A Model of Care for the Uninsured Population in Southeastern North Carolina

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BACKGROUND Cape Fear HealthNet is a unique collaborative model that was established to address coordination of care for low-income, uninsured individuals in the Lower Cape Fear Region of North Carolina. This model involves a centralized referral network to direct uninsured clients to medical homes among safety-net providers, a system for specialty referrals, and a short-term episodic or urgent care clinic (HealthNet Clinic) to address immediate or urgent health needs.

METHODS We provide a descriptive analysis of patients seen in the episodic care clinic during the period August 2010 through July 2012.

RESULTS Our data suggests that, compared to county population estimates, the HealthNet Clinic patients were more likely to be people of color, and a higher percentage of clinic patients had chronic diseases or lifestyle determinants of chronic diseases, such as diabetes, obesity, or smoking. Almost half of clinic patients (43.7%) required some type of laboratory or diagnostic service; less than 10% of clinic patients were referred to a specialty provider. Findings from this study can inform community collaborative efforts and planning by other safety-net providers to help leverage limited resources and increase access to care among uninsured individuals in North Carolina.

LIMITATIONS Patient characteristics cannot be generalized to all uninsured individuals in the region, as there are other safety-net providers in the Lower Cape Fear region, and their clinical data were not included in this analysis.

CONCLUSIONS The Cape Fear HealthNet collaborative model is successful in directing patients, many of whom have significant chronic illness burdens, to a medical home in the community safety net.

The North Carolina Institute of Medicine estimates that the percentage of adults aged 19–64 years without health insurance in the counties that constitute the Lower Cape Fear region (Brunswick, Columbus, New Hanover, and Pender) ranges from 20% to 22.2% [1].

Research has shown that lack of health insurance leads to increased expenditures, poorer outcomes, and higher mortality [2-5]. Uninsured adults with chronic disease face the additional barrier of not being able to access care for monitoring of their chronic conditions.

Background

In 2008, Cape Fear HealthNet (CFHN), a 501(c)(3) non-profit organization, was established with initial funding from the Cape Fear Memorial Foundation, United Way of the Cape Fear Area, and The Duke Endowment. This collaborative network was created to address a lack of communication between safety-net providers in the Cape Fear region and to promote more appropriate utilization of health care services among uninsured individuals.

This paper describes this unique collaborative model and provides a snapshot of patients seen in the network’s episodic care clinic for the period August 2010 through July 2012. All data have been deidentified and were obtained from clinic charts following approval of the study by the Human Subjects Protections Institutional Review Board of the University of North Carolina Wilmington.

Methods

The goals of CFHN are to direct clients to medical homes, create a centralized system for eligibility and referrals, and provide affordable pharmacy options and case management for uninsured individuals with chronic diseases. The CFHN board of directors includes representatives with decision-making authority from other safety-net providers in the area—including the local hospital system and area health departments—as well as physicians, a pharmacist, and a psychologist. Additionally, the Dean of the College of Health and Human Services at the regional university in Wilmington also sits on the board of directors. CFHN partner agencies are listed in Appendix 1 (online version only). Initially, staffing for CFHN was limited to an executive director, 2 enrollment eligibility specialists (patient navigators), a registered nurse case manager, and an administrative assistant.

Prior to 2010, uninsured individuals in the Lower Cape Fear region had limited immediate access to medical care other than urgent care clinics and hospital emergency departments. As a result, many patients had unmet care needs, including patients who needed follow-up care after...
emergency department visits and/or hospitalizations, patients with nonurgent conditions who contacted the hospital nurse call line, and patients with ongoing medical needs who lacked a medical home, such as those with unmanaged chronic conditions (e.g., hypertension and diabetes). Over time, it became increasingly difficult for patients to find care for immediate health problems within the existing safety-net clinics, as many providers were at capacity and were not accepting new patients or had long wait times for initial appointments, or they were located in rural areas with limited accessibility.

