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Case Study

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Community Care of North Carolina: Building Community Systems of Care Through State and Local Partnerships

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ABSTRACT: Community Care of North Carolina (CCNC) is a public–private partnership between the state and 14 nonprofit community care networks. The networks comprise essential local providers that deliver key components of a "medical home" for low-income adults and children enrolled in Medicaid and the State Children's Health Insurance Program. Community-based delivery systems promote the development of locally led approaches that leverage resources and relationships to meet statewide goals. Local networks and primary care physicians receive supplemental funding for care management and quality improvement initiatives supported by statewide performance measurement and benchmarking activities. Results suggest that the program has yielded cost savings while promoting improvements in care of patients with chronic conditions. CCNC's experience may be relevant to other states considering how to improve primary care case management programs, or how to better address the needs of low-income individuals in areas that lack effective mechanisms for coordinating care.

OVERVIEW

In August 2008, the Commonwealth Fund Commission on a High Performance Health System released a report, *Organizing the U.S. Health Care Delivery System for High Performance*, that examined problems engendered by fragmentation in the health care system and offered policy recommendations to stimulate greater organization for high performance.[1] In formulating its recommendations, the Commission identified six attributes of an ideal health care delivery system (Exhibit 1).

Community Care of North Carolina (CCNC) is one of 15 case study sites that the Commission examined to illustrate these six attributes in diverse organizational settings. Exhibit 2 summarizes findings for CCNC. Information was gathered from staff in the CCNC central office and from a review of supporting documents.[2] Although case study sites varied in the manner and degree to which they exhibited the six attributes, all offered ideas and lessons that may be helpful

Exhibit 1. Six Attributes of an Ideal Health Care Delivery System

- ***Information Continuity*** Patients' clinically relevant information is available to all providers at the point of care and to patients through electronic health record systems.
- ***Care Coordination and Transitions*** Patient care is coordinated among multiple providers, and transitions across care settings are actively managed.
- ***System Accountability*** There is clear accountability for the total care of patients. (We have grouped this attribute with care coordination, since one supports the other.)
- ***Peer Review and Teamwork for High-Value Care*** Providers (including nurses and other members of care teams) both within and across settings have accountability to each other, review each other's work, and collaborate to reliably deliver high-quality, high-value care.
- ***Continuous Innovation*** The system is continuously innovating and learning in order to improve the quality, value, and patient experiences of health care delivery.
- ***Easy Access to Appropriate Care*** Patients have easy access to appropriate care and information at all hours, there are multiple points of entry to the system, and providers are culturally competent and responsive to patients' needs.

to other organizations seeking to improve their capabilities for achieving higher levels of performance.[3]

ORGANIZATIONAL BACKGROUND

Established in 1998, CCNC is a public-private partnership that provides key attributes of a primary care "medical home" and care management for almost one million low-income individuals enrolled in Medicaid or the federal-state Children's Health Insurance Program (CHIP).[4] CCNC is a community-based delivery system that builds on and enhances the state's Medicaid primary care case-management program, known as Carolina ACCESS, which has been in operation since 1991.

CCNC has grown from a pilot project into a program encompassing the entire state through 14 nonprofit community care networks (Exhibit 3) that cover geographic areas ranging from a single county to a region comprising 27 counties (one network includes provider sites dispersed among counties throughout the state).[5] Networks were developed by local physicians and other Medicaid providers through a request-for-proposals process initiated by the state. This state–local partnership is structured to leverage local resources and relationships to meet local needs and promote local responsibility for systemwide principles of collaboration, population health management, and accountability.

Each local network is a nonprofit organization that facilitates a partnership among essential local providers including hospitals, primary care physicians, county health and social service departments, and other key stakeholders that vary from network to network (e.g., county medical societies, which help build relationships with specialist physicians). Several networks also include state-designated local management entities that oversee and coordinate the provision of local mental health, developmental disability, and substance abuse services.

More than 1,300 primary care practices with approximately 3,500 to 4,000 physicians currently participate in CCNC networks statewide, representing about half of North Carolina's primary care practices. Physicians contract with the state's Department of Medical Assistance to participate in Carolina ACCESS, then contract with a local community care network to participate in CCNC. Key participation requirements include providing primary preventive care services, assuring 24-hour coverage, coordinating

the use of specialty care, and participating in care management and quality improvement activities.

The State of North Carolina partners with the program to provide resources, information, and technical support, such as analyzing Medicaid claims data and sponsoring statewide audits for performance measurement and benchmarking purposes. The North Carolina Office of Rural Health and Community Care serves as a central program office under the sponsorship of the state's Department of Health and Human Services. The North Carolina Foundation for Advanced Health Programs, a nonprofit organization, also provides staffing and grant-funding opportunities.

