Care Initiative

Since passage of the Patient Protection and Affordable Care Act (ACA) in 2010, the healthcare landscape has undergone increasingly rapid transformation to create systems and models of care that can sustainably and effectively deliver upon the triple aim: **1)** improving care experience and quality, **2)** improving the health of populations, and **3)** reducing per capital healthcare costs (Institute for Healthcare Improvement).

Collaboration across healthcare providers is increasingly critical to better meet the healthcare needs of patients across populations and geographies. Clinically integrated networks (CINs) offer a structure that allow multiple — oftentimes competing — healthcare providers and facilities to voluntarily collaborate to align and optimize a care delivery system in order to improve patient care, enhance quality and manage healthcare costs.

Through a clinically integrated network, participating providers are able to more effectively share clinical and financial performance data, eliminate silos, improve coordination across the care continuum, and develop and deploy evidence-based clinical protocols and care pathways. Ultimately, these synchronized efforts enable the network to provide a more efficient, effective, and patient-centric model of care.

ECU Health and UNC Health have each over time independently invested in the development of clinically integrated networks — ECU Health Alliance and UNC Health Alliance, respectively — to position our organizations and participating providers to be successful in the new healthcare landscape. While our independent alliances have achieved notable outcomes, we recognize opportunities remain for advanced collaboration in order to better serve and manage the health and wellness of patients in our rural communities. Our state leaders have also recognized the important role clinical integration plays in meeting shared healthcare transformation goals, as evidenced by the $10,000,000 investment in the 2023 Appropriations Act to support UNC Health in creating a clinically integrated network with ECU Health. In the months since the legislation was signed into law, our organizations have started a collaborative process of exploring opportunities to align our networks with the goal of creating a more comprehensive delivery system that can achieve the triple aim, with our unique rural populations specifically in mind.

To this end, UNC Health and ECU Health intend to form a super-clinically integrated network (super-CIN), which represents a low-cost, high-impact strategy to enhance health outcomes. Super-CINs allow independent healthcare systems, hospitals, and physician organizations to pool resources, leverage infrastructure, and manage population health more effectively. This will allow us to begin a process of building upon the strengths of each network, optimizing and scaling our infrastructure and capabilities to successfully manage the care of populations, and together develop solutions to fill gaps in our service offerings. This augmentation of our population health resources will enable our super-CIN to better meet the diverse health and wellness needs of patients across the state while allowing flexibility to meet the specific needs of patients in eastern North Carolina and support our transition to value-based care.

Our collective commitment and collaboration will result in a more sustainable, accessible, and effective care delivery system, through:

1. Creation of a broader provider network that fosters greater access to preventative care and primary care providers, specialists, and timely treatment.
2. Development of ongoing quality improvement programs.
3. Enhanced Care Coordination and information sharing.
4. Implementation of evidenced based clinical protocols and care pathways to improve patient outcomes.
5. Cost Management.
6. Alignment of payor strategies to improve outcomes.
7. Creation of shared approach to analytics and other scaled infrastructure.

PROGRESS TO DATE:

UNC Health and ECU Health appreciate the support of our state leaders to ensure North Carolina is a national leader in rural, value-based care delivery. Though the clinical integration required to achieve this goal is complex, our organizations are committed to a thoughtful, deliberate roadmap development process. Our progress to date includes the following activities:

- Creation of a joint CIN workgroup to guide development of our clinical integration initiative and ensure a shared commitment to value creation and improved patient outcomes for rural North Carolina remains the core of our focus.
- Development of a process to examine our existing population health networks and resources and define specific areas where opportunities exist to deliver network access and capabilities more efficiently and effectively, jointly.
- A review of overall value-based care experience and outcomes and preliminary assessment of infrastructure and initiatives necessary to better support population health.

SECTION 6:

Addressing Behavioral Health Needs in our Regional System of Care

The UNC School of Medicine and the Brody School of Medicine at East Carolina University have been on the forefront of responding to the behavioral healthcare needs of North Carolina for decades, with a combined 120 years of distinguished service between our psychiatry departments.

Each institution is committed to providing excellence in psychiatry and behavioral health through education and training, research, and patient care, and together with our respective health systems — UNC Health and ECU Health — we continue to evolve to better respond to the growing mental health needs faced by North Carolinians of all ages, from childhood through geriatrics.

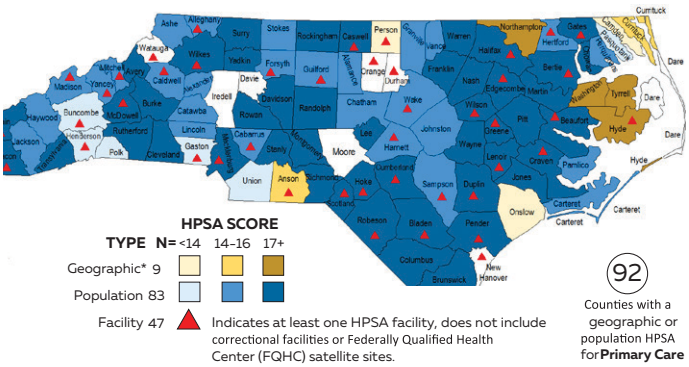
For example, at its founding in 1977, the Department of Psychiatry and Behavioral Medicine at the Brody School of Medicine had a class size of 28 students. Today, the department has grown to 36 resident slots with more dually trained physicians in internal medicine and psychiatry than most programs nationally. The need for dually trained physicians is significant as related to our ability to provide whole person care for patients with physical and mental health needs. ECU Health Medical Center and the Department of Psychiatry and Behavioral Medicine, with the support of Trillium Health Resources, partnered to develop the state's only Mental Illness/Intellectual Disabilities (MI/ID) unit — one of only five such units in the nation[1]. In 2023, the Department's outpatient clinic in Greenville, NC had over 17,000 visits, which represents a 4% increase over 2022. In the same year, ECU Health Medical Center had over 1,000 admissions for adults with acute primary mental illnesses, which equates to over 15,000 patient days. Additionally, ECU Health had over 5,500 ED visits for persons with a primary mental health or substance use condition in 2022. The overall median length of stay for these patients was 7.3 hours, though it is not uncommon for some patients to remain in our emergency departments for weeks or months due to lack of community placement options. Approximately 20% of these patients had no insurance coverage, and 30% were Medicaid beneficiaries.

