# Improving the Quality of Care for Medicaid Patients with Chronic Diseases:
## Community Care of North Carolina

*C. Annette DuBard*

**Community Care of North Carolina's provider-driven approach to quality improvement has benefitted tens of thousands of North Carolinians with diabetes, asthma, hypertension, heart failure, and cardiovascular disease, and it has achieved better results than commercial Medicaid managed care nationally. Substantial opportunities remain, however, particularly for patients with complex care needs.**

Community Care of North Carolina (CCNC) is a statewide, community-based, physician-led system of regional networks committed to establishing access to a primary care medical home for vulnerable populations and equipping those medical homes with the multidisciplinary support needed to assure comprehensive, coordinated, high-quality care. As more and more Americans are living with chronic medical conditions, the need to improve chronic disease care is increasingly urgent. Approximately two-thirds of total health care spending in the United States is associated with care for individuals who have multiple chronic conditions. CCNC recognizes that improving the health care experience requires improving the way that health care is delivered; CCNC also recognizes that solutions must be local, taking into account the context of each patient, each provider, and each community. Our aim is to "lift all boats" on a rising tide of high-quality care.

### Foundation for Quality

The cornerstone of CCNC's approach to quality improvement is to establish a connection to a primary care medical home for each and every Medicaid recipient. Access to care is a prerequisite for quality of care. Assuring such access requires providers who are willing to accept Medicaid patients into their practices. However, achieving such acceptance has been a persistent challenge for Medicaid programs throughout the nation, and a lack of willing providers in many states may threaten the success of health coverage expansion efforts under the Affordable Care Act. In challenging economic times, increased demand for Medicaid coverage due to joblessness is compounded by lower tax revenues, which creates budgetary pressures that frequently compel states to cut costs by lowering provider reimbursement rates. The inevitable downstream effects are fewer providers accepting Medicaid patients and more barriers for patients seeking care outside of the emergency department. North Carolina has persistently chosen a different path, preserving primary care provider reimbursement rates while pursuing cost savings by providing care that is better coordinated, higher in quality, and less wasteful. CCNC further encourages provider participation by providing practices with access to shared resources that allow them to better respond to the needs of very complex or challenging patients. Through their CCNC participation, over 1,600 primary care practices, located throughout every county of the state, have collectively made a commitment to provide access and continuity of care for more than 1.25 million Medicaid recipients.

CCNC encourages health care providers to become engaged in quality improvement in a variety of ways. For individual patients who have the highest risk of poor health outcomes, local CCNC networks provide care management support, including care coordination across providers and settings of care, medication management, and patient and caregiver coaching in self-management of chronic conditions. Care managers and clinical pharmacists are embedded within large practices to help maximize provider time and effectiveness. Through the CCNC Provider Portal (a Web-based tool), providers can securely access information about individual patients and can also obtain population-management reports for their own panel of Medicaid patients, including feedback on clinical quality of care and identification of patients with unmet care needs. A critical element to CCNC's success centers on the ability of the networks to locally implement system changes that are needed to improve quality in practices. The network clinical directors are instrumental in engaging community providers to implement the quality initiatives. Credible and provider-friendly reports are powerful tools, particularly when accompanied

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# Collaborative Quality Improvement Efforts Yield Success for Asthma Patients

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An important function of the Community Care of North Carolina (CCNC) networks is to engage physicians in efforts to continually improve quality of care for enrolled patients. When considering quality improvement (QI), people often think of expensive technology or additional work, yet that does not have to be the case.

In the fall of 2011, we began to consider the possibility of collaborating on a QI project related to asthma, when Caroline Brown, supervisor of the pediatric residents at Wake Forest Baptist Health's Downtown Health Plaza, contacted Kelly Garrison, QI coordinator for the Northwest Community Care Network (NCCN). At that time, Downtown Health Plaza had an emergency department utilization rate for asthma of 27.1 visits per 1,000 member-months (MM) and an inpatient utilization rate for asthma of 3.2 admissions per 1,000 MM, compared to a state emergency department utilization rate of 11.4 visits per 1,000 MM and a state inpatient admission rate of 1.4 admissions per 1,000 MM. Further evidence of a need for improved asthma care was furnished by the results of a recent chart review, which revealed significant inconsistencies in the approach to care taken by various providers.