Exhibit 2. Case Study Highlights

Overview: Community Care of North Carolina (CCNC) is a public–private partnership that provides key components of a medical home and care management for almost one million low-income individuals enrolled in Medicaid or the State Children's Health Insurance Program. CCNC is a community-based system of 14 regional networks, each of which is a nonprofit organization consisting of a partnership of local providers including hospitals, primary care physicians, county health and social services departments, and other stakeholders. More than 1,300 primary care practices with approximately 3,500 to 4,000 physicians currently participate in CCNC networks statewide, representing about half of the primary care practices in the state. The state provides resources, information, and technical support. Physician fee-for-service reimbursement is supplemented by a per-member per-month (PMPM) fee for case management. The regional networks also receive a PMPM fee to cover the cost of care management and network administration.

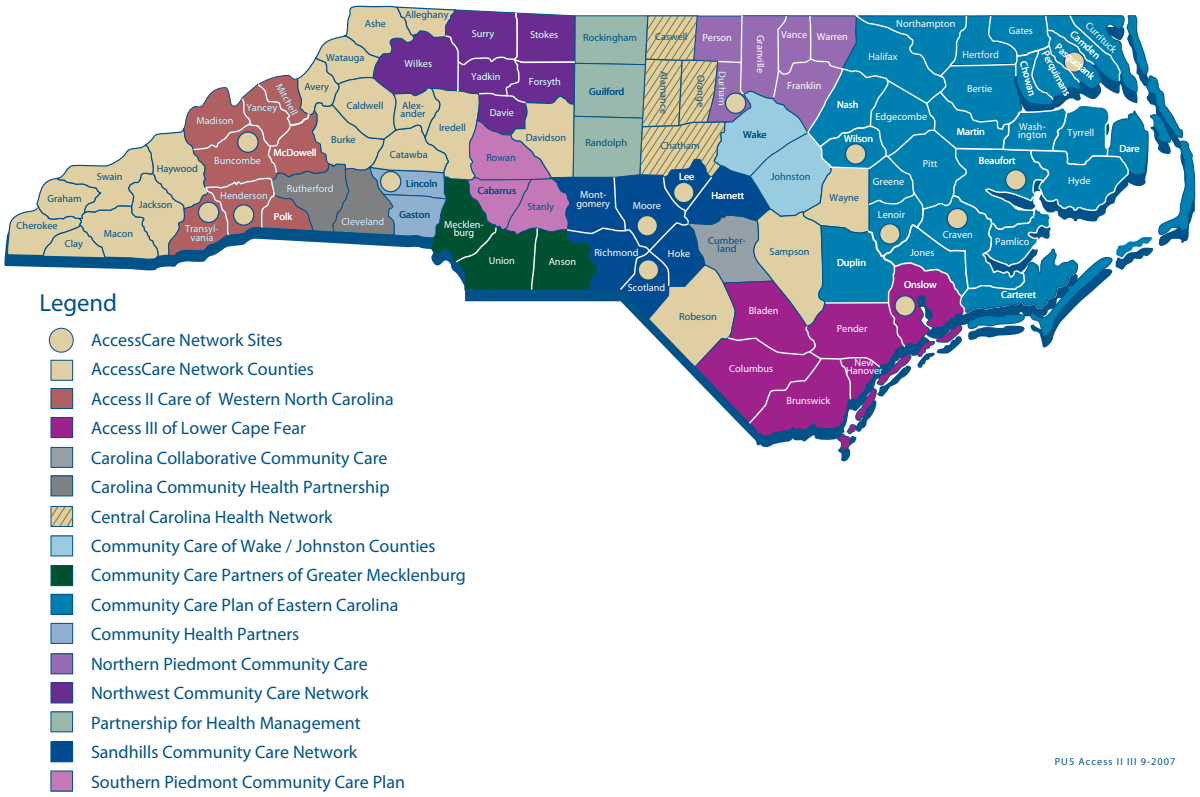
Attribute	Examples from Community Care of North Carolina
Information Continuity	Partners with Blue Cross Blue Shield to promote electronic prescribing statewide with planned educational, technical, and grant support. Plans to use savings from other initiatives to promote the adoption of EHR among local essential providers. Care managers in regional networks use a common Web-based case management information system to track patients and their assessments, facilitate care planning, and engage in secure messaging.
Care Coordination and Transitions; System Accountability*	Develops and disseminates resources and tools to support population-health management for Medicaid patients. Local networks hire nurse case managers who work in concert with physicians to identify high-risk patients, assist in patient education and follow-up, coordinate care, and help patients to access services. Networks collaborate with other community agencies (such as the local health department and mental health agency) to coordinate care.
Peer Review and Teamwork for High-Value Care	Network clinical directors identify best-practice models and create systemwide quality measures and initiatives; local networks implement initiatives locally. Local clinical directors work with peers in the community to support and encourage quality improvement efforts. Physicians receive comparative performance profiles (compiled by the CCNC central office) to motivate improvement on network initiatives.
Continuous Innovation	Innovative delivery model incorporates principles of public–private partnership, physician leadership, quality and population management, shared responsibility, and incentives. Chronic disease initiatives have increased adherence to clinical guidelines and improved outcomes such as reduced asthma-related emergency visits and hospitalizations. A sustainable community-based infrastructure helps launch other health initiatives.
Easy Access to Appropriate Care	Each CCNC patient selects or is assigned a primary care physician who serves as a "medical home," providing acute and preventive care and facilitating access to specialty care and after-hours coverage. Networks work with their medical homes to increase after-hours and weekend availability. Mental health integration pilot colocates behavioral health specialists in primary care and, obversely, creates access to preventive primary care services in behavioral health practices. Local networks are partnering with local safety-net providers and indigent-care programs to create integrated networks of care for uninsured adults.