We anticipate a continued rise in outpatient and inpatient demand for behavioral health services, as mental health illnesses and substance use disorders impact more people. Access to behavioral healthcare continues to be a growing problem in the U.S., and North Carolina is not immune to this reality. According to the National Institute of Mental Health, an estimated 1 in 4 Americans ages 18 and older suffer from a diagnosable mental illness every year. Further, only about two-thirds of the estimated 14.2 million adults in the U.S. with a serious mental illness receive treatment or counseling. Nationally, suicide is now a leading cause of death in people between the ages 10-14 and 20-34[2], and the second leading cause of death for people ages 10-18 in North Carolina[3]. According to data from the National Alliance on Mental Illness, 53.2% of North Carolinians ages 12 through 17 who have depression did not receive any care in the last year. North Carolina's rate of drug overdose deaths is 39.2 per 100,000 population, which is higher than the national rate of 32.4, and climbing. According to the Robert Wood Johnson County Health Rankings, North Carolina is in the 10th percentile compared to the rest of the U.S. for average number of mentally unhealthy days reported in the prior 30 days. For North Carolina, the average number of mentally unhealthy days reported was 4.4. In Eastern North Carolina, only Dare County had better results — 4.3 days — compared to the state average.

The state of mental health represents a systemic problem — one that affects not only individuals in crisis, but their families and entire communities. Transformation of behavioral healthcare, like physical healthcare, requires that we design new systems of care that ensure all North Carolinians have sustainable, affordable, and timely access to behavioral health services when and where they are needed. This entails the integration of behavioral health across the care continuum including embedding outpatient services and screenings in

1. Source: AHA Fast Facts in Behavioral Health 2023
2. CDC Injury Center, Suicide Prevention, facts about suicide
3. Governor's Behavioral Health Roadmap

North Carolina Health Professional Shortage Area for Mental Health (2022 Profile)



our communities through collaborative care and behavioral health primary care, enhancing support for our patients in crisis, and ensuring safe, comprehensive care for patients with complex behavioral healthcare needs. Of the 100 counties in our state, 93 are considered by the NC Office of Rural Health to be a geographic or population-based Health Professional Shortage Area (HPSA) for mental health. These mental health HPSA counties are home to approximately 9,570,521 people, or 90% of the state's total population as of 2022. All 29 counties in Eastern North Carolina, which is home to approximately 1,415,598 people, are considered mental health HPSAs. The Kaiser Family Foundation reports that as of November 2023, North Carolina would need 247 more mental health practitioners in order to remove its mental health HPSA designation. Therefore, importantly, a critical element of the redesigned behavioral health delivery system of the future must be the development of facilities and models of care that promote new opportunities for rural learners and improved recruitment and retention of psychiatrists and other behavioral health providers to rural areas of our state.

To better serve the most complex patients in Eastern North Carolina and beyond, the ECU Health system and Acadia Healthcare are jointly investing in a new state-of-the-art 144-bed behavioral health hospital in Greenville, NC. In developing this facility, it was recognized that behavioral healthcare for our child and adolescent population continues to be underserved. In response to the growing need for complex care for this unique population, the new hospital will include a 24-bed pediatric behavioral health unit designed specifically with children in mind — the first of its kind in ECU Health's 29-county service area, and the only child and adolescent inpatient beds within 75 miles of Greenville, NC. Upon completion, the facility will be the third largest private behavioral health hospital in our state and will serve as a teaching hospital for training students and residents from the Brody School of Medicine, as well as all applicable allied health disciplines.

NEW BEHAVIORAL HEALTH FACILITY PROJECT UPDATE

The need for outpatient behavioral health care access is growing, and we can expect that as new consolidated regional models of inpatient behavioral healthcare are created, such as ECU Health's freestanding psychiatric hospital, and we invest in virtual access and community-based collaborative behavioral health primary care models, additional stress will be placed on our already strained specialized outpatient access points. The current BSOM Department of Psychiatry and Behavioral Medicine facilities in Greenville are outdated and inadequate to support the expansion of outpatient behavioral health services and necessary growth in residency and fellowship programs. We are grateful to our state leaders for their recognition of the importance of a comprehensive, coordinated system of behavioral healthcare, and the foresight and confidence to invest further in the ability of the BSOM Department of Psychiatry and Behavioral Medicine to meet eastern NC's need for specialized outpatient behavioral health services.

As part of the $420M appropriated for the NC Care initiative in the 2023 Appropriations Act, the sum of fifty million dollars ($50M) was allocated to ECU for the development of a new regional behavioral health facility in Greenville, NC. Preliminary planning is underway, which includes scope of services, facility footprint and design, and collaboration to ensure the new facility is developed to seamlessly integrate into the broader eastern NC regional system of care.