In response to identified gaps in care, CFHN in August 2010 started an episodic care clinic, the HealthNet Clinic, to provide short term assessment, diagnostic and medical treatment, and medication assistance for low-income, uninsured patients in the region. The HealthNet Clinic was designed to serve as an access point for patients with unmet medical needs and to refer them to a safety-net provider within the collaborative network that could serve as a medical home and provide ongoing primary care services. The HealthNet Clinic is not intended to provide ongoing care; eligible patients are limited to 2 visits.

The HealthNet Clinic originally opened at 2 co-located sites at partner agency facilities. The 2 partner clinic facilities provided the clinic space and some supplies. Grant money provided for additional supplies and for the salaries of a physician and a clinic coordinator. In May 2011, clinic operations were centralized to 1 location in a dedicated space on the Cape Fear Clinic (a free clinic) campus. The clinic is staffed by a full-time physician, volunteer physicians, a clinic coordinator, and volunteers.

Sources of Patient Referrals

Most patient referrals came from the local regional hospital (23%), the local county Departments of Social Services (21.27%), local health departments (20.19%), and other safety-net clinics in the area (18.02%). Other sources of patient referrals included family and friends (11.79%) and private medical providers (2.44%).

Eligibility and Enrollment Processes

In order to be eligible for services at CFHN (including referral to a medical home in the safety net), individuals must be uninsured, have an income at or below 200% of the federal poverty guidelines, and live in one of the counties served by the agency (Brunswick, Columbus, New Hanover, or Pender). When an individual calls to inquire about services, an algorithm triage sheet is used to determine whether the client is an appropriate candidate to be seen in the clinic (See Figure 1). The $20 administration fee was waived in hardship cases, or a lesser amount was accepted. The administrative fee nominally covers the administrative costs of running the clinic. More importantly, having patients contribute payment enhances the perceived value of the services provided to them and makes them a partner in their health care. During the 2-year study period, 25% (n=258) of patients were able to pay some amount of money, with amounts ranging from $1 to $40 for 1 visit; among patients who were able to pay, the average amount paid was approximately $7.

After being seen by the physician for an initial visit, each patient is asked to see a patient navigator. The role of the patient navigator is to determine the patient’s eligibility status to participate in CFHN; this evaluation is required for referral to other safety-net providers.

Patient Navigators

Patient navigators obtain and verify all pertinent data concerning the clients’ family composition, financial status, and employment status. Navigators recertify or review clients’ cases on a periodic basis (ie, every 6 months) in order to re-verify the clients’ eligibility for continued participation in the program. Patient navigators also provide referrals to a medical home and specialist services (with assistance from the HealthNet Clinic physician). In addition, patient navigators assist the patient with obtaining financial aid through local hospital charity care programs; help the patient access other services, including eye care and dental services, mental health services, food assistance, transportation, and prescription assistance programs; and connect the patient to other local human service agencies. Patient navigators are based at local health departments and social service agencies. In February 2012, an additional patient navigator position was created and co-located at the HealthNet Clinic to expedite the navigation process for patients seen in the clinic.

Patients who did not complete a visit with a patient navigator were not eligible for further services. Patients did not complete this visit for a number of reasons, including being unable or unwilling to share financial data, having an income above the eligibility threshold, relocation out of the area, or obtaining some form of health insurance. Referrals to other resources were provided for these individuals.

Case Management Services

HealthNet Clinic patients with chronic illnesses who are enrolled in CFHN are automatically referred to 1 of 3 case managers who provide telephonic case management and conduct home visits when necessary. The registered nurse case management component of the CFHN program is based on the success of the nationally recognized Community Care of North Carolina model.

The case managers, located at the CFHN administrative office or other partner locations, also utilize agency and community resources to assist clients with obtaining supplies and durable medical equipment. For example, diabetic supplies purchased by CFHN are supplied by the case managers to diabetic patients enrolled in the network. In one case, a patient with asthma had been to the emergency department more than 30 times in the preceding year. The case manager was able to supply the patient with a nebulizer machine and
provided teaching, which decreased the patient’s emergency department utilization to only 1–3 visits per year.

**Results**

The following sections present patient demographic characteristics, health conditions, and clinic utilization patterns in order to provide a snapshot of the patients seen at the clinic. Comparisons to county demographic profiles are provided when applicable.