* System accountability is grouped with care coordination and transitions, since these attributes are closely related.

Exhibit 3.

Community Care of North Carolina

Access II and III Networks



The state pays local networks $3.00 per member per month (PMPM) to cover the cost of network management activities, including the salaries of a full-time program director, a part-time medical director, full- or part-time consultant pharmacists, and a team of care managers. Network management fees are intended to be competitive with those charged by commercial disease management vendors for similar services. Some networks also receive grant monies for specific initiatives relevant to their respective enrolled populations.

Physicians are paid on a fee-for-service basis (fees are set at 95 percent of Medicare rates), supplemented by an additional $2.50 PMPM for medical home and population-management activities.[6] This supplemental funding helps providers take a more active role in managing the health needs of their patient populations, for example by providing preventive care services and identifying patients in need of care management.

INFORMATION CONTINUITY

Many physician practices participating in CCNC have not yet implemented electronic medical records. To encourage adoption, Community Care plans to use savings from other initiatives to promote the adoption of health information technology among local essential providers. In the interim, CCNC is partnering with Blue Cross Blue Shield of North Carolina on a statewide electronic prescribing initiative. The CCNC central office will provide educational, technical, and grant support to help participating practices adopt the technology to transmit prescriptions electronically and thus improve administrative efficiency and patient safety. Some local networks are developing related information technology solutions. For example, one

network provides its physicians with handheld computers that include tools for promoting cost-effective drug prescription.[7]

Care managers throughout the program use a secure, Web-based case management information system (CMIS) to help coordinate the care of enrollees. The system includes modules for patient information such as diagnoses and service use derived from claims data; reporting on guideline compliance at the individual and population levels; patient assessment and care planning to document problems, goals, and interventions provided; and secure messaging among care managers. The CCNC central office supplements the CMIS with additional data derived from Medicaid claims to help identify patients with target conditions and measure service use. Data derived from chart audits are used for measuring process and outcome quality to assess performance.

CARE COORDINATION AND TRANSITIONS: TOWARD GREATER ACCOUNTABILITY FOR TOTAL CARE OF THE PATIENT

CCNC's care management activities are designed to help mitigate the long-term medical and financial risks from poorly controlled chronic diseases. Local community care networks hire case managers who work in concert with primary care providers ("medical homes") to identify patients who will benefit most from targeted care management interventions, such as patients making repeated ER visits; patients diagnosed with asthma, diabetes, or heart failure; and patients who have two or more chronic conditions (including mental health conditions) with high service use or activity limitations indicating complex care needs. Care managers identify high-risk patients through the CMIS and from case-identification lists provided by the CCNC central office, notifications of admissions provided by hospitals, and physician referrals.

- Care managers assist in patient education and follow-up to promote treatment adherence and support lifestyle changes, help patients coordinate their care and access needed services, and collect data on process and outcome measures. During home visits, for example, care managers assess medication use for review by a consultant pharmacist and provide feedback to primary care physicians when patients are not adhering to their treatment regimen.
- Care managers also assess the psychosocial needs of patients and address barriers to care such as communication or transportation needs. For example, care managers may assist patients in scheduling follow-up appointments and by facilitating access to community-based services for behavioral health care, housing and shelter aid, or vocational and family support when needed.[8]
- A care-transitions program is currently under development as part of the chronic care initiative to help reduce hospital readmissions among patients with complex chronic illness. In the Cumberland Network, for example, care managers based in the hospital coordinate directly with hospital staff to facilitate patient transitions to the community.

Each case manager is responsible for monitoring a population of 3,000 to 4,000 Medicaid patients (all patients are assigned to a case manager regardless of their current need for service), typically managing an active caseload of 150 to 200 patients. Because care managers may coordinate care for patients across multiple physician practices, they seek to develop personal relationships with physicians in the network so that they can effectively communicate about patient needs.[9] To ensure consistency across the system, CCNC network leaders and program staff collaborated to develop the Standardized Case Management Plan, which offers benchmarks and guidelines for care management activities and reporting across networks. The plan includes action steps for network coordinators and case managers, as well as strategies for characterizing service intensity levels.

