New Models of Primary Care Workforce and Financing

Case Example 7

Cherokee Health Systems

AHRQ
Agency for Healthcare Research and Quality

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Case Example #7: Cherokee Health Systems

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Introduction

The Agency for Healthcare Research and Quality (AHRQ) contracted with Abt Associates and its partners, the MacColl Center for Health Care Innovation and Bailit Health Purchasing, to conduct research on innovative ways to configure primary care workforce teams that can deliver fully comprehensive, high-quality care to the U.S. population. The purpose of the research is to offer models of primary care teams and the associated costs for consideration and discussion by policymakers and providers in the field of health services delivery. To explore existing innovative workforce configurations, AHRQ and the Abt project team conducted a literature review, explored extant data sources, convened a Technical Expert Workgroup of national experts in primary care workforce, and conducted site visits to primary care practices with innovative workforce configurations.

The case example report that follows provides an in-depth look at the workforce configuration of Cherokee Health Systems based on observations and interviews at the Center City Clinic (located at 2018 Western Ave., Knoxville, TN 37921). Team members visited the practice on September 29–30, 2015. The data discussed below were collected on or prior to the visit and reflect calendar year 2014.

Why Cherokee Health Systems?

Cherokee Health Systems is a Federally Qualified Health Center (FQHC) and a Community Mental Health Center, and is a national leader in integrating primary and behavioral/mental health care. It has a mature structure for an integrated practice team; is constantly striving to innovate to improve integrated service delivery; and, in response to demand from other systems, has developed training in primary care/behavioral health care integration.

Overview of the Practice

Cherokee Health Systems originated in 1960 as a group of obstetric and gynecological centers. Dr. Dennis Freeman, chief executive officer of Cherokee and a psychologist providing care with Cherokee since 1978, has been a visionary leader, according to the staff. Dr. Freeman recognized that the majority of people who need behavioral health services go to primary care clinics for care. He understood that, regardless of the acuity of behavioral health issues, 85 percent of these issues can be addressed in primary care practice. Dr. Freeman recruited primary care providers (PCPs) and paired them with behavioral health providers. Over time, they changed Cherokee to a Community Mental Health Center with primary care services. Subsequently, Cherokee has become a unique hybrid of a FQHC with both primary care and behavioral/mental health services. The system now provides care in 13 Tennessee counties with 22 clinical locations, all of which are integrated clinics. Additional sites are telehealth sites that serve schools in rural areas. Cherokee conducts behavioral health outreach at numerous other sites, including primary care clinics, schools, and Head Start Centers. Services include adult primary care; child and adolescent care; well-baby and pediatric care; community health worker outreach; and

behavioral health care for adults, children, and adolescents. Specialty services include obstetrics, dental care, pharmacy, and school psychology.

Cherokee had nearly 600 employees at the time of the 2015 site visit, including 49 psychologists, 20 physicians working in primary care (4 of whom trained as obstetrics and gynecology specialists), and 40 nurse practitioners (NPs). Cherokee has 10 psychiatrists, mostly full time, and 9 psychiatric NPs. Several academic specialists from the University of Tennessee have come out of retirement to work at Cherokee, including a cardiologist and a nephrologist who provide direct services and also consult with primary care physicians.

Patient Population Description and Practice Panel Size

Cherokee serves a large service area in Eastern Tennessee, where access to medical services is a constant challenge. The population of patients is largely uninsured or underinsured. Many have Medicare, but without supplemental insurance, and have limited access to care because of copays. Knoxville and Morristown have many homeless people, and a large migrant population lives in the rural areas. A small percentage of patients have commercial-pay insurance, but even these patients are often complex, with significant behavioral health needs. The most common behavioral health problem is substance use, with extremely high use of narcotics, alcohol, and crystal methamphetamines. Cherokee clinicians deal daily with patients with substance use and frequently make depression and bipolar disorder diagnoses. In Cherokee, 44 percent of patients receive specialty behavioral health care, with a large percentage having substantial persistent behavioral health issues. Social determinants of health have a large impact on the patient population, particularly at a homeless clinic that Cherokee runs in one of its Knoxville locations.

In Cherokee clinics in 2014, physician panels averaged 1,049, and providers saw 19 patients in an 8-hour day. NP panels averaged 1,100: they saw 16 patients in an 8-hour day. Behavioral Health Consultants panels averaged 585 patients.

