

The Shadows of Life: Medicaid's Failure of Health Care's Moral Test

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I. INTRODUCTION

The American healthcare system offers three answers to Hubert Humphrey's "moral test of government": Children's Health Insurance Program (CHIP) for those in the dawn of life, Medicare for those in the twilight of life, and Medicaid for those in the shadows of life.¹ This paper focuses on the beneficiaries in the "shadows" of North Carolina – the sick, the needy, and the handicapped – where the state Medicaid program covers a fifth of the population and a third of the budget.²

Over the past decade, the North Carolina Medicaid program has experienced escalating costs and declining health outcomes, particularly in the state's rural and underserved areas.³ North Carolina's challenges speak

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1. Diana Mason, *The Role of Government: To Help the People Who Need Our Help the Most*, JAMA FORUM (Sep. 20, 2012), <http://newsatjama.jama.com/2012/09/20/jama-forum-the-role-of-government-to-help-the-people-who-need-our-help-the-most/> ("The moral test of government is how it treats those who are in the dawn of life, the children; those who are in the twilight of life, the aged; and those in the shadows of life, the sick, the needy and the handicapped.—Hubert Humphrey").

2. *Medicaid in North Carolina*, HENRY J. KAISER FAMILY FOUND. (Nov. 2018), <http://files.kff.org/attachment/fact-sheet-medicaid-state-NC> [hereinafter KFF Fact Sheet]; see also Nat'l Ass'n of State Budget Officers, *Summary: NASBO State Expenditure Report* 1, 3 (Nov. 15, 2018), <https://www.nasbo.org/reports-data/state-expenditure-report>.

3. Healthcare Expenditure by State of Residence (In Millions), HENRY J. KAISER FAMILY FOUND., <https://www.kff.org/other/state-indicator/health-care-expenditures-by-state-of->

to the larger obstacles faced by Medicaid programs across the nation as budgets for safety net programs tighten and outcomes for beneficiaries worsen.⁴ These present-day trends are the function of longstanding questions about the philosophy grounding Medicaid policy: *who* holds standing in conversations on reform, *what* constitutes health and health care, and *how* the state determines where to invest public dollars. These questions, which comprise the foundation of the state's Medicaid program, are of unique importance in the present day given the political headwinds blowing in state capitals (e.g., North Carolina's recently accepted Section 1115 waiver that proposes transitioning away from fee-for-service (FFS) to managed care) and the nation's capital (e.g., approval for work requirement, proposed flexible payment policies for social determinants of health).⁵

This article examines North Carolina as a window into these fundamental questions about Medicaid's past, present, and future. As states across the country prepare to reconfigure the fabric of the safety net, it is worth delving into both the stories and statistics about Medicaid beneficiaries to understand the proximate and root causes of the system's high costs and poor health outcomes. To do so, this study aimed to analyze North Carolina's Medicaid program at the county level, combining publicly available health and social datasets to precisely identify where and how inefficiencies in care delivery manifested. This empirical analysis was then supplemented with case studies of the two counties with the state's highest spending levels and worst health outcomes to illustrate the gaps in health and social services. The article then concludes by contextualizing historical findings to present-day reforms and offering a series of policy recommendations to recalibrate North Carolina Medicaid around the needs of its most vulnerable patients.

residence-in-millions/ (last visited Mar. 29, 2019) (select North Carolina; then Trend Graph); see also Percentage of Adults Reporting Fair or Poor Health Status, HENRY J. KAISER FAMILY FOUND., <https://www.kff.org/other/state-indicator/percent-of-adults-reporting-fair-or-poor-health-status/> (last visited Mar. 29, 2019) (select North Carolina; then Trend Graph).

4. Paul Howard, *A Prescription for Medicaid*, HEALTH AFFAIRS 51, 51 (2013).

5. *North Carolina Receives 1115 Waiver Approval, A Major Milestone for Medicaid and NC Health System*, NORTH CAROLINA DEP'T OF HEALTH AND HUMAN SERV. (Oct. 24, 2018), <https://www.ncdhhs.gov/news/press-releases/north-carolina-receives-1115-waiver-approval-major-milestone-medicare-and-nc>. [hereinafter *North Carolina Receives 1115 Waiver Approval*]; see also Dave Chokshi & Mitchell H. Katz, *Medicaid Work Requirements—English Poor Law Revisited*, 178 JAMA INTERN. MED. 1555 (2018); see also Alex Azar, *The Root of the Problem: America's Social Determinants of Health*, US DEP'T. OF HEALTH AND HUMAN SERV. (Nov. 14, 2018), www.hhs.gov/about/leadership/secretary/speeches/2018-speeches/the-root-of-the-problem-americas-social-determinants-of-health.html.

II. NORTH CAROLINA MEDICAID

Medicaid is a cornerstone of the North Carolina health care system, covering more than one million children and adults.⁶ An additional 208,000 individuals are stuck in the so-called “coverage gap” due to the state’s refusal to expand eligibility based on the provisions of the Patient Protection and Affordable Care Act (ACA).⁷ With more than a third of the state’s population classified as low-income, safety net programs such as Medicaid play a vital role in both the lives of many citizens and in the budget priorities of many lawmakers.⁸ Today, North Carolina Medicaid now accounts for less than thirty percent of the state’s budget, with annual expenditures projected to exceed \$14 billion in the coming years.⁹

Despite the significant growth of expenditures in recent years, the increase in spending has not meaningfully mitigated the state’s health disparities, and health inequities continue to persist across race, socioeconomic gaps, and the rural-urban divide.¹⁰ For example, African-Americans make up approximately twenty-two percent of North Carolina’s population, yet experience significantly higher rates of cancer, death, obesity, and diabetes among other health issues when compared to other state residents.¹¹ Similarly, residents of urban areas and individuals with higher levels of education are less likely to experience poverty and more likely to report poor health outcomes, respectively (e.g., elevated mortality from cardiovascular disease, and increased rates of obesity).¹²

These trends illustrate how North Carolina Medicaid is plagued by the dovetailing challenges of inefficiency and inequity, and they reveal Medicaid’s failure to address the root causes of health inequality, such as socioeconomic differences and educational gaps.¹³ Addressing these issues requires more than offering health insurance to low-income individuals; a challenging endeavor given that health systems are complex entities built

6. *North Carolina Medicaid Program*, BENEFITS.GOV, <http://www.benefits.gov/benefit/1390> (last visited Mar. 28, 2019).

7. Rachel Garfield et al., *The Coverage Gap: Uninsured Poor Adults in States That Do Not Expand Medicaid*, KAISER FAMILY FOUND. (Jun. 12, 2018), <http://www.kff.org/medicaid/issue-brief/the-coverage-gap-uninsured-poor-adults-in-states-that-do-not-expand-medicaid/>.

8. KFF Fact Sheet, *supra* note 2, at 1.

9. Nat’l Ass’n of State Budget Officers, *supra* note 2, at 3.

10. *Racial and Ethnic Health Disparities in North Carolina*, NC DEP’T OF HEALTH AND HUMAN SERV. (2018), http://schs.dph.ncdhhs.gov/SCHS/pdf/MinorityHealthReport_Web_2018.pdf.

11. *Id.* at 5-6, 14.

12. *Id.* at 7.

13. *Id.* at 5.

upon a web of the different incentives of multiple stakeholders. Within the realm of Medicaid policy, reforms must extend beyond coverage and be grounded with an understanding of how low-income citizens engage with health care providers and respond to their underlying health needs. Although dysfunction in health care is often attributed to the lack of a generous or compassionate policy, systemic issues in the structure of health care delivery are to some degree responsible for Medicaid's failure to fulfill social priorities.¹⁴

These considerations are of particular importance for present-day North Carolina, which is currently overhauling its Medicaid program using a Section 1115 waiver.¹⁵ However, the success of policy reforms is predicated on the proper diagnosis of a population's health challenges and social needs. This article employs a combination of quantitative and qualitative techniques to unpack both the aggregate history and local context of health disparities in North Carolina Medicaid, with a particular view towards guiding state policy discussions on the design of new high-quality and cost-efficient care strategies.

III. RESEARCH QUESTIONS

Unlike traditional medical insurance, Medicaid's role as a safety net program positions it at the intersection of both illness and indigence. Consequently, it is necessary to examine whether Medicaid dollars in North Carolina are improving health in the specific context of low-income communities. To explore this problem, the authors propose to investigate the following questions:

1. How are North Carolina Medicaid dollars being spent?
2. How does Medicaid spending correlate with health outcomes and respond to health disparities in North Carolina?
3. How should state dollars be allocated to meet the specific needs of Medicaid beneficiaries in North Carolina?

Based on the review of the literature in the preceding sections, it would follow that health disparities in North Carolina Medicaid could manifest in the form of pockets of high-cost counties, which are home to various social barriers, such as low rates of education and high rates of unemployment. Given how a community's environment influences the health of its population, one would expect that (1) counties experiencing larger social

14. *Id.* at 7.