The new BSOM regional behavioral health facility will be designed to serve as a hub for specialized outpatient behavioral health services. To accommodate the growth in general and specialized behavioral health clinical care and training, and the administrative functions required by the BSOM Department of Psychiatry and Behavioral Medicine, the new behavioral health facility is expected to be a 2-story building with over 50,000 square feet, and set on 4.5 acres of land *(see Appendix for preliminary site plan schematic and facility renderings).*

The following represents a preliminary set of programs and services the facility will be designed to accommodate:

- **Child and Adolescent Psychiatry Program:** distinct entrance, registration, waiting, financial counseling space; child play area; space for pediatric health psychology, fellows, social workers, APPs, nursing, and attendings
- **Addiction Medicine Program:** dedicated waiting and reception space; consulting faculty offices; vitals & laboratory space; social work, group therapy
- **Ketamine & Transcranial Magnetic Stimulation Therapy Clinics:** Ketamine therapy rooms; Transcranial Magnetic Stimulation treatment rooms; general office and storage space
- **Adult Behavioral Health Program:** neuropsychology; clinical health psychology; group therapy; general office and workspaces
- **Adult Psychiatry Program:** Geriatric fellowship faculty; space to support psychiatry residency and fellowship expansion
- **Telepsychiatry Program:** 11 dedicated spaces for telepsychiatry and program administration
- **GME Program Administration:** GME conference space; residency and fellowship workrooms; residency and department leadership offices
- **Public spaces:** separate & distinct public spaces for adult versus child and adolescents; restrooms; flex work space; staff lounge and storage space; retail pharmacy; public conference space
- **Adult Nursing:** nurse workstations, vital/exam rooms, lab and medication space
- **Peer Services:** separate suite for peer support specialists to meet with patients in recovery

ECU and ECU Health have developed a collaborative plan that will allow the new behavioral health facility to be located on the same campus as ECU Health's new freestanding behavioral health hospital. Doing so will enable efficient access and navigation of specialized behavioral health services for our patients and improve care coordination and collaboration between sites of care. To that end, ECU Health Medical Center Board of Trustees and the ECU Health Board of Directors have approved the donation of 4.5 acres of land to ECU to support advancement of the new behavioral health facility project.

In summary, ECU Health, UNC Health, and our respective schools of medicine remain dedicated to efforts to improve access to behavioral healthcare services across all points of the care continuum for all North Carolinians, including our most vulnerable — the child and adolescent population. We appreciate the significant investments in behavioral health made available by the 2023 Appropriations Act to support a comprehensive approach to behavioral healthcare delivery and outcomes improvement. We look forward to the opportunity to collaborate in bringing a new outpatient regional behavioral health facility to eastern North Carolina, and further exploring innovative ways our organizations can partner to support our state in becoming a national model for comprehensive behavioral healthcare delivery.

SECTION 7:

Next Steps

We are excited to bring our vision for the NC Care initiative to life. This report is just the beginning, and next steps include further defining the details of our plan. We anticipate conducting the following types of analyses to inform these details:

- Regulatory analysis
- Detailed financial modeling
- Supply and demand analyses

We look forward to sharing the next iteration of our plan in our next report.

Appendix

LIST OF SOURCES AND CONSULTED AGENCIES

- Center for Disease Control
- Centers for Medicare and Medicaid Services
- Council for Affordable Health Coverage
- ECU Health
- Federal Reserve Economic Data
- Healthcare Cost Institute
- Leapfrog Hospital Safety Grade
- National Institute of Health
- NC Detect
- North Carolina Department of Commerce
- North Carolina Department of Information Technology
- North Carolina Department of Transportation
- North Carolina Health and Human Services
- North Carolina Institute of Medicine
- North Carolina Office of State Budget and Management
- Pew Research
- RAND Hospital Data
- Syntellis Market Demand Data
- UNC Health
- UNC Shep's Center
- Urban Institute
- US Bureau of Economic Analysis
- US Census Bureau

(A few additional sources are directly referenced below.)

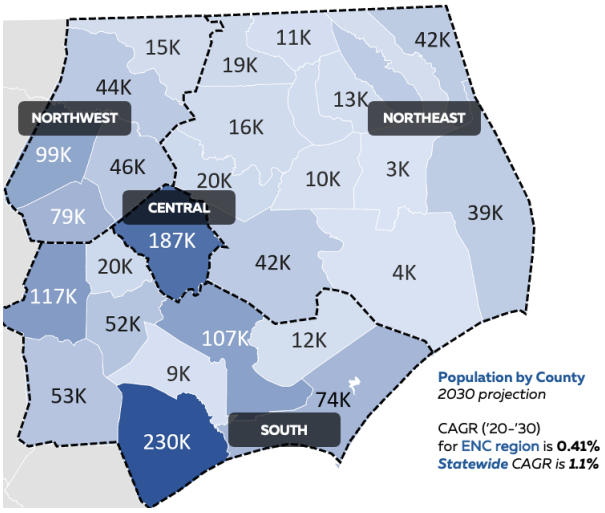
MORE INFORMATION ON EASTERN NORTH CAROLINA'S DEMOGRAPHICS AND HEALTH STATUS

Below is a summary graphic of Eastern North Carolina (ENC) versus the rest of the state in demographics and health status.