The goals to be accomplished during the first phase of the QI project were simple. Over a 3-month period, the percentage of patients with asthma who had a continued care visit that included an assessment of symptoms was to increase from 38% to 50%, the percentage of patients with asthma who had a documented assessment of environmental triggers of their asthma was to increase from 11% to 50%, and the percentage of patients with asthma who were given a written asthma action plan was to increase from 30% to 50%. We anticipated that appropriate diagnosis, treatment, and control of patients' asthma would lead to decreased hospital utilization.

This resident-based clinic, which provides care for more than 7,000 pediatric Medicaid patients, would not initially turn to use of an electronic health record or other technology in its quest for increased quality; instead, the clinic would develop its own internal process to ensure the highest quality of care.

In the beginning, changes in care were implemented only 1 day per week, with members of the nursing staff asking 2 questions to every patient: first, "Have you ever been diagnosed with asthma?" and then, "Have you been prescribed or have you used an inhaler in the past 12 months?" A "yes" response to either question would prompt the resident and attending physicians to initiate a series of steps that would guarantee that each component of the asthma visit was completed. The physicians used a checklist that included the following items: discussion

by benchmarks and comparisons to peers, which help motivate providers to improve processes that will enable them to provide the best care. The focus is on implementing evidence-based best practices in the medical home.

Clinical quality improvement activities are tailored to the needs and capacities of each practice, and such activities are often pursued in partnerships with other stakeholder organizations that have aligned goals. CCNC provides material support to practices seeking National Committee for Quality Assurance recognition as a patient-centered medical home. CCNC also coordinates with the North Carolina Healthcare Quality Alliance and with North Carolina Area Health Education Centers (AHECs) to engage practices in focused quality improvement projects through initiatives such as Improving Performance in Practice and Infrastructure for Maintaining Primary Care Transformation (IMPaCT). Quality improvement teams in each of CCNC's 14 networks have dedicated resources for focused quality improvement activities in pediatrics, maternity care, and care of adults with chronic, disabling conditions. Countless other quality improvement activities represent local collaborations between the CCNC network, provider groups, academic centers or hospital systems, local public health departments, and other stakeholders. These local relationships have been cultivated over a period of 2 decades. For more information, please visit www.communitycarenc.org.

## Progress

Since its beginning in 1998, CCNC has used performance measurement and feedback to help meet its goals of improving the quality of care for Medicaid recipients while controlling costs. This process has evolved over time to meet the changing needs of the program, such as enrollment expansion in aged, blind, and disabled Medicaid eligibility categories beginning in 2008. CCNC aims to stay current with changes to evidence-based clinical practice guidelines over time and to align measures with other quality initiatives, such as the National Committee for Quality Assurance Diabetes Recognition Program, the Heart Stroke Recognition Program, and the Healthcare Effectiveness Data and Information Set; the Physician Quality Reporting Initiative; the meaningful use measures of the Electronic Health Record Incentive Program; and the "core sets" of quality measures for Medicaid-eligible children and adults issued by the Centers for Medicare & Medicaid Services.

A quality measurement and performance workgroup with representation from all 14 CCNC networks convenes annually to review performance measures. The goals of the workgroup are to identify measures with clinical importance (based

of the severity and frequency of the patient's symptoms; documentation of the patient's asthma control test score; identification of triggers; classification of severity; updating the patient's asthma action plan; review of medications taken by the patient; consideration of care management, pulmonary referral, or additional resources; and scheduling a follow-up appointment.

After several plan-do-study-act cycles were completed and changes to the process had been made, the process was implemented throughout the clinic and throughout the week. After the new process and checklist had been in place for 2 months, a chart review was completed to look for improvements in the percentages of patients receiving a continued care visit with an assessment of symptoms, an assessment of triggers, and an updated asthma action plan. The results of these audits demonstrated improvements of at least 30% in each area.

This collaborative QI effort between NCCN and the Downtown Health Plaza demonstrated exciting results. CCNC's 2012 chart audit showed remarkable improvements, which were noted in the annual Quality Measures and Feedback Report. On 2 measures—the percentage of patients with a continued care visit that included assessment of symptoms and the percentage of patients with an assessment of triggers—the clinic's score was 100%. The clinic had also increased the percentage of patients with an asthma action plan from 25% to 72%. In addition, the clinic saw a decrease in its emergency department utilization rate for asthma, from 27.1 visits per 1,000 MM to 21.9 visits per 1,000 MM, and a decrease in the number of inpatient admissions, from 3.2 admissions per 1,000 MM to 2.0 admissions per 1,000 MM.