15. *North Carolina Receives 1115 Waiver Approval*, *supra* note 5, at 1. (North Carolina's Section 1115 waiver is described in greater detail in Section VI.).

neglect have populations which are less healthy at baseline, and (2) that the greater prevalence of sickness in such counties would be the driver of higher spending in those regions. Exploring this chain of causality would provide new insight for policymakers into how the health system in North Carolina could be revamped to better meet the needs of the state's Medicaid beneficiaries.

To explore these system-level research questions, it is necessary to look at a combination of data sources, including information on cost, outcomes, and social determinants. It is also necessary to examine the outlets of health expenditures in North Carolina (e.g., types of care, types of providers, sites of spending) to identify inefficiencies in the current flow of health care dollars. Finally, recognizing that statistics often fail to capture the full story, it is important to conduct a sociological analysis of the Medicaid landscape in North Carolina by entering the field and examining the hotspots of high cost and poor health firsthand.

IV. HISTORICAL ANALYSIS OF SPENDING & OUTCOMES

A. Methodology

The research approach for historical analysis was designed to test the core assumptions which underlie the financing and provision of health services for Medicaid beneficiaries. A core, underlying premise of US Medicaid policy is that spending on health care services improves health, and therefore, *ceteris paribus*, more health care spending translates into better health.¹⁶

To test this foundational assumption, the empirical component of the analysis began with an examination of cost, enrollment, and utilization data from North Carolina DHHS State Medicaid Dashboard.¹⁷ After reviewing the dashboard, per beneficiary expenditures – the amount spent per individual enrolled in North Carolina Medicaid – was selected as the metric for spending (analysis presented in Figures 1-4). This measure not only allowed for a more precise understanding than aggregate spending per county, which is naturally skewed by population volume, but also allowed for the comparison of spending levels across the state to see where the most expensive patients are located.

16. Garfield, *supra* note 7, at 7.

17. *Dashboards*, NC MEDICAID DIV. OF HEALTH BENEFITS (2018), <https://medicaid.ncdhhs.gov/reports/dashboards>. (The dashboard's data is publicly available and provides information on aggregate state and county spending, quality, and outcome trends.).

Another cornerstone assumption of US health policy is that health care is delivered by health care providers, and therefore increases in healthcare expenditures should be correlated with the density and availability of providers such as physicians and nurse.¹⁸ Evaluating this hypothesis requires investigating health professions supply data, which for this study was sourced from the University of North Carolina at Chapel Hill's Sheps Center for Health Services Research.¹⁹ Access to health services was determined based on both the raw number of providers in a county and the ratio of available providers to the size of the patient population (analysis presented in Figures 5-6).

Furthermore, any assessment of the efficacy of Medicaid dollars – which are specifically intended for low-income populations – must also include an evaluation of the social determinants burden of local communities, which was determined using the Robert Wood Johnson Foundation's (RWJF) County Health Rankings.²⁰ The analysis specifically focused on the composite county health score used in the rankings, which synthesizes an array of health outcomes (e.g., premature mortality) and health behaviors (e.g., smoking prevalence) to determine a county's health burden (analysis presented in Figure 7).²¹

Finally, data from each source was examined for every year since 2010 to provide a longitudinal perspective on trends in North Carolina Medicaid.

B. Hotspots of Health Care Costs in North Carolina

The empirical analysis began with an examination of data from State Fiscal Year (SFY) 2016 to understand the health policy landscape in the state at the time the Section 1115 waiver was being prepared for approval by CMS.

The data immediately reveal the presence of “hotspots” in North Carolina.²² The geographic heat map in Figure 1 illustrates the significant variation in per-beneficiary spending across counties, with increased spending at the eastern and western borders of the state.²³ Additionally, when

18. Leiyu Shi, *The Impact of Primary Care: A Focused Review*, 2012 SCIENTIFICA 1, 1 (2012).

19. *North Carolina Health Professional Supply Data*, THE CECIL G. SHEPS CTR. FOR HEALTH SERV. RSCH. (2018), <https://nchealthworkforce.unc.edu/supply/>.

20. Robert Wood Johnson Foundation, *North Carolina: 2018 County Health Rankings Report*, COUNTYHEALTHRANKINGS.ORG (2018), http://www.countyhealthrankings.org/sites/default/files/state/downloads/CHR2018_NC_v2.pdf.

21. *Id.* at 4, 6.

22. *See infra* Figure 1.

23. *See infra* Figure 1 (displaying the eastern and western borders of the state in red, which signifies higher spending).

county expenditure data is compared over time, it becomes evident that the needle for health care spending in high-risk counties is “frozen,” with little to no change from year-to-year in terms of which counties were in the top or bottom decile for per-beneficiary expenditures (Figures 2A and 2B).²⁴ In other words, high levels of spending in a county remained consistent year-over-year, with little upward progress for the most costly counties.²⁵

The same trend was observed also found for health outcomes, with counties exhibiting significant variation and little-to-no progress over time (Figure 3).²⁶ Counties at the outer peripheries of the state tended to report poorer outcomes than more centrally located counterparts.²⁷ Such counties were also geographically adjacent in many cases, with some counties overlapping with the high-cost cohort as described above (e.g., Bladen County).²⁸ This overlap is particularly interesting given how one would expect increased spending on health services per beneficiary to translate into improvements in health outcomes. In reality, however, it appears that the opposite is true for such counties, which were spending 1.5 times more, or \$2,000, per beneficiary without generating any meaningful improvements in population health.²⁹

Collectively, these results confirm the hypothesis for the first research question – that there are indeed pockets of high cost in the state, which appear to occur in counties which are more rural and face other socioeconomic barriers. The data also raise the interesting paradox that spending more on health care for Medicaid beneficiaries seems to generate fewer positive health outcomes for the population, suggesting a fundamental flaw in the program’s current design.

C. How Access Effects Expenditures

After establishing the historical context for North Carolina’s high-cost counties, the next challenge was to determine the causes of elevated spending in these counties. Interestingly, the increase in expenditures did not appear

24. *See infra* Figure 2 (showing that counties with the highest per-beneficiary spending remained in that position for at least 2 years between 2010-2017 and as much as the entirety of 2010-2017).

25. *See infra* Figure 2.

26. *See infra* Figure 3; *see also infra* Figure 4 (demonstrating that counties with the lowest health outcomes between 2010-2017 remained in that position for at least 5 of those years and as much as all 8 of those years).

27. *See infra* Figure 3; *see also infra* Figure 4.

28. *See infra* Figure 3.

29. *See infra* Figure 2; *see also infra* Figure 4 (showing, for example, Bertie county as a consistent high spender in Figure 2 but displayed in red in Figure 4 for its poor health outcomes).

to be correlated with differences in a county's baseline population health, as the high-cost counties exhibited similar levels of disease burden, (e.g., diabetes) which are considered common drivers of expenditures due to the complexity of care and long-term use of services required to manage such illnesses.³⁰ This is counter to the initial hypothesis, which presumed that the increase in expenditures was due to the greater health needs of the population, as sicker patients typically utilize a greater volume of health services and, subsequently, spend more health care dollars.

An alternative explanation for why such counties experience higher costs could be the barriers to accessing health services, given that a lack of access can cause individuals to spend less on cheaper, preventative health services and spend more on expensive, reactive health services.³¹ This secondary hypothesis appeared particularly relevant given how many of the high-risk counties, identified in Part B, were located in more rural regions of the state which are frequently designated as medically underserved areas.³²

To test this hypothesis, workforce data from the Sheps Center was examined to evaluate what types of health care resources were available to individuals in high-cost counties. A logical starting point was the availability of physicians in each county, since doctors – for better or worse – represent the fundamental unit of health care in American medicine.³³ Similar to the spending and outcomes data, the counties with the lowest number of physicians were concentrated in specific regions and remained the same year-after-year (Figures 5A and 5B).³⁴ Some counties consistently reported a complete lack of physicians in the county (e.g., Tyrrell County).³⁵ Interestingly, in several of these physician-poor counties (e.g., Graham County), the data on the availability of physicians was inversely related to the direction of health spending.³⁶ In other words, counties with fewer doctors actually spent more –³⁷ a seemingly counterintuitive finding, as one

30. See *infra* Figure 2; see also *infra* Figure 5.

31. Gregory Guinette, *The Advantages of Preventive Health vs Reactive Treatment*, PMC PHARMACY (Nov. 17, 2017), <https://pmcrx.com/2017/11/advantages-preventive-health-vs-reactive-treatment/>. (“Preventative services” include activities such as primary care, whereas “reactive services” include activities such as emergency medical services).

32. *MUA Find*, HEALTH RESOURCES & SERV. ADMIN. (2018), <http://data.hrsa.gov/tools/shortage-area/mua-find> (select “North Carolina” and apply the following filters: “Designated” and “Medically Underserved Area”).

33. See *infra* Figure 5.

34. See *infra* Figure 5.

35. See *infra* Figure 5.

36. See *infra* Figure 1; see also *infra* Figure 5.

37. See *supra* Figure 1; see also *infra* Figure 5.

would expect a large volume of health expenditures to be attributed to increased spending on physician administered services.