Model of Care

With the integration of primary and behavioral health care, the Cherokee care delivery model has become more flexible and adapted to the needs of the population. Dr. Freeman describes the model of care as an ideology rather than a program or a service. He points to the inadequate behavioral health safety net across the United States and Tennessee's choice to not expand Medicaid funds through the Affordable Care Act as the context in which Cherokee delivers care. To preserve the safety net for its population, Cherokee actively locates new centers where there is need. They "go where the grass is browner," Freeman says, serving those who are marginalized, regardless of the depth of their need.

Cherokee's operations are structured so that providers can focus on meeting the needs of their population. This goal was a major motivator in the decision to integrate behavioral health and primary care, use outreach workers, include school health sites, and employ telehealth and other modalities to meet population needs. Cherokee conducts deliberate outreach to underserved

populations, such as refugees and migrant workers. It has bilingual front desk and nursing staff even if PCPs are not bilingual.

> "Cherokee tries to be the fabric of the local Appalachian culture."
> –Dr. Freeman

Workforce Configuration

Exhibit 1. Cherokee Health Systems Center City Clinic team FTEs and roles

FTE	Clinical Staff Workforce Category/Role*	Comments
5.1	MD/DO Primary Care	
1.5	Psychiatrist	
2.7	NP Primary Care	
3	NP Behavioral Health	
4	RN – primary care or triage	Triage plus care coordination for hospital or ER follow up, patient education and nurse visits.
3	RN - Behavioral Health	
8.9	LPN – Primary Care or Triage	Seven function in an MA role, one LPN does Rx refills, one does nurse visits, EKG, immunization and followup.
1	MA - Primary Care	
1	MA – Health Coach	
9.6	Clinical Psychologist – PhD or EdD	
1.5	Master's-level BHC	
4.7	CHC	Case manager-type duties, but not limited to office visits; also do outreach, community building. Support 3–5 providers and all BHCs
4.8	Pharmacist	
FTE	**Business Operations Support Workforce Category/Role**	**Comments**
54.4	Non-clinical staff	Cherokee was unable to provide a breakdown of the roles of non-clinical staff.

FTE=full-time equivalents; MD=doctor of medicine; DO=doctor of osteopathic medicine; NP=nurse practitioner; RN=registered nurse; ER=emergency room; LPN=licensed practical nurse; Rx=prescriptions; EKG=electrocardiogram; MA=medical assistant; BHC=behavioral health consultant; CHC=community health coordinator

Care Coordination

Care coordination at Cherokee is a centralized function that searches for gaps in care, rather than performing care coordination across settings. Cherokee has a separate database for central care coordination that gathers care delivery information from registries, finds barriers, documents information in a care tracker for each patient, and facilitates the initial outreach to address gaps. This information is fed to the sites as reports and is visible on the patient dashboard under the "Quality" section.

Care coordination information is sent to sites in a spreadsheet for use in daily huddles held to prepare for each care delivery session. Whether patients come into a clinic or are seen in the home, central care coordinators all use the same record to document care. This process means that care gaps are addressed whether the patient is seen by primary care, specialty, or behavioral health.

At Cherokee Health Systems, behavioral health consultants (BHCs) work as core members of the primary care team, following a flexible schedule similar to their primary care colleagues. BHCs are predominantly psychologists with a behavioral health orientation. They are available at the time of a primary care visit for assessment, triage, and intervention for all mental health, stress-related, or family problems in this complex population. At Cherokee, over 80 percent of these issues are managed in primary care without referral to specialty mental health services. In addition to mental health and substance use issues, BHCs address chronic illness management, behavior change, and methods to enhance the skills and resilience of patients. Delivering mental health services in the primary care setting averts the stigma of a separate clinic and is more convenient for patients. Providers say it enhances the effectiveness of the primary care visit.

Each core team at the Center City Clinic consists of a team medical doctor (MD), a shared BHC, a registered nurse (RN), two licensed practical nurses (LPNs), a part-time case worker, and one patient-services representative. Each team is dedicated to a single patient panel. The BHC is a shared resource that serves 3–5 providers, assigned on demand in a fluid collaborative care fashion.

Behavioral Health Integration

Parinda Khatri, PhD, is the chief clinical officer at Cherokee and oversees the primary care BHCs. She has been with Cherokee since 2001. She especially likes that the scope of practice is behavioral medicine, as well as psychopathology and wellness promotion. Using brief intervention strategies in conjunction with primary care physician visits, Dr. Khatri can see 17 patients a day in a team-based care model. Dr. Khatri feels that the integrated primary care setting results in much better outcomes, improves the ability to engage patients, and addresses many unmet mental health care needs that would not have been addressed in specialty care.

