Collaborative Models of Primary Care: Case Studies in Colorado Innovation

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Introduction

As an extension of work completed for the Collaborative Scopes of Care Study,[1] the Colorado Health Institute (CHI) conducted a scan of various primary care clinics that utilize interdisciplinary collaborative models for the provision of primary care. Interviews were conducted with staff of select clinics that employ or are run by physician assistants (PAs), nurse practitioners (NPs) or certified nurse midwives (CNMs). For the purposes of this study, these advanced practice clinicians are identified as *non-physician primary care clinicians (NPCC).*

WHO ARE NPCCS?

Non-physician primary care clinicians are primary care providers with advanced degrees who have been trained and licensed to provide many of the primary care functions historically provided exclusively by physicians. To put their practice in perspective, approximately 36 percent of physicians practicing in rural Colorado reported working with at least one NPCC in a 2009 Rural Physician Workforce Survey recently conducted by CHI.[2]

WHAT IS PRIMARY CARE?

Although there are many definitions of primary care, CHI has chosen to use two provided in the previously published Collaborative Scopes of Care report:

> *Basic physical, oral and mental health care provided by physicians and other health care professionals such as advanced practice nurses, physician assistants, certified nurse-midwives, dentists and dental hygienists who are licensed to provide preventive, early intervention and continuous health care services. Primary health care is ongoing and can involve the establishment of a medical home for individuals at all stages of the life course from pregnancy and childbirth through old age.*

The Collaborative Scopes of Care study further defined primary care to be:

> *…the provision of integrated, accessible health care services by clinicians trained to address a large majority of personal health care needs.* [3,4] *Primary health care emphasizes health education, prevention and wellness, as well as screening for the early detection of disease.*[5] *Sustained relationships between patients and clinicians are an important component of primary health care.*[6] *Bio-psychosocial models of primary health care stress patient-centeredness, interdisciplinary teams and a holistic approach to health.*[7]

CLINICS INCLUDED IN THE SCAN

Clinics included in the scan are representative of different collaborative practice relationships as well as representing the geographic diversity of the state. Three interviews were conducted at each of the 13 clinics agreeing to participate in the study: the clinic director, clinical manager or medical director and an NPCC. CHI chose to focus on six of the 13 clinics determining that they represent the range of innovative approaches to delivery primary care in Colorado's underserved communities. (A complementary report completed for the Colorado Association of School-based Health Centers goes into greater depth on the practice characteristics of NPCCs practicing in a school-based health center. The report can be found at www.CASBHC.org). Table 1 presents a set of basic characteristics of participating clinics, and Map 1 displays their geographic location.

Table 1. Participating clinics by organizational auspice, 2009

Clinic	For-profit/ nonprofit	Type of clinic	Year established
Certified Nurse-Midwives at St. Anthony Central*	Nonprofit	Hospital-based clinic	2008
Mesa Midwives	For-profit	Private, freestanding	1983
Centennial Family Health Center*	For-profit	Rural Health Clinic, privately owned	1983
Clínica Tepeyac*	Nonprofit	Community-based clinic	1995
Doctors Care*	Nonprofit	Community-based clinic	1988
Summit Community Care*	Nonprofit	Community-based clinic on hospital campus	1993
Metro Community Provider Network*	Nonprofit	Federally Qualified Health Center	1989
Rio Grande Hospital Clinic	Nonprofit	Rural Health Clinic	2008
Surface Creek Family Practice	For-profit	Rural Health Clinic	1977
Mission Medical	Nonprofit	Faith-based, community-based clinic	2004
Community Health Services	Nonprofit	School-Based Health Center (SBHC)	1978
Denver Health's School-based Health Center (SBHC)	Nonprofit	SBHC	1987
Durango High School SBHC	Nonprofit	SBHC	2007

* Clinics included in the case studies.

