Integrated Care in a Fast-Changing and Slow-Moving Environment: A Mixed-Methods Evaluation of the Health Neighborhood Project

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Glossary/Acronym List

This glossary was sourced largely from the Illinois Health Practice Association (IHPA)

ADT: Real-time, electronic message that is generated when an attributed member is Admitted, Discharged or Transferred to/from a hospital inpatient setting or emergency department.

Capitation: Payment of a set amount of money for every attributed member every month (per member per month/PMPM); capitated payments are a fixed amount and require providing services within that fixed budget regardless of actual costs required to provide the total services.

Centricity: The Electronic Health Record system used by Heartland Alliance Health

CMS: Center for Medicare & Medicaid Service

DCFS: Illinois Department of Child and Family Services

DMH: Division of Mental Health

Fee for service with upside/downside risk: Claims are paid on a fee for service (FFS) basis; at the end of the contract period, quarterly, every 6 months or once a year, there is a reconciliation against the contractual terms and the provider organization may either receive more money (upside) or owe money (downside). In addition to reconciling FFS claims, consideration will be paid to quality performance and performance on quality measures that may offset any financial gain or loss.

HAH: Heartland Alliance Health

HEDIS (Healthcare Effectiveness Data and Information Set): A nationally-used set of performance measures, developed and maintained by the National Committee for Quality Assurance (NCQA), to measure health plan performance and compare it with other plans using regional or national benchmarks.

HFS: (Illinois) Healthcare and Family Services

IDHS: Illinois Department of Human Services

IM+CANS: Illinois Medicaid Comprehensive Assessment of Needs (IM+CANS) is the mandatory screening tool required by HFS for Rule 132 mental health services.

Illinois Medicaid Program Advanced Cloud Technology (IMPACT): Medicaid Management Information System

Integrated Assessment and Treatment Planning (IATP): IATP is an integrated service that ensures an individual's assessment of needs and strengths are clearly documented and lead to specific treatment recommendations. Providers must minimally review and update clients' IATPs every 180 days.

Independent Practice Association (IPA): A network of providers who agree to participate in an association to contract with managed care plans. Although providers maintain ownership of their practices and administer their own offices, the IPA serves as a corporate structure for negotiating and administering managed care contracts for its members.

Integrated Health Home (IHH): A provider entity specially designated under the Illinois Medicaid to be responsible for high intensity care coordination across the physical, behavioral, and social care needs, for all members attributed to them. IHPA is designated as an IHH.

Pay for performance: Provider organizations are rewarded for meeting certain quality targets. The targets are often a combination of utilization, outcome, and process measures.

Per member per month (PMPM) payment: A set amount of money paid each month to a provider or payer to cover the cost of all contractually agreed-upon services provided to a health plan member.

Permanent Supportive Housing: Permanent Supportive Housing (PSH) is a model that combines low-barrier affordable housing, health care, and supportive services to help individuals and families lead more stable lives. PSH typically targets people who are homeless or otherwise unstably housed, experience multiple barriers to housing, and are unable to maintain housing stability without supportive services.

Rule 132: The Illinois Administrative Code that regulates the participation of providers in the Medicaid community mental health services program.

Rule 140: The Illinois Administrative Code that regulates the payment for community-based mental health services funded by Medicaid.

Social Determinants of Health (SDOH): Conditions in the places where people live, learn, work, and play that affect a wide range of health risks and outcomes.

A Note on COVID-19 and Health Neighborhood

May 4, 2020

We are releasing this evaluation of a healthcare and housing coordination program in the context of a global pandemic. As we begin to slowly shift from emergency response to planning for the future, we are reflecting on the learnings of the Health Neighborhood project that are applicable to a post-COVID-19 world.

COVID-19 has laid bare the inefficiencies and inequities within our healthcare system. It has painfully highlighted the consequence of a lack of true investment in safe and stable housing for all, regardless of mental health status. Lastly, this disease has elevated the impact of racism, racist policies, and inequitable resource distribution in our city and country. In Chicago, at the time of publication, 37% of COVID-19 cases and 52% of COVID-19 deaths were among African Americans, who make up 29% of Chicago's population. In unpublished initial screenings of people experiencing homelessness, 30-50% of people tested postive for COVID-19. Most people who are hospitalized for COVID-19 are older with underlying medical conditions, including diabetes, heart conditions, and respiratory disease. In Chicago, poverty and homelessness, which are inextricable from racism, are critical factors in the disproportionate impact of COVID-19 on communities of color.

