rchn community health foundation

Community Health Centers Tackle Population Health, Equity and Social Determinants

David M. Stevens, M.D., FAAFP
Paul Melinkovich, M.D., FAAP
Feygele Jacobs, DrPH, MS, MPH

May 2021

History of the Population Health Initiative

The Population Health Initiative conducted by the RCHN Community Health Foundation (RCHN CHF) has its genesis in the tradition and experience of the community health center model. This model is rooted in the history of applied clinical epidemiology and social medicine, as exemplified by John Snow and Rudolf Virchow in the 19th century, and by such 20th century pioneers as William Pickles, Sidney and Emily Kark, and H. Jack Geiger, who integrated public health and primary care in what eventually came to be known as Community Oriented Primary Care (COPC). Although COPC has undergone various permutations in the United States, the core concepts identified by the Karks, of defining the population as people living in a defined geo-political area, assessing its health status and, with enduring partnerships with the community, implementing and evaluating the impact of a broad range of health, social and economic programs, remain core concepts for health centers.[1] Regular community health needs assessments, governance by community-based boards, a majority of whose members are health center users, situating health centers in underserved areas and providing access to care and enabling services regardless of insurance status remain steadfast requirements for what are also known as federally qualified health centers (FQHCs). Consequently, community health centers are uniquely positioned to strengthen and expand their capacity for population health management and to continue to provide the nation with innovative solutions for eliminating health disparities.

Community health centers are supported by Primary Care Associations (PCAs), health center member organizations at the state or regional levels. The Associations provide training and technical assistance to health centers to increase access to quality primary care for underserved populations, support value-based care delivery, address workforce needs, enhance emergency preparedness and response and advance clinical quality and outcomes. In some states, other non-FQHC safety-net providers are also members of PCAs. PCAs collaborate with numerous state agencies and organizations to support the aims of the health center program.

Since its inclusion in The Triple Aim, first proposed by the Institute for Healthcare Improvement (IHI) more than a decade ago, the term "population health" has become more prominent. The Triple Aim framework focused on optimizing performance of the healthcare system in three distinct dimensions: 1) improving the health of the population; 2) enhancing the patient experience of care; and 3) reducing per capita cost of care.[2] Some organizations have added the "joy of work" or "equity" to the original aims. The original Triple Aim framework was adapted by the Center for Medicaid and Medicare Services (CMS) in its four-point strategy of better care and lower costs; prevention and population health; expanded health care coverage; and enterprise excellence.[3] The National Strategy for Quality Improvement in Health Care, (National Quality Strategy or NQS) published in 2011, also adapted the Triple Aim to include[4]:

- Better care that is patient-centered, reliable, accessible, and safe;
- Affordable care for all stakeholders, including individuals, families, employers, and governments; and
- Healthy people/healthy communities - supporting proven interventions to address behavioral, social, and environmental determinants of health, in addition to delivering higher quality care.

NQS broadly defines communities as the entire U.S. population, insured and uninsured. Yet, except for the use of the word "entire" to describe the population, the term has not been further defined and the denominator for per capita costs is therefore also left vague. Medical care organizations and insurers, on the other hand, define their populations as those beneficiaries or

1 SK Longlett, JE Kruse, RM Wesley. Community-Oriented Primary Care: Historical Perspective. J Am Board Fam Med 2001;14(1) p 1-11
2 DM Berwick, TW Nolan, J Whittington. The Triple Aim: Care, Health, And Cost. Health Affairs, 27, no.3 (2008): 759-69
3 CMS Strategy, 2013. (http://www.cms.gov/About-CMS/Agency-Information/CMS-Strategy/index.html)
4 2014 Annual Progress Report to Congress: National Strategy for Quality Improvement in Health Care (http://www.AHRQ.gov/workingforquality)

groups they serve directly, where they have accountability for both costs and quality outcomes. In contrast, public health agencies focus on population-based prevention and health promotion strategies that address risks and social and environmental determinants of health for the entire population. Since an estimated 40% of deaths are caused by modifiable behaviors, in contrast to the 10-15% of health outcomes attributable to medical care, emphasis on a broader approach to health is growing in importance.[5]

In the current health care environment, with policies embracing greater access to care and payment and other incentives designed to control costs and improve quality, the notion of population health is tightly aligned with payment. Therefore, it is important to make a distinction between total population health, defined as the health outcomes of a group of individuals - often living in a defined geo-political area - as well as the distribution of such outcomes within the group, and the health of insured sub-populations such as people assigned to accountable care organizations (ACOs) or other types of capitated systems.[6,7]

The processes of total population health improvement implied in the Triple Aim and the National Quality Strategy require the engagement of stakeholders from other sectors in addition to health care and different approaches both to defining relevant measurement and identifying improvement strategies.

Population health management is an essential element in two major and closely related areas of health reform: clinical practice transformation and health system transformation, including payment reform. States and the federal government recognize that primary care is the foundation for transformation of both the care delivery system and supportive payment reforms that generate improved quality of care and control costs. As part of this strategy, almost every state Medicaid program has initiated one or more patient-centered medical home (PCMH) initiatives and close to half of these states are also working with commercial payers in multi-payer initiatives.[8] In May 2008, The Commonwealth Fund, Qualis Health and the MacColl Center for Health Care Innovation at the Group Health Research Institute initiated a five-year demonstration project to help primary care safety net sites become high-performing patient-centered medical homes (PCMHs) and achieve benchmark levels of quality, efficiency and patient experience.[9] Federal initiatives such as HRSA's Patient-Centered Medical/Health Home Initiative (2012) and the CMS initiated Advanced Primary Care Program (2012-2015) focused on supporting a target group of 500 FQHCs to achieve National Committee for Quality Assurance (NCQA) Level 3 PCMH recognition, elevating the importance of population health for community health center organizations.

With these factors in mind, the RCHN CHF launched its first population health management initiative in 2015. The initiative applied a comprehensive and community-centered approach to improving the health of populations and patients served by health center organizations. The characteristics of CHCs uniquely position them to engage in efforts to strengthen and expand their capacity for population health management and reduce health disparities. In addition, the capacity for successful population health management was perceived as essential for health centers to flourish in the evolving health reform environment, which emphasizes value-based primary care.[10]

The RCHN CHF population health initiative encompassed both total population health, and the health of sub-populations such as patients served by a health

5 JM McGinnis, P Williams-Russo, JR Knickman. The case for more active policy attention to health promotion. Health Aff (Millwood) 2002;21:78-93
6 DM Jacobson & S Teutsch. An Environmental Scan of Integrated Approaches for Defining and Measuring Total Population Health. Public Health Institute & County of LA Dept. of Health.
7 DA Kindig & G Stoddart. Models for Population Health. American Journal of Public Health, Mar 2003, Vol 93, No. 3. 380-382.
8 National Academy for State Health Policy (NASHP). Medical Home & Patient-Centered Care. (http://www.nashp.org/med-home-map#sthash.MJWT6DAJ)
9 JR. Sugarman, KE Phillips, EH Wagner, K Coleman K, MK Abrams, The Safety Net Medical Home Initiative: Transforing Care for Vulnerable Populations. Med Care 2014;52: S1-S10.
10 David M.Stevens, Merle Cunningham, Peter Shin and Feygele Jacobs. Population Health Management in the Community Health Center Context. 2015. https://www.rchnfoundation.org/wp-content/uploads/2015/04/Population-Health-White-Paper-FINAL-updated-acknowledgement.pdf

center. Consistent with this comprehensive population health focus and the health center mission to improve community health, the RCHN CHF initiative also emphasized the elimination or amelioration of the social determinants of health and health disparities as a means to improving population health. These determinants are defined comprehensively and include addressing the socio-economic and environmental factors that may overwhelm even the best of primary and preventive care.

The aims of the RCHN CHF program were: (1) to support participating health centers and primary care organizations in identifying and engaging an at-risk target population and improve health outcomes by applying interventions that upgrade processes of care, engage target individuals and populations, strengthen local partnerships, and address social determinants; (2) expand population health management capacity to additional patient or community target populations and additional social determinants of health; (3) enhance the potential for sustainability of the interventions, partnerships and population health management capacity; and, (4) develop and implement a learning community to share information among grantees and to promote and expand collaboration through information sharing with their partners. RCHN CHF released a white paper describing the context and purpose of the population health management grant program, followed by a national solicitation for Letters of Interest (LOI) from community health centers and primary care associations[11].

Projects and Results

Following the first solicitation, more than 80 LOI's were received, with 20 applicants invited to submit full proposals after a comprehensive review. Project grants were awarded in the summer of 2015 to a diverse group of seven health center organizations serving rural and urban communities and special populations. A second round, beginning in 2017, attracted a similar number of applicants and seven grantees were added. Other organizations were awarded more modest planning grants to develop promising concepts for potential future funding. Over the two cycles of grants awarded by RCHN CHF, ten CHCS and four PCAS were funded. The Foundation devoted $2.9 million in direct grants, for planning, pilots and full-scale implementation. More detail on the funded projects primary goals, key objectives and outcomes is provided in Appendix A. A fuller detailed description of the funded projects can be found on the RCHN CHF website.[12] Consistent with the overall goal of the initiative, each grantee defined its goals and target populations based upon local needs and opportunities, while setting the stage for potentially broader application of the models, strategies, and interventions.