Map 1. Geographic location of Colorado clinics participating in NPCC Scan

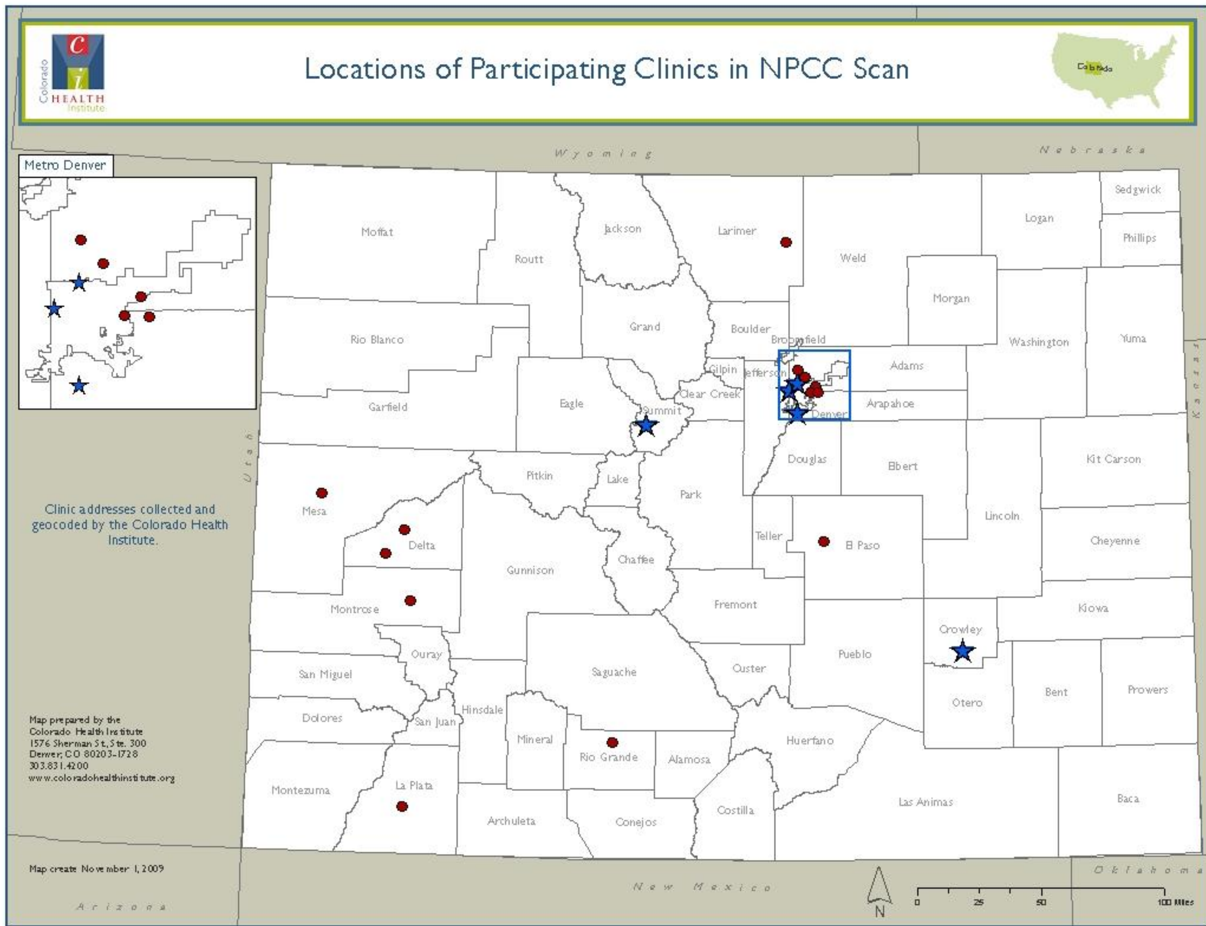

Table 2 displays the payer mix of each clinic's patients. As can be seen, the clinics serve predominately underserved, uninsured and publicly insured patient populations.

Table 2. Patient population by payer source, 2008

Clinic	Medicare	Medicaid	Uninsured
Certified Nurse-Midwives at St. Anthony Central	0%	70%	5%
Mesa Midwives*	0%	60%	5%
Centennial Family Health Center	40%	30%	**
Clínica Tepeyac	0%	0%	100%
Doctors Care	0%	55%	45%
Summit Community Care	0%	0%	100%
Metro Community Provider Network	3%	30%	60%
Rio Grande Hospital Clinic	31%	21%	11%
Surface Creek Family Practice	26%	14%	12%
Mission Medical	0%	0%	100%
Community Health Services	0%	59%	19%
Denver Health's School-based Health Center (SBHC)***	0%	40%	50%
Durango High School SBHC ****	0%	12%	16%

* Mesa Midwives data are estimates as the clinic does not track these statistics.
** Clinic does not track number of uninsured.
*** School-based health centers (SBHCs) serve school-aged children and generally are coordinated by a school nurse who triages students to the SBHC as appropriate.
**** Figures for Durango High School SBHC are based on unduplicated students, scheduled visits only. Clinic does not bill; data are missing for about 24% of student users.

Models of collaborative team-based primary care

Information from all participating clinics illuminates the summary of findings presented at the end of this report. Six of the 13 clinics included in the scan were selected to be described in greater detail in a case study format to illustrate the range of ways that clinics use NPCCs in collaborating interdisciplinary teams. Responses from all interviews are summarized in the final section of this report to highlight similarities, differences and shared challenges and to discuss the replicability of models for other Colorado communities.

The case studies provide examples of collaborative team-based primary care that have been successful in the communities in which they are located. However, it should be noted that local social and political culture, workforce constraints and resource capacity are unique to each of the communities examined. Therefore, aligning these best practices with local circumstances should be a key component undergirding communities interested in replicating a model that has been successful elsewhere.

Case study 1: Clinica Tepeyac

Clínica Tepeyac – Denver, CO	
Clinic type	Community-based nonprofit
Clinical orientation	Primary care for largely Hispanic families
Provider mix	MD, PA, NP, CNM
Location/service area	Metro Denver Area (parts of 7 counties, excluding Denver)
Payer mix	100% low-income uninsured. The clinic likely will accept Medicaid in the future for children currently covered or who transition to coverage as a result of Medicaid expansions if their parents are patients at the clinic.
Revenue sources	Private foundations (45%) Patient fees, governmental sources such as Ryan White grants, the Primary Care Fund or state health department categorical funds (35%) Contributions and donations (20%)
Unique features	Community-based clinic, affiliate of ClinicNET, a nonprofit membership organization of community-based clinics; reliance on promotoras (lay health workers) who provide outreach to the community and patient education.

Background

Clínica Tepeyac was opened in 1995 by members of Our Lady of Guadalupe Church to meet the needs of uninsured patients in the neighborhood. Since its opening, Clínica Tepeyac has expanded its reach to parts of each county in the Denver metropolitan area. Most of Clínica Tepeyac's revenue comes from private foundations (45%) and contributions and donations (20%). The remaining 35 percent of revenue comes from patient fees and governmental sources such as Ryan White grants, the Primary Care Fund established by Amendment 35 or women's wellness program funds provided by the state health department.

Interdisciplinary collaborative care model

Clínica Tepeyac's staff of 21 includes 12 clinical personnel—one physician who serves as medical director and who is on site four days a week, two PAs who work under written protocols with the supervising physician, two certified nurse midwives contracted from Exempla St. Joseph Hospital, one master's-prepared mental health clinician and six medical assistants. Approximately 16 volunteer clinicians, including mental health providers and three pediatricians, donate their time to see patients at the clinic. Many medical residents, PAs in training and medical assistants in training also volunteer their time at the clinic.

Effective communication between providers with regard to roles and responsibilities was reported to be key to effective team functioning. Ensuring volunteer physicians are "on the same page as the medical director" imposes an added dimension to collaboration that requires clear and ongoing channels of communication. Volunteer physicians have varying individual practice styles that may or may not be consistent with the practice patterns established at the clinic. The medical director works with all providers to coordinate how services are provided.

For example, some volunteer physicians are more inclined than Clinica Tepeyac salaried staff to order expensive tests. These tests can add considerably to the cost of care. Because Clínica Tepeyac operates on a very tight margin and serves such large numbers of uninsured patients, the use of expensive diagnostic tests is closely monitored and such tests are used only in cases where the current best evidence suggests they have benefit. Fostering a trusting and mutually respectful relationship between the medical director and other providers was said to be a necessary ingredient for an interdisciplinary team to function effectively.

Team orientation and NPCC roles

Clínica Tepeyac's care team includes a physician medical director who serves as the team leader for all the clinical staff, as well as the physicians that volunteer their time, medical residents, and mental health clinicians who volunteer at the clinic. The NPs, CNMs and PAs practice independently within their scopes of practice, making decisions regarding treatments, referrals and scheduling follow-up visits for patients. However, the medical director is the ultimate arbiter of treatment decisions, particularly in cases where a NP, PA or CNM bumps up against the top of his/her scope of practice as defined in licensure or certification.