Of course, physicians are not the only type of health professional that can provide basic and preventative services. Accordingly, the workforce dataset was examined further to evaluate whether the flow of health care dollars in high-cost counties was going to other non-physician providers filling in for the physician gap. Nurses were specifically chosen for further analysis given the significant growth in nurses over the past decade compared to the increasing physician shortage.³⁸ Interestingly, although nurse growth occurred in many areas of North Carolina, growth was more prevalent in central counties, with very little addition in the physician-poor counties.³⁹ Indeed, many of the counties in the bottom decile for raw physician numbers also had less than five nurses.⁴⁰

In short, an empirical assessment of the North Carolina Medicaid program suggests that “hot spot” high-cost counties suffer from both poorer health outcomes and less access to providers in comparison to other counties in the state.⁴¹ North Carolina appears to exhibit a longstanding pattern of rising health expenditures without any corresponding improvements in population health.⁴² This leaves policymakers with an empirical puzzle: if there is little access to providers, yet unmet health needs, what is driving high Medicaid costs?

Understanding the local operations of the Medicaid program – how dollars are allocated and why they fail to respond to health needs – requires supplementing statewide empirical data with on-the-ground experiences. The second phase of this study attempted to capture those frontline perspectives via visits to two of North Carolina’s high-risk counties: Tyrrell County, which exhibits the state’s worst health outcomes, and Graham County, which exhibits the state’s highest costs.⁴³ Baseline population health characteristics for both counties are presented in Figure 7. The next section synthesizes historical context with in-depth interviews with local stakeholders to illuminate the practical experiences and challenges of providers and patients in these high-need communities.

38. *See infra* Figure 6.

39. *See infra* Figure 6.

40. *See infra* Figure 6.

41. *See infra* Figures 1-4.

42. *See infra* Figures 1-4.

43. *See infra* Figures 1-6 (rankings based on SFY 2016 data).

V. COUNTY CASE STUDIES

A. Tyrrell County

Tyrrell County is a rural county located on the eastern edge of North Carolina.⁴⁴ The state's least populous county,⁴⁵ Tyrrell is a frequently forgotten pit stop for tourists on their way to vacation in North Carolina's picturesque Outer Banks. The county's seat is the town of Columbia, which is home to majority of the county's residents and touches a number of the rivers that comprise the Albemarle Sound.⁴⁶ A large proportion of residents are employed in natural industries such as agriculture, fishing, and forestry.⁴⁷ A sizable proportion are also employed by local and state government, either in county administration or in education.⁴⁸

Tyrrell's baseline health statistics are on par with most of North Carolina, with the leading health care factors including depression (eighteen percent), smoking (twenty percent), and obesity (twenty-nine percent).⁴⁹ Approximately forty-two percent of the population is comprised of Medicaid beneficiaries, with an additional sixteen percent uninsured.⁵⁰ These patients face a combination of social determinants that contribute to their poor health outcomes.⁵¹ For example, Tyrrell County is one of the poorest counties in the state, and also ranks at the bottom for education level.⁵²

All of these challenges – behavioral factors and social determinants – create a perfect storm for poor health outcomes. But the factor which has pushed the county's health outcomes over the edge for the past decade has been the lack of access to care.⁵³ There are no doctors based in the county,

44. TYRRELL CTY. N.C., <http://www.tyrrellcounty.org> (last visited Mar. 29, 2019).

45. *About Us*, TYRRELL CTY. N.C., <http://tyrrellcounty.org/en/about-tyrrell> (last visited Mar. 29, 2019).

46. *Id.*

47. *Tyrrell Cty., N.C.*, DATAUSA.IO, <http://datausa.io/profile/geo/tyrrell-county-nc/#economy> (last visited Mar. 29, 2019).

48. *Id.*

49. Martin-Tyrrell-Washington District Health Dep't, *Tyrrell County Community Health Assessment 2014* (2014), <http://www.mtwdistricthealth.org/assets/media/1465398938-2014%20Tyrrell%20County%20CHA%20MTW%20District%20Health.pdf>.

50. *Id.* at 118.

51. *Id.* at 8 (stating that in 2014 the poverty rate was 20.8%, approximately 29.8% of households were food insecure, the unemployment rate averaged 5.9%, and maintains a "Tier I Designation," as one of the most economically distressed counties in North Carolina).

52. *Id.* at 8, 23.

53. *See infra* Figure 6 (mapping the distribution of providers across North Carolina); *see also id.* at 106 (stating that Tyrrell County's number of health care professionals per person is not favorable compared to North Carolina's average number of health care professionals

with the majority of primary care services historically provided by a local nurse practitioner, who operates a clinic by herself called Columbia Medical Center.⁵⁴ Contrary to its name, Columbia Medical Center is a single building with a handful of examination rooms. Even though the nurse's supervising physician is nearly two hours away in the town of Greenville, the nurse practitioner acts largely autonomously as a primary care provider. Patients can fill prescriptions from the clinic at Columbia Pharmacy, which is located in the heart of the county and has a variety of over-the-counter medications.⁵⁵ If residents require specialty services or suffer from an emergency, then they must travel more than thirty miles to reach either Chowan County Hospital in Edenton or Washington County Hospital in Plymouth.⁵⁶

Physicians are not the only providers in short supply in Tyrrell. There are no dentists in the County.⁵⁷ Individuals seeking dental care must travel approximately forty-five minutes to the town of Plymouth in a neighboring country to receive dental services.⁵⁸ The lack of dentists has had significant consequences for oral health, with a community health assessment noting that nearly half of residents reported losing at least one tooth due to poor oral hygiene.⁵⁹ Due to a scarcity of providers, health education and awareness is relatively low among the county's residents, as well.⁶⁰ For adults, the only noted outlet for health education was the occasional class at the county's senior center, which previously featured workshops on topics such as fall prevention.⁶¹ County officials noted that low literacy rates also hinder efforts at health education.⁶²

In recent years, the county health department within Tyrrell has attempted to fill gaps in care delivery and health promotion.⁶³ This is beyond the scope

per person and most people in the county have to travel far to see a physician or go to the hospital).

54. Martin-Tyrrell-Washington District Health Dep't, *supra* note 49.

55. COLUMBIA PHARMACY, *Over-The-Counter Medications*, www.columbia-pharmacy.com/over-the-counter/ (last visited Mar. 2, 2019).

56. Martin-Tyrrell-Washington District Health Dep't, *supra* note 49, at 106.

57. Martin-Tyrrell-Washington District Health Dep't, *supra* note 49, at 105.

58. Martin-Tyrrell-Washington District Health Dep't, *supra* note 49, at 105.

59. Martin-Tyrrell-Washington District Health Dep't, *supra* note 49, at 106.

60. Martin-Tyrrell-Washington District Health Dep't, *supra* note 49, at 105-06 (noting the lack of health care resources in Tyrrell County compared to the resources and education available in Plymouth 35 miles away).

61. *Healthy Aging*, ALBEMARLE COMMISSION, www.albemarlecommission.org/area-agency-aging/healthy-aging/ (last visited Mar. 2, 2019).

62. Martin-Tyrrell-Washington District Health Dep't, *supra* note 49, at 10, 23.

63. *See generally Our Services*, MARTIN-TYRRELL-WASHINGTON DISTRICT HEALTH, www.mtwdistricthealth.org/services/ (last visited Mar. 2, 2019) (providing information on a variety of services the public health department provides).

of their mandate, as health departments in North Carolina are traditionally tasked with public health initiatives, such as testing for sexually transmitted diseases and providing environmental health services.⁶⁴ Recent initiatives include sponsoring transportation, known as the “Gator Line”, and occasionally recruiting visiting doctors.⁶⁵ However, the health department does not receive additional funding to engage in such activities, and must work within the constraints of its already limited budget.⁶⁶ Furthermore, the health department is operationally disconnected from the town’s sole clinic,⁶⁷ and other rural health outposts in the region, with the fragmentation adding to the challenges of receiving consistent health services in Tyrrell. Finally, the high turnover among visiting providers and sustained lack of permanent, accessible providers has altered the town’s very perception of medicine, creating an environment where the absence of physicians is normal, where oral health is “nice to have” but not required, and medical emergencies are a “when,” not an “if.”

Although Tyrrell is certainly an outlier both in terms of size and geography, the problems that its patients face – the gradual buildup of unmanaged chronic disease due to the lack of basic health services – are symptomatic of broader flaws in the Medicaid program, which illustrates the necessity of investing in the foundations of care delivery.

B. Graham County

Graham County is located on the mountainous western border of North Carolina.⁶⁸ The county is a stop along the Appalachian Trail and is home to a number of forests.⁶⁹ Most residents are employed in administration and

64. *See generally Mission and Core Functions*, NORTH CAROLINA DEP'T OF HEALTH AND HUMAN SERVS., <https://publichealth.nc.gov/mission.htm> (last visited Mar. 30, 2019) (providing an array of services offered to the public, including disability services and veteran’s services).