Less than ENC & NC	More than ENC but not NC	More than (or close to) ENC & NC

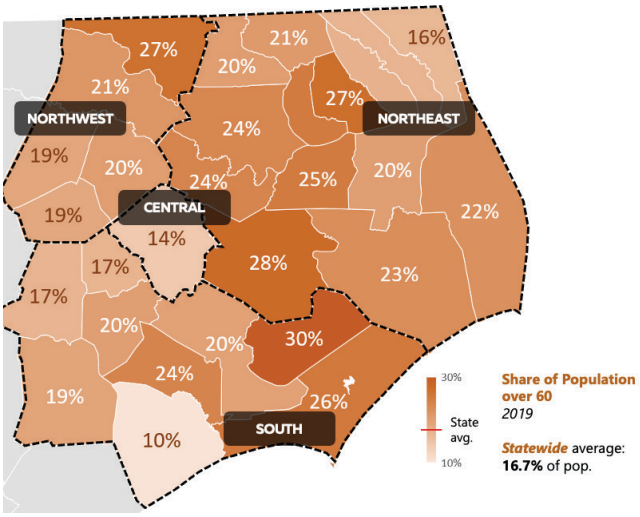
Averages	NE	NW	South	Central	Total ENC	All of NC
Population Growth (%)	-0.2%	-0.2%	0.6%	1%	0.4%	1%
Poverty Rates (%)	17%	21%	17%	19%	18%	14%
Share Age 60+ (%)	22%	21%	20%	14%	21%	17%
Share Non-White (%)	40%	58%	38%	46%	43%	29%
Heart Disease Rates (per 100k)	188	180	177	163	182	158
Cancer Prevalence (per 100k)	407	449	480	429	438	469
Cancer Deaths (per 100k)	160	170	168	146	164	155
Physicians (per 10k)	10	12	13	54	13	25
PCPs (per 10k)	5	4	5	12	5	7
Specialists (per 10k)	6	8	8	42	8	16
Psych. Workforce (per 10k)	1	1	1	5	1	4

Source: NCIOM



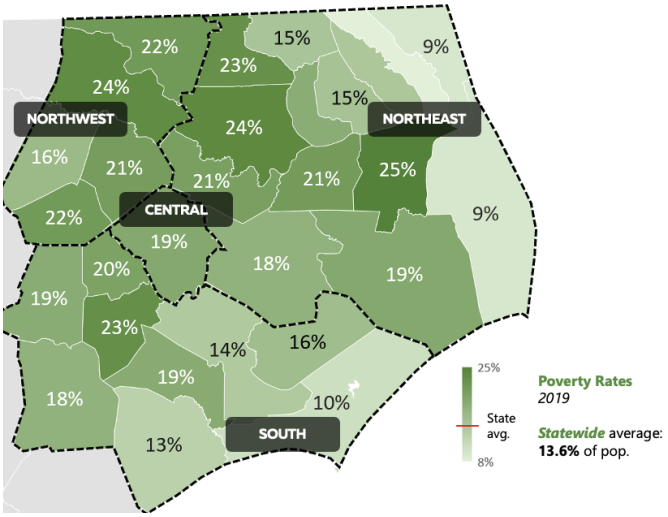
Source: NCIOM

Population forecast for 2030 projects low growth in Eastern North Carolina of 0.41% versus the state average of 1.1%. Despite this low growth, demand for healthcare services is increasing as the population ages and chronic conditions become more prevalent.



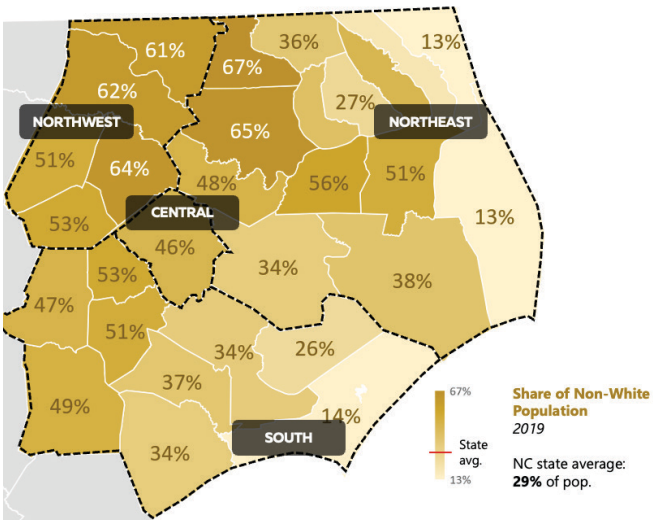
Eastern North Carolina has a higher share of elderly residents at 20% versus the state average of 16.7%. This aging population requires increased checkups and screenings, age-appropriate vaccinations, chronic disease management, and mental health support.

Source: NCIOM



Poverty rates are highest in the Northwest sub-region, but all of Eastern North Carolina has a higher share of poverty at 18% versus the state average of 13.6%. This financial stress burdens patients and providers fiscally, administratively, and ethically. Counties with particularly high poverty rates (+23%) include Bertie, Halifax, Hertford, Lenoir, and Tyrrell counties. Per capita personal income was an average of $51,000 in Eastern North Carolina in 2022 versus the state average of $58,000.

Sources: NCIOM, BEA, FRED



Eastern North Carolina has a higher share of non-white population at 45% versus the state average of 29%, requiring more complex and culturally competent care.

- Like the rest of the state, Eastern North Carolina suffers from high levels of chronic diseases. For example, in almost all Eastern North Carolina counties, heart disease incidence is above the state average, including Lenoir County and Martin County where incidence rates are well above the state average. Chronic disease is expensive for patients and providers as it requires more complex care.
- While chronic disease incidences are similar on average to the rest of the state, death rates for chronic diseases are higher. For example, cancer deaths in Eastern North Carolina are 5% higher than the state average. As the table below shows, diabetes, heart disease, chronic liver, and chronic respiratory deaths are also higher in Eastern North Carolina than the state average, implying that patients in this region are sicker and require greater complexity of care.