11 op. cit.
12 Improving Population Health, Advancing Health Equity' (April 2021) https://www.rchnfoundation.org/wp-content/uploads/2021/04/Improving-Population-Health-Advancing-Health-Equity-2017-2020-Projects.pdf and detailed grantee profiles available at https://www.rchnfoundation.org/?page_id=4796 and https://www.rchnfoundation.org/?page_id=6332

Access Family Care (MO)	To improve outcomes for the health center's patients with diabetes and other chronic conditions.
ACCESS Community Health Network (IL)	To develop a pilot program in preparation for the state's Integrated Health Home program for individuals with serious mental illness and co-occurring substance use disorders.
Adelante Healthcare (AZ)	To reduce the incidence of colorectal and other high-risk cancers and improve outcomes for affected patients.
Charles B. Wang Community Health Center (NY)	To reduce cigarette smoking among Asian men in NYC Chinatown.
Erie County Community Health Center (OH)	To reduce infant mortality and improve birth outcomes for the area's Black infants.
Fenway Health (MA)	To reduce ER visits and hospital admissions among high-risk patients, a significant number of whom were from the LGBT community, with the highest frequency of ED and hospital use.
Hudson Headwaters Health Network (NY)	To reduce inappropriate Emergency Department utilization for children with significant use; interventions expanded to all risk children 2nd year.
Mariposa Community Health Center (AZ)	To improve health outcomes by increasing access to healthful and nutritious foods for patients with uncontrolled diabetes
Santa Rosa Community Health Centers (CA)	To improve the health outcomes for chronically ill homelessness individuals.
St. John's Well Child and Family Center (CA)	To improve health outcomes of pediatric asthma patients by addressing adverse housing environments through direct remediation and housing advocacy.
Colorado Community Health Network (CO)	To improve cervical cancer screening and advance comprehensive women's health care across a pilot group of community health centers.
Georgia Primary Care Association (GA)	To engage youth within the juvenile justice system in a medical home offering primary care, behavioral and oral health at a pilot CHC site.
Idaho Primary Care Association (ID)	To improve access to nutritious foods to improve health outcomes for patients with uncontrolled diabetes at two community health centers.
Community Health Care Association of New York State (NY)	To position health centers statewide to succeed in Value Based Payment (VBP) environment; and to identify opportunities and challenges for remote care via telehealth.
Northwest Regional Primary Care Association (ID, OR, WA, AK)	To identify how Community Health Workers can be leveraged to enhance the effectiveness of integrated behavioral health and primary care services.

A number of common themes appeared to contribute to successful implementation of the funded projects. These are as follows:

1. Understanding of and Responsiveness to the Target Population

A deep understanding of the target community informed by data, including information derived from face-to-face interactions and surveys, is the first step for the design, implementation and refinement of interventions.

Participants chose interventions that could be adapted to their setting and tailored to their target populations. Some grantees focused on improving specific health outcomes in defined geographic areas, while others addressed the needs of patients identified within their health center or system of care; some focused upon both. Target populations included both patients with a heavy burden of chronic disease and populations in need of preventive services. Two grantees concentrated on pediatric populations. In many cases, the population was further stratified based on risk or utilization behavior, such as high utilization of the emergency department (ED) and/or hospital care. Regardless of population, most grantees utilized surveys and focus groups to gain a deeper knowledge of the perspectives of the target population, and the social determinants affecting their health. Health centers also sought to stratify their target population by severity, whether it was based on use of ED or hospital, depth of behavioral health issues, challenges from the social determinants of health, or the severity of a chronic health problem such as diabetes, asthma or obesity.

2. Patient Engagement and Productive Interactions

Successful population health interventions rest upon continuous patient interactions informed by the patient voice and supported through the development or strengthening of health center team skills and roles.

The development of productive patient interactions to improve outcomes reflected a number of the elements of the Chronic Care Model developed by Ed Wagner at the Institute for Chronic Illness Care (now the McColl Center for Health Care Innovation).[13] Patient engagement coupled with engaged primary care teams are necessary elements for success. After identifying patients in the target population, each grantee expanded its efforts to engage patients on a continual basis. The major elements in establishing trust and engagement were: 1) assessing patient priorities; 2) establishing a plan with the patient and, in some cases, having patients create and sign an informal joint plan; 3) following the plan even if the self-defined priorities did not initially relate to the aims of the interventions; 4) remaining aware that any given patient's progress may take many months but that most patients would meet one or more goals eventually; 5) diligently maintaining contact with patients on a regular basis; and, 6) encouraging enthusiasm and support from clinical staff, since provider resistance dooms any intervention, no matter how brilliant. Addressing issues related to the social determinants of health, such as housing, food insecurity, or transportation, as well as mental/behavioral health issues before or in concert with implementation of population health interventions was a major theme.

Staff training in self-management support and motivational interviewing as well as staff support for redesigning the delivery of care are important factors. For example, in a cervical cancer screening program, the willingness of a nurse practitioner to perform opportunistic screening led to higher patience acceptance and improved screening rates. Use of technology was beneficial, especially when patients had cell phones or were provided with cell phones or pre-paid minutes. This was particularly effective

13 The Safety Net Medical Home Initiative was a national Patient-Centered Medical Home (PCMH) demonstration to help 65 primary care safety net sites become high-performing medical homes and improve quality, efficiency and patient experience. See http://www.safetynetmedicalhome.org/

for homeless patients. In addition, one health center utilized text messaging that enabled a patient to transfer to a health coach to set up a convenient time for preventive screening.

3. Integrated Primary Care Teams Supported by Community Outreach

Comprehensive services spanning the social determinants of health must have a human face, as well as reflect patient priorities with a coherent, accessible and accountable team approach.

Integrated primary care clinical teams are essential to improve care and outcomes. Effective teams include medical and often behavioral health providers, along with medical assistants or licensed practical nurses, in daily huddles focused on patients to be seen that day or week. Health centers realize that socio-economic needs often precede clinical issues and as such addressed social determinants as well. This balance is reflected in the design for care coordination. Many of the projects employed community health workers as part of the clinical team for community outreach, patient education and care coordination.

Staffing design and refinements reflect an effort to create a balance of expertise in social service support, behavioral health needs and physical health issues. In fact, in one health center where RNs had the primary oversight for care coordination, RNs were not utilizing clinical skills because most of the effort was on social service support. Consequently, RN turnover was high. To address this, care managers with behavioral/mental health expertise now consult with an RN care supervisor to assure that both medical and socio-economic needs are met. A community resource advocate role was created to ensure and sustain patient/family engagement in appropriate community-based services.

Care coordinators also serve to facilitate patient-centered huddles or rounds that transform discussions from merely treatment focused to wellness focused, incorporating additional strategies that address the social determinants of health. In one practice, the care coordinator also holds monthly case reviews with the medical director. In some programs, they provide home visits, outreach to patients in homeless and substance use programs, and equip patients with disposable prepaid cell phones to maintain contact. Care coordination with hospitals was more successful when a case manager or care manager was a health center staff person embedded within the ED, rather than a hospital-based care coordinator. One health center established a care coordination department that assures an integration of care coordination activities across the health center and integrates numerous categorically funded programs, such as ED Diversion, and various health plan and ACO initiatives. As a result, one 24/7 phone contact number was created for all organizations wishing to make referrals to the health center.

4. External Collaboration & Environmental Setting

Supporting community health and patient priorities and reducing population health disparities require continuous collaboration and the sharing of resources as well as capacity to help influence local policy. Partnerships, often with non-traditional organizations, are essential. PCAs can be especially effective in initiating and supporting these collaborations.

All grantees either strengthened existing relationships with external organizations or initiated new relationships. Grantees that were members or leaders of regional coalitions focused on a particular population health issue had the greatest impact and potential for sustainability. Interventions that included a focus on the social determinants of health or demanded sharing data across settings required the strongest external collaboration. Grantees were best able to address complex patient populations and more likely to positively influence local policies and external partners when the culture was externally focused, included strategies to influence local policies, was transparent in sharing outcome data, and was already

highly networked with external organizations.

One type of external collaboration involved local health systems or other community-based organizations or agencies. For example, care coordination necessitated joint development of care plan formats among hospitals or ACOs and timely sharing of patient information to implement these plans. One health center was also able to offer colonoscopy and follow-up for uninsured patients with positive screening results through collaborations with local specialists. Focusing on children with asthma, another health center collaborated with local medical-legal services to address asthma triggers in the home environment.