65. Ray McClees, *Public Transit Comes to Tyrrell County via the Gator Line*, THE SCUPPERNONG REMINDER (Jul. 15, 2017), www.thewashingtondailynews.com/2017/07/15/public-transit-comes-to-tyrrell-county-via-the-gator-line/; *see also* NORTH CAROLINA HEALTH NEWS, *Practicing Rural Health Care Right Here at Home* (Mar. 5, 2015), <https://www.northcarolinahealthnews.org/2015/03/05/practicing-rural-health-care-right-here-at-home/>.

66. McClees, *supra* note 65.

67. *Partners of MTW Public Health*, MARTIN-TYRRELL-WASHINGTON DISTRICT HEALTH, www.mtwdistricthealth.org/information/partners/ (last visited Mar. 5, 2019) (listing Columbia Medical Center as one of the MTW partners).

68. *Welcome to Graham County, North Carolina*, GRAHAM COUNTY, <http://grahamcounty.org/> (last visited Mar. 5, 2019).

69. *Id.* (depicting the forests in Graham County, including Nantahala National Forest, Cherokee National Forest, and the Joyce Kilmer Memorial Forest).

construction, with the median income well below the state median.⁷⁰ The majority of residents are geographically dispersed, with the town of Robbinsville serving as the county's seat.⁷¹

Approximately twenty percent of the county's 8,500 residents are Medicaid beneficiaries.⁷² Like Tyrrell, Graham ranks on the low end of the state in terms of population as well as social determinants.⁷³ The leading causes of death in the county are chronic diseases, such as cardiovascular disease and cancer.⁷⁴ Many residents also report struggling with obesity and diabetes.⁷⁵ Yet such health challenges are not unique to Graham, but rather characteristic of North Carolina and the United States of America more broadly.⁷⁶ However, Graham is unique in that the county spends more per beneficiary than any other county in the state.⁷⁷ This trend manifests due to the same underlying cause of Tyrrell's poor health outcomes: a lack of access to basic health services.⁷⁸

Unlike Tyrrell, Graham has physicians, with primary care services offered at Tallulah Clinic and Snowbird Clinic.⁷⁹ However, it should be noted that interviews with residents during our site visit revealed a significant distrust of the local Tallulah Clinic, leading many individuals to forgo receiving basic care.⁸⁰ Access to services at Snowbird was also not an option for many individuals because the clinic is part of Cherokee Indian Hospital, and is intended for use by only members of the Eastern Band of Cherokee Indians.⁸¹

70. *Graham County, NC*, DATAUSA, <https://datausa.io/profile/geo/graham-county-nc> (last visited Mar. 5, 2019) (finding that the median income in Graham County is \$34,778 as compared to \$48,256 in North Carolina).

71. *See generally County Departments*, GRAHAM CTY, <http://grahamcounty.org/county-departments/> (last visited Mar. 5, 2019) (providing a list of government departments which are all situated in Robbinsville).

72. GRAHAM CTY DEP'T OF PUB. HEALTH, GRAHAM COUNTY 2015 COMMUNITY HEALTH ASSESSMENT (Dec. 30, 2015).

73. *Id.* at 15, 21.

74. *Id.* at 23.

75. *Id.* at 44-45 (reporting that 29.8% of people are struggling with obesity and 85.7% of people characterized Diabetes as a major problem in the county).

76. *See infra* Figure 7B (comparing Tyrrell and Graham County to the rest of North Carolina and the United States as a whole).

77. *See infra* Figure 1 (displaying Graham in red at the south west portion of the map).

78. *See* GRAHAM CTY DEP'T OF PUB. HEALTH, *supra* note 72, at 41 (noting that access to care is a priority issue in the county because there are no specialists and no urgent care).

79. GRAHAM CTY DEP'T OF PUB. HEALTH, *supra* note 72, at 34.

80. Interview with Beth Booth, Health Director, Graham County Department of Public Health, in Robbinsville, N.C. (Apr. 16, 2018).

81. GRAHAM CTY DEP'T OF PUBLIC HEALTH, *supra* note 72, at 61 (stating that the population served is Enrolled members and first descendants of Native American tribes).

Instead, conversations with local leaders revealed that most residents receive preventative services in a reactive manner, traveling nearly forty miles to visit hospitals in adjacent counties.⁸² According to the county's health department director, a full third of the county's residents went to the hospital in the previous year for non-emergent care.⁸³ Ironically, the hour-long commute to a hospital is half the time required to access specialty services in outpatient settings, as Graham County does not have a single specialist physician.⁸⁴ To visit a specialty clinic, individuals must undertake a four-hour roundtrip to Asheville to receive care ranging from an eye exam to urology services.⁸⁵ Thus, to interact with the health system requires an all-day time commitment, which is enough to deter many individuals from seeking out care – especially working adults, who cannot afford to lose a day's salary given the low-income nature of much of Graham's population.

When residents attempt to access care, hospitals are often the destination of choice.⁸⁶ However, many individuals require help to get there and, consequently, rely on the county's emergency medical services (EMS) division.⁸⁷ Yet an interview with the county's EMS director, revealed many of these “emergencies” to be preventable, and often, not emergencies at all, such as fevers and toothaches.⁸⁸ Indeed, the director estimated that eighty percent of EMS calls were for non-emergent care.⁸⁹ Absent intervention, one would expect these trends to increase over time given Graham's aging population, with the elderly accounting for nearly one-fifth of all residents in the county.⁹⁰ These elderly residents report lower rates of driving and car ownership, and are more likely to require transportation assistance, either from family members or county services like EMS.⁹¹

In response, the health department in Graham, like in Tyrrell, has stepped up to try to fill the gap. New initiatives, such as hiring a full-time nurse practitioner who is embedded in the department to provide health services,⁹² are examples of the local policy innovations that officials are trying to implement to improve access for Graham's residents.

82. Interview with Beth Booth, Health Director, Graham County Department of Public Health, in Robbinsville, N.C. (Apr. 16, 2018).

83. Interview with Larry Hembree, Director, Graham County Emergency Services, in Robbinsville, N.C. (Apr. 16, 2018).

84. GRAHAM CTY DEP'T OF PUB. HEALTH, *supra* note 72, at 40.

85. *Id.* at 41.

86. Booth, *supra* note 82.

87. Hembree, *supra* note 83.

88. Hembree, *supra* note 83.

89. Hembree, *supra* note 83.

90. GRAHAM CTY DEP'T OF PUB. HEALTH, *supra* note 72, at 15.

91. GRAHAM CTY DEP'T OF PUB. HEALTH, *supra* note 72, at 41.

92. GRAHAM CTY DEP'T OF PUB. HEALTH, *supra* note 72, at 40.

Nevertheless, the challenges that afflict North Carolina Medicaid's most expensive county are not a quick fix. The fact that Graham County's residents pay an order of magnitude more to receive care that should ordinarily be provided at a local primary care clinic illustrates a fundamental breakdown in the county's care delivery infrastructure. Although some elements of health care merit high spending, those elements are not present in Graham. Instead, the county spends significant resources on more basic charges because financial incentives are misaligned, and health care resources are misallocated.⁹³ Graham County, like Tyrrell County, illustrates how the causes of uncontrolled expenditure growth and poor outcomes are often social, rather than medical, in nature.

C. Key Takeaways from the Field

The case studies of Tyrrell and Graham capture the human and material consequences when the delivery systems supporting Medicaid beneficiaries are allowed to atrophy. The fact that it is considered “normal” for half the population to be missing a tooth due to a lack of dental care, as in Tyrrell, or for one-third of the county to visit the ED for non-emergent needs, as in Graham, evidences how abnormal the delivery system for Medicaid beneficiaries has become in these high-cost counties.⁹⁴ Importantly, these patterns are not attributable to an unusually high prevalence of disease, which suggests that the burden for change lies with the system, not the population. Furthermore, although the two counties from the case study are rural and low-income,⁹⁵ the data presented in Section IV demonstrate that the problems and outcomes are not exclusive to certain geographies. Instead, the data reflect broader, foundational issues with the Medicaid program, which result in poor outcomes despite higher spending. To address these challenges, the next section offers a series of policy recommendations – applicable to North Carolina and Medicaid programs more broadly – for how we can reconfigure the health care system in the United States to better meet the needs of those living in the “shadows”.

VI. POLICY RECOMMENDATIONS

Health policymakers, in both North Carolina and at the federal level, have begun to appreciate the importance of addressing the social determinants of

93. *See infra* Figure 1.