	CANCER	DIABETES	HEART DISEASE	CHRONIC LIVER	CHRONIC RESPIRATORY
Eastern NC compared to **NC state average**	**1.09x**	**1.30x**	**1.16x**	**1.16x**	**1.03x**
Eastern NC compared to **Select Triangle Counties**	**1.27x**	**1.87x**	**1.54x**	**1.87x**	**1.68x**
Eastern NC compared to **other 71 NC Counties**	**1.09x**	**1.27x**	**1.15x**	**1.12x**	**0.99x**

Source: CDC

- North Carolina's maternal mortality rate is 26.5 deaths per 100,000 births (2018-2021) which is higher than the US average rate of 23.5. Of those 26.5 deaths, more than 1 in 3 were from rural areas. Actions such as increasing the recruitment of OBGYNs, expanding mental health programming, and providing additional support during the immediate labor process can improve outcomes for women in our community.
- Lastly, much of Eastern North Carolina struggles with mental health, and suicide and depression rates are higher in Eastern North Carolina than the rest of the state as there has been an increase in mental health diagnoses since the pandemic. To increase access to mental health professionals, telemedicine and telehealth options, peer support groups, and educational programs are all recommended. The majority who seek mental healthcare in Eastern North Carolina are Medicaid insured, about 45%.

MORE INFORMATION ON EASTERN NORTH CAROLINA'S EXISTING AND GROWING HEALTHCARE CHALLENGES

Based on our research and knowledge of the Eastern North Carolina healthcare market, we have collaboratively worked to categorize Eastern North Carolina's healthcare challenges into five groupings: Supply, Access, Quality, Cost, and Non-Medical Factors. In total, these factors strain the healthcare system in this region, and drive complications with health outcomes and with the financial sustainability of the system for patients and providers. We are designing our regional system of care to address the challenges in these five categories.

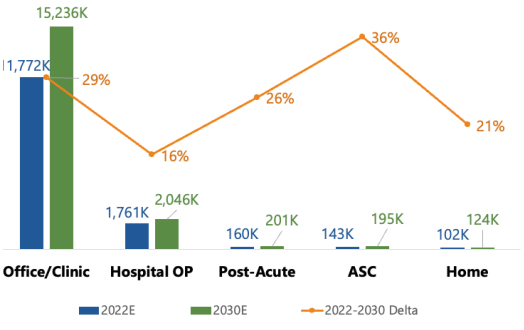
SUPPLY	ACCESS	QUALITY	COST	NON-MEDICAL
• Mismatch between supply and demand • Inadequate access to key care services across geographies • Expected retirement of physician supply	• Significant driving distance for certain populations • Physician gaps in primary care and specialties	• Low site volumes • Care coordination challenges	• Financial challenges for providers • Financial challenges for sponsors and patients	• Low health literacy • Affordability of care • Lack of technology and other needed services

Supply challenges

Mismatch between supply and demand:
Demand for outpatient services will increase significantly by about 3.9 million visits by 2030 in Eastern North Carolina. Meanwhile, inpatient demand will largely remain the same on net by 2030 due to an increase in usage from an aging population offset by the ongoing movement of inpatient care to outpatient settings as new technologies and techniques are introduced to the healthcare industry.

ENC Outpatient Volume Projection

Total volume will increase by ~3.9M, mainly driven by Clinics (~3.5M) and HOPD (~285K)



ENC Inpatient Volume Projection

Total volume will decline by ~8K visits by 2030

Sources: HIDI ENC IP claims, RAND hospital data, and Syntellis data. Clinics are facilities focused on outpatient services. HOPD is the abbreviation for hospital outpatient department.

Healthcare in Eastern North Carolina is not built for these future outpatient and inpatient demand changes. We have more capacity than is required for inpatient services and too little capacity and access to outpatient services.

There are six different healthcare systems operating 18 hospitals in Eastern North Carolina, all competing for in-patient demand. As a result, inpatient facilities in Eastern North Carolina are under-utilized versus the industry best practice. ECU Health and UNC Health hospitals are utilized an average of 52% versus 75-80% industry utilization.

Northeast IP Facility Utilization

Facility	Licensed beds*	Staffed Beds†	Avg. Occupied Beds	Avg. Utilization
A	114	70	41	58%
B	142	83	41	49%
C	6	6	3	50%
D	49	25	17	68%
E	25	25	8	32%
F	182	98	57	58%
G	21	21	8	39%
Total	**539**	**328**	**175**	**53%**

South IP Facility Utilization

Facility	Licensed beds*	Staffed Beds†	Avg. Occupied Beds	Avg. Utilization
H	81	49	31	64%
I	199	182	75	41%
J	162	162	85	52%
K	316	245	135	55%
L	350	312	132	57%
M	135	99	68	69%
Total	**1,243**	**1,049**	**526**	**56%**

Northwest IP Facility Utilization

Facility	Licensed beds*	Staffed Beds†	Avg. Occupied Beds	Avg. Utilization
N	117	117	36	30%
O	204	100	58	58%
P	345	322	153	47%
Q	294	100	71	71%
Total	**960**	**639**	**318**	**50%**

Sources: Sheps, RAND

* As of 12/2023, includes all bed types
† Staffed bed and utilization comes from Medicare Cost Reports (2022)

Due to there being not enough outpatient access points for the rapidly growing outpatient demand, patients default to Emergency Departments (EDs) which is uneconomical and leads to long wait times. *(See Access for more on the overuse of EDs.)*

Inadequate access to key care services across geographies:
Adding difficulty to the above mismatch in supply and demand, is the shortage of physicians across Eastern North Carolina. Only Pitt County, the Central sub-region, is supplied versus the state average due to the presence of ECU Health Medical Center.

