

Secretary Mandy Cohen
North Carolina Department of Health and Human Services
2501 Mail Service Center
Raleigh, NC 27699-2501

Re: Medicaid and NC Health Choice Request for Public Comment

Dear Secretary Cohen,

Thank you for extending the opportunity to submit comments regarding the North Carolina Department of Health and Human Services (DHHS) Proposed Program Design for Medicaid Managed Care. Our team, organized and funded jointly through the Duke-Margolis Center for Health Policy and the Duke University Bass Connections Program, is excited to share concrete policy recommendations about key aspects of the program, as well as offer our expertise and resources to help DHHS identify and map resources for addressing the social determinants of health. Our core recommendations to improve the draft managed care program address the following components from the proposal:

Section VI: A High-Functioning Managed Care System

(A) Quality, Value and Care Improvement

7. *Social Determinants of Health* – harmonize social determinants with value-based payments, develop a comprehensive social risk screen, and map risks and available assets
8. *Workforce Initiatives* – modify the process and eligibility for GME payments
9. *Telehealth* – remove originating site requirements and broaden the scope of reimbursement

VII. Increasing Access to Medicaid

Carolina Cares – consider removing or increasing the flexibility of requirements, as well as applying for partial expansion independent of any qualifying requirements

Thank you for your consideration and efforts to improve affordable access to high quality care for all North Carolinians.



About the Team:

The Duke North Carolina Medicaid Reform Advisory Team is an interdisciplinary group of undergraduate, graduate, and professional students and faculty from the Triangle community formed in 2016 to study leading issues in North Carolina state health policy. In 2017, the team presented a report on opportunities for North Carolina Medicaid and the Section 1115 Waiver to senior DHHS officials and lawmakers, and previously submitted a public comment during the Secretary’s May 2017 Request for Information. In 2017, the team received follow-on funding from the Bass Connections program to continue studying North Carolina Medicaid, and is currently working on applying a “hotspotting” approach to identifying and improving care for high-cost, high-needs patients.

The team is funded through the Bass Connections program at Duke University, a groundbreaking initiative aimed leveraging the intersection of disciplines to address complex social problems. Faculty leads are associated with the Duke-Margolis Center for Health Policy, an institute bridging academic medicine with the policy sphere to advance the next generation of healthcare reform. A full list of student and faculty team members can be found at the end of this document.

Report

https://healthpolicy.duke.edu/sites/default/files/atoms/files/bass_connections_nc_medicaid_5-9-17_final.pdf

Executive Summary

https://healthpolicy.duke.edu/sites/default/files/atoms/files/bass_exec_summary.pdf

Previous Comment

https://healthpolicy.duke.edu/sites/default/files/atoms/files/duke_bass_connections_nc_dhhs_comment_20170525.pdf

RECOMMENDATIONS

Section VI: A High-Functioning Managed Care System

7. Social Determinants

We applaud DHHS’s recognition and prioritization of the importance of addressing social determinants of health (SDOH). The contribution of social determinants to health disparities is a well-documented phenomenon in the literature, with the National Academy of Medicine (NAM) highlighting SDOHs in their Roundtable on Population Health and the National Quality Forum initiating a trial period to see whether social determinants should be incorporated into risk



adjustment of health care payments.^{1,2} Action in this area represents a critical opportunity to not only make great strides in health care improvement and cost reduction, but also the chance to fulfill the state's obligation to care for its most vulnerable patients.

We believe **DHHS should signify its commitment to addressing social determinants by incorporating the NAM's recommended social determinant screen into its proposed statewide Health Information Exchange.** Additionally, as DHHS works towards developing resources (e.g., mapping and database construction) and comprehensive strategy for addressing SDOH for Medicaid, **we would like to offer our team's expertise to help identify, quantify, and harmonize social needs and resources in high-priority areas of the state.** Below, we have proposed recommendations for the Department's comprehensive social determinants strategy, as well as a prototype of our SDOH map:

Create a standardized screen for social determinants

We appreciate the Department's recognition of the role of key SDOHs such as "access to healthy food, safe housing, reliable transportation, employment supports, and community supports", and **recommend that DHHS develop a standard SDOH screen** for all patients to (1) improve data collection on SDOH and (2) allow care organizations to better meet the needs of their vulnerable patients. Importantly, **we recommend that this screen be comprehensive and include both material (e.g., homelessness) and intangible (e.g., loneliness) metrics for screening patients.** Although there is no mandated list of measures or standardized method of capturing them, we **recommend that the Department adopt the SDOH screen recommended by the National Academy of Medicine and incorporate it into the statewide electronic health record system** set to be developed through the state's managed care plan. These measures include:³