To further improve quality of care, NCCN purchased iPads (Apple) that can be used to aid in patient education. Through the use of CCNC's online Provider Portal, which houses a patient education site called *Meducation*, clinic staff members can show patients and families videos in various languages demonstrating the appropriate use of metered-dose inhalers, spacers (aerosol holding chambers used with inhalers), and various medications.

Overall, what makes each of the CCNC networks successful is its ability to work with primary care physicians at the ground level on issues that are important to the physicians' practices. NCCN hopes that continued support of local primary care physicians will yield additional successful QI efforts that will aid in achieving the mission and vision of the network. NCMJ

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on disease prevalence, disease impact, and potential for improvement), scientific soundness (judged by the strength of evidence underlying the clinical practice recommendation; evidence that the measure itself improves care; and the reliability, validity, and comprehensibility of the measure), and the feasibility of implementation. Workgroup recommendations are presented to CCNC network leaders, and final measures are chosen by a vote of the network clinical directors.

CCNC contracts with AHECs to perform independent, randomized chart reviews using an electronic data abstraction tool for more than 26,000 recipients in more than 1,300 CCNC practices annually. Patients are eligible for chart review on the basis of having asthma, diabetes, hypertension, ischemic vascular disease, or heart failure. Practice-level results with patient-level detail are available on a next-day basis. Additional quality measures are derived from Medicaid claims data, and these results are updated every 3 months.

CCNC quality measures were expanded in 2009 beyond diabetes and asthma to include a broader set of chronic conditions. As shown in Table 1, improvements have been realized over the past 3 years for every chronic condition studied, and North Carolina consistently outperforms national norms for Medicaid populations in which benchmark data are available. Because of the broad reach of CCNC, even modest incremental improvements in these measures can have a large impact on the health of the population. CCNC providers care for more than 159,000 Medicaid recipients with hypertension, more than 136,000 Medicaid recipients with asthma, more than 82,000 Medicaid recipients with diabetes, and more than 30,000 Medicaid recipients with advanced cardiovascular disease. Table 2 shows the benefits of higher quality of care in absolute terms, both relative to CCNC's own performance 3 years ago and relative to national norms for commercial managed care companies. The difference is thousands more North Carolinians receiving recommended chronic disease care today, which sets the stage for better health and lower health care costs in the future.

## Opportunities

In addition to providing retrospective performance measurements and feedback, CCNC continually seeks to proactively identify concrete quality improvement opportunities and to enable providers to efficiently address them.

A "care alert" system, released in the fall of 2010, scans claims data on a weekly basis to identify patients who are not receiving recommended services. Care alerts are posted within the patient's record on CCNC's secure Web-based Provider Portal and are included in population-based reports for primary care practices that provide medical home services. For example, primary care practices can readily

**TABLE 1.**
**Quality of Care for Chronic Conditions in the CCNC-Enrolled Medicaid Population, 2009-2012**

| Condition | Measure | National Medicaid HEDIS Mean[a] (2011) | CCNC 2009[b] | CCNC 2012[c] |
|---|---|---|---|---|
| Diabetes | $HbA1_c$ control <8% | 48.1% | 60.0% | 60.7% |
| | $HbA1_c$ control >9%[d] | 43.0% | 28.9% | 27.3% |
| | Blood pressure control <140/90 mm Hg | 60.9% | 63.9% | 66.0% |
| | Cholesterol control (LDL <100 mg/dL) | 35.2% | 45.0% | 46.9% |
| | Annual foot examination | — | 71.2% | 78.4% |
| | Nephropathy monitoring[e] | 77.8% | 82.6% | 83.8% |
| Asthma | Continued care visit with assessment of symptoms | — | 69.5% | 73.2% |
| | Assessment of triggers | — | 47.9% | 71.5% |
| | Action plan | — | 30.6% | 40.6% |
| | Appropriate pharmacological therapy for persistent asthma | 85.0% | — | 95.5% |
| Hypertension | Blood pressure control <140/90 mm Hg | 56.8% | 60.8% | 63.8% |
| Cardiovascular disease | Use of aspirin or another antithrombotic medication | — | 79.8% | 84.5% |
| | Lipid testing | 82.0% | 76.6% | 79.8% |
| | Cholesterol control (LDL <100 mg/dL) | 42.1% | 43.3% | 46.8% |
| | Smoking status and cessation advice | — | 79.8% | 86.5% |
| Heart failure | Ejection fraction documented | — | 81.9% | 87.8% |
| | Beta blocker therapy for systolic dysfunction | — | 90.4% | 92.0% |