Physician supply per 10k residents and age in the Northeast sub-region

	Ortho Surg.	Gen. Int. Med.	Gen. Surg.	Psych	Card.	Onc.	Endo.	Neur.	Opth.	PCP	OB-GYN	% of physicians over 65
Beaufort	0.68	0.9	0.9	0.45	0.23	0.23	0	0	0	4.73	0.9	23.6%
Bertie	0	0.59	0.59	0	0	0	0	0	0	4.13	0.59	41.7%
Camden	0	0.92	0.92	0	0	0	0	0	0	2.75	0.92	-
Chowan	1.46	2.19	2.19	0.73	0	1.46	0	0	0	9.51	2.19	33.3%
Currituck	0	0.32	0.32	0	0	0	0	0	0	1.94	0	30.0%
Dare	1.05	1.32	1.32	0	0.53	0	0	0	0.26	8.44	1.85	15.4%
Gates	0	0	0	0	0	0	0	0	0	0	0	-
Hertford	0.51	2.05	2.05	3.59	0.51	0.51	0	0.51	0	7.69	1.03	21.3%
Hyde	0	0	0	0	0	0	0	0	0	4.4	0	-
Martin	0	0.47	0.47	0	0.47	0	0	0	0	4.66	0.47	-
Pasquotank	1.23	1.96	1.96	0.25	0.49	0.74	0.25	0.25	1.23	8.34	1.72	14.9%
Perquimans	0	0	0	0	0	0	0	0	0	0.74	0	-
Tyrrell	0	0	0	0	0	0	0	0	0	0	0	-
Washington	0	1.89	1.89	0	0	0	0	0.94	0	3.77	0	23.6%
NC Rate	0.73	2.05	0.60	1.41	0.87	0.56	0.22	0.55	0.51	7.42	1.14	13.3%

Physician supply per 10k residents and age in the South sub-region

	Ortho Surg.	Gen. Int. Med.	Gen. Surg.	Psych	Card.	Onc.	Endo.	Neur.	Opth.	PCP	OB-GYN	% of physicians over 65
Duplin	0.21	1.03	0.41	0.62	0	0.21	0	0	0	3.69	0.82	34.1%
Greene	0	1.49	0	0	0	0	0	0	0	2.98	0	26.5%
Lenoir	0.55	1.83	1.1	0.55	0.55	0.55	0.18	0.18	0	6.41	1.47	25.0%
Wayne	0.43	1.36	0.34	2.47	0.34	0.26	0.09	0.09	0.34	4.93	0.68	-
Carteret	0.58	1.16	0.58	0	0.87	0.44	0.29	0.15	0.15	5.38	1.45	25.7%
Onslow	0.14	0.86	0.38	0.43	0.29	0.1	0	0.1	0.19	3.2	0.48	21.7%
Pamlico	0	4.07	0	0	0.81	0	0	0	0	5.69	0	44.4%
Craven	0.88	2.94	0.69	0.78	1.27	0.39	0.1	0.39	0.59	7.25	0.59	23.1%
Jones	0	4.35	0	0	0	0	1.09	1.09	0	5.44	0	18.2%
NC	0.73	2.05	0.60	1.41	0.87	0.56	0.22	0.55	0.51	7.42	1.14	13.3%

Physician supply per 10k residents and age in the Northwest sub-region

	Ortho Surg.	Gen. Int. Med.	Gen. Surg.	Psych	Card.	Onc.	Endo.	Neur.	Opth.	PCP	OB-GYN	% of physicians over 65
Edgecombe	0.63	0.84	0.42	0.21	0.42	0.42	0	0	0	3.14	0.42	19.1%
Halifax	0.21	1.67	1.67	0.42	0.21	0	0	0	0.42	5.44	1.05	26.0%
Nash	0.94	2.2	0.73	0.63	0.52	0.63	0.21	0.42	0.1	5.87	0.84	18.9%
Northampton	0	0.59	0	0	0.59	0	0	0	0.59	1.76	0	-
Wilson	0.64	2.7	0.51	0.39	0.39	0.26	0.13	0.26	0.39	5.78	0.9	25.0%
NC	0.73	2.05	0.60	1.41	0.87	0.56	0.22	0.55	0.51	7.42	1.14	13.3%

Source: Sheps

Overall, Eastern North Carolina has 13 physicians per 10,000 population while the rest of the state has 25. With nurses, Eastern North Carolina has 8.2 per 10,000 population while the rest of the state has 9.8. According to SullivanCotter, there is a shortage of 340 primary care physicians alone in Eastern North Carolina. Medical results of this shortage can include delayed diagnoses, increased vulnerability for chronic conditions, and poorer health outcomes.

From the data, there are Eastern North Carolina counties that have a hospital and Emergency Department but still have a physician shortage. This demonstrates the need to create additional supply and access to care even in regions that are well served by the current system.

Expected retirement of physician supply:
Projections indicate a significant portion of doctors will soon retire. In Eastern North Carolina, 18.2% of physicians are nearing retirement. This exodus threatens to worsen existing healthcare worker shortages, particularly in specialized fields. While ECU Health and UNC Health have programs to attract and retain talent in rural areas, only 21% of medical schools in the United States operated a rural training program in 2019, meaning the pipeline into rural communities overall to backfill retiring doctors is small versus the needed scale. According to some sources, the current shortage of physicians could grow by 31% by 2030 in North Carolina.