Patient population and care model

Clínica Tepeyac's service area covers seven counties in the Denver metro area. A significant number of the clinic's patients live in Aurora, and most are Hispanic. Presently, all of Clinica Tepeyac's patients are uninsured. The clinic is increasing its efforts to see both children and their parents to ensure that it serves as a medical home for the whole family. As a result, children covered by Medicaid may receive care at the clinic in the future if their parents are patients as well.

The clinic provides primary health care including preventive services and patient education designed to promote healthy lifestyles and healthy families. Because patients often face barriers in securing chronic care management elsewhere, particularly with private practice specialists, the clinic provides chronic disease management services such as matching patients with volunteer certified diabetes educators who teach them how to control their diabetes.

Lay health workers ("promotoras") develop connections between the clinic and the community and provide community education on diverse topics including breast cancer awareness and self-exams, diabetes and depression awareness (recognizing symptoms and warning signs) and the proper use of child car seats. Promotoras may intervene on behalf of patients with urgent care needs and also follow up with some patients after their scheduled appointment to Clìnica Tepeyac to ensure that the appointment was kept. In addition, a patient navigator on staff at the clinic helps patients manage their care and helps guide them through the health care system.

Outside collaboration and referral mechanisms

Like many other primary care safety net clinics, Clínica Tepeyac collaborates extensively with other medical and non-medical providers in the community, especially for specialty care. The medical director maintains relationships with an extensive list of specialists and other primary care resources who have agreed to see Clínica Tepeyac's patients. The clinic's patient navigator also coordinates many of these

referrals. In cases where it is necessary, clinic staff will follow patients through a specialty care appointment with particular doctors and hospitals that have established relationships with the clinic. Some referral relationships are formal and contractual, while others are more informal and on an as-needed basis. Collaborative referrals with oral and behavioral health providers are an ongoing challenge due to the limited resources available for medically indigent, uninsured patients. Clìnica Tepeyac has been able to refer children to a Ronald McDonald Foundation dental van for exams and cleanings and provide adults with a list of dental providers from whom they may attempt to secure an appointment.

CASE STUDY 2: SUMMIT COMMUNITY CARE

Summit Community Care Clinic – Frisco, CO	
Clinic type	Community-based nonprofit
Clinical orientation	Primary care that integrates systemic, oral and behavioral health care through the co-location of clinical providers in the same facility
Provider mix	MD, PA, NP, DDS, DH and behavioral health specialists
Location/service area	Rural/mountain/resort community (Summit and neighboring counties)
Payer mix	Uninsured, sliding-fee schedule
Revenue sources	State and local government grants (44%) Patient fees (25%) Foundation grants (14%) Donations (8%) Federal government (5%) Other (4%)
Unique features	"Warm referral" system in which clinicians from different disciplines are invited into the exam room as necessary during a patient visit; located on a hospital campus; integration of primary systemic, behavioral and oral health care.

Background

Summit Community Care was established in 1993 as a one-night-a-week walk-in clinic designed to provide uninsured, low-income residents with limited primary health care. Originally managed by the county health department and staffed entirely by volunteers, the clinic now offers primary, preventive, behavioral and oral health care each weekday to the uninsured in Summit and neighboring counties. In 2004, the clinic received 501(c)3 status and two years later moved into a medical office building next to the hospital in Frisco.

The majority of the clinic's revenue comes from state and local government grants (44%) and patient fees (25%). Overhead expenses are lower than in many other clinics because the clinic space is provided through an in-kind donation from the county.

Interdisciplinary collaborative care model

The Summit Community Care clinic is staffed by 11 salaried clinicians. The non-physician clinical staff includes two full-time equivalent (FTE) PAs and one NP. A fulltime physician serves as medical director and "team leader." The clinic staff also includes one FTE dentist as well as several volunteer specialist

dentists, two fulltime dental assistants, one fulltime dental hygienist (DH) and three part-time behavioral health therapists.

Patients may see several clinicians from different disciplines at a single patient visit depending on the nature of their health care needs at the time of the visit. Collaborating clinicians often contribute jointly to a patient's care plan. This interdisciplinary model is facilitated by the clinic's "warm referral" system in which clinicians and their patients have immediate access to other providers at the clinic to discuss symptoms and treatment options when a patient's needs cross disciplinary boundaries, such as oral and physical health. This cross-disciplinary consultation usually occurs between the clinic's primary health care providers (physicians, NPs and PAs) and behavioral health specialists or oral care providers, but NPs and PAs also can interrupt the medical director for a needed consult. This model provides real-time access to the range of primary care professionals and thereby supports all providers in the management of more complex patients. The "warm referral" system also provides for teachable moments between the various disciplines.

The "warm referral" system is respected by the staff, although patient scheduling can be challenging as a result. Because there are more NPCCs than physicians, and more primary health care clinicians than behavioral or dental providers, an imbalance in the available supply of clinicians at any one time presents a special challenge. The clinic has built overflow slots into its scheduling to provide time for prolonged patient visits and, if time allows, for walk-in patients. Two patients per provider are scheduled for the beginning of the same time slot since many patients are late for their appointments. This system has worked well at accommodating patients arriving late to maintain an optimum patient flow.

Team orientation and NPCC roles

Summit Community Care Clinic's primary care team is led by a physician medical director that has ultimate responsibility for establishing practice guidelines and the clinic's quality assurance program. NPCCs function autonomously within the scope of their practice and consult with other providers as needed. A quality assurance committee sets care standards and clinical guidelines based on published national standards that are used by all providers. NPCCs are responsible for diagnosis and treatment decisions for their patients, complying with established guidelines unless a patient presents a complex set of symptoms that warrants a physician consultation.

Summit Community Care's model is unique among the case studies discussed here in that systemic, behavioral and oral health care are all provided at one physical location. The resulting collaborative model of care emphasizes the importance of clear communication channels in order to maximize the effectiveness of the cross-disciplinary team.