The second type of partnership included state- or county-level organizations and agencies. Examples include collaborations with primary care associations that facilitated sharing of outcome data with other health centers. Other external partnerships involved the local American Cancer Society, state and local health departments, local community colleges and health professional schools, a county juvenile justice system, and population-specific organizations such as the Asian Smokers Quitline, the Chinese American Medical Society (CAMS) and the Coalition of Asian American Independent Practice Associations (CAIPA).

The third type of collaboration built on and sometimes led to the creation of local infrastructure to support population health. Often health center organizations were leaders or major players in these efforts. Grantee Erie County Community Health Center (ECCHC), a health center within a county health department, focused upon a regional approach to improve infant mortality rates in the Black community. In addition to implementing a prenatal care outreach program in its health center, ECCHC was a leader of regional infant mortality reduction efforts. This included organizing a regional Infant Mortality Prevention and Reduction Summit and a six-county health assessment of women of child-bearing age. Similarly, in rural southwest Missouri, ACCESS Family Care led in the creation of a multi-county care coordination collaborative focused on chronic care, timely sharing of patient data, and joint training. In Chicago, ACCESS Community Health Network helped build a formal structure to support an Integrated Health Home (IHH) initiative that included organizations from diverse health settings, housing, mental/behavioral health and other services. This institutionalized collaboration led to a shared electronic health record supporting regular and timely discussions of patient care and coordinated service delivery across participating agencies. Northwest Regional Primary Care Association worked closely with colleagues from Community Mental Health Centers (CMHC) to understand how CHWs, including peer support counselors/ specialists, are utilized in CMHC settings, and led an effort aimed at enhancing the effectiveness of CHWs, including in integrated care models.

A fourth type of collaboration was partnerships with other CHCs, local non-profit human service providers as well as other health care providers to advocate for policy changes that support the delivery of population health services or address social determinants of health. St John's Well Child and Family Center partnered with coalitions in Los Angeles and throughout California to successfully advocate for reimbursement for home-based asthma education services provided by community health workers. Charles B. Wang Community Health Center marshalled data from their project and collaborated with the New York City Department of Health and Mental Hygiene on an anti-smoking campaign. Testimony by the health center influenced city-wide legislation that helped to raise cigarette prices, ban cigarette and tobacco products from pharmacies, and reduce the number of tobacco retailers citywide. The Community Health Care Association of New York State partnered with the NYS Council for Behavioral Healthcare to promote collaboration across provider types, advance telehealth, and present a policy paper to the state.

5. Internal Organizational Setting

The most important organizational attributes for improving population health are an externally-focused vision coupled with a continuously refined strategy; leadership and a culture that values

transparency, competence, continuous learning; and, support for decision making at the practice level. With this foundation, gaps in resources or capacity can usually be tackled successfully.

Most of the involved health centers have been FQHCs or incorporated entities for decades, in many instances originating as volunteer or free clinics, or as community health center "look- alikes". This longevity is also reflected in the number of sites and patients served. Although not a requirement for Foundation support, all the grantees had also received HRSA recognition for quality as well as recognition or certification as patient-centered medical homes (PCMH). In one instance where a health center is part of a county health department, the health department is certified by the Public Health Accreditation Board (PHAB) and the health center is also recognized as a PCMH. All the grantees that were FQHCs during the HRSA-supported Health Disparities Collaboratives (HDC) participated in the HDC where they acquired capacity for managing and improving the health outcomes of targeted populations. One of the PCA grantees played a major role leading regional HDC interventions.[14]

Most of the health centers displayed a number of important capacities. Whatever the population or focus or the intervention, health centers were able to adapt and refine their initial evidence-based interventions in response to a changing environment or a newly acquired insight. Beginning the intervention on a smaller scale was key to the organization's agility for timely redesign. Accommodations to local changes in Medicaid policies, a need to reconfigure provider teams to better address issues such as behavioral health or the need to stratify patients for a more effective application of outreach or home visits are some examples. Although there was little excess capacity, some health centers were also able to leverage and coordinate other funded programs.

Health centers also illustrated the importance of formal and informal relationships within the organization, a shared vision focused upon providing quality services to underserved communities, and regular communication of progress and results to the staff. These cultural values drive the opportunity for positive change and tangible outcomes in the interventions. As a result, the inspiration garnered through respect from co-workers and stakeholders, positive outcomes, and gratitude from patients outpaced extrinsic incentives.

Some of the health centers had formal units or dedicated individuals that did most of the planning, submission of the grant and on-going project management. In general, there were also organizational units dedicated to primary care, behavioral/mental health, health information technology, care coordination, health education and other important functions. The scope of existing departments was sometimes expanded to avoid creating additional organizational units. A significant number of the project leaders had a public health, behavioral health or nursing background. This was efficient and fostered accountability of managers and timely communication to leadership. Although provider champions were active in some programs, the provider staff was at times not directly involved in the planning or the details of implementation of the programs. Consequently, in some cases, provider engagement in the various interventions required more time and effort to achieve.

Primary Care Associations worked with health centers in their state or region that displayed the characteristics listed above. Their support to the health centers included training and technical assistance, coaching, support to develop partnerships at the state and local level and assistance with evaluation. In addition, they also spread knowledge gained through the projects to other health centers in the state or region.

6. Information for Evaluation, Improvement, and Sustainability

14 Stevens, D.M. (2016). Health Centers after Fifty Years: Lessons from the Health Disparities Collaboratives. Journal of Health Care for the Poor and Underserved 27(4), 1621-1631. doi:10.1353/hpu.2016.0150.

Reporting quantitative outcomes to external organizations and agencies is necessary but not sufficient for developing the capacity to design and implement systems to collect, understand and use data for population health. Although many programs could not be sustained without grant funding, those that were sustained had documented evidence of success.

The challenges faced by health centers, and the health care sector in general, to collect, analyze and apply valid data, especially related to health disparities, is a subject in itself and has been extensively discussed elsewhere.[15] A number of specific issues are prominent for a selected group of health center organizations implementing population health programs.

All the grantees created aims, objectives, metrics, assigned roles and outcomes. Progress was reported and refined on a continual basis. The project was not merely a series of "deliverables." As these population health programs progressed, their links to the organization's overall strategic plans were necessary to move from a "project" to a strategy. The potential for the interventions to contribute to the strategic goals of the organization needed to be intentionally identified and developed.

Many of the population health initiatives, especially those focused upon complex patients, addressed the integration of primary care, behavioral health and collaboration with community based social service organizations. Traditional planning formats often did not capture the multiple dimensions for integration. As a result, vital activities and their outcomes were not documented, and gaps were left undiscovered. For example, to reduce inappropriate utilization of the ED and hospital in a cohort of complex high-risk patients, a health center and its partners created an integrated neighborhood health home (IHH). An integration model, as opposed to a list of objectives and activities, was essential to capture the work involved and important outcomes. The model that was finally applied captured the work and outcomes involved in leveraging shared values to build the IHH infrastructure. This included and is reflected in the development of a shared, common electronic health information system, coordination and integration of a diverse set of services from different organizations, the establishment by the clinical team of shared protocols and team rounds to provide integrated care to their patients and, finally, a template for partnering with the state Medicaid agency to build a sustainable system to support the IHH concept.[16] Similar models were important to other grantees' integration efforts. Although all the grantees were adept at reporting outcome measures, like those reflected in HRSA's Uniform Data System (UDS) and were recognized for improving these metrics, this was not sufficient for these more complex programs.

An unanticipated positive outcome was the recognition and commitment to building the capacity for program evaluation. Most of the grantees devoted efforts to complete a formal evaluation. Some had in-house capacity for evaluation; other organizations engaged outside consultants to develop an evaluation. Regardless of how the evaluation was structured, early identification of the audience for the evaluation, what measures could be collected and validated, how they could be used for quality improvement, and how to balance process and outcomes measures were common challenges. Having a model often helped to identify important process or progress measures that could inform program improvements and timely patient interventions.

Many of the grantees shared common data issues and challenges. Since each program identified a specific population for their interventions, establishing a denominator with a standard definition was a common dilemma. Again, UDS yearly measures, such as the number of patients with diabetes, were not adequate for managing a population continuously. Often it was necessary to stratify the denominator according to insurance status or devise creative approaches to data tracking. Ensuring data integrity

15 Improving data collection across the health care system. https://www.ahrq.gov/research/findings/final-reports/iomracereport/reldata5.html
16 Building Integrated Care: Lessons from the UK and elsewhere. NHS Confederation. www.nhsconfed.org

and maintaining a standard and accurate system for data entry was difficult. Several of the sites that collected information from home visits by Community Health Workers (CHWs) did not record that information in the medical record and thus information collected could not be used by the clinical teams for patient care purposes. A number of sites had difficulty collecting and integrating data for use in program evaluation. In some programs, separate databases were maintained because appropriate fields were either not available or cumbersome to use.