Note. All measures except nephropathy screening were obtained through annual independent randomized chart reviews. HEDIS, Healthcare Effectiveness Data and Information Set of the National Committee for Quality Assurance; CCNC, Community Care of North Carolina; $HbA1_c$, glycosylated hemoglobin level; LDL, low-density lipoprotein cholesterol level.
[a]Mean proportion of patients in Medicaid managed care organizations nationally who received this care or achieved this test result in 2011. Benchmark data is not available for all measures.
[b]Proportion of Medicaid patients receiving care from one of the CCNC networks who received this care or achieved this test result in 2009.
[c]Proportion of Medicaid patients receiving care from one of the CCNC networks who received this care or achieved this test result in 2012.
[d]$HbA1_c$ control >9% indicates poor diabetes control; for this measure, a lower percentage is better.
[e]Nephropathy monitoring determined through Medicaid claims review; preliminary 2012 result based on July 2011-June 2012 dates of service.

retrieve a list of their Medicaid patients who are overdue for a diabetes eye exam, or they can see which patients are overusing asthma rescue inhalers without using a controller medication. Use of these reports has increased steadily, but the ongoing volume of active alerts signifies that considerable gaps in care remain.

Physician practices are increasingly transitioning to electronic medical records, which creates new potential for using electronic clinical data to identify gaps in care and to generate prompts to the care team. Some practices are already able to utilize information technology in this way, but others are struggling to develop this capability. CCNC is currently developing capabilities to interface with clinical data from participating practices that want help with data analytics and reporting to support their quality improvement efforts. By utilizing key clinical information that is not available in claims data, these new capabilities will allow for more timely identification of patient care gaps and more frequent assessment of the clinical process and outcome measures needed for rapid-cycle quality improvement work.

CCNC has also recently developed new tools for recognizing geographic variations in clinical care and outcomes, because such variations may signal our best opportunities for focused improvement efforts. The North Carolina Community Health Information Portal displays measures of quality, access, and utilization at the county level, as well as indicators of disease prevalence and social determinants of health, such as poverty, education level, and environmental factors. A sample display is shown in Figure 1. For clinical quality measures related to chronic disease care, the data typically show a spread of 10 percentage points between the lowest- and highest-performing quartiles of counties. This mapping interface, available at www.communitycarenc.org/nc-hip/, is intended to equip health care providers and public health organizations with tools to reliably assess health status, disease burden, and care needs in the communities they serve and to effectively organize collaborative quality improvement activities.

## Challenges

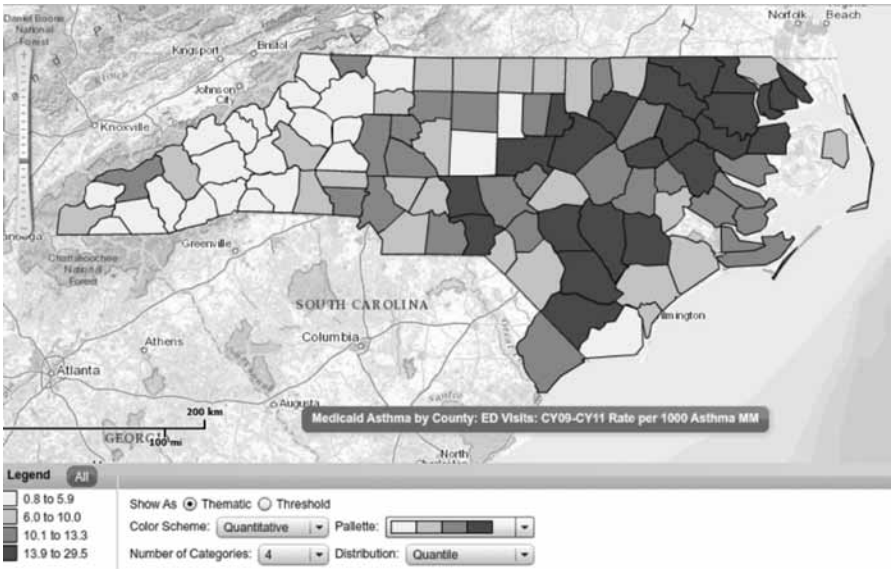
For patient populations characterized by a high prevalence of complex medical, social, and behavioral concerns, the narrow focus of standard, disease-specific quality measures falls short of capturing many of the prevailing con-