Patient population and care model

Summit Community Care sees only uninsured patients that are at or below 250 percent of the federal poverty level (FPL) with the exception of some dental and reproductive health patients that are seasonally employed as hospitality or construction workers. Thirty-five percent of Summit's patient population is at or below 100 percent of FPL ($22,050 for a family of four in 2009) and 44 percent is Hispanic. Patients are scheduled with the clinician available on the day of their appointment unless they request an appointment with a specific provider.

Because they are chronically uninsured, many patients require complex treatment plans as they have forgone preventive health care and wait until their symptoms have progressed. The treatment of patients with chronic illnesses is standardized through the use of clinical guidelines placed at the front of a patient's chart. In addition, the clinic offers group diabetes appointments in English and Spanish as well as other chronic disease management classes. For patients with multiple chronic conditions, the clinic offers a weekly two-hour drop-in meeting where patients meet briefly with the medical director to have questions answered or in a group meeting with a behavioral health specialist. A health educator on staff meets with patients individually and helps them set and track realistic goals for improving their health including such goals as improving nutritional intake and establishing an exercise regimen.

Outside collaboration and referral mechanisms

Summit Community Care is located in the same office complex as the county public health department, Colorado West Mental Health Clinic and a dental suite. In addition, St. Anthony Summit Medical Center shares the same campus. This "neighborhood" of health care providers facilitates collaboration and reinforces systemic, oral and mental health care referrals.

While Summit Community Clinic has mental health providers on staff, the presence of Colorado West Mental Health across the hall facilitates patient referrals immediately when a patient falls outside the scope of competency of the clinic's mental health staff. In return, Colorado West is able to refer its patients to Summit Community Clinic for primary care. Staff from both clinics meets once a month to review patients and to re-visit practice guidelines. When a patient is referred to an outside specialist, a nurse manages the follow-up care, ensuring that patients keep their appointments and record specialist notes into the patients' medical records.

St. Anthony Summit Medical Center supports the clinic by offering a number of free laboratory tests, discounted x-rays and charitable write-offs for hospitalizations of medically indigent patients. Hospital leadership understands the important role the clinic plays in lessening the demands placed on the emergency department.

Integration of oral and mental health care

Summit Community Care counts itself among a relatively small number of safety net clinics with fully integrated oral health care on site. Its dental suite was established through a grant from Caring for Colorado Foundation. By collaborating with oral health providers, primary health care providers have become more aware of the relationship between systemic and oral health, using the "warm referral" system to cross-refer patients immediately as necessary. The dental clinic reserves morning scheduling slots for these referrals or for walk-in patients and afternoons for scheduled visits. One FTE dentist and one FTE dental hygienist work with a team of volunteer dental specialists and dental assistants.

CASE STUDY 3: ST. ANTHONY'S CERTIFIED NURSE MIDWIFE PRACTICE

Certified Nurse Midwife Practice at St. Anthony Central Hospital – Denver, CO	
Clinic type	Nonprofit
Clinical orientation	Women's health and maternity care

Certified Nurse Midwife Practice at St. Anthony Central Hospital – Denver, CO	
Provider mix	CNMs and consulting physicians
Location/service area	Urban, Denver metro area
Payer mix	Medicaid (70%) Private insurance (20%) Child Health Plan Plus (5%) Uninsured (5%)
Revenue sources	Hospital foundation funding Patient fees
Unique features	CNM practice—employed and salaried by hospital, yet a separate and distinct clinic within the hospital; clinic receives funds from the hospital's foundation; CNMs credentialed as full medical staff at hospital; direct reimbursement to CNMs same as physicians as permitted by Colorado law; CNMs have access to the hospital's billing and credentialing infrastructure.

Background

St. Anthony's Hospital established the Certified Nurse Midwife (CNM) Clinic at St. Anthony Central in response to an identified gap in coverage for maternity care after the family practice residency program was consolidated at St. Anthony's North. While the service area is not explicitly defined, a majority of maternity patients come from the area surrounding the hospital or are referred by community organizations such as the Tri-County Health Department, Clínica Tepeyac and the Nurse Family Partnership Program.

Interdisciplinary collaborative care model

The clinic is exclusively staffed by certified nurse midwives (CNMs); currently there are four fulltime and two part-time CNMs. Each CNM is a licensed independent practitioner within the hospital system and is wholly responsible for patient care. CNMs manage patients within their scope of practice utilizing agreed-upon guidelines that ensure uniform, evidence-based standards of care and safety. Physicians are available for consultation as needed and complex patients whose medical needs fall outside a CNM's scope of practice are referred to a physician for management as needed.

Team orientation and NPCC roles

A CNM serves as the team leader and clinical director. The day-to-day operations of the clinic as well as the establishment and review of clinic guidelines and other aspects of the clinic are the responsibility of the team of CNMs on staff. While physicians are available for consultation as mentioned previously, they do not take part in the management or patient care decisions for the clinic.

Patient population and care model

Seventy percent of the clinic's patients are Medicaid enrollees. An additional 20 percent have private insurance coverage, 5 percent are Child Health Plan Plus (CHP+) enrollees and the remaining 5 percent are uninsured.

The certified nurse midwife practice at St. Anthony's provides prenatal primary care services for pregnant women. To address the needs of pregnant teens in the community, the clinic's "Bloom" program offers after-school appointments for individual prenatal care appointments that are integrated with a *Centering Pregnancy* ™ group care model. The Bloom program maintains relationships with community organizations such as the Nurse Family Partnership and the Fatherhood Support Initiative.

Patients are not assigned to one particular CNM but rather are seen by the CNM working the day of a woman's appointment. This approach is most practical since all CNMs are on call to attend births and therefore may be periodically unavailable to patients as a result. For women with chronic health conditions such as mild hypertension and thyroid deficiencies, a consultation with a physician often is sought to determine an appropriate treatment plan. Higher-risk women with more complex chronic conditions such as diabetes may be transferred to the care of an OB/GYN. The CNMs employed at the clinic have many years of clinical experience and well-established working relationships with their collaborating physicians, making consultations much more seamless than is the case in other primary care settings.

Outside collaboration and referral mechanisms

Because of the practice's unique position as a distinct part of St. Anthony Central Hospital, many referrals for services related to the prenatal care provided in the clinic are handled within St. Anthony's clinical system. Collaboration with and referrals to mental health providers, however, present a special challenge, in part because it is not uncommon for mental health issues to surface in the prenatal period for many of the clinic's patients. Whereas previously the clinic had funding for an on-site licensed clinical social worker, now it relies solely on referrals to a local community mental health center. This lack of an in-house mental health specialist was reported to have a negative impact on the continuity of care for some of the clinic's patients.