The Health Neighborhood project, developed and implemented by Heartland Alliance Health (HAH), was, in many ways, a bandaid on historical inefficiencies and inequities of our health and housing systems, and illustrates the importance of integrated healthcare services, including behavioral health care, and housing. Access to high-quality physical and behavioral health services for people experiencing homelessness and/or poverty is challenging in our current healthcare landscape. This too has been made clear by COVID-19. Health Neighborhood's model focused on enabling supportive housing sites to provide care coordination and behavioral health services to housing participants in order to improve health outcomes among a population that may be more reticient to seek care for numerous reasons. The population served by the Health Neighborhood project were largely over 50, identified as African American/black, and had high rates of chronic disease such as diabetes and cardiovascular diseases, compounded by behavioral health challenges including serious mental illness. As is highlighed in this report, people experiencing homelessness are more likely than the housed population to have unmanaged and more advanced chronic disease, which partially explains COVID-19's impact on people experiencing homelessness and people in Chicago's lowest-income communities.

This report is a call to action to increase housing availability and affordability, especially for people experiencing homelessness with mental health issues as a critical determinant of health. This report also calls out the complicated web of physical and behavioral health care services that defines our healthcare system and provides recommendations to better integrate services. Ultimately, programs like Health Neighborhood are continuing to put bandaids on a broken system. Over the past two months, cries across our country have called for us to return to normal. However, as hopefully this report makes clear: normal wasn't working. Our vision should be to build a better system out of the ashes of the pandemic, not return to the dysfunctional one we had before.

We need to rethink healthcare and provide holistic solutions across social determinants of health. The

consequences of our fragmented system of care is crystalized in the COVID-19 reality that medication adherence, or seeking a COVID-19 test when symptomatic, is near impossible without a home, or money for food and transportation, or often a person (such as a care coordinator, or a case manager, or a peer engagement specialist) providing motivation to take a pill, or know which bus to take to the pharmacy or testing site, or just acting as a shoulder to lean on.

It is hard to imagine what the impact of COVID-19 would have been in our city and country without the deep inequities along racial lines and a holistic and person-centered healthcare system. What is clear is that, moving forward, we need to re-imagine how we take care of our communities, especially those that are most vulnerable. We need to significantly invest in resources, including housing, healthcare, and employment, specifically in the communities that have been disproportionately impacted by COVID-19. Lastly, we must come out of this crisis not with a return to normal, but pushing forward into new frontiers of building better, more holistic, and more equitable health neighborhoods.

Executive Summary

Improving health outcomes among populations experiencing homelessness with both complex behavioral health and primary health care needs requires an integrated and place-based approach.

Health Neighborhood, a pilot project within Heartland Alliance Health (HAH), intended to create a population-based approach of improving integrated care among people with experiences of homelessness, who were housed in permanent supportive housing (PSH). The program was built on through intensive partnerships between HAH and five Permanent Supportive Housing (PSH) providers: Chicago House, North Side Housing and Supportive Services, Deborah's Place, Housing Opportunities for Women, and Heartland Human Care Services (HHCS). The program was implemented from 2016 – 2019, and served 46 participants.

The model was built on **shared revenue, shared staff, and shared data between HAH and the PSH**. Care coordinators and behavioral health therapists (shared staff) worked with participants who were largely *already* attending HAH and receiving housing and case management supports from the PSH to strengthen the services that they were receiving. As shared staff, they were able to access HAH's electronic health record (EHR) system, Centricity, to enter visit data and to communicate with primary care providers to better coordinate and integrate care (shared data). Lastly, care coordinators and therapists invoiced HAH for the hours spent with participants and HAH paid the PSHs, and then billed Medicaid to be reimbursed for those paid hours (shared revenue). This circumvented the need for the PSHs to build up their own Medicaid billing structures, receive reimbursements for Medicaid reimbursable services.

The evaluation explored the Health Neighborhood program from July 2017 – April 2019 across three PSHs: North Side Housing and Supportive Services (NHSS), Deborah's Place, and Housing Opportunities for Women (HOW).

This evaluation attempts to holistically explore this program by:

1) Describing the health policy landscape in which this program was functioning;

2) Exploring participant, PSH staff, and HAH staff perspectives on program successes and challenges;

3) Estimating the PSH partner cost and assessing the HAH cost of implementation; and,

4) Investigating the appointment completion rates and compliance to HEDIS clinical health measures among Health Neighborhood participants as compared to a matched cohort

Based on these four components, we also provide recommendations on both implementation of similar programs and policy change to improve the financial sustainability of integrated health and housing programs specifically for people with complex social and health needs.

The Health Neighborhood project, like some other innovative programs that seek to provide high-quality, coordinated, and holistic care for people with complex medical

and social needs, was not able to remain financially feasible. However, it is just as important to highlight challenges in implementation as well as successes, so that the social service universe can learn and grow. By understanding the challenges for small programs like Health Neighborhood to grow in either uncertain, or at times unfriendly, policy landscapes, critical lessons can be learned to inform innovations to make meaningful changes for participants[i] with complex needs. As an HAH clinician said, *Health Neighborhood was just ahead of its time*. That may be true. Illinois is now making strides towards more integrated care and therefore the potential barriers and opportunities to implementation within this changing landscape are even more urgent to understand.