Registry functions and clinical support tools were leveraged but often had to be refined to meet the needs of the interventions. For example, one health center developed its own smoking cessation template. Integration of behavioral health in the health record, developing standard care plans, sharing data for care coordination, obtaining timely data from both hospitals and specialists, deriving patient data from free text reports of screening procedures were demanding. Report and query management was especially an issue for developing and implementing care plans that also addressed social determinants of health.

7. Learning Organizations: Continuous Learning

Population health is an adaptive, encompassing effort akin to design innovation and goes beyond technical fixes focused on improving specific clinical or business processes.

An additional aim of the population health initiative was to support learning and the exchange of knowledge among the grantees, external partners, the RCHN CHF team and others in the CHC community. An important resource, the Foundation team members each had extensive experience in health center clinical, administrative, health information technology and financial issues as well as credibility in the health center community. In addition, RCHN CHF team members shared expertise gained from a deep network of colleagues in the health care system. Committed to providing resources and accountability for the self-identified aims and activities of each grantee while supporting and allowing time for innovation and relationship building, the Foundation applied several important strategies from the field of Knowledge Brokering (KB).[17,18]

A. Assesments and Evaluations

Knowledge needs assessments & learning community grantee self-evaluation

The KB strategies and activities were co-designed with the grantees and were based upon grantee-specific self-assessments and informed by quarterly grantee reports. To identify and design the learning community conference calls, the Foundation conducted formal surveys to determine the educational needs and priorities of each grantee. Each grantee was asked to complete a self-assessment prior to the start of the grant period. For each domain, each organization identified a domain-specific performance score and a priority score for educational and technical assistance (TA) opportunities. The domains were:

1. Identification & Assessment of the population of focus
2. Sustaining patient/family engagement
3. Sustaining provider/staff engagement
4. Team Development
5. Care Coordination/population health management
6. Data Collection/sharing & validation
7. Improving Program processes/outcomes
8. External Partnerships
9. Sustaining state/regional level learning environment among diverse CHCs and/or CHC providers
10. Identification/Intervention for the social determinants of health
11. Sustaining population health program

17 Glegg, H. (2016). Role Domains of Knowledge Brokering: A Model for the Health Care Setting. Journal of Neurologic Physical Therapy, 40(2), 115–123. https://doi.org/10.1097/NPT.0000000000000122

18 Lomas, J. (2007). The in-between world of knowledge brokering. BMJ, 334(7585), 129–132. https://doi.org/10.1136/bmj.39038.593380.AE

In a second, narrative part of the survey, grantees outlined specific training or educational issues, and noted if additional feedback was needed. This section also allowed grantees to state their preference for frequency of meetings, willingness to lead or co-lead a session on a designated topic, barriers for engagement in the learning community, and additional suggestions for learning community themes. The Foundation team also reviewed issues and feedback from each grantee's quarterly reports to provide additional context for periodic survey updates. Lastly, grantees completed a short evaluation of each learning community session immediately after the session ended.

Quarterly Reports and Feedback

In addition to the initial grant proposal and final report, each grantee completed a quarterly report. These reports addressed progress in meeting goals and objectives; project accomplishments; significant challenges and collaborations; a summary of current project measures; lessons learned; and program spending. RCHN CHF staff reviewed the reports and provided written feedback to each grantee. If the grantee wished, follow-up conference calls were scheduled to discuss the reports and the feedback.

B. Linking Agent, Facilitator & Knowledge Management

Learning Community

Based upon grantee needs, an informal infrastructure was established with the formation of a learning community to create a culture of transparency and mutual support. Before this initiative, grantees were generally isolated from health centers and PCAs from other states. At best, they might interact with health centers during a state-based or national conference. The opportunity to learn from health care or academic organizations outside the formal health center world is rare. Faculty leads for the learning community sessions were invited leadership from non-grantee health centers or from organizations outside the health center program. The learning community expanded the grantees' own professional networks, provided an opportunity to pursue discussions with other health center organizations and outside faculty. In more than one instance, the Foundation helped to identify and support expert faculty for a health center-sponsored regional conference. Also serving as teachers as well as learners, program grantees were essential participants in each session. Seventeen learning community sessions were held. (Appendix B)

Site Visits

The Foundation team conducted two-day site visits with each grantee that included both formal and informal interactions. The Foundation made it clear that the visit was not an exercise in inspection intended to assure compliance but rather to increase understanding of the organization's program, provide consultation when needed, and, if appropriate, help to strengthen external partnerships. As a result, grantees initiated the agendas for the visits and collaborated with the Foundation on the design of the site visit. The visits provided the time to explore issues of sustainability, evaluation and measurement design, the use and quality of data, ways to improve the functions of teams and opportunities for greater involvement in state initiatives and local collaborations. Discussions of how to integrate individual population health initiatives into broader health center or PCA long-range strategies often accompanied dialogues focused on sustainability.

During site visits, the Foundation team had the opportunity to interact with the project team and visit major partners. Site visits also provided an opportunity to meet with external evaluation consultants and observe patient classes or focus groups. Most importantly, health centers provided an opportunity for the team to meet with patients involved in the initiatives during the site visits. The site visit was always followed by a summary report from the Foundation that included topics for follow-up and additional resources as appropriate. Grantees often followed up on the report's recommendations with a conference call with the Foundation team.

C. Capacity Building

The strategies and activities described above all contributed to each grantee's capacity for population health management either at the health center level or, in the case of PCAs, at the state and regional levels as well. The KB system sharpened the ability for individuals and teams to access and create information, understand and apply concepts and data, analyze processes, evaluate outcomes and, most importantly, create innovative approaches to barriers and challenges. The KB system also helped to strengthen important organizational and personal values and culture. Learning and working as teams, grantees responded to challenges, and participated enthusiastically in group learning, addressing barriers to change at both the personal and organizational levels. Both Foundation staff and grantees gained increased sensitivity to the local environment and to patient needs and perspectives as well as learning to apply positive personal and organization values to program design and implementation. KB activities also reinforced a commitment to work with external partners and stakeholders to achieve consensus and collaboration while building the capacity for leveraging professional and organizational networks. Several grantees developed presentations about their initiatives that were accepted for presentation at state and national conferences or summits to spread knowledge about population health work more broadlly within the Community Health Center field. (See Appendix C)

Concluding Observations

Renewing the mission: deepening health center capacity for population health.

When H. Jack Geiger and John Hatch initiated The Tufts Comprehensive Community Health Action Program and its Tufts-Delta Health Center in Bolivar County, Mississippi in 1966, the aims were not limited to health care. The Program also embraced community development and positive social change. Access to food, housing, clothing, water and sanitation, economic development, job training, education, and transportation were necessary to break cycles of poverty and deprivation. Access to quality comprehensive health care was necessary but not sufficient.[19]

Without the historical context of the 1960s, the community health center experiment might never have flourished. The civil rights, voting rights, and women's movements as well as the gay liberation, anti-war and free speech movements were important drivers of social change in response to racism, sexism, and socio-economic inequality. One result was President Johnson's War on Poverty and the creation of the Office of Economic Opportunity (OEO) and its eventual support of early health centers in Mound Bayou, MS, Boston, MA, Denver, CO and ultimately, across the country.

Today our nation is again at a crossroads, wrestling with similar themes and accompanied by a growing political will for positive change, rejecting the notion that adverse social conditions and forces need continue. As the Reverend Dr. Martin Luther King, Jr. said in his speech at the National Cathedral in March 1968, "We shall overcome because the arc of the moral universe is long, but it bends toward justice." Our nation's history teaches us that the arc is not predestined to bend, that progress is not a spontaneous reaction to injustice. Rather, sustained moral power and action are necessary to bend this arc towards justice.

To address today's urgent need for positive systemic change, community health centers (CHCs) are a necessary national resource. These non-profit health care organizations, which provide comprehensive care to 30 million low-income and minority patients in previously underserved urban and rural communities and whose governing boards of directors are drawn from current patients of the program, are a powerful

19 H. Jack Geiger. The First Community Health Center in Mississippi: Communities Empowering Themselves. AJPH. October 2016, Vol 106, No. 10.

national community-based resource. Yet, with historic federal funding limitations and both past and current payment policies driving a narrow medical model, health centers have generally adapted to focus on a more circumscribed set of health services. Dr. Geiger himself noted that as the health center program expanded, variation grew in their capacity to impact on population health status.[20]

To promote the original and broader health center vision of health, the RCHN Community Health Foundation (RCHN CHF) launched its first population health management initiative in 2015. Nearly 150 health center organizations expressed interest in the program. Direct project grants, awarded to ten CHCs and four Primary Care Associations (PCAs) across two project cohorts supported health interventions addressing the social determinants of health for at-risk populations. These interventions targeted both patient- and community-level populations.