**Clients Seen Through the Clinic and Enrolled in CFHN**

Of the unduplicated clients seen in the clinic over the course of the 2-year study period, 62% (n=638) of the clinic patients (n=1,030) were enrolled in CFHN (See Figure 2). In comparison, CFHN saw 4,439 people who did not visit the HealthNet Clinic. Only 27.30% of this group met the criteria and completed the process for enrollment into CFHN. Therefore HealthNet Clinic patients were more than twice as likely to be enrolled in the network as individuals who accessed CFHN through other avenues. As a result of co-location of the patient navigator at the clinic site, the percentage of patients (based on monthly unduplicated clinic visits and number of unduplicated clients enrolled) who were seen in the clinic and enrolled in CFHN rose from an average of 56.8% prior to co-location of the patient navigator (for the period August 2010 through January 2012) to 70.1% (for the period February 2012 through July 2012).

A total of 1,030 patients were seen at the clinic during the study period. Approximately 40% (n=433) of these patients were seen more than once while awaiting eligibility determination and referral to a medical home through a partner agency. Second appointments were sometimes scheduled to discuss laboratory or diagnostic test results and to follow up on immediate health care needs.
**Patient Demographic Characteristics**

The mean age of patients seen in the clinic was 44.5 years (range, 19–75 years). Of the patients seen in the clinic for whom ethnicity data were captured (n=989), 50.8% (n=523) were white, 28.3% (n=291) were African American, 11.8% (n=122) were Latino, and approximately 9% were other ethnicities or ethnicity was unknown. Compared to population estimates for the 4-county catchment area, clinic patients were more likely to be people of color. Table 1 provides a breakdown of patient demographic information in comparison to county demographic data estimates [6].

Only 30.9% (n=318) of patients seen in the clinic during the study period reported being employed. Of the clients seen in the clinic, 6.5% (n=67) reported being homeless; most reported living on their own or sharing housing with friends or family. Data on specific income ranges for clinic patients were not available; however, the average income of patients in the entire CFHN system was approximately 53% of federal poverty guidelines, on average. Despite meeting Medicaid income eligibility requirements, most of these patients did not meet the categorical requirements for Medicaid. In fact, under current state eligibility requirements, only 2.1% (n=22) of clients seen in the clinic were determined to be eligible for and were subsequently enrolled in Medicaid.

**Chronic Health Conditions Among Clinic Patients**

Most of the patients seen in the clinic had chronic medical conditions, such as hypertension (43.3%; n=446) or diabetes (14.5%; n=149), and most of these conditions were poorly managed. More than half (64.9%; n=95) of patients with diabetes also had hypertension. The percentage of clinic patients with diabetes (14.5%) was higher than population estimates for the state (10%) and higher than population estimates for each of the counties served by the clinic, which range from 10% for Brunswick County to 12% for Pender and Columbus counties [7].

Among patients with diagnosed diabetes mellitus, the mean hemoglobin A1c level was 9.0 (range, 5.4–16.1). Patient blood pressures (at the time of the initial visit) ranged from 80/54 mmHg to 240/140 mmHg. Using the National Heart, Lung, and Blood Institute guidelines, 18.8% of the patients seen in the clinic were overweight (body mass index [BMI] of 25.0–29.9) and 35.1% were obese (BMI above 30.0). For clients for whom BMI was captured (n=726), the mean BMI was 30.1 (range, 16.5–66.4). Weights of patients seen in the clinic ranged from 88 lbs to more than 414 lbs. Four patients weighed more than 400 pounds and were too heavy to be weighed by the clinic scales; their weights were estimated. As with diabetes, the percentage of clinic patients who were obese was higher than county population demographic estimates [7].

Almost 1 in 5 (18.3%; n=189) patients had a mental health diagnosis. This figure is consistent with estimates of mental illness among the general population [8]. The percentage of clinic patients with mental illness who smoked (49%) was higher than either national estimates of people with mental illness who smoke cigarettes (36%) or estimates of smoking among adults without mental illness (21%) [8].
rates of smoking among clinic patients were also higher than county estimates for the general population, according to data from County Health Ranking & Roadmaps [7].