**TABLE 2.**
**Population Impact of Improvements in Quality of Care for North Carolina Medicaid Recipients**

| Impact of quality improvements over the past 3 years[a] | Impact relative to national norms for Medicaid recipients in commercial managed care organizations[b] |
|---|---|
| **For 82,216 CCNC-enrolled Medicaid recipients with diabetes** | |
| • 576 more have good blood glucose control.<br>• 1,315 fewer have poor blood glucose control ($HbA1_c$ >9.0%).<br>• 1,727 more have good blood pressure control.<br>• 1,562 more have good cholesterol control.<br>• 5,899 more received an annual foot examination. | • 10,359 more have good blood glucose control.<br>• 12,908 fewer have poor blood sugar control ($HbA1_c$ >9.0%).<br>• 4,193 more have good blood pressure control.<br>• 9,619 more have good cholesterol control.<br>• 4,933 more received appropriate nephropathy screening or management. |
| **For 136,529 CCNC-enrolled Medicaid recipients with asthma** | |
| • 5,052 more had continuity of care visits that included symptom assessment.<br>• 32,221 more had an asthma trigger assessment by their primary care provider.<br>• 13,653 more have an asthma action plan. | • 14,336 more received appropriate pharmacological therapy. |
| **For 159,776 CCNC-enrolled Medicaid recipients with hypertension** | |
| • 4,793 more have good blood pressure control. | • 11,184 more have good blood pressure control. |
| **For 30,164 CCNC-enrolled Medicaid recipients with cardiovascular disease** | |
| • 1,056 more have good cholesterol control.<br>• 1,418 more are taking aspirin or other antithrombotic therapy.<br>• 965 more had cholesterol screening.<br>• 2,021 more received tobacco use screening and cessation advice. | • 1,418 more have good cholesterol control. |

CCNC, Community Care of North Carolina; HEDIS, the Healthcare Effectiveness Data and Information Set of the National Committee for Quality Assurance; $HbA1_c$, glycosylated hemoglobin level.
[a]2012 CCNC performance relative to 2009 CCNC performance.
[b]2012 CCNC Performance relative to the 2011 Medicaid Managed Care Organization National HEDIS mean.

**FIGURE 1.**
**Use of Geomapping to Identify Quality Improvement Opportunities: Rate of Emergency Department Visits Among North Carolina Medicaid Patients with Asthma**




This screenshot from the North Carolina Community Health Information Portal (www.communitycarenc.org\nc-hip) displays regional variation in emergency department (ED) visit rates for North Carolina Medicaid patients with asthma, by county location of the primary care provider. Counties are grouped into quartiles. For the quartile of counties with the lowest ED visit rates for asthma, which are located predominantly in the western part of North Carolina, the asthma ED utilization rate during calendar years 2009, 2010, and 2011 was less than 6.0 visits per 1,000 asthma member-months, which translates to approximately 6 visits per year for every 83 patients with asthma. (Member-months measure both the number of individuals and the number of months per year when they were eligible for Medicaid.) For the quartile of counties with the highest rates, which are located predominantly in the eastern part of North Carolina, asthma ED visits were more than twice as frequent, exceeding 13.8 visits per 1,000 asthma member-months.

cerns of patients and their caregivers, or of payers and purchasers of health care. Individuals with multiple chronic conditions account for two-thirds of total US health care spending, visit multiple physicians during the course of a year, and are at greatest risk for hospital admission, readmission, and functional decline [1, 2]. Indeed, among the highest-cost 10% of Medicaid recipients, over half have 5 or more chronic conditions [3]. Recognizing that complex problems require complex solutions, CCNC's focus has evolved away from emphasizing individual provider performance on disease-specific indicators toward tackling the "messier" situations most germane to the experience of the patients we serve. Major CCNC initiatives launched or accelerated within the past few years include those on transitional care; motivational interviewing; comprehensive medication management; patient self-management of chronic disease; behavioral health integration; chronic pain; palliative care; substance abuse screening, brief intervention, referral, and treatment (SBIRT); novel medical home models for pregnant women and residents of adult care homes; and an accountable care collaborative for children with complex medical conditions. For patients with complex care needs, whose care involves not only the primary care medical home but also multiple specialists and service providers in multiple settings, quality is not easily captured in a numerical score or readily attributable to any single physician. Quality of care is a reflection of the health care system as a whole, and excellence is a shared responsibility. NCMJ

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