Major policy challenges

There were three main federal and state policies that influenced Health Neighborhood. They included:

- 1115 Behavioral Health Waiver: An 1115 waiver is “a contract between the federal and state governments that ‘waives’ federal Medicaid requirements and gives the state government approval to experiment, pilot or demonstrate projects.”
- Behavioral Health Encounter Rate: The amount that licensed clinical social workers (LCSWs) are reimbursed per visit for Federally Qualified Health Centers (FQHCs)
- Rule 132/140: The rule used by Department of Human Services (DHS), Division of Mental Health (DMH) that governs optional mental health Medicaid benefits in Illinois

Each of these policy mechanisms presented challenges to the Health Neighborhood project. The Health Neighborhood project was envisioned at a time when the 1115 waiver was an exciting mechanism to provide supportive services, like care coordination, to PSH residents. However, the 1115 waiver had a delayed passage and then was not implemented during the Health Neighborhood project period, and it’s future is still, at publication, unclear. Without that wavier support services, such as care coordination for this population could not be reimbursed by Medicaid. The next roadblock was the behavioral health encounter rate, which was too low to be able to recruit and retain enough high-quality behavioral therapists for the program. Lastly, the program looked to Rule 132 billing to generate more revenue, but the challenges in rapidly rolling out a highly administratively burdensome program with a new partner delayed reimbursements, and the Health Neighborhood project could not continue.

Programmatic outcomes

"You know our Health Neighborhood folks are people that it's a struggle to get them to sit down for two minutes, for most of them. There's the ones that meet with [therapist], they will and they do and that's why they're in the program. And then our other people in the program have a lot of health related needs and a lot of other priorities right now and so being able to, in the moment, when they come and say 'I'm ready to see a doctor', to be like 'okay, tomorrow morning', that has been really powerful." (PSH provider)

In talking to PSH partners, HAH staff, and participants, Health Neighborhood did lead to successful changes in developing and/or strengthening organizational partnerships, health capacity-building, innovations in data sharing, and improved care coordination and therapy support. There were also programmatic challenges as well that are discussed in the report related to a hectic roll-out, technological barriers, and a lack of awareness of the program across HAH staff.

Ultimately, the estimated cost of the Health Neighborhood program, for 2 years of implementation, which includes HAH costs and estimated costs of the 3 PSH partners[ii] was **$345,862.** There were some trends which suggest modest improvements in appointment completion rates over time among Health Neighborhood participants as compared to the matched cohort. However, there were no statistically significant differences over a two-year period between the Health Neighborhood cohort and matched cohort in appointment completion rates. There also appeared to be slight improvements in a few specific clinical measures, but significance testing was not conducted.

There were, however, stories from HAH staff and PSH staff and participants that highlight the importance of investing in high-quality integrated care for participants with complex medical needs. The quality of the care coordination or therapy staff *relationships* with participants were really the key component of health changes at the individual level. Change in health seeking behavior and health outcomes take a long time, and require continued investment. There were stories of people who had never received therapy, starting therapy and seeing their life improve as a result, even in small ways. There was a story of a participant who consistently missed specialist appointments after a stroke, until his care coordinator drew him a bus map that he looks at every day to remind him, which stop to get off at. Based on interviews, this was the level of care that many of the folks with the most complex conditions need. Our system is not set up to reward this level of care, which is often preventative care.

Policy Recommendations

I think this was successful. It was successful in proving how complicated this is. And from this I think we could actually design a more sustainable project. (HAH Executive Director)

Many of the interviews conducted with key informants in the health policy field in Illinois centered around the idea that our healthcare system must become more caring, more holistic, more innovative, and more trauma-informed if we are going to

ii The estimated total cost for 3 PSH partners was projected based on a cost estimation from 1 PSH partner

make a dent in health disparities and healthcare costs.

The main recommendations for the Medicaid policy environment based on this research include:

1. **Submit a state plan amendment to establish a new Medicaid benefit that funds services in supportive housing in lieu of the stalled 1115 waiver pilot**

   The extreme lack of affordable housing cannot be solved by Medicaid, but rather, there needs to be a more intensive focus on partnerships across health and housing, building on the existing health and housing partnerships. A state plan amendment should be passed to provide homelessness prevention and supportive services for adults and families as a means to mprove health outcomes

2. **Provide additional subsidized housing resources to expand the Flexible Housing Pool.** Modeled after the Los Angeles Flexible Housing Pool program, the Cook County FHP provides housing to individuals who are frequent users of the emergency department (ED) through a public-private partnership. The vision of the FHP is to expand and be sustained through both private and public funding (including Medicaid). While the evaluation of the Cook County FHP has not been completed yet, one key informant reflected that despite small challenges with any new program roll-out, it is overall and exciting and very promising program.