1. Race or ethnic group
2. Education
3. Financial-resource strain
4. Stress
5. Depression
6. Physical activity
7. Tobacco use
8. Alcohol use
9. Social connection or isolation
10. Intimate partner violence
11. Residential address
12. Census-tract median income

¹ *Roundtable on the Promotion of Health Equity.* The National Academies, Health and Medicine Division. Accessed 7 September 2017.

² *Evaluation of NQF's Trial Period for Risk Adjustment for Social Risk Factors.* National Quality Forum, 8 June 2017. Accessed 8 Aug. 2017.

³ Adler, Nancy E., and William W. Stead. "Patients in context—EHR capture of social and behavioral determinants of health." *The New England Journal of Medicine* 372;8 (2015): 698-701.



We have included a copy of the questionnaire developed by the National Academy of Medicine in an appendix to this document.

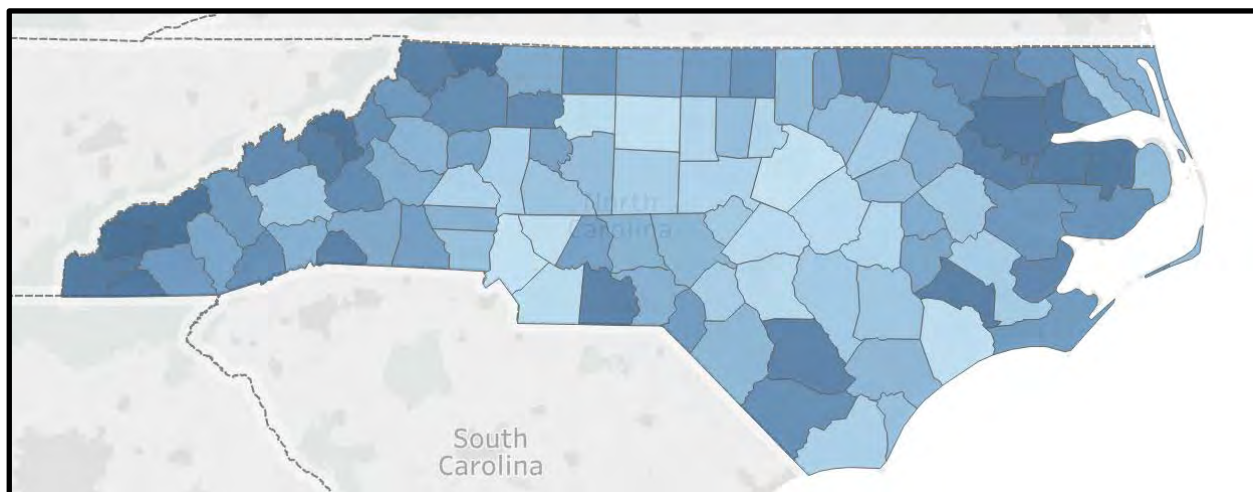
Mapping Resources and Innovations for SDOH

We believe it is critical for the state to standardize some form of documentation for SDOH for the new managed care organizations that will organize care delivery under Medicaid moving forward. However, we also believe that in parallel, the Department should work with stakeholders across the spectrum to both mobilize existing resources and pinpoint areas of need through data-driven strategies.

Consequently, we are extremely encouraged by the state’s commitment to developing a comprehensive strategy for addressing SDOH, beginning with resource mapping and the creation of a resource database. Our team at the Duke-Margolis Center for Health Policy has already begun work in this direction, synthesizing data about cost and payment from the state Medicaid dashboard, information about SDOH from the United States Census Bureau, and insight about health outcomes from public databases to develop a “health data map”. We have constructed three of these “health data maps” (presented below; darker shades indicate higher priority counties).