Access challenges

Significant driving distance for certain populations:
Drive times in Eastern North Carolina for primary care are not far from national averages for rural counties, with Hyde and Tyrell counties the exceptions. For specialist care, drive times increase. For example, the only CATH lab in ECU Health's system north of Greenville is in Roanoke Rapids, meaning residents in Chowan County, for example, must drive 75 minutes to Greenville, 90 minutes to Roanoke Rapids, or leave our system for treatment at Sentara Albemarle forty minutes away.

Additionally, access to vehicles and public transport are below national and state averages, making driving distances prohibitive for certain populations. The average share of residents without a vehicle in Eastern North Carolina is 15% and many ENC counties like Hertford, Edgecombe, and Onslow are well above that at 23-34%. Meanwhile, most public transport is provided by NGOs and usually requires community-based carpooling, which is not ideal in a medical emergency. Road conditions and weather conditions in Eastern North Carolina can also restrain populations' ability to travel.

Physician gaps in primary care and specialties:
As mentioned above, Emergency Departments (EDs) in our systems are heavily utilized by the population, demonstrating physician shortages in primary care. The number of ED visits in 2022 in the United States was 411 visits per 1,000 population and the number ED visits in 2022 in North Carolina was 394 visits per 1,000. In Eastern North Carolina, the number of ED visits in 2022 was 529 visits per 1,000, which is 29% higher than the US visit count and 34% higher than the North Carolina visit count.

According to UnitedHealth Group, in 2019, the United States average cost of treating primary care conditions at an ED was $2,034 versus visiting at physician office for a cost of $167 or an urgent care center at $193. About 17% of adults who visited an Emergency Department in Eastern North Carolina, could've seen a primary care physician as they received care for primary care complaints, like cough, sore throat, and headache. 17% of 529 visits is 90 visits. If those 90 visits per 1,000 visits had visited a primary care facility instead of an ED, the savings opportunity is about $162,000 per 1,000 visits.

As pictured in the physician tables in the Supply section, in the Northeast sub-region, ten of the fourteen counties have fewer primary care physicians than the state average. In the South sub-region, all nine counties have less primary care physicians than the state average. In the Northwest sub-region, all five counties have less primary care physicians than the state average. This means 86% of Eastern North Carolina counties have a shortage, or gap, in primary care.

This pattern repeats with specialists. Eastern North Carolina has a shortage, or gap, in psychologists, cardiologists, neurologists, OBGYNs, and more. For example, Martin County is understaffed versus the state average in eleven different categories of specialists. Lenoir County is understaffed in all specialists except general surgery and OBGYN. Halifax County is understaffed in all specialists but general surgery.

Quality challenges

Low site volume:
Inpatient and outpatient volumes can be low for certain specialties at certain sites and in certain regions. Low volumes can make it hard to sustain a dedicated physician specialist presence in certain regions, and low volumes of certain procedures have been demonstrated to have negative impacts on the consistency of care. A body of research known as "volume-outcome" indicates that hospital volume and the proportion of patients operated on by low-volume surgeons are related to quality of care as measured by patient outcomes. Higher hospital volume is not necessary to receive high quality care, but higher volume is positively related to better patient outcomes.

Care coordination challenges:
Delivering coordinated care is a challenge for the healthcare industry at large. In rural communities, factors such as access challenges and a shortage of healthcare workers create further complications to achieving this objective. Additionally, small ambulatory footprints in many areas of the East make care coordination more complex due to more limited resources at these sites.

A study by the American Board of Family Medicine in 150 rural counties in 8 southeastern states found 22% of respondents delayed or did not fill their primary medication. Non-adherence was more common among patients who were under age 65, Black, and reported incomes less than $25,000. One of the biggest contributors to non-adherence was transportation problems and travel inconvenience posed by greater distances to pharmacies. This is an example of how non-medical factors also necessitate a more holistic approach to care coordination.

Cost challenges

Financial challenges for providers:
There are substantial fixed costs inherent in running a hospital. These costs include maintaining infrastructure, equipment, and staffing. When utilization drops, the cost per patient served increases significantly, as these fixed costs are spread across fewer individuals. As mentioned above, Eastern North Carolina hospitals are about 52% utilized, affecting the impact of fixed costs.

In addition, healthcare infrastructure in this region is aging, with many facilities originally funded through the Hill-Burton Act in 1946. With some facilities nearing 80 years old, deferred maintenance within ECU Health's system is in the tens of millions of dollars. This needed investment is not only for maintenance but the development of new services and growth.

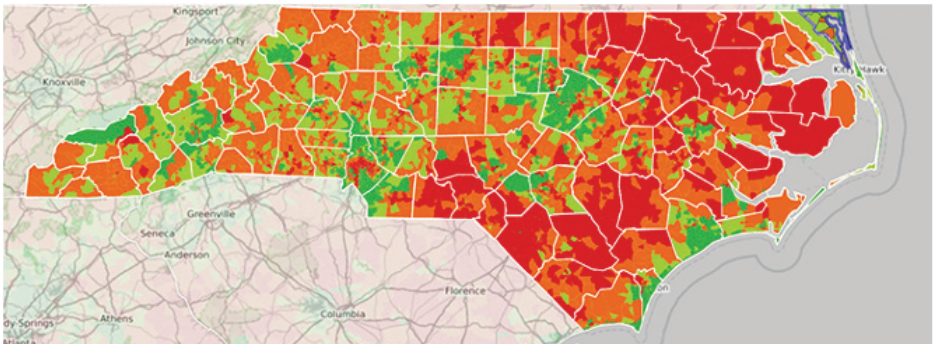
Last, there are payer mix challenges. From a population standpoint, about 12.6% of Eastern North Carolina is uninsured, about 32% of Eastern North Carolina is Medicaid insured, and about 20% of Eastern North Carolina is Medicare insured. The rate of population on Medicaid is highest in the Northwest sub-region with Edgecombe County at 54%. In the South sub-region, Lenoir County is the most at 45% and in the Northeast sub-region it's Hertford County at 40%. With Medicaid Expansion, we expect these statistics to change over time. But currently, Medicaid and Medicare populations often have higher rates of chronic conditions and complex needs, requiring more exhaustive and resource-intensive care.