CASE STUDY 4: CENTENNIAL FAMILY HEALTH CENTER

Centennial Family Health Center – Ordway, CO	
Clinic type	Private rural health clinic
Clinical orientation	Primary care
Provider mix	NP, collaborating MD
Location/service area	Rural—Ordway, CO
Payer mix	Medicare (33%) Medicaid (30%) Uninsured (20%) Privately insured (9%) Workman's compensation (8%)
Revenue sources	Patient out-of-pocket fees Private and public insurance Occasional grant funding
Unique features	NP-owned and operated; one of very few providers in the area; large number of Medicare beneficiaries; only workman's compensation clinic in the area.

Background

Established in 1977 as a federally designated rural health clinic (RHC), Centennial Family Health Center now serves a 60-mile radius around Ordway in Crowley County. The clinic originally was owned by a physician from whom it was purchased by the NP who now manages the practice. The majority of the clinic's revenue comes from patient fees and insurance. The clinic has received limited grant funding in the past but does not receive government funding due to its status as a private LLC.

Interdisciplinary collaborative care model

Centennial Family Health Care is owned and operated by a nurse practitioner. The clinic can be characterized as a family practice clinic, with the NP operating within the scope of practice of her training and license as an advanced practice nurse. A physician has a collaborative relationship with the NP and is available on site one-half day every two weeks. Although the NP functions independently, she relies on an extensive network of health care providers in the communities surrounding Ordway for patient referrals as needed. As a result, interdisciplinary collaboration takes place within the context of the larger community of providers rather than within the walls of the clinic.

Team orientation and NPCC roles

Centennial Family Health Center's nurse practitioner is the medical director of the clinic and assumes responsibility for all aspects of patient care that fall within her scope of practice. As previously mentioned, a collaborating physician is available for consultation which is a requirement for maintaining Centennial's status as a federally recognized RHC for Medicare and Medicaid reimbursement purposes. The collaborative model practiced in Ordway is organized around the clinic's referral network of generalist and specialist physicians as is the case for physicians that practice in a traditional family practice model of primary care. The medical home model being implemented throughout Colorado and across the country is predicated on these multi-disciplinary and cross-disciplinary collaborations with

patients at the center of a "neighborhood" of clinicians that commit to addressing the systemic, oral, mental health and social concerns of their patients.

Patient population and care model

Because it is the only primary care clinic in Crowley County, Centennial Health Center has patients with wide-ranging health care needs. When community health centers in neighboring communities have waiting lists, they refer patients to Centennial. Almost 40 percent of Centennial's patients are Medicare beneficiaries, 30 percent are Medicaid enrollees and the remaining 30 percent are privately insured, uninsured or receiving workman's compensation benefits.

Centennial operates in a similar fashion to an independent primary care physician practice. Its main focus is primary care, including health promotion and disease prevention and, as a result, the clinic emphasizes patient education and chronic care management. The clinic's high volume of older adults necessitates special attention to chronic care management for conditions such as hypertension, high cholesterol and diabetes which are managed through regular primary care visits which are monitored by periodic specialist visits.

Outside collaboration and referral mechanisms

Centennial Health Center maintains an extensive referral network for patients needing specialist care. The NP clinical director has hospital privileges at Arkansas Valley Regional Medical Center in La Junta which has served to increase her visibility in the community, including with area physicians. In addition to her physician referral network, she collaborates closely with another NP-owned clinic in neighboring Otero County. The two NPs alternate weekends on call and consult with each other regarding shared patients. Through this arrangement, patients have access to a primary care provider at all times.

Collaboration with dental providers was reported to be challenging, with adult Medicaid enrollees facing particularly restricted access. Crowley County has no practicing dentists and neighboring counties have lost dentists in recent years. To partially fill this gap, the NP at Centennial provides basic oral health exams for children and adults. Children's teeth are checked routinely for caries and adults are screened for oral diseases. All patients receive basic education about good oral health practices. To ensure patients have access to mental health care when needed, the clinic works closely with the Southeast Mental Health Center in La Junta.

CASE STUDY 5: DOCTORS CARE

Doctors Care – Littleton, CO	
Clinic type	Community-based nonprofit
Clinical orientation	Primary care
Provider mix	PA, with NP and MD volunteers
Location/service area	Urban/suburban—Littleton and surrounding areas
Payer mix	Medicaid/CHP+ (55%) Uninsured (45%)

Doctors Care – Littleton, CO	
Revenue sources	Private contributions Grants Government funding Patient fees on sliding schedule Medicaid/CHP+
Unique features	PA-managed clinic; availability of physician backup in adjacent family medicine residency program; insurance-like membership card used for referrals to a large (~800) network of generalist/specialist physicians who agree to see a set number of qualified patients; clinical guidelines established by PA in consultation with supervising physician; no paid physicians on staff.

Background

Doctors Care was established in 1988 to address the large number of uninsured patients who lacked access to health care in the south metro Denver area by establishing a network of volunteer doctors to see low-income, uninsured or underinsured patients at reduced cost. All 129 physicians in the Arapahoe, Douglas and Elbert Medical Society at the time agreed to participate in the network. In addition to this volunteer network, Doctors Care established the Doctors Care Kids' Clinic five years later to provide primary care for children ages 18 and younger. In 2005, the Kids' Clinic was renamed Doctors Care Clinic. Its eligible patient population was expanded to include patients up to 30 years of age to enable all members of young families to receive primary care at the clinic.

Doctors Care is a nonprofit clinic. The clinic's major sources of revenue in 2008 included Medicaid, which accounted for approximately one-third of its revenue, private contributions, grants and government funding amounting to almost three-quarters of a million dollars. Additionally, more than $6 million of volunteer time and pro bono services were contributed to the clinic. Sliding-fee schedule patient payments constitute a source of revenue for the clinic as well.

Interdisciplinary collaborative care model

Doctors Care uses a unique clinical staffing model that is best described as consisting of two distinct but interlinking models of care. One element of the model is the PA-managed primary care clinic for patients up to 30 years old with services provided by the PA and volunteer physicians. An off-site physician serves as medical director of the clinic but is not involved in its day-to-day operations. PAs and physicians who provide care at the clinic are supported by a chart review committee made up of PAs and volunteer physicians who practice at the clinic and a case management committee made up of staff and providers from the clinic and community.