The broad screening effort of Cherokee practices—all patients 12 and older are screened for substance use in primary care—has a powerful ability to impact substance use, especially in "precontemplative" patients. The staff members ask screening questions with the assumption of use. A medical assistant (MA) performs behavioral health vital signs screening while rooming patients, and measures patient distress. If the screen is positive, the MA may call in the BHC before the patient sees the primary care physician, especially if the patient is distressed. Alternatively, the physician may ask the BHC to see the patient based on the primary care visit. BHCs perform chart reviews and screenings, and consult with the PCP to integrate information from multiple sources of data. BHCs make rapid working diagnoses and deliver a brief intervention in the course of the visit. BHCs will sometimes interrupt physician visits to make recommendations and "unify" the care plan. Physicians told us they want to know the BHC's diagnosis, intervention plan, and what is needed from them.

Some BHCs consider conjoint visit scheduling. They may call a consulting psychiatrist for a 60- to 90-second conversation to get a recommendation for the patient. BHCs say they must speak the vernacular of primary care to get medical recommendations and give feedback to the PCP about actions to take. Followup visits are planned according to clinical acuity and patients' level

of motivation and engagement. The BHC may see patient for a followup after a week or two, and function as an extension of the PCP by following up and addressing adherence barriers. BHCs can also help build engagement and adherence. For example, a patient might be a candidate for treatment for hepatitis C, but not if they are drinking or using drugs. BHCs can build in a motivational visit along with a primary care visit to better engage the patient and thus enable treatment.

Cherokee providers believe that social needs cause behavioral health problems, and that they must consider controllable factors for patients. Patients often go into the exam room with multiple problems. The BHCs consider it their job to distill those problems into something that is workable, that patients are able and willing to change. Interviewees said that using a team approach means everyone on the team is considered an agent of change. The BHC's job is to determine what issues are amenable to change and make sure the whole team is working together, with patients as the guide.

Telehealth

Cherokee addresses the needs of its rural population and the scarcity of specialty services in many parts of its service area with the extensive use of telemedicine, including telehealth in psychiatry, pharmacy, and psychology for 15 years. Cherokee now provides primary care remotely, as well. The telehealth setup also helps support nurse practitioners and isolated providers.

Providers work in the clinic setting before they move to telehealth. Originally, psychologists trained providers on telehealth use, and the health system obtained patient feedback about their telehealth experience. Now providers begin by experiencing a telehealth appointment with Dr. Febe Wallace, director of primary care services, to help them understand telehealth methods. Dr. Wallace said that patients have become accustomed to the telehealth interface and now know what to expect. She said that children and youth especially enjoy the experience. Dr. Wallace trains nurses to perform hands-on patient exams, such as palpation, placement of stethoscope, reading Doppler pulses, and foot exams. With an experienced nurse onsite, Dr. Wallace stated that she can care for patients as efficiently and effectively as during in-person visits.

Telehealth is often used in school health visits when patients cannot be seen in person. Cherokee has found that telehealth is most effective with experienced providers who are comfortable in triaging, because most of the problems are acute care issues. In school settings, the school nurse works with the remote physician to carry out the visit.

Women's Clinic

The Women's Clinic at Center City cares for about 500 obstetrics and gynecology patients per year and averages 100–200 visits per week. The clinic has a full time BHC who sees all obstetrics patients, working with them to adjust to pregnancy and promote wellness. BHCs conduct focused assessments that build relationships over time, stating that they find they cannot identify problems using surveys alone. The Women's Clinic functions like a medical home

because of its philosophy. Care team members say they advocate for patients, and feel empowered to do all they can for their patients.

> "I don't know how I ever practiced without having a psychologist (on the team). I guess I just ignored everything, all the mental illness that's out there."
> –Obstetrics provider who previously practiced without behavioral health staff

Workflow

Primary care visits at Cherokee employ a traditional workflow: check-in, rooming, preventive care screening, medical visit, patient education and care planning, and followup. The major distinguishing feature of workflow at Cherokee is the alacrity with which behavioral health personnel are called into primary care visits and the flexibility of scheduling and types of appointments. BHCs can see patients before or after a primary care visit, engage in collaborative visits with PCPs, bring in patients for independent visits such as traditional 30-minute therapeutic appointment, or see patients for brief behavior change interventions in an exam room during a primary care visit. Another distinguishing feature of Cherokee workflow is the extensive use of community health coordinators, who reach out to patients in the community to deliver care.