CCNC contracts with Area Health Education Centers (AHECs) to conduct randomized chart reviews

of a representative sample of patients seen in each participating practice to assess compliance with care management guidelines. The clinic receives feedback from this audit to help improve the delivery of care. Local providers generally view the activities of the case managers as offering added value to the services provided by the practice. In a recent study of innovations in rural primary care management, physicians commented positively that care managers "add tangible benefits for the patient that the provider does not have time to offer."[10]

PEER REVIEW AND TEAMWORK FOR HIGH-VALUE CARE

Clinical directors elected by each regional network meet regularly to select targeted diseases or care processes for improvement. The group adheres to certain guiding principles in selecting a quality improvement initiative (Exhibit 4). The group reviews and identifies relevant best-practice models, creates networkwide quality initiatives, defines outcome and process measures, and rolls them out to local practice sites. Outcome data may include utilization measures, while process data may include periodic assessments or treatment planning. Claims databases and regular chart reviews provide a source for collecting and monitoring these data. Clinical areas targeted for improvement statewide include asthma, diabetes, and heart failure, along with appropriate use of medications (specific initiatives will be described in the next section).

Local medical management committees implement these statewide initiatives, along with their own, locally developed initiatives, using a rapid-cycle quality improvement model. Local clinical directors work with peers in the community to support and encourage quality improvement efforts. Networks covering multiple counties may also designate part-time physician "champions" to work with physician practices in each community. Some networks also employ quality improvement "coaches" to assist in practice redesign efforts, although this is not yet a systemwide undertaking.

All CCNC networks work together with the state to define, track, and report performance measures. Clinical directors choose performance measures that are evidence-based best-practice guidelines and can be measured using existing data sources, such as Medicaid claims and chart audits. CCNC physicians receive a quarterly practice profile detailing their performance on utilization and disease management measures, such as total costs per member per month and rates of asthma hospitalizations and diabetes control.

CONTINUOUS INNOVATION

The public–private partnership and community-based delivery model promotes the development of targeted initiatives that can be developed in a flexible manner to meet local, regional, or statewide needs, and the benefits of these initiatives can be shared among the networks.

Exhibit 4. CCNC Guidelines for Selecting a Quality Improvement Initiative

- There are sufficient Medicaid enrollees with a particular disease to obtain a return on investment by improving its treatment.
- Evidence exists that best practices lead to predictably improved outcomes.
- Appropriate evidence-based practice guidelines are readily available.
- Physicians support the process.
- Patient education and support can lead to improved outcomes.
- Best practices and outcomes are measurable, reliable, and relevant.
- There is room for improvement: A gap exists between best practice and everyday practice.
- There is a quantifiable baseline from which to measure improvement.

Asthma Initiative. The asthma initiative supports physicians in: 1) improving routine identification, assessment, and severity staging of asthma to determine appropriate treatment; 2) reducing unintended variations in care through adherence to national practice guidelines; 3) educating patients, families, and school personnel in asthma management; and 4) reporting outcomes. Program results reported by CCNC appear promising.

- Since the program's inception in 2004, there has been a 21 percent increase in severity staging and a 112 percent increase in the administering of flu shots to asthma patients. More than 90 percent of staged patients are using appropriate medications.
- Between 2003 and 2006, asthma-related hospitalizations decreased 40 percent, from 2.6 to 1.5 admissions per 1,000 member-months, and emergency visits decreased 17 percent, from 13.2 to 11.0 visits per 1,000 member-months (Exhibit 5).

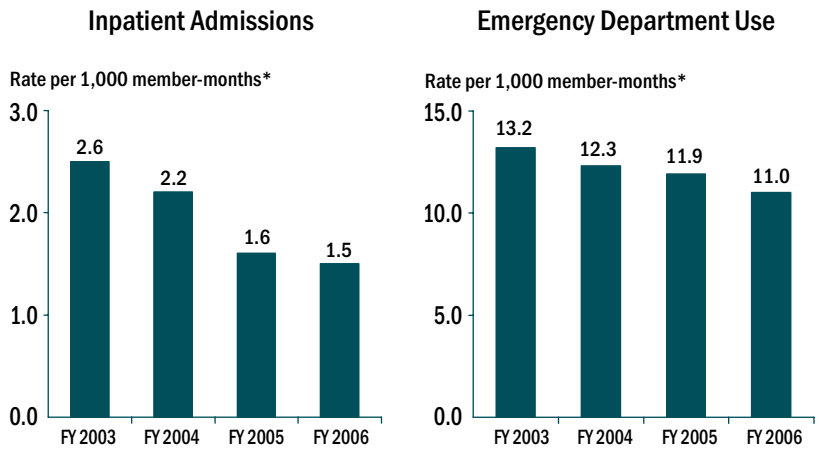
Diabetes Initiative. The diabetes initiative promotes the use of the American Diabetes Association's Clinical Practice Recommendations, along with tools to support their implementation. Case managers are trained to work with physicians to educate patients in disease self-management, targeting those at highest risk. CCNC reports increases in the provision of some chronic care services, such as blood lipid testing, which was received by 66 percent of diabetics in 2004 as compared with 77 percent in 2005.