Map #1 synthesizes health spending and outcomes data to highlight the location of the state’s high-cost patients, with darker areas indicating counties with both higher claims per beneficiary and a greater frequency of potential life years lost per capita.⁴

Map #1: Counties with Highest Spending and Poorest Outcomes



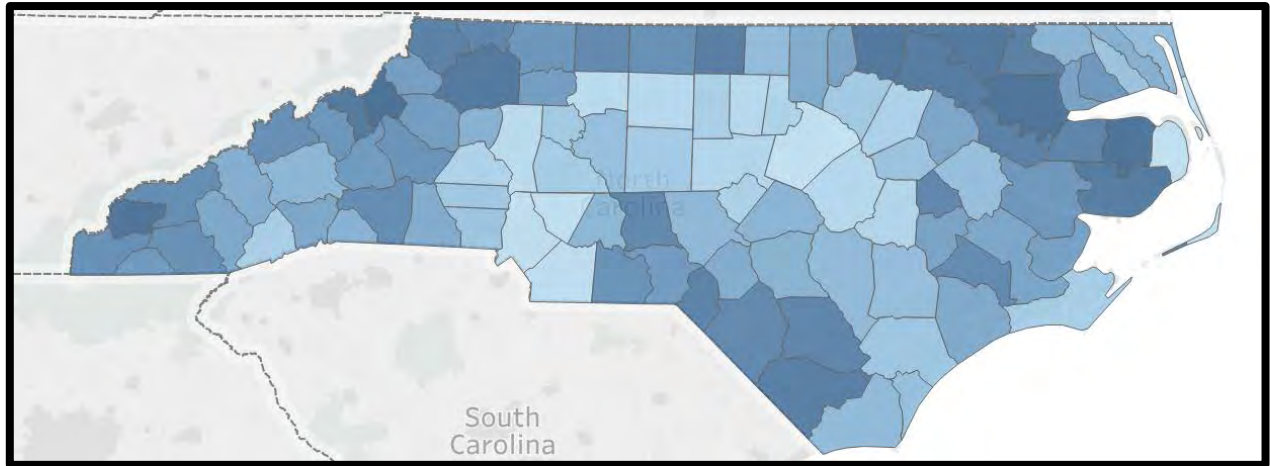
We then used linear regression models to identify county characteristics of interest to see if they offered predictive value for relevant outcome variables related to quality and cost of care, looking at a range of demographic information and SDOHs relevant to North Carolina.⁵ We found the percentage of aged, blind, and disabled beneficiaries, the county’s high school graduation rate, the

⁴ “Dashboard.” Division of Medical Assistance, NC Department of Health and Human Services, 2016. Accessed 16 July 2017.

⁵ “Quick Facts.” *United States Census Bureau*, 1 July 2016. Accessed 26 Aug. 2017.

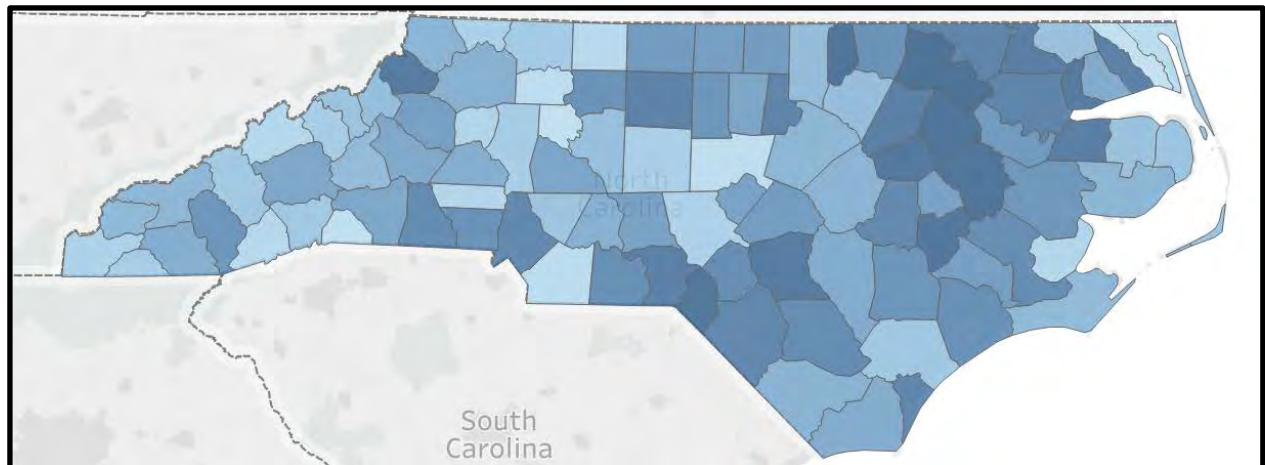
proportion of the population engaged in excessive drinking, and the county’s level of employment to have strongest explanatory relationship with the Department’s cost and outcomes data. Counties were ranked for each SDOH category, with the rankings average to yield a composite “risk rank” to indicate whether a county was likely to be home to high-cost, high-needs patients. We then incorporated this information into Map #2.