Exhibit 2. Cherokee Health Systems team tasks and roles

Tasks	Roles Included*
Pre-visit planning, chart scrubbing	Rooming nurse or CNA and provider, who use patient dashboard roster to see gaps in care. BHC or practice manager reviews exception report.
Checking patients in	Front desk.
Rooming the patient	Nurse or CNA, vitals, review meds, allergy, PHQ, substance and tobacco use, review history including flu vaccine.
Ordering lab tests and collecting vital signs	Providers, with nurses checking vitals.
Delivery of routine preventive services	Currently LPN/RNs with gradual implementation of MAs. MAs do spirometry and EKGs and give every patient 12 years and older depression and substance abuse screening. BHCs review screening results for standing orders for mammography, HbA1c, colonoscopy, and give anticipatory guidance.
Medication reconciliation or management	Nurses with providers checking medication titration. The provider-BHC relationship at Cherokee includes a chief psychologist available for consultations who can manage psychopathology in primary care. Only 5% of patients need to be seen by psychiatric specialists.
Reviewing and reconciling problem list	Providers, who keep a list of problem patients with high needs.
Patient navigation	Case managers and CHCs closely aligned with the care team but with a population-based focus, take warm handoffs from PCPs. These staff are building expertise in patient engagement, outreach, problem-solving about barriers such as keeping appointments, and meeting social needs.
Self-management goal setting and action planning	BHCs are called in, although MAs or RNs may start motivational intervention. Cherokee is not hierarchical: no provider owns the patient; emphasis is on communication of the intervention to the care team for a team-based approach.
Patient telephone /email followup	Followup is documented in the EHR. Alert is sent to providers, who review and send to a nurse to follow up. BHCs often see patients after 2 weeks or send a CHC for a home check. Cherokee does not do much phone followup.

Tasks	Roles Included*
Injections and venipuncture	Nursing staff and lab staff for venipuncture.
Triaging phone calls and emails	LPNs and RNs.
Care and transition management of high-risk patients	Centralized care coordinators do outreach to patients with care gaps or who are in the hospital to schedule visits, and alert PCPs. Nurses pull information from the health information exchange for care transition management. For psychiatric transitions, Cherokee improves adherence after psychiatric discharge by sending case managers and BHCs to link patients to programs before discharge.
Referral management	Centralized referral specialists (nurses in the women's clinic) perform this function. If the central system does not respond rapidly enough, nurses call about referrals, for example for surgery or high-risk obstetrical consults.
Independent visits by non-providers (RN, MA, health coach)	Nurses are responsible for visits for BP checks and lab tests, pharmacists for INR and pharmacy consults, BHCs for independent visits, CHCs and health coaches for seeing patients in the community.

CNA=certified nursing assistant; BHC=behavioral health consultant; PHQ=patient health questionnaire; LPN=licensed practical nurse; RN=registered nurse; MA=medical assistant; EKG=electrocardiogram; HbA1C=hemoglobin A1C; CHCs=community health coordinators; PCP=primary care provider; EHR=electronic health record; INR=international normalized ratio; BP=blood pressure

Team Building and Training

Cherokee Health Systems has developed an extensive training curriculum for its own staff and offers a training program for other health systems and clinics that want to integrate behavioral health and primary care. Interviewees said that long-standing employees have sustained the values of the organization and are the custodian of the model of care. Cherokee looks for people who endorse the organization's values first, and then trains them with the skills they need. Role-specific meetings occur regularly for training and updating skills. Dr. Wallace, director of primary care services, talks with individual MDs about performance metrics. BHCs have monthly 30-minute calls that offer topic-specific training. Systemwide continuing education calls occur monthly, with ad hoc meetings for inspiration and informal interaction.

Cherokee has developed a training institute to help the next generation of providers have a good experience working with the underserved. Cherokee is the Eastern Tennessee Area Health Education Center. It has American Psychological Association credentialing, a University of Tennessee Family Residency in behavioral health, and, at the time of the site visit, was setting up a joint residency with the University of Colorado.

Medicaid officials have site visited the Training Institute. Drs. Freeman and Khatri are on Medicaid's Patient Centered Medical Homes committees.

Access, Comprehensiveness, and Quality

Access

Cherokee has centralized scheduling, with modified open access to manage the high demand for appointments. To mitigate the problem of no shows and avoid recall scheduling, they schedule appointments only 4 weeks out. They use a scheduling template for all providers, with 30 percent

same-day appointments to try to accommodate daily high needs. Cherokee staff look at missed opportunities for ongoing feedback about how to balance appointments. They say they are mindful of scheduling all day, every day. The BHC scheduling template mirrors the template for PCPs and can add on-demand slots into the schedule when PCPs are busy. Each clinic's scheduling staff build blocks of time for planned followups and same-day appointments into the schedule for the busiest times.

Cherokee is beginning to ask patients for their email addresses for secure e-messaging once a secure system is developed. Uninsured patients often have phones with texting capacity rather than computers, so Cherokee has also found that text messaging is an important way to communicate with patients.