94. TYRRELL CTY. HEALTH DEP'T, *supra* note 49 at 106; Hembree, *supra* note 83.

95. Taylor Sisk, *Practicing Rural Health Care Right Here at Home*, N.C. HEALTH NEWS (Mar. 5, 2015), <https://www.northcarolinahealthnews.org/2015/03/05/practicing-rural-health-care-right-here-at-home/>.

health.⁹⁶ There is growing recognition that a Medicaid policy which mimics traditional insurance will do little to meet the needs of low-income communities and will fail to provide the social and preventative health care resources that Medicaid beneficiaries need.⁹⁷ Fortunately, North Carolina Medicaid policy – and the actions of federal regulators – now seeks to fuse Medicaid reform with the other challenges and resources of social welfare policy.⁹⁸ This reorientation is important, since it illustrates a deviation from prior policy that rested on insurance models and instead prioritizes reconfiguring the delivery system to respond to poor outcomes.⁹⁹ Most specifically, it reflects a new emphasis on access to quality, preventative care.

A. Policy Context for North Carolina Medicaid

North Carolina's Section 1115 Waiver for Medicaid transformation offers a ripe opportunity to reflect on the future of the state's Medicaid program.¹⁰⁰ The waiver was the result of a 2015 directive from the North Carolina General Assembly to the state's Department of Health and Human Services (DHHS) to devise a strategy for reforming the Medicaid program.¹⁰¹ The result was an application for a Section 1115 waiver, which is a provision within the Social Security Act that allows states to use federal Medicaid funds beyond the program's defined scope, as long as the United States Secretary of Health and Human Services finds the proposed course of action to meet the needs and objectives of the Medicaid program.¹⁰² Notably, North Carolina's waiver differed from other states' waivers in that the application did not focus on expanding eligibility, but instead offered target reforms to the state's payment and delivery infrastructure.¹⁰³

96. *Healthy Opportunities Pilots*, NORTH CAROLINA DEP'T OF HEALTH AND HUMAN SERVS., <https://www.ncdhhs.gov/about/department-initiatives/healthy-opportunities/healthy-opportunities-pilots> (last visited Mar. 30, 2019); see also *Accountable Health Communities Model*, CTRS. FOR MEDICARE & MEDICAID SERVS., <https://innovation.cms.gov/initiatives/ahcm/> (last visited Mar. 30, 2019).

97. Louise Norris, *North Carolina and the ACA's Medicaid Expansion*, HEALTHINSURANCE.ORG (Apr. 21, 2018), <https://www.healthinsurance.org/north-carolina-medicaid/> (discussing a proposal that incorporates a fee-per-patient model tied to patient outcomes and cost).

98. *Id.*

99. *Id.*

100. *North Carolina Receives 1115 Waiver Approval*, *supra* note 5.

101. Norris, *supra* note 97 (discussing North Carolina Medicaid reform and prior attempts).

102. *1115 Medicaid Waivers: From Care Delivery Innovations to Work Requirements*, THE COMMONWEALTH FUND (Apr. 6, 2018), www.commonwealthfund.org/publications/explainer/2018/apr/1115-medicaid-waivers-care-delivery-innovations-work-requirements.

103. Norris, *supra* note 97.

The waiver at its core is designed to support a transition away from North Carolina's current FFS-based system of primary care case management towards a capitated model of managed care.¹⁰⁴ This new model would reflect the design of most other states' Medicaid programs and, in theory, should support the integration of care and the provision of comprehensive physical and behavioral health services.¹⁰⁵ Beyond payment reform, the waiver also included additional policy planks to support delivery innovation for health and social needs.¹⁰⁶ For example, North Carolina proposed to implement "Health Opportunity Pilots," which would fund programs and initiatives that address social determinants of health – a financing mechanism in which Medicaid is ordinarily precluded from participating.¹⁰⁷ Additionally, DHHS proposed to enact the proposed changes by regionalizing care delivery in North Carolina, offering managed care contracts to regional provider groups and statewide commercial insurance plans that would hold payers and providers accountable for the spending and health of a specific population.¹⁰⁸

All of these changes are promising first steps for improving the Medicaid program, and purport to stabilize spending while improving population health.¹⁰⁹ However, as the data and fieldwork in this paper demonstrate, simply changing Medicaid's policies will be insufficient for high-cost counties like Tyrrell and Graham, where the drivers of cost are rooted in each county's local context. Although many of the waiver's policies present exciting opportunities, at its core the proposal represents a shift in how we pay for care, but not necessarily a change in what we prioritize in health care.¹¹⁰ DHHS' thesis is that the primary driver of health care spending is the mechanism by which we pay for care (FFS), which is why the waiver's dominant policy plank is to transition to a capitated form of

104. Norris, *supra* note 97.

105. Elizabeth Oisius et al., *North Carolina Waiver with 'Health Opportunities' Pilots Approved*, MANATT (Nov. 20, 2018), <https://www.manatt.com/Insights/Newsletters/Manatt-on-Health-Medicaid-Edition/North-Carolina-Waiver-With-Healthy-Opportunities#>; see also Jeff Goldsmith, David Mosley & Anne Jacobs, *Medicaid Managed Care: Lots of Unanswered Questions (Part 1)*, HEALTH AFFAIRS (May 3, 2018), <https://www.healthaffairs.org/doi/10.1377/hblog20180430.387981/full/> (listing the eleven states that do not have managed Medicaid programs).

106. *Id.*

107. *Id.*

108. Sarah Ovaska-Few, *Medicaid Managed Care: Who's in the Running for Contracts with the State?* N.C. HEALTH NEWS (Oct. 23, 2018), <https://www.northcarolinahealthnews.org/2018/10/23/medicaid-managed-care-whos-in-the-running-for-contracts-with-the-state/>.

109. *Id.*

110. *Id.*

reimbursement.¹¹¹ This is certainly a step in the right direction, as numerous studies have recently illustrated how a volume-based system of reimbursement can lead to increased spending on health care resources without driving an improvement in patient outcomes.¹¹² However, although the state proposes to change *how* we pay for care, it fails to address *what* constitutes care and *where* such investments should be allocated.

Based on the results of this study, the care gaps for the state's most expensive beneficiaries are for basic, preventative health services. Further investments are needed to these "hotspots" of high cost and poor outcomes, which have experienced a sustained breakdown in access, affordability, and quality. Based on the policy context described above, in conjunction with the statistics and stories presented earlier in the paper, the authors propose the following recommendations to address the underlying fissures in North Carolina's Medicaid program.

B. Recommendation #1: Rethink Access to Care

The medical problems afflicting Medicaid beneficiaries in North Carolina are fairly similar, irrespective of whether a beneficiary lives in Mecklenburg County or in Bertie County. The differences lie in our health system's response. A Medicaid beneficiary in Charlotte can visit a primary care doctor; in contrast, a patient in Tyrrell County may encounter a similar health issue but lack the same level of access to care and support.¹¹³ Of course, provider shortages are not a new problem, nor are they limited to North Carolina.¹¹⁴ Indeed, the dearth of physicians statewide and nationwide is only projected to grow and,¹¹⁵ while the state should consider investing in priming the physician pipeline, such policies are unlikely to be of use in the near future to residents in Graham and Tyrrell.

Instead, it is worth rethinking what "provider" means to Medicaid beneficiaries today. As a county official in Tyrrell remarked, "doctors are defined not by their titles but by their presence."¹¹⁶ Citizens in medically

111. *Id.*

112. Harold D. Miller, *From Volume To Value: Better Ways To Pay For Health Care*, 5 HEALTH AFFAIRS 1, 1-4 (2009) (discussing how providers gain increased revenues and profits by delivering more services to more people, fueling inflation in health care costs without any corresponding improvement in outcomes).

113. *Tyrrell County Community Health Assessment*, *supra* note 49, at 129.

114. *New Research Shows Increasing Physician Shortages in Both Primary and Specialty Care*, ASS'N AM. MED. C. (Apr. 11, 2018), https://news.aamc.org/press-releases/article/workforce_report_shortage_04112018/.

115. *Id.*

116. Interview with Brandy Mann, Director of Social Services, Tyrrell County, in Tyrrell County, N.C (Apr. 13, 2018).

underserved areas default to what is there, as in evidenced by Tyrrell County's reliance on a nurse practitioner.¹¹⁷ Investments in non-physician providers are one possibility, as Recommendation #2 discusses. However, another exciting possibility is telehealth, which, particularly for preventative health services, could present an avenue for overcoming the barriers of transportation in underserved areas.

At this time, telehealth is specifically worth exploring in North Carolina because the General Assembly recently filed a bill to conduct a study for which the results will be used to guide policy conversations on whether to reimburse telehealth to parity with in-person care.¹¹⁸ Although the legislation was not signed into law, further progress is likely given the state's existing telepsychiatry program, which is operated through the Office of Rural Health and provides reimbursement of live video services.¹¹⁹

However, in areas like Tyrrell or Graham, changes in telehealth policy would need to be accompanied by investments in telehealth infrastructure for such changes to tangibly benefit patients. After all, the prerequisite for telemedicine is Wi-Fi or cellular service,¹²⁰ and in North Carolina, more than 630,000 individuals lack broadband service at the Federal Communications Commission's minimum speeds.¹²¹ The gaps are particularly prevalent in medically-underserved areas.¹²² Officials in Tyrrell County commented on the lack of technical resources in the county and the gaps in digital literacy among the population.¹²³ In Graham County, the health director even lacked cellular coverage within the department's building.¹²⁴

117. Andrew Villegas, *Doctor Shortage Fuels Nurse Practitioner's Push for Bigger Role*, McClatchy, Kaiser Health News (Feb. 22, 2010, 2:35 PM), <https://www.mcclatchydc.com/news/nation-world/national/economy/article24574282.html>.