Map #2: Social Determinants of Medicaid Spending and Outcomes



Finally, we evaluated the three SDOHs explicitly highlighted in the managed care proposal – affordable housing, food insecurity, and access to transportation. Although county-level data on transportation was not publicly available, we ranked counties based on the number of renters spending in excess of 30% of income on housing cost and the percentage of the population experiencing food insecurity.^{6,7} These values were then averaged to yield another “risk rank” score, which we plotted statewide in Map #3.

Map #3: Identifying High-Priority Counties for Housing and Food Insecurity



⁶ Antoszyk, Emily. “Housing stability and children’s educational success.” *EducationNC*, The William & Ida Friday Institute for Educational Innovation, 1 Mar. 2016, www.ednc.org/map/2016/03/housing-stability-and-childrens-educational-success/. Accessed 6 Sept. 2017.

⁷ “North Carolina: Food Insecurity.” *County Health Rankings & Roadmaps*, The Robert Wood Johnson Foundation, 2017. Accessed 11 Aug. 2017.

Overall, we believe that our work demonstrates (1) a quantitative basis for the impact of SDOH on the direction of state Medicaid spending and patient outcomes and (2) a methodology to identify the high-priority areas of the state (as requested in the managed care proposal). **We would welcome the opportunity to continue our work to develop our SDOH map as a public resource for North Carolina.** Deepening this work to display health, spending, and social determinants data at a higher resolution will, however, require greater access to data and resources, and we would welcome any and all entry points which the Department may provide, as we **offer our expertise as a resource to assist the state in developing the capacity to address the SDOH of North Carolina’s Medicaid population**

Increase flexibility of Medicaid’s funding allocation

While we appreciate the Department’s support for identifying social needs and screening for them in the clinic, we believe that such action must also be paired with resources and investments to allow providers to respond to the social roots of medical symptoms. For example, the link between health and homelessness – one of the three SDOH priorities identified by the Department – is bidirectional. Medical debt is responsible for the majority of personal bankruptcies in the United States, many of which culminate in home loss, which in turn leads to a host of health problems and elevates the risk of mortality fourfold.⁸ Addressing this issue would both improve health outcomes for a particularly vulnerable population, while also significantly reducing costs for the state, with studies suggesting that the supportive housing can generate 15-20% savings for total Medicaid costs.⁹

We recognize that the Centers for Medicare and Medicaid Services (CMS) prohibits the use of Medicaid funds for capital expenditures, but **recommend the Department still explore opportunities for flexible Medicaid spending** to address various SDOH. In the case of housing, Medicaid dollars could be used to for tenancy payments, supportive housing services, and transition programs. In the case of food insecurity, the Department could consider covering reimbursement for “grocery prescriptions”, which, in the case of the Geisinger Health System, lead to \$24,000 in per patient savings in their diabetes clinics.¹⁰

There are a range of options which the North Carolina could consider, and we urge the Department to think creatively and act proactively to better meet the needs of its patients. Using housing as a starting point, we have curated a list of lessons from other states and presented them in the chart below:

⁸ *Homelessness and Health: What's the Connection?* National Health Care for the Homeless Council, June 2011. Accessed 26 Aug. 2017.

⁹ Nardone, Michael, et al. “Medicaid-Financed Services in Supportive Housing for High-Need Homeless Beneficiaries: The Business Case.” *Policy Brief*, Center for Health Care Strategies Inc., June 2012. Accessed 20 Aug. 2017.

¹⁰ Aubrey, Allison. “Fresh Food by Prescription: This Health Care Firm Is Trimming Costs — And Waistlines.” *Eating and Health*, National Public Radio, 8 May 2017. Accessed 7 Sept. 2017.