**Other Health Conditions**

Other chronic health conditions seen among clinic patients included hypercholesterolemia (14.9%; n=153), arthritis or chronic pain (9.8%; n=101) and headaches (3.8%; n=39). Hypothyroidism was present in 4.3% (n=44) of patients, with 89% of these patients being female. A small percentage (4.8%; n=49) of clinic patients were diagnosed with asthma, and 2.1% (n=22) had chronic obstructive pulmonary disease. A small percentage of clinic patients had a diagnosed seizure disorder (2.1%; n=22), hepatitis C virus infection (2.5%; n=26), or anemia (2.4%; n=25).

**Monthly Clinic Utilization Patterns**

During the study period, monthly visits ranged from 12 total completed visits in August 2010 to 90 visits in March 2011. The number of patients seen per month was influenced by seasonal trends, school holidays, and staffing. Initially, the clinic was only open for 16 hours per week, but it expanded to being open 36 hours per week. Utilization of clinic services dipped following relocation of the clinic to a central site but has since risen as awareness of the clinic among providers and consumers has grown (See Figure 3). The rate of no-shows averaged about 13.44% over the course of the study period, although the clinic experienced a spike in no-shows at the end of the study period. No-show rates ranged from 0% during the first month of operation (August 2010) to as high as 23.68% in June 2012. While the clinic’s provider could have seen more patients on any given day, the clinic’s capacity was limited by other staffing levels, especially related to administrative needs.

**Patient Referrals From the Clinic**

Patients who completed the patient navigation visit (n=638) were referred to primary care providers in partner agencies or to other private practice providers who volunteered for CFHN. When eligible, clients were referred to the Veterans Affairs clinic. See Figure 2 for referrals to primary care providers. New Hanover Regional Medical Center (NHRMC) agreed to perform any laboratory testing and diagnostic studies free of charge for patients seen through

| Race/ethnicity | Brunswick | Columbus | New Hanover | Pender | HealthNet Clinic |
|----------------|-----------|-----------|-------------|--------|-----------------|
| White          | 83%       | 61.5%     | 79.1%       | 76.1%  | 50.8%           |
| African American | 11.4%     | 30.5%     | 14.8%       | 17.8%  | 28.3%           |
| Latino         | 5.2%      | 4.4%      | 5.3%        | 6.1%   | 6.4%            |

Source: US Census Bureau [6].

![Figure 3: Monthly Clinic Utilization Patterns](image)

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**TABLE 1. Race/Ethnicity of Clinic Patients Compared to County Demographic Characteristics**

| Race/ethnicity | Brunswick | Columbus | New Hanover | Pender | HealthNet Clinic |
|----------------|-----------|-----------|-------------|--------|-----------------|
| White          | 83%       | 61.5%     | 79.1%       | 76.1%  | 50.8%           |
| African American | 11.4%     | 30.5%     | 14.8%       | 17.8%  | 28.3%           |
| Latino         | 5.2%      | 4.4%      | 5.3%        | 6.1%   | 6.4%            |

Source: US Census Bureau [6].
the HealthNet Clinic who also met their requirements for charity care. Almost half of patients (43.7%) required some type of laboratory or diagnostic service.

All specialty referrals were coordinated through a central referral coordinator who rotates referrals equitably among participating providers. Less than 10% (9.1%; n=115) of clinic patients received a referral to a specialty provider; otorhinolaryngology was the most frequent specialty referral, followed by orthopedic and general surgery, cardiology, and gastroenterology (See Table 2).

| Types of specialty referrals provided | No. (%) |
|--------------------------------------|---------|
| Otorhinolaryngology                  | 19 (16.52%) |
| Cardiology                           | 11 (9.57%) |
| Gastroenterology                     | 7 (6.09%) |
| Dermatology                          | 2 (1.74%) |
| Endocrinology                        | 1 (0.87%) |

Hospital and Emergency Department Referrals

Of the patients seen in the clinic over the 2-year period, only 3 (0.3%) patients were admitted directly to the hospital for life-threatening conditions, and only 4 (0.4%) patients were sent directly to the emergency department for urgent attention. As with referrals to specialists, there was consistent dialogue and sharing of information between the HealthNet Clinic physician, hospitalists, emergency department physicians, and hospital case managers when patients were referred either to the emergency department or to the HealthNet Clinic.