An analysis of diabetes outcomes found that in 2006, on five of six measures, CCNC met or exceeded a benchmark set by the National Committee for Quality Assurance's Diabetes Physician Recognition Program (Exhibit 6).[11] For example:

- Forty-seven percent of CCNC diabetes patients achieved optimal control of their blood sugar (hemoglobin A1c less than 7 percent), versus the benchmark of 40 percent.
- Fifty-six percent of CCNC diabetes patients achieved optimal control of blood cholesterol (LDL-C less than 100 mg/dL), versus the benchmark's 36 percent.

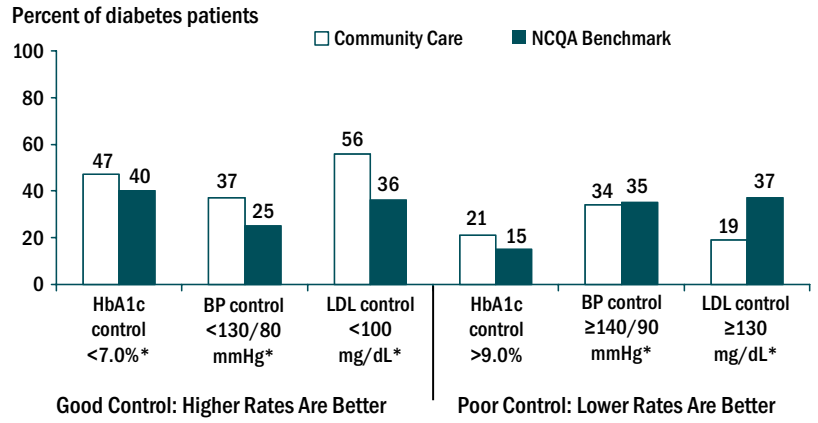
In a locally developed refinement of this statewide initiative, Cabarrus County established a disease management center and registry to sharpen their focus on diabetes. The registry tracks process and outcome measures including hemoglobin A1c, blood pressure,

Exhibit 5. Community Care of North Carolina: Inpatient Admissions and Emergency Department Use by Patients with Asthma



* Rate includes inpatient admissions or ED visits with a diagnosis of asthma.
Source: Community Care of North Carolina, Disease and Care Management Initiatives, 2007.

Exhibit 6. Community Care of North Carolina: Diabetes Outcomes Compared with Benchmark, 2006



Note: Benchmark is National Committee for Quality Assurance, Diabetes Physician Recognition Program, thresholds to achieve recognition in 2006. HbA1c = hemoglobin A1c; BP = blood pressure; LDL = low-density lipoprotein cholesterol.
* Indicates that CCNC rate meets the benchmark threshold.
Source: Adapted from B. D. Steiner, A. C. Denham, E. Ashkin et al., "Community Care of North Carolina: Improving Care Through Community Health Networks," *Annals of Family Medicine,* July/Aug. 2008 6(4):361–67.

eye, and foot exams, regardless of patients' coverage. Practices use the data to evaluate and improve the delivery of care, as well as to compare the care received by Medicaid and uninsured patients with that provided to privately insured patients.[12]

Prescription Advantage List. The prescription advantage list (PAL) is a voluntary drug list developed by CCNC clinical directors and the North Carolina Physicians Advisory Group in cooperation with the state. The list ranks drugs within therapeutic categories (by highest frequency and opportunity to impact quality and cost) to encourage the use of less-expensive drugs, including generics and over-the-counter medications, whenever appropriate. CCNC providers receive quarterly feedback on a PAL scorecard showing the percentage of prescribed PAL drugs and the use of over-the-counter medications for their enrolled population. CCNC reports that this program has been associated with lower overall pharmacy spending and annual savings of nearly $1 million by the state.[13]

Nursing Home Polypharmacy Initiative. The initiative reviewed drug regimens of 9,000 nursing home Medicaid patients and made recommendations to physicians in order to optimize overall drug management and reduce costs where appropriate. These efforts led to more than 8,000 recommendations, 74 percent of which were implemented, and an estimated $9 million in cumulative savings since 2002, according to program figures. CCNC reports that this effort improved patient health care through reduction of drug duplications and adverse drug–drug interactions.