118. H.B. 967, 2018 N.C. Gen. Assemb., Reg. Sess. (N.C. 2018) [hereinafter H.B. 967].

119. *Statewide Telepsychiatry Program*, N.C. DEP'T. HEALTH HUM. SERVS. (Mar. 29, 2019, 6:29 PM), <https://www.ncdhhs.gov/divisions/office-rural-health/office-rural-health-programs/statewide-telepsychiatry-program>; see also Rose Hoban, *Telehealth Bill Gets Hung Up at Legislature*, N.C. HEALTH NEWS (Jun. 13, 2018), <https://www.northcarolinahealthnews.org/2018/06/13/telehealth-bill-gets-hung-up-at-legislature/>.

120. Jeffrey Gudewicz, *The Importance of Strong Cellular Service for Telemedicine and Medical Mobile Apps*, WILSONPRO (Aug. 7, 2017), <https://www.wilsonpro.com/blog/the-importance-of-strong-cellular-service-for-telemedicine-and-medical-mobile-apps>.

121. Editorial, *Close the Internet Access Gap in Rural NC*, NEWS & OBSERVER (Mar. 24, 2018, 2:20 PM), www.newsobserver.com/opinion/editorials/article206626239.html.

122. Patrick Woodie, *What's Economic Development Got to Do With It?: The Economic Impact of Healthy Rural Communities*, 79 N.C. MED. J. 382, 384 (2018).

123. Interview with Brady Mann, *supra* note 116.

124. Interview with Beth Booth, Health Director, Graham County, in Graham County, N.C. (Apr. 13, 2018).

Studies of telehealth reforms in other states indicate that merely changing policy is insufficient for telehealth to tangibly benefit underserved populations, such as Medicaid beneficiaries, and highlight the need for investments in infrastructure.¹²⁵ Consequently, as DHHS works to develop a new telehealth strategy, and as the legislature prepares to set new parameters for coverage and reimbursement,¹²⁶ it is imperative that such reforms allocate capital and resources to ensure that telehealth technologies actually reach patients in need.

C. Recommendation #2: Support the Development of the Health Care Workforce

The stories of Tyrrell and Graham illustrate how an insufficient provider network not only fosters illness and creates a pent-up need for health services, but also rewires how people interact with the health care system. Specifically, an insufficient provider network causes individuals to seek out more accessible, and often more expensive, forms of care, which, in turn, increases health care costs. North Carolina has long faced an overall physician shortage; a challenge that takes root in the state's inability to retain the doctors it trains during medical school and residency.¹²⁷ The problems are exacerbated for rural counties, such as Tyrrell and Graham, where the lack of providers plays a significant role in the growth of costs and the decline in population health.¹²⁸ In fact, only a small fraction of North Carolina medical school graduates each year establish a practice in a rural county – a trend that explains why some areas like Tyrrell have no physicians whatsoever.¹²⁹

Policymakers are aware of the issue, based on the Section 1115 waiver's request for a federal funding match to increase the recruitment and retention

125. Jeongyoung Park et al., *Are State Telehealth Policies Associated With The Use Of Telehealth Services Among Underserved Populations?* 37 HEALTH AFFAIRS 2060, 2066-67 (2018) (discussing efforts to increase the use of telehealth focus on funding telehealth infrastructure and providing technical assistance to support telehealth implementation in rural and underserved communities).

126. H.B. 967, *supra* note 118; see also Taylor Knopf, *Telemedicine Holds Promise for Expanding Rural Access*, N.C. HEALTH NEWS (Feb. 5, 2018), <https://www.northcarolinahealthnews.org/2018/02/05/telemedicine-holds-promise-for-expanding-rural-access/> (discussing how DHHS plans to improve telemedicine).

127. ERIN FRAHER ET AL., TRENDS IN GRADUATE MEDICAL EDUCATION IN NORTH CAROLINA: CHALLENGES AND NEXT STEPS 8 (2013).

128. GRAHAM CTY DEP'T OF PUB. HEALTH, *supra* note 72, at 41.

129. Sisk, *supra* note 95.

of doctors.¹³⁰ However, deeper changes beyond funding will be needed to truly prime the physician pipeline. Policymakers should work to align graduate medical education funding with unmet, high-value specialties (e.g., family and internal medicine). Additionally, the state should simplify funding for graduate medical education to increase transparency and accountability for how such dollars are invested.

Nevertheless, as the state considers the future of North Carolina's provider workforce, it is imperative that policymakers look beyond physicians. In the era of physician shortages, policy experts and health system leaders are increasingly drawing attention to the roles that non-physician providers and workers, such as nurse practitioners, physician's assistants, pharmacists, and community health workers play in supporting high-value care delivery.¹³¹

Nurse practitioners are a prime example, as evidenced by our case study of Tyrrell County, where the sole provider of primary care services for fifteen years has been a nurse practitioner whose sponsoring physician is in a county over two hours away.¹³² In Graham County, physician's assistants lead public health and family planning services rather than physicians.¹³³ The pipeline for these professionals continues to deepen. In fact, the number of physician's assistants and nurse practitioners have grown significantly, almost 300 percent and 500 percent, respectively, in spite of stagnant physician growth.¹³⁴

Another avenue for workforce development is community health workers (CHWs). CHWs are members of the community, typically with a lay, non-medical background, who are trained to fill various gaps in service integration, from health education to care coordination.¹³⁵ CHW-based interventions have largely been deployed and studied in international contexts, with a demonstrated value-add for vulnerable populations, particularly communities with a shaky primary care foundation.¹³⁶ However,

130. NORTH CAROLINA MEDICAID AND NC HEALTH CHOICE DRAFT SECTION 1115 WAIVER APPLICATION, N.C. DEP'T HEALTH HUM. SERVS. 31 (2016), <https://files.nc.gov/ncdlhs/Draft-Section-1115-Waiver-2016-03-01.pdf>.

131. Villegas, *supra* note 117.

132. Villegas, *supra* note 117.

133. *Graham County, N.C.*, *supra* note 68, at 12.

134. BARAK D. RICHMAN & ALLISON RICE, DUKE UNIV., NC MEDICAID REFORM: A BIPARTISAN PATH FORWARD 24 (2017).

135. Abby M. Lohr, et al. *Community-Clinical Linkages With Community Health Workers in the United States: A Scoping Review*. 19 HEALTH PROMOTION PRACTICE 3, 349-360 (2018).

136. ONE MILLION COMMUNITY HEALTH WORKERS: TECHNICAL TASK FORCE REPORT, THE EARTH INSTITUTE, COLUMBIA UNIVERISTY 2 (2011), http://www.millenniumvillages.org/uploads/ReportPaper/1mCHW_TechnicalTaskForceReport.pdf.

evidence for the use of CHWs in the US is mounting,¹³⁷ with recent randomized controlled trials providing evidence of how the use of such personnel can address both health and social needs.¹³⁸ Acting on this evidence and scaling CHW programs, especially for Medicaid populations, will require regulatory action for certification and reimbursement. North Carolina could look to states like Minnesota, which secured a Medicaid State Plan Amendment from CMS to authorize reimbursements for CHWs, as a model for supporting the introduction of CHWs into the delivery process.¹³⁹

In sum, policies and programs that can support the growth and development of non-physician providers, and potentially allow for independent practice, may yield important dividends for patients and payers in North Carolina, especially in high-cost counties lacking basic services.

D. Recommendation #3: Reinvest in Local Health Governance

Health systems are traditionally bifurcated into proactive (public health) and reactive (care delivery) models.¹⁴⁰ However, in rural and underserved areas, like Tyrrell and Graham Counties, the absence of care delivery infrastructure places increasing pressure upon local health departments.¹⁴¹ The fight at the frontlines feels unending – in fact, one director stated that the situation “isn’t disease management, it’s disaster control”.¹⁴²

In response to rising costs and disease prevalence, health departments in North Carolina have begun to assume responsibilities beyond their statutory mandate of providing environmental health services and diagnostics for sexually transmitted diseases.¹⁴³ For example, Graham County is partnering

137. Atul Gawande, *The Hot Spotters: Can We Lower Medical Costs By Giving The Neediest Patients Better Care?*, NEW YORKER (Jan. 24, 2011), <https://www.newyorker.com/magazine/2011/01/24/the-hot-spotters>.

138. Shreya Kangovi, et al., *Effect of Community Health Worker Support on Clinical Outcomes of Low-Income Patients Across Primary Care Facilities: A Randomized Clinical Trial*, 178 JAMA INTERNAL MED. 1635 (2018), <https://jamanetwork.com/journals/jamainternalmedicine/article-abstract/2707949>.