Although not a requirement for funding, each of the health center grantees had earned external recognition as patient-centered medical homes (PCMH). All health centers report quantitative outcomes to HRSA and other external funders and partners, and each of the grantees had distinguished themselves with one or more HRSA quality awards. Yet, these achievements were not sufficient for developing the capacity to design and implement systems to manage the health of defined populations over time. Through their participation in the RCHN CHF population health program, grantees recognized the need to increase their understanding of the populations targeted for improved health outcomes, and to develop the capacity to design and implement systems to collect, understand, use and share data. The focus on internal strategies and processes was expanded and balanced with a revitalized external focus on the strengthening of existing external partnerships and the development of new non-traditional community collaborations. PCAs were especially effective in initiating and supporting these collaborations. Grantees and the Foundation learned that population health is an adaptive, encompassing effort akin to design innovation and that it is a challenge to sustain without long-term commitments from stakeholders.

The overwhelming interest in participating in the RCHN CHF population health initiative and the devotion and energy that each grantee brought to its particular set of interventions reveals an untapped eagerness as well as significant potential to tackle the challenges of population health management, health disparity reduction, and the amelioration of social determinants of health. In several instances, interventions that began with a health center target population led to a total population approach. Care coordination supported with new or expanded in-house and outreach staff led to stronger teams that included health care and behavioral health staff. These teams were informed with timely data and regular, patient-focused team meetings.

The zeal in the pursuit of population health was also revealed in the successful development of a knowledge brokering system. In addition to addressing gaps in capacity, this dynamic learning system, a collaborative effort of the grantees in conjunction with RCHN CHF, fostered a culture of transparency, mutual trust and critical thinking that supported project implementation, expanded professional networks, and nurtured the commitment and creativity of the participating organizations.

To be successful and sustainable, our nation's current efforts to address the social determinants of health and advance health equity must be designed and implemented upon a foundation of population health. The RCHN CHF population health program has proven itself as a successful pilot for the design and expansion of population health capacity among the national collective of health centers. An expansion of a similar population health-focused effort would have a major positive impact on the health of underserved populations and would position health centers in the forefront of the design and implementation of sustainable value-based comprehensive primary care, as outlined in the May 2021 report from the National

20 Op. cit.

Academies, Implementing High-Quality Primary Care: Rebuilding the Foundation of Healthcare.

The aims of an expanded population health program would be to: 1) identify and engage disproportionally affected populations to ensure successful COVID-19 vaccine uptake; 2) assess and address individual and family needs for preventive and ongoing primary care and social services; 3) identify and address social determinants of health through expanded collaboration; and 4) in partnership with PCAs, create or leverage current knowledge brokering systems for continuing learning and improvement.

These broader aims leverage provisions in the Biden Administration' American Rescue Plan Act. While expanding Medicaid and health insurance provisions, the Act also provides major funding to health departments, health centers, substance use and mental health services, maternal health, childcare and nutrition programs, as well as support for housing, energy assistance and environmental justice. This comprehensive approach is a proper response to serve populations whose overall socio-economic well-being as well as access to primary care are compromised. Yet, the Act's numerous targeted initiatives challenge localities to create a collaborative community-centered strategy to assure coordination, leverage existing capacity, discourage duplication, and nurture innovation. This requires health center organizations to embrace and execute population health programs that reflect the original vision of the health center program.

Our critical national challenges, revealed through the COVID-19 pandemic, require our nation's current generation of health centers to revitalize their original population health aims of achieving social justice and health equity through comprehensive primary care and community organization and development. RCHN CHF grantees have taught us that our nation's mission- driven health centers are committed to such a challenge. A vital resource for over fifty years, health centers have responded to the pandemic with rapid and innovative approaches to primary care. In collaboration with community partners, they have the capacity to expand this effort by providing health services as a door to needed social interventions and hasten the end of health disparities in our nation.

APPENDIX A – Population Health Grantees and Principal Project Outcomes

Community Health Center Grantee	Goal and Target Population	Major Objectives	Principal Outcomes
Access Family Care (MO)	• To improve outcomes for the health center's patients with poorly controlled diabetes and other chronic conditions.	• Help patients more effectively navigate ongoing care needs and care transitions. • Expand the health center's capacity to operate as a high-performing Patient-Centered Medical Home, especially for at-risk, chronically ill patients. • Expand referral options for specialty services. • Improve target health outcomes for at-risk patients with diabetes,	• Overall, the percentage of people with poorly controlled diabetes (HbA1c>9 or untested) decreased from 38% to 28%. • Patients in the Missouri HealthNet Health Home Initiative had the greatest and most sustained improvement. Percentage with poor diabetic control decreased from 29% to 18%. • With implementation of a system-wide on-site screening program utilizing retinal fundus cameras, the percentage of people with diabetes who received annual eye exams increased from 47% to 76%. • Facilitated establishment of a regional Transitions of Care Network to improve patient follow-up, coordinate the provision of essential services, and collaborate with providers over several counties to coordinate patient care.
ACCESS Community Health Network (IL)	• To prepare for the state's Integrated Health Home IHH) program focused on Individuals with complex, high-risk health conditions and social needs.	• Develop, test, and refine systems and workflows in preparation for the state's implementation of IHH. • Identify effective practices that can be shared with the state and other providers to add value to the upcoming Medicaid service transformation. • Enhance care coordination internally and among external mental/ behavioral health and social service agencies.	• Developed key communication systems to enhance and centralize integration efforts, including integrated workflows, a shared care plan, access to the patient's electronic health record for all agencies, weekly interagency "rounds" calls and oversight from an interagency steering committee. • Designed an evaluation framework that was approved by the steering committee that utilizes the Consolidated Framework for Implementation Research (CFIR).

APPENDIX A – Population Health Grantees and Principal Project Outcomes

ACCESS Community Health Network, cont.			• Developed a policy paper with ACCESS' findings and recommendations for the statewide IHH program. • Through nine participating health center sites by the end of the project period, provided outreach services to more than 250 patients and enrolled 116 of these patients into the IHH program.
Adelante Healthcare (AZ)	• To reduce the incidence of colorectal and other high-risk cancers, limit the disease burden and improve outcomes for affected patients, targeting all patients eligible for colorectal cancer screening and follow-up.	• Increase colorectal screening rates, which fell below the Healthy People 2020 target of 70.5%. • Increase cervical and breast cancer screening rates to achieve benchmarks established by the U.S. Preventive Services Task Force. • Improve rates of appropriate follow-up care for those with positive screening results. • Embed preventive screening practices across the health center. • Identify resources and engage community practitioners to improve services available to uninsured patients who require follow up.	• Established training curricula and workflows to improve identification and testing of at-risk patients. • In the first program year, screening rates were improved for colon, cervical and breast cancer across the patient population. • In the second year, achieved 27% increase in the number of patients screened for cervical cancer and a 28% increase in the number of patients screened for colorectal cancer. • Following the implementation of text messaging outreach (in Yr. 2) to encourage screening, the number of FIT kits ordered more than doubled in the first month after its implementation (667 kits ordered, as compared to 295 in the prior month) and completed colorectal cancer screenings increased, from 34.9% to 44.1%.

APPENDIX A – Population Health Grantees and Principal Project Outcomes

Adelante Healthcare, cont.			• Secured follow-up services through collaboration with local partners for uninsured patients with positive screening results to ensure continuity of care. More than 85% of those patients with positive fecal immunochemical test (FIT) results received a colonoscopy. • Implemented population health applications to improve data capture, analysis and reporting.
Charles B. Wang Community Health Center (NY)	• To reduce cigarette smoking among Asian men in NYC Chinatown, including those who are patients of the health center as well as those who reside in the community.	• Increase awareness in the community about the direct and second-hand risks of smoking. • Provide access to culturally and linguistically appropriate smoking cessation services. • Through Chinese-language social marketing and community engagement, challenge cultural norms that encourage smoking. • Strengthen the evidence base on the value of enabling services and education in encouraging healthy behaviors and improving outcomes.	• Two-thirds of program participants (206/310) stopped or reduced smoking through individual smoking cessation counseling services, including 18 who quit for six months, and 11 who quit for one full year. • A subsequent evaluation of all outcomes for the smoking health coach intervention found that 15% of participants quit for at least 3 months. • In conjunction with collaborating partners, the health center launched the first North American Chinatown Smoke-Free Day. The now-annual initiative – with events in NYC, Boston, Los Angeles, San Francisco, Oakland, and Toronto – aims to raise awareness of smoking risks, provide community education, and offer support to physicians to engage in smoking cessation activities. • CBWCHC's strong advocacy and leadership led to a commitment of resources by the New York City Department of Health and Mental Hygiene to a culturally relevant and language-accessible smoking campaign, and a series of anti-tobacco legislative bills, signed into law in 2017, aimed at reducing the number of smokers in New York City.