In addition to these statewide initiatives, local community care networks undertake their own targeted initiatives. For example, AccessCare—a statewide network with the largest registry of pediatric Medicaid patients in the state—engaged in a quality improvement intervention for gastroenteritis that reduced hospital admissions to levels substantially lower than those of a control group. Key components of the intervention included expert-led physician education on evidence-based care, peer-to-peer teaching and sharing of tools and resources, and performance feedback.[14]

EASY ACCESS TO APPROPRIATE CARE

Medical Home. Each CCNC enrollee selects or is assigned a personal primary care provider who serves as a "medical home." This role extends to providing acute and preventive services and facilitating patient access to care through specialty referrals and after-hours coverage. Some networks work with their medi-

cal homes to increase after-hours and weekend availability. Providers in Pitt County, for example, created a community pediatric after-hours clinic staffed by a pediatrician and medical residents offering services during the evening hours every day of the year.[15]

CCNC engages patients in the medical home model through an educational campaign called "The Right Call Every Time: Your Medical Home." The campaign touts the value of preventive services and continuity of care with the same practice. In addition to distributing patient-education materials that inform patients of the benefits of a medical home, providers and care managers work with patients on shifting triage toward the primary care setting and away from the ER when appropriate.

Mental Health Integration. In the last two years, four CCNC networks have worked with state mental health agencies and local management entities to pilot a model for integrating mental health care into routine medical care. This program seeks to better manage Medicaid enrollees with co-occurring behavioral and physical health needs, and to serve them in the most appropriate setting by: 1) providing education, resources, and support to primary care physicians to increase their comfort level in identifying and treating depression in their patients; 2) improving communication and coordination between primary care physicians and behavioral health care specialists; and 3) implementing a system of standardized screening and assessment tools and evaluation measures.

The Mental Health Integration pilot has led to several communitywide mental health planning efforts and to a grant program to help offset the start-up costs involved in colocating mental health professionals in primary care sites. Another pilot innovation is "reverse colocation," which creates access to preventive primary care in behavioral health practices. To promote this complex change in practice (a much more difficult undertaking than traditional clinical practice improvement), CCNC is participating in the statewide ICARE Partnership (www.icarenc.org), which brings stakeholders together to help break down barriers between disciplines and to address policy issues such as discrepancies in payment and regulations.

HealthNet Collaborative Networks. Under the state's HealthNet program, CCNC networks are partnering with local safety-net providers and indigent care programs (such as free clinics and reduced-fee programs offered by community and rural health centers and public health departments) to create integrated networks of care for uninsured adults.[16] The goal is to leverage CCNC's case management capabilities and physician pool to increase the number of uninsured with a medical home, improve accessibility and quality of care, and promote continuity of coverage regardless of the funding source. By creating a single triage process to assess and meet the needs of low-income individuals—who often alternate between periods of eligibility and ineligibility for Medicaid coverage—an integrated program helps assure that patients receive appropriate care while also conserving free care and other resources to serve more of those in need.

The state provides technical assistance and funding to support 16 HealthNet collaborative networks that serve uninsured adults with incomes up to 200 percent of the federal poverty level. Local networks set eligibility criteria and operating parameters based on local resources and capabilities. The HealthNet program will reach about 45,000 uninsured adults in 27 counties during its first year, with plans to expand to 10 more counties in the coming year. The CCNC case management information system is being updated with software functionalities used by indigent care networks for enrollment and referral, managing provider commitments, and tracking service utilization and value of care provided for the uninsured population.

RECOGNITION OF PERFORMANCE

In addition to the results of the specific interventions described above, Exhibit 7 discusses areas where CCNC is achieving higher levels of performance.

Exhibit 7. Externally Reported Results and Recognition

Overall Financial Performance	An actuarial analysis by Mercer Human Resources Consulting estimated that, compared with historical fee-for-service costs, the program saved the state between $284 million and $314 million in fiscal year 2006. A more conservative estimate of what the State would have spent "without any concerted effort to control costs" suggests savings of $154 million to $170 million attributable to CCNC's care management and quality improvement activities in 2006.[17]
Ambulatory Care Quality	University of North Carolina researchers evaluated the program's disease management programs and estimated a $3.5 million savings resulting from the CCNC asthma management program and a $2.1 million savings resulting from the CCNC diabetes management program during 2000–2002.[18]
National Recognition	CCNC received the 2007 Annie E. Casey Innovations Award in Children and Family Systems Reform from the Ash Institute for Democratic Governance and Innovation at Harvard University's John F. Kennedy School of Government. According to the institute, "Community Care's centralized structure enables medical directors to develop improvements in care treatments and to influence the generation of larger-scale public health programs that share model practices statewide."[19]

INSIGHTS AND LESSONS LEARNED

CCNC was created to enhance and build upon North Carolina's existing primary care case management program through community-based organized delivery systems that could manage large populations. Primary care providers working alone simply did not have the tools, information, or support to manage care for the state's many Medicaid beneficiaries with complex medical and social problems. Under the CCNC program, these community health partners have come together in partnership with the state to employ a population health management approach in existing practice arrangements.