139. E. Lee Rosenthal, et al., *Community Health Workers: Part of the Solution*, 29 HEALTH AFFAIRS 1338, 1340 (2010), <https://www.healthaffairs.org/doi/full/10.1377/hlthaff.2010.0081>.

140. Michael Maylahn, *Shifting Healthcare Needs: Why Reactive Care Is No Longer Cutting It*, MEDCITY NEWS (Sep. 23, 2018, 8:30 AM), <https://medcitynews.com/2018/09/shifting-healthcare-needs-why-reactive-care-is-no-longer-cutting-it/>.

141. Taylor Knopf, “No Silver Bullet” for Solving Rural Health Care Problems, N.C. HEALTH NEWS (Jan. 9, 2018), <https://www.northcarolinahealthnews.org/2018/01/09/no-silver-bullet-solve-rural-health-care/>.

142. Interview with Beth Booth, *supra* note 124.

143. See e.g. *Craven County Community Health Center*, CRAVEN COUNTY N.C. HEALTH DEP’T, <https://www.cravencountync.gov/1816/Craven-County-Community-Health-Center> (last visited Mar. 1, 2019).

with physician groups in neighboring Swain County to start offering primary care within the health department.¹⁴⁴ Craven County's health department co-operates an FQHC to increase the number of available services for its residents.¹⁴⁵ But expanding from public health to primary care comes with a catch: the state funds none of this work.¹⁴⁶

The experiences of local health officials and the gaps they face regarding financing, workforce, and infrastructure are particularly important as North Carolina begins to transition to a more regional form of health care governance with statewide commercial plans and regional provider-led entities.¹⁴⁷ The state DHHS could encourage managed care organizations to subcontract with health departments to reduce redundancy, increase coordination, and gain insight into the local context. North Carolina could also ensure that health departments that provide a care delivery function still be considered "in network" irrespective of their managed care affiliation, which would allow them to continue to serve as a point of entry to the health system in underserved regions.

VII. CONCLUSION

Like many states across the nation, the North Carolina Medicaid program stands at an inflection point, preparing to engage in a massive overhaul of its payment and delivery infrastructure.¹⁴⁸ The state's Section 1115 waiver offers many promising steps in the right direction, from efforts to transition away from FFS reimbursement to initiatives that invest in social determinants.¹⁴⁹

As North Carolina looks to the future, it is imperative that the state remember the past to avoid present day inefficiencies and inequities from repeating. This article's analysis provides the necessary historical context to understand where the longstanding gaps in access, outcomes, and spending are in the state, and how such trends have impacted the health and wellbeing of local populations. These statistics are then brought to life through the stories of North Carolina's most costly and ill counties, which further illuminates the need for reforms.

144. Interview with Beth Booth, *supra* note 124.

145. *See e.g. Craven County Community Health Center*, CRAVEN COUNTY N.C. HEALTH DEP'T, <https://www.cravencountync.gov/1816/Craven-County-Community-Health-Center> (last visited Mar. 1, 2019).

146. *Our Services*, *supra* note 63.

147. *Ovaska-Few*, *supra* note 108.

148. *Norris*, *supra* note 97.

149. *Osius et al.*, *supra* note 105.

As policymakers in North Carolina, and beyond, begin to reform their Medicaid programs, they should look to this tale of two counties to identify and respond to the gaps in their own health care systems. If policymakers continue to focus exclusively on populations in the center, then market failures will continue to occur at the margins. Only by addressing the core inefficiencies and inequities in health care access will Medicaid be able to fulfill Humphrey's moral test and lift society's neediest out from the shadows of sickness into the light of healthy lives.

VIII. FIGURES

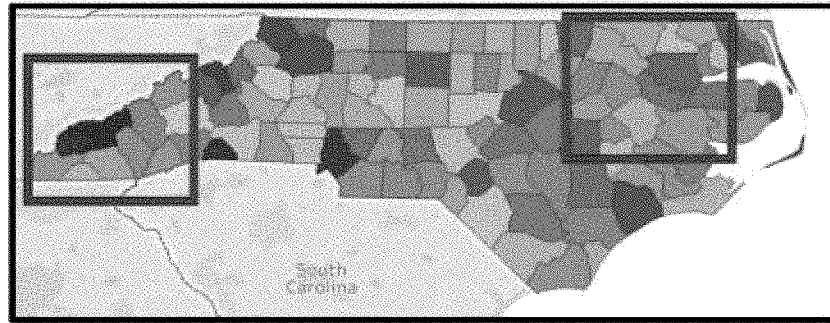
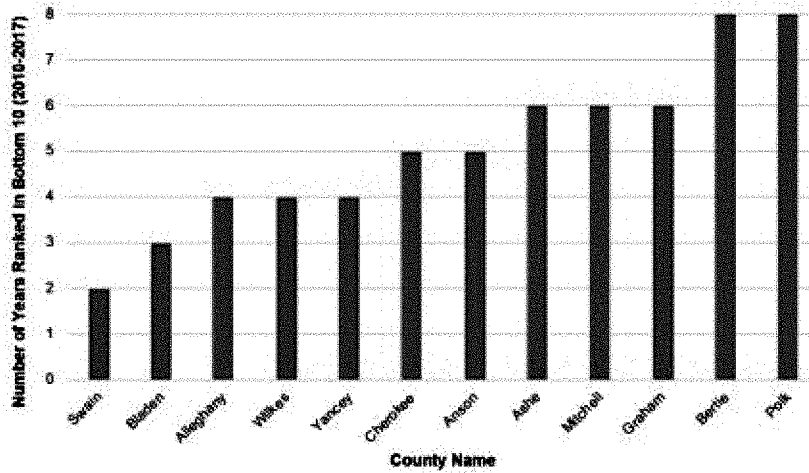
Figure 1: Geographic Variability in Health Spending in SFY 16

Figure 1: Map reflects county-level differences in per beneficiary expenditures, with tiles in green indicating lower rates of per beneficiary spending and tiles in red representing greater levels of per beneficiary spending. Boxes are placed around regions of “cost cluster” counties.

Figure 2: Changes Over Time in Per Beneficiary Expenditures

A. Counties with Highest Per-Beneficiary Spending



B. Counties with Lowest Per-Beneficiary Spending

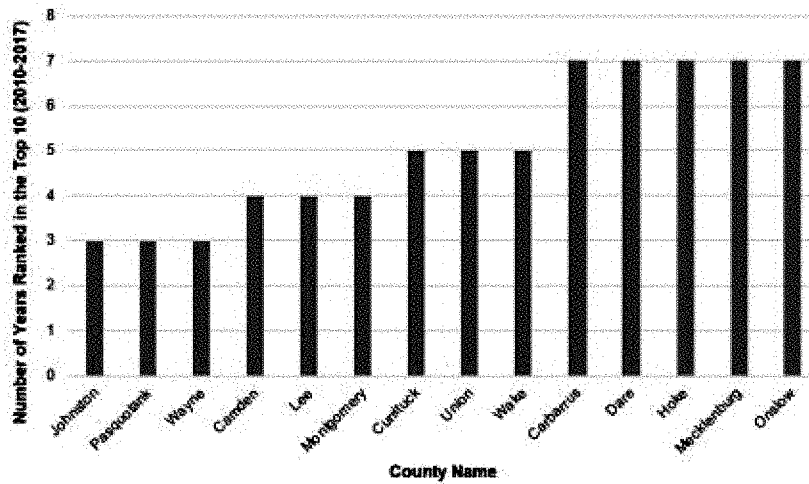


Figure 3: Geographic Variability in Health Outcomes in SFY16

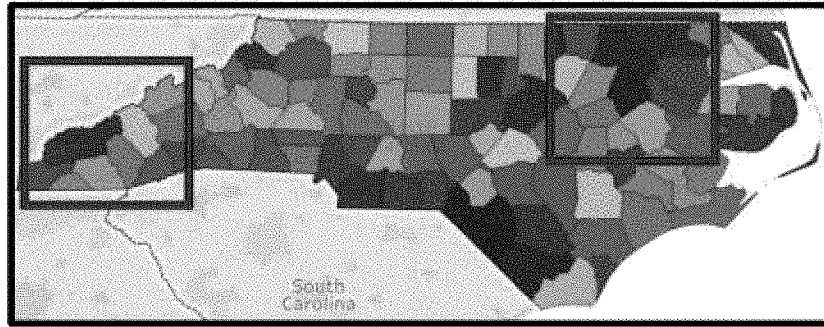


Figure 3: Map reflects county-level differences in health outcomes, with tiles in green indicating better health outcomes and tiles in red representing worse health outcomes. Boxes are placed around the same regions of “cost cluster” counties from Figure 1, indicating the overlap between high spending and poor health.