APPENDIX A – Population Health Grantees and Principal Project Outcomes

Charles B. Wang Community Health Center, cont.			• Conducted 15 educational sessions for community-based primary care and specialty physicians and practice staff to promote the Asian Smoker's Quit line and facilitate referrals to the center's health coach program.
Erie County Community Health Center (OH)	• To reduce and prevent infant mortality overall, and improve birth outcomes specifically for the area's Black infants, targeting African American women of childbearing age living in Sandusky, Ohio.	• Increase access to care for pregnant women and infants. • Enhance and expand pediatric services. • Attain recognition as a patient-centered medical home. • Strengthen the county's capacity to collect, monitor and track utilization and outcomes data necessary for systems improvements. • Increase collaboration among local health care providers and other health care professionals.	• Partnered with the Hospital Council of Northwest Ohio to develop a community health assessment specific to women of childbearing age and analyze data on access, coverage and utilization. The findings were released at a state-wide summit organized by ECHD/ECCHC, which served as the springboard for the formation of a multidisciplinary regional leadership group that worked collaboratively to reduce and prevent infant mortality in the region. • As part of this initiative, ECHD/ECCHC: established new partnerships; prioritized healthcare needs for preconception, prenatal, postnatal and pediatric services; initiated a new Community Health Worker (CHW) care model; enhanced health messaging, adopted population health management software to improve data collection and analysis; implemented an automated patient reminder and recall system; initiated school-based health care and weekly dental service; and expanded pediatric services.

APPENDIX A – Population Health Grantees and Principal Project Outcomes

Erie County Community Health Center, cont.			• The number of well-child visits increased by 6% from 2016-2017. • ECCHC gained 173 new pediatric patients from January through September 2017. • In June 2017, the center was recognized by the Ohio Association of Community Health Centers (OACHC) as a top performer among Ohio's CHCs for the measures of prenatal entry into care in the first trimester and live birth weights <2500 gms. • ECCHC received recognition as a Level 2 Patient-Centered Medical Home (PCMH) from the National Committee for Quality Assurance (NCQA) in July 2017. • The area's first inpatient detox facility was subsequently opened, in 2018, implementing a center-developed, evidence-based protocol to effectively treat substance-addicted patients.
Fenway Health (MA)	• To help high-acuity patients with behavioral health and substance use disorder (SUD) diagnoses, with a special focus on transgender patients, avoid unnecessary ER utilization and hospitalizations by improving care coordination and systems of care.	• Reduce ER utilization and hospitalization rates by 20% for the target population by removing barriers to care, educating patients about alternatives to ER utilization, and providing comprehensive, acuity-appropriate, patient-centered care. • Introduce walk-in access to BH services.	• Hospital admissions for behavioral health/substance services were reduced by 18.9%. (Yr. 1) • On average, cohort members had two contacts (clinic visit, home visit, call, or other interaction), with an average decrease of 1 ER visit or hospitalization over the 12-month project year. (Yr. 1) • For a risk- stratified cohort of the most acute patients (n=114), achieved a reduction in behavioral health/substance use-related emergency department visits of 3.9% by the end of the 4th quarter. (Yr. 1)

APPENDIX A – Population Health Grantees and Principal Project Outcomes

Fenway Health, cont.			• Walk-in behavioral health clinic provided 500 encounters to 150 unique patients, and there was a statistically significant correlation between a reduction in ER visits and use of the walk-in clinic. (Yr. 1) • In year two, 286 patients participated in the project. The walk-in behavioral health clinic provided 618 encounters to 135 unique patients; • Overall, both ED and hospital utilization improved for project cohort. On average, participating patients had 1.8 ER visits post-intervention compared to 3.5 pre-intervention. Participating patients were hospitalized 1.3 times post-intervention compared to 2.2 times pre-intervention. • MAT program served 80 new patients during Yr. 1 accommodating internal and external referrals. Fenway's MAT program grew steadily throughout the duration of the project period and maintained retention rates of approximately 75%. In year two, 151 unique patients utilized MAT services 1,322 times. Despite increased risk levels for new patients, the program reported zero overdose fatalities among patients actively engaged in care.

APPENDIX A – Population Health Grantees and Principal Project Outcomes

Hudson Headwaters Health Network (NY)	• To reduce inappropriate utilization and enhance care coordination for children with significant Emergency Room use, expanded to all at-risk children and adolescents in the region.	• Encourage appropriate utilization of primary care services and support both integration of and improved access to behavioral health and other services. • Expand the care management program to incorporate enhanced social services that address barriers to health and wellness for children and their families. • Enhance the knowledge base for evidence-based pediatric care. • Improve organizational performance on child health quality measures. • Establish a new data tracking system to facilitate timely monitoring and follow up.	• One year after starting the program, the health center documented an overall decrease in pediatric ER utilization of 15%. • Expanded community partnerships to include Child Protective Services, foster care system, school systems, public health providers and local and state providers. (Yr. 1) • Expanded program for all at-risk children, regardless of ED utilization rates. • Met with school leaders and guidance counselors in 16 school districts, and created partnerships with schools and after school programs, which resulted in identification and referral of 14 high-need children to the pediatric care management program. (Yr. 2) • Provided program education to 25 community-based organizations, including public health departments, youth centers, and family courts increasing the number of CBO partners. This bi-directional referral process resulted in 24 referrals to the pediatric program. (Yr. 2) • Expanded pediatric team to include an additional care manager and expanded services to five additional sites. (Yr. 2) • In Yr. 2, the percentage of children using appropriate asthma medications increased from 74.3% to 83.2% and The immunization rate in two - year-olds increased from 76.3% in 2016 to 82.6% in 2017.

APPENDIX A – Population Health Grantees and Principal Project Outcomes

Mariposa Community Health Center (AZ)	• To improve health outcomes by addressing food-related social determinants and increasing access to healthful and nutritious foods for high-risk, low-income patients with uncontrolled diabetes.	• Improve both healthful eating and blood sugar control for a pilot group of 100 patients with uncontrolled diabetes and a subsequent group of 100 patients with the same morbidity. • Increase access to healthy food through prescriptions for fruit and vegetables and coupons and collaboration with local markets and grocers. • Address social determinants of health that affect healthy eating and diabetic outcomes.	• Provided 96 participants and their families with diabetic healthy food boxes. (Total Yrs. 1 & 2) • CHWs completed 96 home visits by the end of the project period to assess services needed to address social determinants of health and provide appropriate referrals. (Total Yrs. 1 & 2) • By the end of the project period, 100% of Villa's Market fruit and vegetable vouchers and 99% of Garrett's Market were redeemed by participants. • At the end of the second year, the average reduction in HbA1c from the patient baseline measurement ranged from 17-19%. • Established data tracking processes and refined data collection and quantitative evaluation methods. • Leveraged and strengthened existing partnerships with community organizations/coalitions to support the Comer Bien program as project collaborators and expanded to include new project partners.

APPENDIX A – Population Health Grantees and Principal Project Outcomes

Santa Rosa Community Health Centers (CA)	• To improve the health outcomes for vulnerable, chronically ill patients experiencing homelessness, later expanded to all homeless individuals in the county.	• Reduce excessive inpatient and ER utilization and hospital readmissions by offering coordination and early intervention, to provide continuity of care and reduce health care system costs. • Create a model for community and medical support of vulnerable homeless persons that improves access across the spectrum of care.	• Offered coordinated medical and social services. • Reestablished Care Coordinator Consortium across providers to coordinate transitions of care for medically complex patients. Of 135 high-need, high acuity individuals enrolled during the final project period: • 72% attended PCP visit within 14 days of enrollment. • 92% had no known hospital readmission within 30 days post-discharge, as compared with 70% at the start of the program. • 74% had no known ER visit within 30 days post-discharge, as compared to a baseline figure of 60%. • SRCH successfully leveraged collaborations with local, county and multi-county health care and social service organizations to secure additional funding and expand and enhance primary care and mental health services for person experiencing homelessness.
St. John's Well Child and Family Center (CA)	• To improve health outcomes and advance health equity by intentionally addressing the housing environments that contribute to asthma exacerbations, through direct remediation and housing advocacy, targeting at-risk children and adolescent health center patients.	• Enhance comprehensive services for asthma care management to include CHW-delivered in-home education, prevention and case management.	• Over two years, 168 individuals completed the program (32 patients were awaiting a six-month follow up after the formal project end-date).