State Pilot	Innovation
<p><i>Washington State</i></p> <p>1811 Eastlake</p>	<ul style="list-style-type: none"> • 1811 Eastlake was set to provide Seattle’s chronically homeless people who have alcohol addiction with housing and on-site services • Residents are not banned from drinking alcohol, but give a third of their income (if any) to rent and social services • A 2009 student found that the program and its targeted interventions saved taxpayers \$4 million in the first year and reduced alcohol use by almost a third • Housing stability correlated with a reducing in costs and alcohol consumption
<p><i>Massachusetts</i></p> <p>Community Support Program for People Experiencing Chronic Homelessness</p>	<ul style="list-style-type: none"> • Implemented in 2005, chronically homeless individuals are identified and receive assistance finding housing • Patients receive health services and social supports such as transportation to medical appointments and assistance with daily living skills (e.g., nutrition planning) • Analysis of 137 members found a net savings of \$10,249/member each year, with a 90% reduction in ED use
<p><i>Louisiana</i></p> <p>Permanent Supportive Housing</p>	<ul style="list-style-type: none"> • Supports individuals with long-term disabilities, focusing on chronically homeless and institutionalized individuals • Members receive assistance in finding and applying for housing • Individuals also receive support coordination, home delivered meals, and employment training • In the first year, there was a 24% reduction in Medicaid acute care costs and a 96% housing retention rate
<p><i>California</i></p> <p>Housing for Health</p>	<ul style="list-style-type: none"> • \$4 million in existing Los Angeles DHS funds were reallocated from services to pay rent for previously homeless individuals with complex physical and behavioral health condition • Intensive care and tenancy support was also provided • Initial results have found an 85% reduction in inpatient days and 77% reductions in ED visits and inpatient admissions

Integrate social determinants into value-based payment strategies

We fully support action on SDOH, but believe that it is critical for the Department to think beyond the delivery side of care and also explore opportunities to leverage value-based payment reform to address social determinants. In Massachusetts, the state Medicaid program (MassHealth) recently completed a successful pilot of a payment model that risk-adjusted for homelessness and other social determinants (e.g., a “neighborhood stress score”) to improve the allocation of Medicaid dollars for “super-utilizers” while still remaining budget neutral.¹¹ Applying this proof-of-concept to North Carolina would both improve health equity for the state’s citizens and reduce costs for the Department’s programs. Thus, as DHHS proceeds with its plans for value-based payment, **we recommend that the state begin to risk-adjust its payment models for managed care to include SDOH.**

8. Workforce Initiatives

We applaud the state’s emphasis on increasing investment in the provider pipeline to rural and underserved areas, and support efforts to expand community-based residency programs and

¹¹ Ash, Arlene S., et al. "Social determinants of health in managed care payment formulas." *JAMA Intern Med* (2017).



increase the breadth of training pathways (e.g., social determinants, behavioral health) for both physician and non-physician health professionals. To strengthen the impact and sustainability of these efforts, we would recommend the following:

Increase the effectiveness of workforce expansion by creating a centralized database for GME

Graduate medical education (GME) investments and outcomes are poorly documented in North Carolina. Most data exists through secondhand sources and institutions, preventing the state from making evidence-based decisions on how and where to better allocate funds. Notable gaps in information include the number of physicians receiving GME, the county-wide distribution of those physicians after training, and the types of specialties those students pursue post-graduation. It is difficult for either the Department or outside institutions to even formulate a course of action for the state without having the requisite data to make informed claims and targeted recommendations for improving the effectiveness of GME as an incentive for physicians to remain in North Carolina and practice in underserved areas. Thus, **we recommend that North Carolina DHHS create a centralized, state-run database that collects data on match practices and outcomes for residency programs.** Metrics that should be considered for such a database include, but are not limited to, percentage of physicians choosing to remain in North Carolina post-residency, and the number of physicians accepting new Medicare and Medicaid patients into their practices.

Restore state GME funding to 2015 levels

We support North Carolina's proposal to apply for enhanced federal funding to expand rural and community residency programs. However, simply requesting federal matching funds fails to address the state's own role in the diminishment of the GME pipeline. House Bill 97 from the 2015 Legislative Session eliminated the GME add-on payment for inpatient hospital reimbursements and also removed the state match for academic GME, reducing program funding by \$43.88 million over the past two fiscal years.^{12,13} Thus, **we recommend (at minimum) that the state restore its own share of the match rate** to ensure GME returns to pre-budget cut levels, and would also **recommend increasing state investments into the program** to deepen the provider base in North Carolina.