The second element consists of a large volunteer network of more than 700 physicians and five hospitals, including their pharmacies and laboratory services. Doctors Care operates a membership program for low-income, uninsured patients who receive an insurance-like membership card. Patients use this card when receiving care from a volunteer physician who agrees to see a pre-determined number of qualified patients in his or her private practice. All physicians, including the off-site medical director, donate their time.

Although patients seen by members of the network may not receive care at the Doctors Care Clinic, the clinic nevertheless is considered the health home for all members. Doctors Care receives insurance-like reports from physicians in the network while clinic staff coordinates referrals, maintains patient records and generally acts as the main point of contact for qualified patients.

Maintaining a high-functioning team at Doctors Care is achieved in part by providing physical space for clinicians to meet and discuss treatment options for individual patients. Rather than individual offices, open space is provided where providers complete patient charting, consult with their peers and discuss clinical guidelines. It was noted that this open-space approach facilitates ongoing collaboration among the volunteer and staff clinicians.

Team orientation and NPCC roles

Currently, two staff PAs serve as co-clinical directors at the Doctors Care Clinic. An additional PA manages psychiatric prescriptions. As clinical directors, the PAs oversee the clinical guidelines established for the clinic, coordinate volunteers and manage the clinic's operations. The PAs manage the overall operations of the clinic with the supervising physician periodically reviewing patient charts. The PAs have access to physicians for consultation when needed. Volunteer physicians follow the clinical guidelines established by the PAs, an arrangement that was reported to require a period of adjustment for new physicians volunteering at the clinic.

Patient population and care model

Doctors Care Clinic serves children and young families who are uninsured or enrolled in Medicaid or the Child Health Plan Plus (CHP+) program. Patients over 30 who are uninsured must meet Doctors Care's eligibility guidelines to qualify for a Doctors Care card and be assigned to an off-site provider. In addition, patients must reside in Arapahoe (excluding Aurora), Douglas or Elbert counties.

In 2008, Doctors Care provided services to nearly 3,800 patients under the age of 30, including more than 2,000 new patients who accounted for approximately 7,100 visits. More than 500 adults received care through the Doctors Care physician network. The clinic maintains an asthma registry and providers monitor patients' chronic conditions when recommended by a specialist, but generally care is oriented toward prevention and treating acute health problems.

Outside collaboration and referral mechanisms

Due to its unique model of care, the Doctors Care clinic is able to refer patients to a large network of providers. For patients who do not qualify under Doctors Care income guidelines or who are covered by Medicaid and over the age of 30, referrals are challenging because area physicians are less likely to accept Medicaid adults into their practice.

Doctors Care maintains a close relationship with the Arapahoe, Douglas and Elbert Medical Society and area hospitals to ensure that new member physicians know of and are recruited to join the network. For adults who do not qualify for Doctors Care, clinic staff works closely with Metro Community Provider Network (MCPN), referring patients who would qualify under the guidelines for federally qualified health centers. In turn, Doctors Care assists MCPN patients in need of a specialty care referral.

Doctors Care does not offer comprehensive mental health coverage on site, although a PA with mental health training is available for consultation and to monitor patients on psychotropic medications. Patients in need of mental health services are referred to local community mental health centers. While some information and referral is provided to patients, Doctors Care does not coordinate care for non-medical social and behavioral health-related problems.

CASE STUDY 6: METRO COMMUNITY PROVIDER NETWORK

Metro Community Provider Network – Metro Denver , CO	
Clinic type	Nonprofit, federally qualified health center
Clinical orientation	Primary care
Provider mix	MD, PA, NP and others
Location/service area	Urban/suburban—Metro Denver
Payer mix	Uninsured (60%) Medicaid (30%) CHP+ (7%) Other (3%)
Revenue sources	Non-federal grants and contracts (42%) Insurance and patient fees (35%) Federal grants (23%)
Unique features	Federally qualified health center network; multiple staffing and collaborative care models; widespread use of NPCCs in numerous roles; collaboration among multiple clinical sites in addition to among multiple clinician types; clinical models include school-based health centers.

Background

The first Metro Community Provider Network (MCPN) clinical site opened in 1989 in Aurora, providing care to 800 patients in its first four months**.** Because MCPN is a federally qualified health center (FQHC), it receives annual grant funding from the federal government. MCPN describes its vision as becoming a network of providers committed to serving individuals who are poorly served by the "mainstream" health care system and are disenfranchised or medically indigent. Most of MCPN's revenue comes from grants and contracts while approximately one-third comes from patient fees and insurance.

Interdisciplinary collaborative care model

MCPN currently has 230 staff at 10 clinics and an administrative office; nearly half are clinicians. Among the clinicians are NPs, PAs and CNMs who provide a large amount of patient education in addition to clinical diagnostic and treatment services. In most cases, NPCCs care for patients independently within the scope of their practice. Patients requiring a physician consultation are co-managed through medical chart reviews since physicians are not always on site. Many providers work collaboratively within the organization in domains other than patient care. For example, when MCPN implemented its electronic medical record system, it was a PA who took the lead and trained other clinicians on how to use it.

Team orientation and NPCC roles

Because MCPN has a large network of clinicians and multiple clinic sites, each clinic organizes its health care team according to its unique patient populations. There is no uniform best practice collaborative model of care but rather NPCCs assume a wide variety of roles within the organization and function in a range of interdisciplinary team arrangements each tailored to the clinic's culture and patient care needs.

Patient population and care model

MCPN serves patients of all ages from Arapahoe, Jefferson, Adams and Park counties, as well as the cities of Lakewood and Aurora. Forty percent of its patients are children, most are Hispanic and 72 percent have incomes at or below the federal poverty level.

All 10 MCPN clinics have a family practice orientation to patient care. A number of the clinics provide some mental health services and have clinicians who specialize in care for people with disabilities, women's wellness, chronic disease management, HIV and adolescent medicine. MCPN provides case management and health education programs that address diabetes, asthma, childbirth, smoking cessation, family planning and healthy living. MCPN also serves Aurora's homeless population.

Each clinic in the MCPN network has a distinct patient population. For example, the Jefferson High School and Stein Elementary school-based health clinics serve children from birth to 18 years of age, while the North Aurora Family Health Services Clinic serves families and provides pediatric and obstetrical care, serves HIV positive patients and provides mental health, women's wellness and dental care services.