APPENDIX A – Population Health Grantees and Principal Project Outcomes

St. John's Well Child and Family Center, cont.		• Integrate community health workers (CHW) into the patient care team to help eliminate barriers to asthma self-management. • Improve asthma control and increase caregiver knowledge to reduce excessive asthma-related emergency room visits and hospitalizations. • Promote tenants' rights and advance improved housing conditions necessary to improve asthma control and sustain health through effective community collaboration. • Identify and ameliorate housing-related asthma hazards such as mold, lead paint chips, dust mites, leaky pipes, rodents, and other asthma triggers from the homes of children with persistent asthma.	• Of the 168 patients who completed the program by the end of the project period: 100% of participants showed an improvement in asthma symptoms as measured by the Asthma Control Test (ACT) and Core Caregiver Survey. • 77% of participants show a reduction in ED usage (the remaining 23% of participants did not increase ED usage); 65% of patients reduced ED usage by 50%, and; 36% of patients have reduced ED usage by 75% or more. • Assisted 78 families in attending Strategic Action for a Just Economy (SAJE) mutual legal aid clinic; in Year 2, 14 families were enrolled in SAJE's intensive case management program to stop retaliatory landlord evictions. • With the advent of the Health Homes program, a benefit added to the State's Medi-Cal program in 2019 designed to provide enhanced case management to eligible beneficiaries with complex medical needs and chronic conditions, integrated the HHHK asthma case management program for eligible Medi-Cal managed care enrollees. • Engaged in advocacy for long-term financial sustainability of services through participation in regional and state-wide coalitions including Regional Asthma Management and Prevention (RAMP), Asthma Coalition of Los Angeles, and the Health Homes Collaborative. These efforts led to the creation of

APPENDIX A – Population Health Grantees and Principal Project Outcomes

St. John's Well Child and Family Center, cont.			• -the Asthma Mitigation Project, a statewide program operated by the California Department of Health Care Services that will provide $12 million in funding for grantees, plus additional support through technical assistance and evaluation services, for local health departments, medical providers and community-based organizations to offer culturally and linguistically appropriate asthma home visiting services to individuals with poorly controlled asthma, with a focus on low-income communities and communities of color that have disproportionate rates of asthma.

PCA Grantee [Total CHC members] and participating CHCs	Goals and Target Population	Major Objectives	Principal Outcomes
Colorado Community Health Network (CO) [21] **With original cohort of 6 CHCs** • Denver Health Community Health Services (Denver)* • Metro Community Provider Network (Englewood)* • Mountain Family HealthCenter (Glenwood Springs) • Clinica Family Health Services (Lafayette)	• To improve cervical cancer screening and outcomes, and advance comprehensive women's health care, across a pilot group of community health centers.	• Improve cervical cancer screening rates in a cohort of CHCs by 5%. • Help CHCs implement effective workflows and enhance team-based care • Increase the number of women receiving preventive health care services. (Yr. 2)	• Operational and workflow improvements set the stage for improvements in cervical cancer screening rates. Three of (x) participating CHCs reported quarterly improvements from the baseline in the percentage of women who received PAP tests in accordance with the recommended schedule.The number of women who received preventive HPV vaccines increased. For the six participating CHCs, by the end of year one, 19.7 % received the initial dose of the HPV vaccine, and 15.8% completed three doses of the vaccine, as compared with 18.3% and 12.0%, respectively, for the baseline period.

APPENDIX A – Population Health Grantees and Principal Project Outcomes

• Sunrise Community Health (Evans)* • Uncompahgre Medical Center (Norwood)* continued in Year 2 **Four of the initial cohort of six CHCs also participated in Year 2 (designated *)** **Additional Year 2 participants** • Denver Health Community Health Services, Las Casa Quigg Newton Community Health Center (Denver) • High Plains Community Health Center (Lamar) • Sheridan Health Services (Denver)		• Develop mechanisms for tracking core services provided to women of reproductive age, including cancer screening, depression screening, HPV immunization, substance use, and for collecting SOGI data. (Yr. 2) • Improve access to comprehensive family planning services. (Yr. 2) • Explore opportunities for enhanced reimbursement to support the delivery of comprehensive women's health services. (Yr. 2)	• Workflow and process changes were incorporated on a health-center-specific basis to improve both efficiency and outcomes. (i.e., development of pre-visit planning reports; implementation of auto-indexing; daily huddles led by Medical Assistants; implementation of patient and provider focus groups; development of standing orders for Medical Assistants related to cervical cancer screening workflow, and creation of education materials, messaging and scripts for Medical Assistants and staff to use when discussing the importance of screening with patients. Additionally, several CHCs expanded the Medical Assistants role and one CHC enhanced the role of the Registered Nurse. • At the end of year two, the four CHCs continuing from the initial cohort reported improvements in the cervical cancer screening rate, from a mean of 52.4% to 58.4%. (Yr. 2) • For the four CHC from the initial cohort, the percentage of women who completed the HPV vaccination series increased from 27.4% to 31.5% (ages 9-18) and from 21.7% to 24.9% (ages 19-26). (Yr. 2) • Two of the three practice sites that joined the project in Yr. 2 engaged in the cervical cancer screening initiative were successful in increasing cervical cancer screening rates (33.1% to 40.1% and 59.6% to 63.8%) and all three improved team-based care delivery and enhanced the continuum of care related to screenings.

APPENDIX A – Population Health Grantees and Principal Project Outcomes

Colorado Community Health Network, cont.			• CCHN worked closely with the Colorado Department of Health Care Policy and Financing (HCPF) and the Colorado Clinicians Advisory Network to align reimbursement for Long-Acting Reversible Contraception (LARC) with CHC needs and process; as a result, CHCs began billing for LARC services on a fee-for-service schedule as of July 1, 2017. • CCHN initiated and strengthened collaborative relationships with the Colorado Department of Public Health and Environment (CDPHE) Title X Family Planning Program, the Centers for Disease Control, and the Office of Population Affairs.
Georgia Primary Care Association (GA) – [34] • Curtis V Cooper Primary Health Care Center (CVCPHC) and Chatham County Juvenile Court	• To engage youth known to the juvenile justice system in a medical home offering screening and primary care treatment, including behavioral health and oral health, at a pilot CHC site.	• Enhance collaboration among the community partners including the Court and CVCPHC. • Increase staff capacity at the Court through trainings, reciprocal site visits, use of training materials for staff and clients and their families. • Enhance systems of referral/tracking and focus on quality of care through Improvement Teams. • Increase the number of vulnerable youth referred by the Court for health center services (from 800 by 10%).	• Leveraged a relationship between Curtis V. Cooper Community Health Center and Chatham County Juvenile Court to create a program that engages youth referrals in a medical home with screening and primary care treatment, including behavioral health and oral health, thus improving health and social outcomes for underserved teens. • Appointment of Court Liaison enhanced collaboration between Court and CVCCHC by providing monthly staff trainings, referrals, facilitating visits of Court staff to CVCCHC site, and outreach opportunities with organizations that work in conjunction with the court's youth.

APPENDIX A – Population Health Grantees and Principal Project Outcomes

Georgia Primary Care Association, cont.			• Increased the capacity of Chatham County Juvenile Court to refer youth for primary care services through the creation and implementation of an updated referral process and new medical referral form, which allowed for more streamlined process. A total of 10 active and 25 passive referrals made to CVCCHC during the second program year. • Increased parent/guardian awareness and access to health services for teens and family members involved with the Court by developing and implementing health screening instruments for youth, creating and sharing educational materials on relevant adolescent health topics, and applied insights from surveys, interviews and meetings with youth and parents to improve program design. • Established new partnerships with community-based service providers The Front Porch, Youth Intercept, and Goodwill to enhance capacity to assess and refer youth and families to services that reduce youth and parents need for court actions.
Idaho Primary Care Association (ID) – [16] • Terry Reilly Health Services and Valley Family Health Care	• To improving access to nutritious foods, to improve health outcomes for patients with uncontrolled diabetes and other co-morbidities and their family members at two community health centers.	• Improve patient health by allowing providers to prescribe fruits and vegetables as part of a nutritious diet.	• Enrolled a total of 174 patients in the three 12-week sessions. (Yr. 1)

APPENDIX A – Population Health Grantees and Principal Project Outcomes

Idaho Primary Care Association, cont.		• Empower patients to adopt new eating patterns and develop cooking skills required to create lasting lifestyle changes. • Benefit local retailers and farmers by increasing demand for fruits and vegetables to sustain access to wholesome and nutritious food.	• Implemented project at one CHC in SW Idaho. Of the 174 enrolled patients, 108 (62%) received nutrition education from a dietician through either a one-on-one session or group appointment, or during a cooking class, qualifying them to receive free produce at the weekly produce market. (Yr. 1) • Eighty-five (85) of the 108 eligible patients (78.7%) attended the weekly produce market at least four times over the course of the program to acquire free produce. (Yr. 1) • For this group of 85 patients (those who both attended a RDN individual or group appointment or cooking class AND visited the produce market at least four times over the course of the program), there was an average reduction in HbA1c of 1.6%. Of this group, 38 patients (44.7%) reduced their BMI. (Yr. 1) • Through partnership with the Boise Mobile Farmers Market, provided access to fresh fruits and vegetables for participants in the first program session and increased produce sales by 27.8%, including approximately $5,527 paid to local farmers, and approximately $1,843 to help support the Mobile Market. (Yr. 1) • Through lessons learned in year 1, IPCA expanded the program to add an additional health center, Valley Family Health Center to year 2 of the project period. (Yr. 2)

APPENDIX A – Population Health Grantees and Principal Project Outcomes

Idaho Primary Care Association, cont.			• 62 TRHS patients completed the program in Year 2. Of those who returned for a retest, 59.4% saw a decrease in their HbA1c of 0.5% or greater by the end of the program. (Yr. 2) • Of the 26 VFHC participants who were in the second cohort, 20 returned for a retest of their HbA1C upon completion of the program. Of those 20 participants 16 (80.0%) had a decrease in their HbA1c. (Yr. 2) • IPCA continued collaborative partnerships to support and strengthen and raise awareness of the program including Idaho Food Bank and 5 local grocery stores/farmers markets, Idaho/Oregon Foodbank, and state programs such as Food is Medicine Partner meetings sponsored by the Idaho Hunger Task Force and with Idaho State University's Department of Nutrition and Dietetics as a resource for a formal evaluation of the program. • A collaborative effort is underway to produce cooking courses, grocery shopping guidance and other beneficial educational components in video format that could be shared with patients when they cannot meet face to face. • Shared best practices and challenges with other CHCs in Idaho to inform them about the FVRx program, promote food security, and share model policies.