This system of care was created through an evolutionary, collaborative process involving state officials, physician leaders, and professional organizations. According to University of North Carolina professor of family medicine Beat Steiner, M.D., M.P.H., and his colleagues, some of the factors contributing to the success of this statewide system include visionary and sustained leadership, a strong state infrastructure to oversee the program, starting small to demonstrate success at a local level, and disseminating best practices through pilot programs. The perceived external threats of possible federal funding cuts and outside interference from commercial insurers also motivated physicians to try a new approach.[20]

Stakeholders shaped the program around five key principles: 1) a public–private partnership that unites and strengthens local essential providers; 2) physician leadership and local control; 3) a focus on quality of care and population health management; 4) shared state/local responsibility; and 5) shared incentives. Steiner and colleagues point out that this federated organizational structure enables statewide collaborative learning while also promoting local physician participation and stronger linkages with the community than would be likely under a more centralized approach. While local control helps communities respond to local needs, it also means that quality improvement remains variable across the state.

Participation in local community care networks can empower primary care physicians, whose role in the health system is often undervalued in traditional care arrangements. "Doctors can come to the table to meet with other players and offer input [on how to improve care]," says Chris Collins, M.S.W., a program consultant to CCNC and formerly an executive director of a local network, who notes that this "gives them a voice to drive change from the bottom up." Giving physicians an opportunity for involvement increases their motivation to engage in network quality improvement initiatives, she says.

Current challenges affecting CCNC's future development, according to Steiner and colleagues, include the adequacy of the network management fee to fund effective care management for high-risk populations, the need to extend care coordination to include not just primary care physicians but subspecialists who treat patients with complex care needs, the ability to parlay focused quality improvement initiatives into larger practice redesign efforts that can lead to transformative system-level change, and the limitations of current data systems in supporting robust outcomes measurement. Comparison to other case study sites suggests that CCNC could realize further improvements through structural interventions such as the adoption of electronic health records and the "advanced access" model of patient scheduling, which can reduce patient waiting times and increase practice efficiency.

CCNC's experience may be relevant to other states considering how to improve the effectiveness of primary care case management programs, or how to better address the needs of Medicaid and CHIP patients in areas that lack effective mechanisms for coordinating and improving care. Savings gained from an improved coordination of care could be used to help fund public program enrollment expansions. How the financial and clinical results achieved in North Carolina would compare with outcomes attained in other state Medicaid programs with alternative forms of managed care (such as those that contract with private health plans) remains a question for further evaluation.

In summary, local community care networks are a central element in the strategy to provide access to quality health care for low-income citizens of North Carolina. A community-based approach to implementing enhanced primary care case management appears to be promoting broad physician participation and making more effective and efficient use of resources to help improve population health.

For a complete list of case studies in this series, along with an introduction and description of methods, see *Organizing for Higher Performance: Case Studies of Organized Health Care Delivery Systems—Series Overview, Findings, and Methods,* is available at www.commonwealthfund.org.

Notes

1 T. Shih, K. Davis, S. Schoenbaum, A. Gauthier, R. Nuzum, and D. McCarthy, *Organizing the U.S. Health Care Delivery System for High Performance* (New York: Commonwealth Fund Commission on a High Performance Health System, Aug. 2008).

2 Information on CCNC was synthesized from a telephone interview with Chris Collins, M.S.W., program consultant for Community Care of North Carolina; e-mail communication with L. Allen Dobson, M.D., vice president for clinical practice development at Carolinas Healthcare System and formerly assistant secretary for health policy and medical assistance in the North Carolina Department of Health and Human Services, and with Beat Steiner, M.D., M.P.H., professor of family medicine at the University of North Carolina at Chapel Hill; feedback from staff in the CCNC central office; a review of supporting documents including those on the CCNC Web site (www.communitycarenc.com); reports of the State Division of Medical Assistance; and the following publications or presentations: S. Wilhide and T. Henderson, *Community Care of North Carolina: A Provider-Led Strategy for Delivering Cost-Effective Primary Care to Medicaid Beneficiaries* (Washington, D.C.: American Academy of Family Physicians, June 2006); R. Arora, J. Boehm, L. Chimento et al., *Designing and Implementing Medicaid Disease and Care Management Programs: A User's Guide* (Rockville, Md.: Agency for Healthcare Research and Quality, Mar. 2008); D. L. Hewson, "Improving Medicaid Quality and Controlling Costs by Building Community Systems of Care," presented at the Medical Homes Summit of the National Academy for State Health Policy and the Patient-Centered Primary Care Collaborative, Washington, D.C., July 2008; D. L. Hewson, "The North Carolina Experience," presented at "Communities Connect: Putting the Pieces Together," a conference held in Seattle, Wash., June 2008. Other sources are noted below.