The clinic that is co-located in the Jeffco Action Center connects patients to needed social services. This clinic reports high no-show rates which affect the providers' ability to manage the high levels of chronic disease in the patient population. While patients are given appointments for follow-up care before they leave the clinic, staff reported it is difficult to track patients since the population is highly transitory. One-fourth of MCPN's patients have no permanent address and have constantly changing phone numbers. Because of this, clinicians attempt to provide their patients with as much information as possible while they have them in the clinic.

Outside collaboration and referral mechanisms

MCPN has a limited specialty referral network that provides services in-house at MCPN clinics. This network, however, is a patchwork of providers who come and go, making continuity of care challenging. MCPN has a close referral relationship with National Jewish Hospital for many referrals. Specialty referrals from MCPN's school-based health centers generally are handled by Children's Hospital.

In addition to two MCPN dental sites, MCPN has had some success at establishing relationships with oral health care providers outside of the organization who agree to see its patients. Behavioral health care is provided at all clinics, while MCPN also has established referral relationships with community mental health and substance abuse treatment centers in its catchment areas.

Summary of findings: The benefits and challenges of collaborative team models of care

Benefits

- Participating clinics' staff generally shared the view that the training and clinical competence of NPs, PAs and CNMs is particularly well-suited to meeting the primary care and chronic care needs of the patients they serve.
- Interviewees noted that NPCCs extend their clinic's capacity to provide primary care and related services to a larger number of patients at a lower cost than if physicians practiced autonomously.
- Interviewees reported their belief that patient safety and quality of care are not compromised in collaborative team-based care and that for those patients whose care needs extend beyond the scope of practice of an NPCC, referral to a physician occurs. Further, interdisciplinary care models are most effective at utilizing physicians as primary care "specialists."
- Participating clinics reported that collaborative teams optimize appropriate care by maximizing each clinicians training and clinical competence while at the same time controlling the overall costs of delivery primary care.
- NPCCs reported confidence that for their patients' whose medical needs fall outside their scope of practice they are referred to the appropriate clinical colleague for consultation.
- Hierarchy between clinicians did not appear to be an issue. In general, NPCCs reported being able to practice confidently within their scope of practice, making independent treatment decisions and consulting with other clinicians when appropriate.

Challenges

A number of issues emerged in the interviews with regard to the challenges associated with interdisciplinary collaborative models of care.

- The full integration of mental and oral health clinicians into the care team was considered difficult in most cases due in part to the costs associated with co-locating clinicians in one facility. Included in these costs for dentists in particular are the capital costs of purchasing dental equipment and associated space to house it. Clinician-to-patient ratios are also a challenge because of the high need levels for dental and mental health care in relation to the availability of these providers in many communities.
- Because several APCCs were employed by clinics where patients are not assigned a particular clinician, maintaining continuity of care was seen as another challenge associated with collaborative primary care teams in which patients are shared among team members.
- The use of volunteer clinicians can present a challenge in that clinical practice styles vary widely among physicians and integrating these differences into a clinic's model of care was not always a smooth process. This challenge was particularly difficult in instances where NPCCs were the managing clinician and had primary responsibility for establishing treatment and referral guidelines to which volunteer physicians were expected to adhere.
- Professional isolation was noted as a particular challenge in rural areas, especially for NPCCs functioning as the sole health care provider in a community.

Finally, the interviews yielded a number of themes which are summarized below.

Establishing referral networks

Establishing a robust and adequate referral network often depends on a clinic's reputation in the community, which can take several years to establish. Additionally, other providers in a community may fear competition from NPs, PAs and CNMs in more competitive health care markets. Newly established clinics reported the most difficulty in securing referrals.

Provider turnover in certain communities compounds referral challenges. Especially in rural areas, physician turnover makes maintaining a referral network a dynamic process. The CNM-run clinics appeared to have the most stable network of collaborating physicians, perhaps because these relationships were largely established through hospital clinical staffs. In addition, CNMs and OB/GYNs enjoy long-standing cooperative professional agreements and utilize national guidelines to ensure that the CNM scope of practice is clearly articulated and understood by the collaborating professionals.

Ensuring local privately practicing physicians are involved at some level in a clinic's work was reported as essential for maintaining a sustained referral network. Local medical societies and hospitals have the ability to engage primary care and specialist physicians' support for a clinic, without which securing referral arrangements may prove unnecessary difficulties for NPCC-run clinics. Key informants suggested that a high-functioning collaborative team is one that extends beyond the clinicians affiliated with a particular clinic into the community of providers where positive professional relationships are secured. Establishing these relationships may be difficult in rural areas where collaborating clinicians are few in number.

One example of a well-functioning community-wide referral system is found in El Paso County. Community Access to Coordinated Health (CATCH) is an organization that coordinates the resources of multiple clinics and providers to extend medical care to patients who traditionally have limited access because they are uninsured. CATCH-affiliated providers have access to HealthTrack, a centralized electronic management information system that allows them to refer patients to a network of collaborating providers. Each clinic or provider plays a unique role in the community that defines its collaboration with other CATCH providers. This clinical network equitably distributes uninsured patients across a large group of participating providers.

Recruitment of clinicians to collaborative models of care

The most frequently cited challenge to recruiting physicians and NPCCs to the clinics included in the scan was the inability to provide competitive salaries relative to those offered in private practices. Since the clinics participating in this study serve such a large number of uninsured patients relative to private practices, it is not surprising that salaries are lower because patent-generated revenues (Medicaid and sliding fee out-of-pocket payments) are lower.

Professional isolation also was reported as a barrier to successful recruitment of NPCCs in rural areas. Successful recruitment to a rural practice is often correlated with where a clinician grew up. CHI's health professions workforce surveys have found that more than half (55%) of Colorado's rural dentists,

40 percent of rural physicians, 48 percent of rural dental hygienists and 61 percent of rural RNs reported having grown up in a rural area.[8]

Key factors for successful recruitment included having an adequate referral network and a pool of volunteer providers from which to recruit. In some cases, clinics hired former volunteers or passed along information about job openings to volunteers' networks of colleagues. Some informants reported that the solid reputation of the clinic in the community was a key factor in providers expressing interest to work in the clinic.