Modify the allocation process for residency funding

Currently, residency stipends are allocated based to hospitals and health systems rather than to specific residency programs. It is a well-documented phenomenon that the funding for and population of medical residents in North Carolina is unevenly distributed across the state. For example, PHP Region #1 (as demarcated by the NC DHHS Proposed Plan) would only have 1.9% of total North Carolina medical residents (at the Mission Health teaching center), compared to PHP Region #4, which contains 55% of the residents (teaching centers at Cone Health, the

¹² Hoban, Rose, and Rachel Herzog. 2015 FINAL Health & Human Services Budget. North Carolina Health News. Accessed 18 Aug. 2017.

¹³ Newton, Warren, and Chris Collins. "Extending Pay for Value to GME: Operationalizing Social Accountability." *Health Workforce Policy Seminar*, North Carolina AHEC, 19 Jan. 2017. Accessed 26 Aug. 2017.



University of North Carolina, and Duke University Medical Center).¹⁴ Shortages in the clinic are thus created by distribution gaps in the classroom. We therefore **recommend that DHHS assign residency stipends based on the residency pathway itself** (e.g., primary care, community health) rather than to the institution at which the residency program is taking place. Stipends could then be adjusted every few years based on the outcomes of specific programs (e.g., number of residents remaining in North Carolina post-graduation).

Expand GME payments specifically for AHEC residency programs

North Carolina Area Health Education Center (AHEC) Programs are the true backbone of North Carolina's provider network despite accounting for only a fraction of the resident population (16%). AHEC residents are far more likely to remain in North Carolina upon completion (50% versus 38%); a trend that is magnified for primary care (57% versus 42%).¹⁵ Given this trend, **we recommend that NC DHHS increase GME funding specifically for AHEC residency programs.**

Expand eligibility for GME payments to include non-physician providers

Health care delivery today relies upon multidisciplinary teams that are able to provide a broad array of services including behavioral health, counseling, and social care. Consequently, there is a greater demand for workforce development, so that health professionals are better equipped to meet the diverse challenges posed by high-cost, high-needs patients. We suggest North Carolina look to neighboring states such as Virginia and South Carolina, which have proactively addressed this issue by using Medicaid funds to support the training of non-physician providers, ranging from advanced practice nurses to physician assistants.¹⁶ These "physician extender" professions are able to alleviate provider burdens in underserved areas at a lower cost. This would also serve as a pathway to meet DHHS's proposed goal of providing more specialized training opportunities to front-line providers. Thus, **we recommend that North Carolina expand GME payments to a set list of non-physician providers**, with such positions held accountable to and measured by the same metrics used for physician-based GME programs.

9. Telehealth

We appreciate seeing DHHS highlight the transformative potential of telehealth to increase access to and improve the outcomes of care, particularly for patients in rural and/or underserved areas of the state. To enable telehealth innovations to have a sustainable, scalable impact in the state, we recommend the following:

Remove the originating site requirements

¹⁴ Newton, Warren, Noah Wouk, and Julie C. Spero. "Improving the return on investment of graduate medical education in North Carolina." *North Carolina medical journal* 77.2 (2016): 121-127.

¹⁵ Fraher, Erin, and Julie Spero. "The State of the Physician Workforce in North Carolina: Overall Physician Supply Will Likely Be Sufficient but Is Maldistributed by Specialty and Geography." *North Carolina Digital Collections*, Sheps Center for Health Services Research, Aug. 2015. Accessed 26 Aug. 2017.

¹⁶ Eden J, Berwick, D., Wilensky, G. Medical Education. *Recommendations for the Reform of GME Financing and Governance*. 2014.



We appreciate that DHHS will maintain its current policy of reimbursing providers who provide health services via telehealth on par with the rates for in-person health visits. However, the application of telehealth in North Carolina continues to be restricted by the state's originating site requirement, which requires both beneficiaries and providers to be located at Medicaid-enrolled sites for the services rendered to be reimbursable. The entire thesis underpinning telehealth is that a patient's ability to contact and receive care from a provider should not be restricted by geography. Requiring patients and providers to both be at a specific site location to receive telehealth care is consequently counterintuitive – particularly in rural areas, which stand to benefit the most from the remote delivery of health services. Practices have thrived in states which have removed the originating site requirement. For example, the Iowa Chronic Care Consortium leveraged home-based telehealth for Medicaid patients, successfully reducing per-patient spending by \$11,278 (\$3 million in aggregate) for heart failure patients and decreased inpatient visits for diabetes patients by 54% during a year-long trial.¹⁷ We encourage North Carolina to follow in the footsteps of 24 other states and **remove the originating site requirement**, allowing patients in rural areas to better access care using telehealth.¹⁸