[3] A summary of findings from all case studies in the series will be found in D. McCarthy and K. Mueller, *Organizing for Higher Performance: Case Studies of Organized Delivery Systems. Series Overview, Findings, and Methods* (New York: The Commonwealth Fund, 2009).

[4] As of January 2009, CCNC served a total of 970,544 individuals statewide, including 874,766 Medicaid beneficiaries (of which 132,134 were aged, blind, and disabled individuals) and 95,778 children enrolled in CHIP (known as North Carolina Health Choice). This enrollment represented about 75 percent of all Medicaid and CHIP beneficiaries who were eligible to enroll in managed care programs.

[5] The Central Carolina Health Network (shown on the map) is a subnetwork of Access Care Network.

[6] Physicians receive $1.50 per member per month for participating in Carolina Access, and an additional $1.00 per member per month when they join a local community care network.

[7] S. Wegner, presentation at the workshop "Appropriate Drug Use and Prescription Drug Programs: Adding Value by Improving Quality," sponsored by the Agency for Healthcare Research and Quality, Denver, Colo., Nov. 5–7, 2001, http://www.ahrq.gov/news/ulp/pharm/pharm7.htm.

[8] P. Silberman, S. Poley, and R. Slifkin, *Innovative Primary Care Case Management Programs Operating in Rural Communities: Case Studies of Three States* (Chapel Hill, N.C.: Cecil G. Sheps Center for Health Services Research, University of North Carolina, Jan. 2003).

[9] B. Steiner, A. C. Denham, E. Ashkin et al., "Community Care of North Carolina: Improving Care Through Community Health Networks," *Annals of Family Medicine*, July/Aug. 2008 6(4):361–67.

[10] Silberman, Poley, and Slifkin, *Innovative Primary Care,* 2003.

[11] Steiner, Denham, Lashkin et al., "Community Care of North Carolina," 2008.

[12] L. A. Dobson, Jr., and T. L. Wade, "Cabarrus County: A Study of Collaboration," *North Carolina Medical Journal*, May/June 2005, 66(3):234–36.

[13] Mercer Government Human Services Consulting, Letter to Mr. Jeffrey Sims, State of North Carolina Division of Medical Assistance, Aug. 2005. Available at www.communitycarenc.com.

[14] A. J. Zolotor, G. D. Randolph, J. K. Johnson et al., "Effectiveness of a Practice-Based, Multimodal Quality Improvement Intervention for Gastroenteritis Within a Medicaid Managed Care Network," *Pediatrics*, Sept. 2007 120(3):e644–e650.

[15] C. F. Willson, "Community Care of North Carolina: Saving State Money and Improving Patient Care," *North Carolina Medical Journal*, May/June 2005 66(3):229–33.

[16] Information on HealthNet was obtained from Anne Braswell, senior analyst and HealthNet program manager, North Carolina Office of Rural Health and Community Care.

[17] K. Lurito, Mercer Government Human Services Consulting, Letter to Mr. Jeffrey Sims, State of North Carolina Division of Medical Assistance, Sept. 2007. Available at www.communitycarenc.com.

[18] T. C. Ricketts, S. Greene, P. Silberman et al., *Evaluation of Community Care of North Carolina Asthma and Diabetes Management Initiatives: January 2000–December 2002* (Chapel Hill, N.C.: University of North Carolina, Apr. 2004).

[19] Ash Institute for Democratic Governance and Innovation, *Community Care of North Carolina Honored as Innovations in American Government Award Winner* (Cambridge, Mass.: John F. Kennedy School of Government, Sept. 2007), http://www.innovationsaward.harvard.edu/AnnieECasey.cfm.

[20] Steiner, Denham, Lashkin et al., "Community Care of North Carolina," 2008.

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This study was based on publicly available information and self-reported data provided by the case study institution(s). The Commonwealth Fund is not an accreditor of health care organizations or systems, and the inclusion of an institution in the Fund's case studies series is not an endorsement by the Fund for receipt of health care from the institution.

The aim of Commonwealth Fund–sponsored case studies of this type is to identify institutions that have achieved results indicating high performance in a particular area of interest, have undertaken innovations designed to reach higher performance, or exemplify attributes that can foster high performance. The studies are intended to enable other institutions to draw lessons from the studied institutions' experience that will be helpful in their own efforts to become high performers. It is important to note, however, that even the best-performing organizations may fall short in some areas; doing well in one dimension of quality does not necessarily mean that the same level of quality will be achieved in other dimensions. Similarly, performance may vary from one year to the next. Thus, it is critical to adopt systematic approaches for improving quality and preventing harm to patients and staff.