Helping patients get medications is a significant problem at Cherokee. Cherokee's inclusion in the 340B Drug Pricing Program helps, but has limitations such as the Medicaid five-prescription limit.

Accessing subspecialty care, and especially transportation for care, is a huge problem for Cherokee patients. Interviewees said that outreach by CHCs trained to be the eyes and ears of the practice and the use of telemedicine help to address these issues.

Comprehensiveness

Community Linkages: Community Health Coordinators

Working from a traditional behavioral case management model, Cherokee transitioned case managers to be community health coordinators (CHCs). These staff were taught about primary care, health literacy, and social needs issues to be an extension of the care team into the home, feeding back information to the primary care team. CHCs develop a patient case in tandem with providers. CHCs assess life domains, including behavioral health, chronic illness care, finances, education, activities of daily living, and others. The BHCs and PCPs develop a treatment plan. The CHCs develop a case management plan to operationalize treatment plans. There are 37 CHCs across all clinics, 5 at Center City. Four supervising CHCs oversee the cadre of CHCs, and clinical staff lead reviews of the case plans. CHC supervisors meet to identify patterns of care delivery that are not working and solve problems.

Quality

Interviewees said that Cherokee values data and has invested in internal health care analytics. The informatics department performs regular downloads of data from sources including hospital and ER data, and is making progress in making data available to providers. Reports from the East Tennessee Health and Information Network and claims data are pulled into a Quality Metrics Dashboard. The informatics department provides analytics and quality monitoring reports by provider and region. This department created a patient data dashboard that appears when the electronic health record (EHR) is opened and shows the patient's care gaps. Providers receive a patient roster each month and add real-time alerts to patients' medical records and dashboards.

Cherokee staff said they have experienced tremendous pushback from managed care companies and the State, saying the system cannot give out data because of Health Insurance Portability and Accountability Act (HIPAA) considerations. Cherokee feels it needs data to monitor the health care activities of patients. Interviewees said that monitoring patient activity has helped improve coordination of care, fill gaps in, care and prevent redundant prescribing. The patient dashboard allows just-in-time care that is responsive to individual patients' situations. The information technology system helped to establish the biopsychosocial algorithm that determines complexity, stratifies patients by risk, and is used for predictive modeling.

The Cherokee leadership team reviews the clinical data regularly. The EHR team meets weekly with the data team to customize EHR fields and reports for behavioral health and primary care needs. Reports and EHR fields are structured to ensure that clinical need drives quality and finance priorities. Programmers use just-in-time data to create custom reports. As a result, team huddles for difficult cases are now data driven. In addition, treatment teams perform regular clinical reviews of high-risk patients.

A quality improvement (QI) committee of leaders from all clinical disciplines meets monthly to review reports and design and implement QI responses. Regional leaders note when certain sites are doing well on specific metrics and use the "positive deviance" to point out exemplary practice opportunities. Meetings explore and use LEAN methodology to optimize roles, for instance, using laboratory technicians or nurses or telemedicine to implement warfarin interventions at clinics that don't have a pharmacist. Monthly staff meetings are used to spread changes.

Interviewees said that the culture of care at Cherokee enables innovation. It has underlying values of fairness and equity, and has set up structures to eliminate disparities. An employee advisory committee with a representative from each site shares issues with leadership to encourage a healthy work environment. Cherokee is said to have a very innovative culture: if someone is inspired to make a change or test an idea, the QI team huddles with them to figure out how to make it happen. This culture allows individuals to work on problems. Interviewees said that the culture is the substrate of the organization that permits them to collaborate in a meaningful way. The organization's rule is that data will support good work, and if an employee thinks an idea works, they should prove it with data.

> "Dr. Freeman is a transformative leader who sets a vision, puts a team in place, and intervenes at the right time to make that vision reality."
> –Center City clinic staff member

Implications for Primary Care Staffing Models

The experience and testimony of providers in the Cherokee Health System provide strong evidence of the utility and effectiveness of the integration of behavioral health providers in primary care. PCPs recognized that behavioral health intervention had positive effects for many patients who would not have received these interventions in traditional primary care. Cherokee providers point to a sizable unmet need for mental and behavioral health services. Lessons learned include:

- Behavioral health providers are members of the core primary care team, are co-located with primary care for easy just-in-time intervention, and have flexible schedules that allow for a variety of appointment types.
- A mix of PhD and Master's-level counselors, along with trained lay staff members such as health coaches and CHCs, allow staff to be flexible and respond to a variety of patient needs.

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