Limitations

There are limitations to the current study. The sample size is relatively small, and data may be biased towards people with chronic medical conditions, since uninsured healthy persons may be less likely to request an appointment. Patient characteristics cannot be generalized to all uninsured individuals in the region, as there are other safety-net providers in these 4 counties, and their clinical data were not included in this analysis. The clinic sees a higher percentage of people of color than the general population, which is not surprising given that lack of insurance tends to be more common in this group [9]. Latinos may also be over-represented when compared to the overall population of the county. The over-representation of Latinos is consistent with findings from a previous study conducted in North Carolina [10] that examined the use of safety-net providers in the western region of the state. Furthermore, this study does not provide any indications of how the clinic, registered nurse case management, and CFHN impact long-term patient health outcomes. Finally, we cannot prove any association between use of these services and utilization patterns at urgent care clinics or emergency departments in the area.

Discussion

In this paper, we seek to describe the impetus, design, and operational model of the CFHN collaborative and the HealthNet Clinic. This collaborative has enhanced coordination of the delivery of care to uninsured individuals in the Lower Cape Fear region. CFHN provides several valuable services to uninsured patients with chronic conditions: it serves as an entry point to get these individuals into the referral network and place them in a medical home within the local safety net; it provides an option (other than the emergency department) to address the needs of uninsured individuals with chronic diseases; it provides registered nurse case managers who can assist with teaching, medication adherence, and other patient needs; and it provides affordable pharmacy options. We surmise that the ease of accessing urgent care through the clinic closely aligns with the behaviors of individuals who may only seek care on an as-needed basis.

We found that the number of eligible patients increased as the number of patient encounters in the clinic increased, but we also believe it is extremely beneficial to have enrollment services provided through a patient navigator who is co-located at the clinic. Nevertheless, many patients fail to bring the paperwork required for the patient navigation visit, and some patients do not meet eligibility requirements.

Our data suggest that HealthNet Clinic patients have a higher percentage of chronic diseases and lifestyle determinants of chronic diseases, such as obesity and smoking, than county population estimates. Although we did not estimate cost of care, our findings are similar to that of another study that concluded that uninsured adults in Buncombe County are likely to have somewhat more costly health problems compared to adults without disabilities who are currently enrolled in Medicaid [10].

Conclusion

This collaborative model is successful in directing patients to a medical home in the community safety net. Close collaboration with hospital systems and other community health care providers is paramount to help promote coordination of care, especially as resources for the safety net remain limited. It is worth noting that many of these patients would have been eligible for Medicaid coverage if North Carolina had expanded Medicaid under the Patient Protection and Affordable Care Act of 2010, as this would have eased categorical requirements for Medicaid eligibility.

The HealthNet Clinic model continues to evolve. The CFHN structure has changed to meet the evolving needs of the health care system under the Affordable Care Act and funder requests to further align services. In July 2013, the HealthNet Clinic merged with the Cape Fear Clinic and relocated to the Cape Fear Clinic Medical Building. The rationale behind the merger, which was fully supported by both agencies’ boards of directors, is that this would minimize...
expenses and streamline the clinics’ administrative burden. Cape Fear Clinic now only accepts HealthNet Clinic patients as new primary care patients. CFHN now employs an Affordable Care Act patient navigator, 3 enrollment eligibility specialists (previously called patient navigators), an executive director, an administrative assistant, and a temporary worker. The registered nurse case managers are now employed by Community Care of the Lower Cape Fear.

Having this kind of clinic in place in the safety-net community can help increase access to care on an episodic basis. However, broader community prevention efforts are also needed to help modify social determinants that may negatively influence health among low-income, uninsured individuals. Our hope is that the findings from this study can inform community collaborative efforts and planning by other safety-net providers to help leverage limited resources and increase access to care among uninsured individuals in North Carolina. NCMJ

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