Broaden the scope of telehealth reimbursement

North Carolina's current definition of telehealth is restricted to audio and video, limiting the potential of telehealth services to improve care coordination between providers, self-management of chronic disease, and communication between patients and their physicians.¹⁹ We would like to highlight three examples of innovative telehealth technologies that would not be reimbursed under DHHS's current definition of telehealth.

- (A) Store and Forward – the asynchronous electronic communication of health history, such as the delivery of records or scans to providers. This can improve care coordination between providers in different sites. New York Medicaid successfully implemented this telehealth program and achieved a 55% drop in hospitalizations and a total 42% drop in medical costs.²⁰
- (B) Remote Patient Monitoring – broadly refers to the use of mobile medical devices to collect and transmit patient data directly to a provider in a different location; essentially, quantitative form of telecommunication. Pennsylvania's Keystone Hospice program successfully implemented this technology and increased medication adherence to 98.2%.²¹
- (C) eConsults – asynchronous electronic message exchanges of patient information between a primary care physician and a specialist, improving downstream care coordination for high-risk patients. Connecticut successfully piloted this and resolved 69% of cases without an in-person visit.²²

¹⁷ Lustig T. The role of telehealth in an evolving health care environment: workshop summary. 2012.

¹⁸ Elish P. Telehealth's year in review: 5 trends in state policies. *The Growth Channel* 2017.

¹⁹ "Telemedicine and Telepsychiatry Clinical Coverage Policies." *NC DMA*, Department of Health and Human Services, 2017. Accessed 21 May 2017.

²⁰ Survey of States Providing Coverage for In-Home Telemonitoring Services. *Survey of States Providing Coverage for In-Home Telemonitoring Services* 2015.

²¹ State Medicaid best practice: Remote patient monitoring and home video visits. 2013

²² Electronic Consult Reimbursement Roadmap. *Blue Cross Foundation of California* 2016.



These examples highlight how the current definition of telehealth actually inhibits the ability of providers to offer the best possible care to patients, particularly those in rural and underserved areas. We ask that the Department no longer let the law lag behind the pace of innovation, and **recommend that DHHS broaden the scope of telehealth reimbursement** to allow providers to expand their delivery toolkit and optimize their use of health technologies to improve care for patients across the state.

VII. Increasing Access to Medicaid

We support the efforts of the General Assembly and the Department to expand access to Medicaid for low-income populations, and offer the following recommendations:

Develop protective measures for vulnerable populations when implementing work requirements and cost-sharing provisions

While we support all efforts to increase access to health care, we view the qualifiers of work requirements and cost-sharing with apprehension based on the previous experience of states, which suggests that the introduction of such measures may create barriers to sustained enrollment.

- (A) Cost-Sharing – Medicaid enrollment dropped by 36% in Washington and by 50% in Oregon following the introduction of monthly premium payments.²³ Oregon’s experiences are particularly troubling, as two-thirds of the newly uninsured individuals failed to regain coverage after the fact.²⁴
- (B) Work Requirements – Implementing this policy would cause the state to incur significant administrative costs. In Arkansas, the administrative costs were twice as high after the state imposed monthly premiums on low-income adults (\$12 versus \$6 million in annual expenditures). In Arizona, the revenue from premiums and copays was so marginal that the state actually lost \$10 million due to the elevated administrated burden.^{25,26}

Consequently, **we recommend the state exercise caution when implementing such a program, and develop the necessary safety measures to protect patients.** For example, DHHS could implement cost-sharing and work requirements through an iterative process, beginning at 100% of the federal poverty line (FPL) before arriving at DHHS proposed requirement of 50%. Additionally, DHHS could also following in the footsteps of Arkansas’ recent Section 1115 Waiver and apply for partial Medicaid expansion devoid of external requirements (e.g. 100% as opposed to full 138% FPL).²⁷ With partial expansion as an option, the state now has greater flexibility to develop political compromises to reform North Carolina Medicaid. As a result, we

²³ Gardner M, Varon J. Moving Immigrants from a Medicaid Look-Alike Program to Basic Health in Washington State: Early Observations. Kaiser Commission on Medicaid and the Uninsured 2004. Accessed March 18, 2017

²⁴ McConnell J, Wallace N. Impact of Premium Changes in the Oregon Health Plan. 2004. Accessed March 19, 2017.