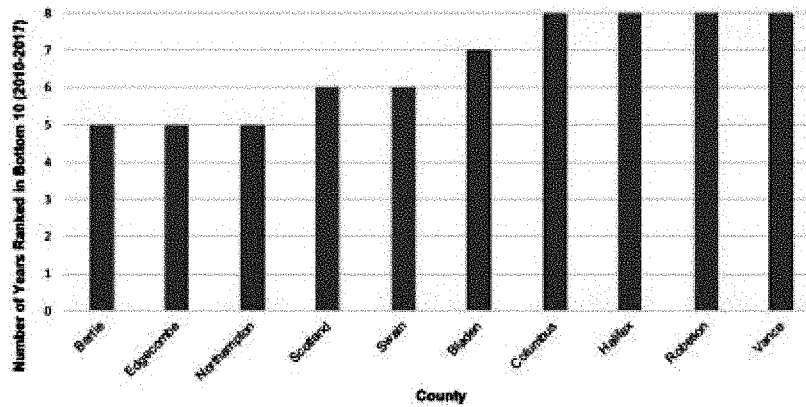
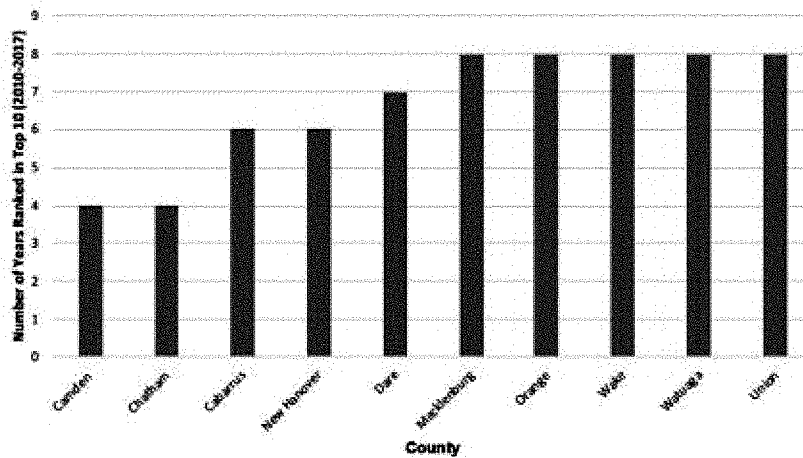
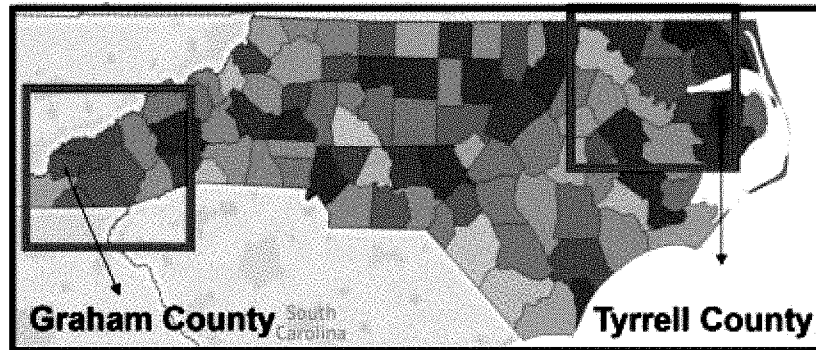
Figure 4: Changes Over Time in Health Outcomes**A. Counties with the Poorest Health Outcomes****B. Counties with the Best Health Outcomes**

Figure 4: (A) Counties most frequently ranking in the bottom decile (e.g., worst health outcomes) of counties from 2010-2017. (B) Counties most frequently ranking in the top decile (e.g., best health outcomes) of counties from 2010-2017.

Figure 5: Geographic Variability in Provider Availability in SFY16

A. Distribution of Providers (Patient:Physician Ratio)



B. Distribution of Providers (Raw Physician Numbers)

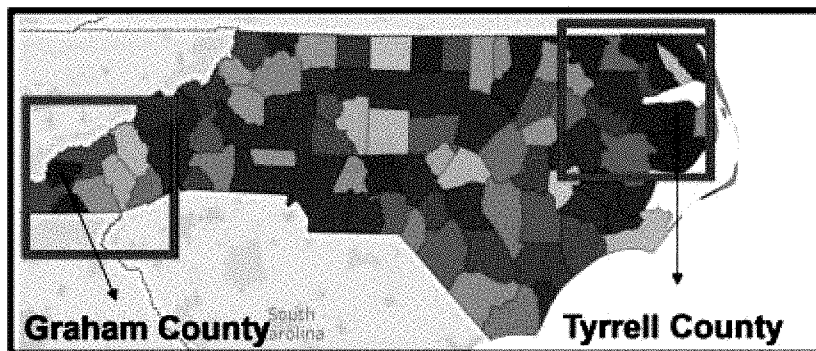


Figure 5: (A) Differences in provider ratio (number of physicians per 10,000 patients) in SFY16. (B) Differences in raw provider numbers (the number of actual physicians in the county) in SFY16.

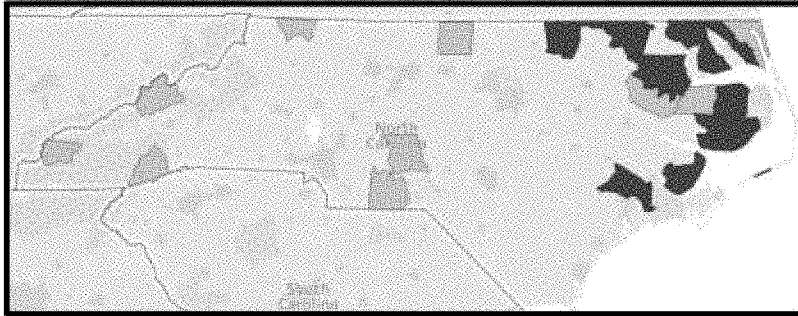
Figure 6: Selective Gaps in Nurse Growth in North Carolina**A. Counties with Nurse Shortages in North Carolina****B. Overlap Between Provider and Nurse Shortages in Bottom Decile**

Figure 6: (A) Highlighted counties had less than five nurses on average. (B) Counties presented were ranked among the ten lowest for raw physician numbers from 2010-2017. Highlighted counties were those which also ranked in the bottom decile for lack of nurses.

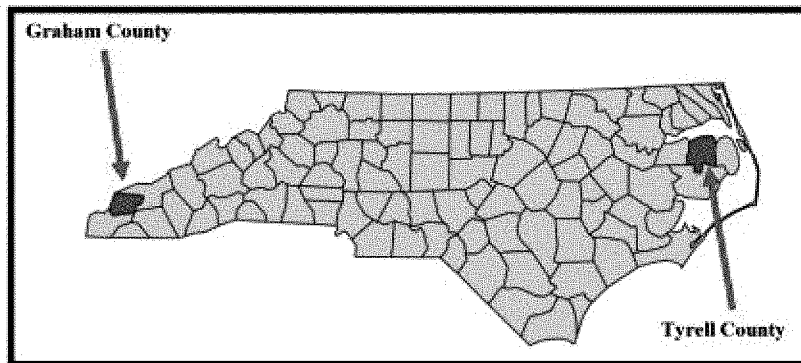
Figure 7: Overview of Profiled Counties**A. Geographic Location**

Figure 7: (A) Graham and Tyrrell are two rural counties located respectively on the western and eastern ends of the state. (B) Baseline population health characteristics for both counties (further detail and context provided in the case studies).

B. Comparison of Population Health Characteristics

	Graham County	Tyrell County	North Carolina	United States
Life expectancy at birth (years), 2014				
Female	79.3	80.0	80.2	81.5
Male	73.5	75.2	75.4	76.7
All-cause mortality*				
Female	792.4	731.2	725.0	667.8
Male	1150.1	1003.3	1011.0	930.1
Ischemic Heart Disease*				
Female	149.4	126.2	114.6	124.9
Male	246.0	196.6	185.5	191.5
Cerebrovascular Disease (Stroke)*				
Female	52.8	50.9	55.4	47.4
Male	54.0	54.1	57.5	48.8
Diabetes, Urogenital, Blood and Endocrine Disease Mortality*				
Female	63.8	52.2	57.6	49.6
Male	74.2	68.4	71.4	63.8
Self-Harm and Interpersonal Violence*				
Female	16.7	9.4	9.9	9.0
Male	46.3	24.6	32.2	30.9
Transport Injuries Mortality*				
Female	14.6	16.4	10.1	8.1
Male	28.8	32.8	24.6	19.8
Mental and Substance Use Disorder*				
Female	17.8	6.8	8.1	8.2
Male	33.2	18.0	17.5	16.7
Cirrhosis and other Chronic Liver Disease*				
Female	18.6	11.2	12.2	11.8
Male	30.3	26.8	23.2	22.2
Heavy Drinking**				
Female	2.3	3.7	5.0	6.7
Male	7.4	8.9	8.4	9.9
Smoking**				
Female	25.6	22.9	19.5	17.9
Male	27.9	31.7	23.6	22.2
Obesity***				
Female	41.2	49.3	38.6	36.1
Male	35.2	41.8	34.9	33.8