When hiring, most clinics had a strong preference for NPCCs that had several years of practice experience. Interviewees reported that prior experience was especially important in collaborative models of care where NPCCs must work with other types of clinicians while having a high degree of autonomy in their practice. Demonstrated clinical skills and knowledge of how and when to seek a physician consultation were emphasized as important qualities when hiring an APPCC. For this reason, new graduates were less desirable, as they require more of a supervising physician's limited available time.

Another important recruitment consideration was the preference to hire clinicians whose personal values and ethics aligned well with the mission of the clinic, including organizational culture. Several informants noted the importance of selecting new hires whose personalities and practice styles would not conflict with other clinicians, a consideration viewed as especially important given clinics' collaborative models of care orientation.

Replication of collaborative models of care

Interviewees at all participating clinics shared the belief that their model of care successfully addresses a community need for high-quality health care and that it could be replicated in other settings. Although circumstances differing from theirs could present challenges to replication, they believe that delivering primary care through an interdisciplinary collaborative care team is an appropriate and high-quality solution to meeting the primary care needs of patients.

All interviewees viewed their clinic as one tailored to the needs of the population they serve. As a result, replication of a particular clinic's model of care should include a careful assessment of the community's population, identified health care needs and available resources that already exist in the community. Smaller rural communities may face greater obstacles in engaging the full range of stakeholders and funding sources viewed as instrumental in establishing a sustainable clinic. In addition, the up-front resources needed to secure support for a new clinic's planning phase and for hiring of clinicians amenable to practicing in a collaborative team environment could present a formidable barrier to replication.

Some nonprofit clinic administrators suggested that it could be difficult to replicate their particular cross-disciplinary model of care in a private, for-profit practice, in large part due to overhead costs associated with a collaborative practice model, especially those associated with the full integration of oral and mental health care practitioners. For example, adding a dental hygienist to a primary practice

may not generate enough revenue to support the hygienist's salary which are largely covered by grants not available to for-profit clinics. Additionally, private practices which rely more heavily on patient fees and revenue from private insurance may not be able to cover the costs of a "warm referral system" where clinicians of different disciplines collaborate in real time during a patient visit.

It also is important to note that many of these clinics have invested a number of years establishing a solid reputation in their community and designing their model of care to meet the specific unmet needs of a patient population. Replication therefore can be challenged by the amount of time needed to fully integrate into the community in which the clinic is to be located. Finally, interviewees noted that strong local leadership, i.e., clinic champions, was a necessary ingredient for developing relationships with key stakeholders in the community to ensure that the clinic is seen as a complement to existing health care resources rather than as a competitor.

Finally, clinicians need to fully acknowledge their relative scopes of practice, physicians and non-physicians alike. Educators are just beginning to recognize the level of importance of providing interdisciplinary and cross-disciplinary training opportunities to students while they are still in their professional program so that a collaborative team model is familiar and respected by the time they graduate. Codified and well-understood clinical practice guidelines are an important tool for ensuring understanding and mutual respect between team members.

Attributes of high-functioning collaborative primary care teams

Several themes emerged from interviewees' descriptions of high-performing interdisciplinary teams. Establishing and clearly communicating practice guidelines and defining different types of clinicians' roles and relationships were viewed as particularly important in maintaining a high-functioning team. This was especially emphasized in cases where medical directors are not physically present at a clinic on a daily basis. Clear expectations foster trusting professional relationships. These factors were considered essential in light of the relative practice autonomy of most NPCCs in most clinical settings.

Maintaining a high-functioning team requires ongoing communication between all clinicians on the team. Regular team meetings were reported to be effective in building professional relationships and preventing professional isolation. Some clinics intentionally structure their physical environment to accommodate these inter-professional consultations through the use of open space environments instead of individual offices.

Primary care health homes across the age continuum

NPCCs across the various models reviewed indicated their desire to proactively establish and maintain comprehensive health home for their patients. To this end, clinicians reported actively tracking patient referrals to ensure appointments are kept, maintaining centralized patient records and serving as a link to the larger network of health care providers in their communities.

Growing policy interest in medical homes has focused on the role of physicians as the principal intermediary between a patient and the broader health care system. In many interdisciplinary collaborative teams, NPCCs assume this role both on at organizational level and as individual

practitioners. Especially in those cases where chronic conditions are involved, interdisciplinary collaborative models of care can be tailored to the unique needs of patients with extraordinary or complex care management needs when patient education and self-care management are essential to managing a disease. These patient educational functions have been the responsibility of professional nurses for many decades and are particularly amenable to a collaborative model of care.

Although many clinics utilized NPCCs as generalist primary care providers, NPCCs also specialize in care for distinct population groups such as obstetrical care for pregnant women (CNMs), specialty care for older adults (geriatric NPs) and for children (pediatric PAs/NPs). NPCCs provide a wide array of primary care functions including chronic care management, patient education about disease prevention and preventive screenings, basic primary oral health care, prenatal care and treatment of acute symptoms.

Policy options

A number of policy considerations emerged from the clinical scan completed this report. These options include:

1) Encourage the development of clear, evidence-based clinical practice guidelines that are agreed upon by all clinicians on a team which delineate the respective roles and responsibilities of NPCCs and physicians alike. These guidelines should be firmly rooted in legally defined scopes of practice, training and the demonstrated clinical competencies of each professional on the health care team.
2) Ensure that interdisciplinary training opportunities exist for physicians, advanced practice nurses, physician assistants, dentists and dental hygienists, and mental health professionals in their respective professional training programs, including in the classroom as well as clinical rotations.
3) Target loan repayment and other incentive programs to NPCCs who commit to practice in a clinic with a collaborative team model of primary care.
4) Ensure that electronic medical records and practice management systems "talk" to one another when cross-disciplinary patient care serves the same patient in different clinical settings such as distinct oral health, mental health and physical health care provided in different locations.
5) Ensure that NPCCs practicing in remote rural settings have access to professional colleagues and professional development through Area Health Education Center-sponsored programs, the Colorado Rural Health Center, ClinicNET and other organizational auspices that support clinicians practicing in rural areas.
6) Test new ways to achieve full integration of systemic, oral and mental health care services through funded research and demonstration projects.

For more information about the findings reported in this brief, contact: Jackie Colby, PhD at colbyj@coloradohealthinstitute.org, 303.832.4200 or visit our website at www.coloradohealthinstitute.org.

Endnotes

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