²⁵ Witgert K. The Future of Medicaid: When Improving Upon the Wheel, Start with Something Round. Costs and Spending, Medicaid & CHIP 2017. Accessed March 18, 2017

²⁶ Schubel J, Solomon J. States Can Improve Health Outcomes and Lower Costs in Medicaid Using Existing Flexibility. 2015. Accessed March 17, 2017.

²⁷ McIntyre, Adrianna, Allan M. Joseph, and Nicholas Bagley. "Small Change, Big Consequences—Partial Medicaid Expansions under the ACA." *New England Journal of Medicine* (2017).



urge the Department to consider any and all measures to increase federal dollars and coverage for the state's neediest citizens. After all, the ultimate goal of such measures should be to make access to health care as easy, affordable, and comprehensive as possible for all North Carolinians, and we hope the Department will work with General Assembly to learn from the lessons of other states.

CONCLUSION

We thank North Carolina DHHS for providing the opportunity to offer feedback on the managed care proposal to us and other stakeholders across the state. The Medicaid program serves as the foundation for the people of our state, lifting up those in need, and propelling them to happier and healthier futures. We hope the Department will consider our recommendations to improve access to care, as well as use our work as our resource to guide the state's efforts to map and address SDOH. We would welcome the opportunity to discuss our recommendations with North Carolina DHHS staff, and look forward to working with the Department to improve health care for all North Carolinians. For more information, please contact Dr. Barak D. Richman, J.D. Ph.D. at richman@law.duke.edu.

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APPENDIX

Social and Behavioral Domains and Measures.		
Domain	Measure*	Frequency
Race or ethnic group†	1. What is your race? 2. Are you of Hispanic, Latino, or Spanish origin?	At entry
Education	1. What is the highest level of school you have completed? 2. What is the highest degree you earned?	At entry
Financial-resource strain	How hard is it for you to pay for the very basics like food, housing, medical care, and heat?	Screen and follow up
Stress	Stress means a situation in which a person feels tense, restless, nervous, or anxious, or is unable to sleep at night because his or her mind is troubled all the time. Do you feel this kind of stress these days?	Screen and follow up
Depression	Over the past 2 weeks, how often have you been bothered by 1. Little interest or pleasure in doing things? 2. Feeling down, depressed, or hopeless?	Screen and follow up
Physical activity	1. On average, how many days per week do you engage in moderate to strenuous exercise (like walking fast, running, jogging, dancing, swimming, biking, or other activities that cause a light or heavy sweat)? 2. On average, how many minutes do you engage in exercise at this level?	Screen and follow up
Tobacco use†	1. Have you smoked at least 100 cigarettes in your entire life? If yes: 2. Do you now smoke cigarettes every day, some days, or not at all?	Screen and follow up
Alcohol use†	1. How often do you have a drink containing alcohol? 2. How many standard drinks containing alcohol do you have on a typical day? 3. How often do you have six or more drinks on one occasion?	Screen and follow up
Social connection or isolation	1. In a typical week, how many times do you talk on the telephone with family, friends, or neighbors? 2. How often do you get together with friends or relatives? 3. How often do you attend church or religious services? 4. How often do you attend meetings of the clubs or organizations you belong to?	Screen and follow up
Intimate-partner violence	1. Within the last year, have you been humiliated or emotionally abused in other ways by your partner or ex-partner? 2. Within the last year, have you been afraid of your partner or ex-partner? 3. Within the last year, have you been raped or forced to have any kind of sexual activity by your partner or ex-partner? 4. Within the last year, have you been kicked, hit, slapped, or otherwise physically hurt by your partner or ex-partner?	Screen and follow up
Residential address†	What is your current address?	Verify at every visit
Census-tract median income	Geocoded	Update on address change

Adler, Nancy E., and William W. Stead. "Patients in context—EHR capture of social and behavioral determinants of health." *The New England Journal of Medicine* 372;8 (2015): 698-701.