These factors create economic pressure on providers as they seek to deliver high-quality care in a financially sustainable way.

Financial challenges for sponsors and patients:
Healthcare spending is the sum of payments from the source of coverage plus any out-of-pocket deductible, copayment, or cost-sharing amounts (excluding premium payments) by individuals. On average, employer sponsored insurance pays 15-19% of healthcare spending in Eastern North Carolina. In Eastern North Carolina, employers spend an average of $6,850 per person versus the state average of $6,361. In some counties, like Edgecombe, Chowan, and Bertie, the per person spend by employers is at least $1,000 higher than the state average. When total healthcare spending by employers and government is compared across counties, Bertie, Chowan, Lenoir, and Jones counties have the highest average annual per person total healthcare spending in Eastern North Carolina. *(See Non-Medical Factors for info on affordability of care.)*

Challenges related to Non-Medical Factors

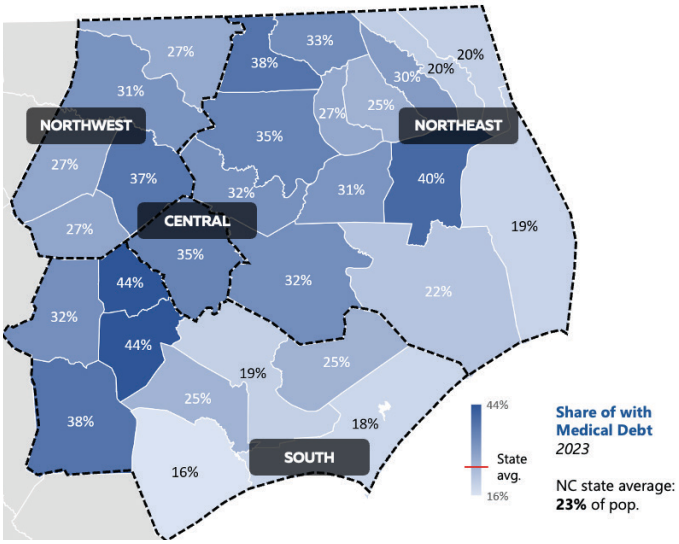
Low health literacy:
As shown in the below map from UNC's Sheps Center, health literacy is a problem across the state, but illiteracy is highest in the eastern half of the state. About 34% of Eastern North Carolina has low health literacy. This correlates with insurance types and race. On the individual level, low health literacy leads to difficulty in understanding medical instructions, managing medications, navigating complex healthcare systems, and more.



Sources: UNC Sheps

On the healthcare system level, low health literacy creates increased communication burdens, longer appointment times, reduced patient engagement, and difficulty in delivering equitable care. This contributes to increased healthcare costs due to unnecessary hospitalizations and complications, and reduced efficiency in service delivery. Work is being done throughout the state to improve this issue, and the NC Care initiative plans to support these efforts.

Affordability of care:
The state average share of population with medical debt is 23%. In Eastern North Carolina, the share of population with medical debt is 29%. Counties with the most medical debt are inland from the coast and include Tyrrell, Hertford, Edgecombe, Green, and Lenoir counties as shown on the map below.



Sources: NCIOM, Urban Institute, and RAND hospital data

Looking at the share of medical debt in collections, Eastern North Carolina has the highest rates of medical debt in collections in the nation. Eight Eastern North Carolina counties are listed in the top fifty counties with medical debt in collections: Lenoir, Greene, Tyrrell, Hertford, Duplin, Edgecombe, Bertie, Pitt, and Gates. 43% of the medical debt in Lenoir and Green counties is in collections, making these counties number one and two in the nation for medical debt in collections.

Not only does medical debt add financial hardship to patients, but it causes delayed and/or foregone care for fear of accumulating more debt, it increases patients' mental health burden, and it strains local economies by reducing disposable income and hindering economic development. ECU Health and UNC Health have programs to assist patients financially, we recognize that medical debt is an especially important issue in Eastern North Carolina, and we are committed addressing it.

Lack of technology and other needed services:
Consumer health is also impacted by non-medical issues like broadband availability and food insecurity. For example, about a third of Halifax County is without broadband access. 16%-17% of residents in Hyde, Tyrrell, and Jones counties don't have access to a computer. The Northwest sub-region has the highest share of population suffering from food insecurity in Eastern North Carolina at 24%, while the state average is 17%. Issues like these contribute to higher rates of chronic conditions and poorer health outcomes. This translates into increased demand for healthcare, often for complex and resource-intensive care. For instance, a patient with diabetes who lacks access to fresh produce and reliable transportation to appointments may struggle to manage their condition, leading to complications and frequent hospital visits.

BEHAVIORAL HEALTH FACILITY: PRELIMINARY SITE PLAN SCHEMATIC AND RENDERINGS