APPENDIX A – Population Health Grantees and Principal Project Outcomes

Northwest Regional Primary Care Association	• The goal of this planning project was to identify how Community Health Workers (CHWs) can be leveraged to enhance the effectiveness of integrated behavioral health (BH) and primary care (PC) services in community health centers (CHCs).	• Assess current utilization of CHWs in community health center-based settings; • Evaluate the training required for CHWs to work effectively with adults in PC-BH settings; • Support CHC organizational readiness to incorporate CHWs as part of PC-BH integrated services; and • Initiate the development of a CHW Training Institute aimed at supporting integration of CHWs into clinical and community-based teams.	• Strengthened existing partnerships and built new organizational relationships to support CHW training and integration; • Developed a bilingual English/ Spanish survey tool and conducting a survey that received more than 200 responses (estimated response rate = 30%). Survey respondents included CHWs, managers and administrators, outreach and enrollments specialists, senior leadership, and behavioral health providers; • Identified financial and systemic barriers to utilizing CHWs to support the delivery of behavioral health services, • Identified potential training needs to support CHW engagement in varied settings • Produced a concept paper in conjunction with leading subject-matter experts that will be disseminated to community health centers as a resource to support effective deployment of CHWs in integrated PC-BH care models.
Community Health Care Association of New York State	• Year 1: To position health centers throughout New York State to build strong cross-sector partnerships and succeed in a VBP environment. • Year 2: To understand patient and provider perspectives of remote care via telehealth and assess implications for population health in the post COVID-19 pandemic period.	• Promote collaboration across and between CHCs, and between CHCs and behavioral health care providers; • Support the ability of the state's health centers to provide high quality care; • Build thriving partnerships across the primary care and behavioral health sectors;	• In partnership with the NYS Council for Community Behavioral Healthcare,convened: three regional collaborative meetings throughout NYS; facilitated a meeting between Behavioral Health Care Collaboratives (BHCCs) and health center-led independent practice associations (IPAs); and organized an Integrated Care Summit with attendees from behavioral health organizations, health centers, health center IPAs, and BHCCs;

APPENDIX A – Population Health Grantees and Principal Project Outcomes

Community Health Care Association of New York State, cont.		• Advance policy changes that incentivize collaboration and service integration; • Develop model for data sharing; and • Foster practices of a learning organization. • Demonstrate the benefits of telehealth for patients and providers to ensure ongoing telehealth investment. Year 2 • ·In partnership with the Council, recommended ways in which New York State could improve and expand access to remote care delivery. • ·In partnership with NYU Grossman School of Medicine, conducted qualitative interviews with patients and providers in eight New York health centers.	• Established a learning collaborative to highlight best practices regarding clinical integration models, data sharing tools, and governance; • CHCANYS and the Council provided coordinated responses to State's DSRIP 2.0 waiver amendment request, recommending that 25% of DSRIP funds be dedicated to community-based Value-Driving Entities where health centers and/or behavioral health organizations are the lead entity; • Submitted comments on the Federal Government's proposed changes to 42 C.F.R. Part 2, Confidentiality of Substance Use Disorder Patient Records. Comments submitted by CHCANYS and many other key stakeholders led to changes that better facilitate care integration among federally-assisted programs to promote whole-person health care; and • CHCANYS presented an FQHC 101 webinar to help behavioral health partners better understand the landscape in which CHCs work. Year 2 • With Community Behavioral Healthcare (NYS Council) jointly developed and released a policy brief: Ensuring Sustained Access to Telehealth in the Post Pandemic Period (June 2020) • Based upon interviews, submitted a policy paper to NYS, Ensuring Sustained Access to Telehealth Post-Pandemic: Patients and Provider attitudes and Beliefs Support Use of Remote Care (January 2021)

APPENDIX B – Learning Community Sessions

Title	Facilitator	Grantee co facilitation or lead
Orientation to Grant Program	RCHN CHF team	
Introduction to Learning Community	RCHN CHF Team	
Recap Progress & challenges across projects Discuss learning needs survey results((held mid-year and year end for both grantee cohorts)	RCHN CHF Team	Brief presentations from all grantees
Team Approaches to Care Management & Patient-Focused Primary Care/Behavioral Health Integration	Trip Gardner, MD & Angela Felecia MSW LCSW. Penobscot CHC (Maine)	
Target Population & Care Coordination	RCHN CHF Team	Grantee presentations
Provider & Team Engagement	Grantee facilitator & RCHN Team	Three grantee presentations followed by discussion
Application of Lean Approach, A3 Thinking, Value Stream & Process Mapping	E. Fingado & J. Lee, Denver Health Lean Academy	Grantee case study presentation of value stream mapping
Post Mid-term election policy briefing	Sara Rosenbaum, Milken Institute School of Public Health, GWU	
From Conception to Delivery: Issues in Implementation of population health initiatives	RCHN CHF team	Lead: health center case study
Ecosystems & Equity: Requisite Principles to Advance Quality Health Outcomes & Transitions of Care	B. Johnson-Jarvis, MSW, J. Holmes MSW of St. Louis Integrated Health Network & H. Miller, MD chair of St. Louis Transitions of Care Task Force	

Designing the best: Through the Eyes of the Patient	S. Edgman-Levitan, PA Stoeckle Center for Primary Care Innovation	
Team-Based Management Program for Patients with Complex Health & Social Needs	T. Lippard, MD & S. Moret, OT. Kaiser Permanente Care Mgt. Institute (NW & CO regions)	
Developing & Implementing Program Evaluation	M. Chin MD MPH & R. Nocon, MHS. Dept of Medicine, Univ of Chicago	Case study examples from health center & PCA grantees
Approaches to Auto-Indexing	D. Hartzband, D.Sci. RCHN CHF Director of Technology Research	Case study: health center grantee
Path2Analytics Level Up Project (assessment of data quality in EHR & data warehouse)	D. Hartzband, D.Sci. Director of Technology Research RCHN CHF	
Data analytics & HIT milestones: care coordination, clinical decision support, QI, pop. Health mgt.	RCHN CHF Team	Brief examples from all grantees
Advancing Population Health, Sustaining Population Health Initiatives	J.I. Boufford MD, New York University	3 Grantee case studies

APPENDIX C – Selected Grantee Presentations

Access Family Care (MO)	Presented Comprehensive Diabetes PCMH Integration project at the Association for Clinicians of the Underserved (ACU) conference (2017) Convened and presented Patient – centered Transitions of Care Conference (2016)
ACCESS (IL)	The IHH program was presented at the Community Health Centers of Arkansas annual conference (2020), a state-wide event focused on transformation and innovation that impact how healthcare is delivered across the Arkansas.
Charles B. Wang CHC (NY)	CBWCHC presented their project at the NACHC CHI and EXPO (2017).The presentation addressed core domains of population health including population identification, SDoH assessment, engagement of target population and com-munity partners, risk assessment and impact evaluation of quality improvement. A poster session was also presented (X)
Erie County CHC (OH)	Convened and presented at regional "Improving Futures for Healthy Babies" Summit (2016)
Fenway Health (MA) and Georgia PCA	Presentation at Association of Clinicians for the Under-served (ACU) annual conference (2019) focused on how community health centers are meeting the challenges of caring for individuals with complex needs.
Hudson Headwaters (NY)	Delivered a presentation at the NACHC CHI and EXPO (2017), which focused on their approach to value, internal and external project interventions, and lessons learned.
Mariposa Community Health Center (AZ)	Presented the Comer Bien project at the Western Forum for Migrant and Community Health, hosted by Northwest Regional Primary Care Association (2019)
Colorado Community Health Network (CO)	CCHN presented at the NACHC CHI in San Diego, California (2017). The presentation addressed population health man-agement processes and strategies, project interventions and lessons learned. CCHN also presented along with the Terry Reilly Health Services at the Region VIII and X fall con-ference (2019) focused on how to address SDOH to improve population health