3. **Increase Medicaid reimbursement rates.** As Illinois shifts towards IHH, which may include FQHC care coordination for Medicaid populations, rates must be high enough to recruit and retain care coordinators and behavioral health therapists to work with the Medicaid population.

4. **Launch Integrated Health Homes and prioritize patient engagement.** The Integrated Health Homes model is an exciting opportunity for Illinois to provide more holistic and patient-centered care. Much hinges on the details of implementation, but based on the Health Neighborhood project, it is critical to develop appropriate value-based payment rates for complex populations and leverage existing relationships and community-based structures to prioritize patient engagement.

5. **Support innovative service delivery models such as the Illinois Health Practice Alliance.** In order to achieve better health outcomes among populations with complex medical and social needs, it is important to shift towards a model that rewards outcomes (quality) rather than number of visits or services (quantity). On example of a value-based service delivery model is the **Illinois Health Practice Association (IHPA)** is “an Independent Practice Association created to improve the integration of behavioral and physical health care in the state of Illinois.”

6. **Streamline and standardize administrative and billing requirements.** The administrative and billing requirements are major barriers for financial sustainability of innovative approaches for both larger and smaller organizations. Community-based organizations, many of whom have deep meaningful ties to high-need participants perceive the administrative and billing requirements as barrier to starting to bill at all.[1] While the Illinois Association of Medicaid Health

Plans (IAMHP) released the IAMHP Comprehensive Billing Guide to better assist providers in billing, there are still major gaps in streamlining requirements across agencies and funding mechanisms.

7. **Allocate state funding for training and support of smaller community organizations to bill Medicaid for care coordination and behavioral health services.** Illinois should invest in building the capacity and data and documentation infrastructure with community organizations to directly bill for Medicaid, or create a more feasible apparatus for the community providers to be supported to provide services. In doing so it is critical to intentionally ensure that there is funding allocated to organizations of color, which have been historically underfunded.
8. **Invest in technology to better support data entry and management across providers to support integrated care.** One of the lessons learned from Health Neighborhood was the importance of data sharing and clinical teams across programs having access to appropriate levels of participant data. Because care coordinators were able to flag issues in the EHR, primary care providers (PCPs) knew important developments from specialty care providers or were alerted social determinants of health that could influence care.
9. **Invest in developing a sustained community input channel.** Systems are stronger when they have input from the communities/and or beneficiaries that they serve. HFS has held public town halls to gather public input, which certainly could include people with lived expertise with the Medicaid system. However, a more robust and sustained Medicaid beneficiary group that could be consulted during design and implementation could strengthen the system and circumvent potential issues during roll-out.
10. **Support a Federal Single-Payer System and Universal Health Coverage.** Each of the key informants was asked, if they could make one major policy change to improve integrated and holistic care to participants with complex health and social needs, what would they do? The most common answer was to implement a single payer health care system. In order to truly provide not just coverage, but holistic and quality care, to all Illinoisans, we must commit to healthcare as a human right that everyone deserves, regardless of income or complexity of need.

Health Neighborhood was an innovative program that faced funding, staffing, partnership, and policy-related challenges. It also served a highly-complex population, representative of the population of high hospital/ED users, which is the focus of city and statewide efforts to reduce overall healthcare costs.

Health Neighborhood did support positive changes for some of the program participants, either through their physical health or behavioral health. It did also create partnerships that had some benefits, though were not without challenges and drawbacks. Ultimately, though, there were some noted flaws within the program design that impacted its cost and outcomes. Health Neighborhood was not a failure, but it was ultimately not financially sustainable. However, the ideas, the innovations, the creativity, and the lessons learned from the project can be carried forward to continue to create programs and systems that provide high-quality, integrated behavioral and physical health services built on strong partnerships to improve population-based healthcare.

Introduction

Improving health outcomes among populations experiencing homelessness with both complex behavioral health and physical health needs requires an integrated and place-based approach.

In 2019 in Chicago, there were an estimated 5,290 people experiencing literal homelessness (as defined by HUD[iii]).[2] Experiences of homelessness, trauma, behavioral health issues, and substance use disorders (SUD) have an interconnected relationship. People may be driven to experiences of homelessness through trauma, behavioral health issues, and/or substance use disorders, and the experience of homelessness is traumatic and can exacerbate health issues. People experiencing homelessness have higher rates of both behavioral health issues, including serious mental illness (SMI) and substance use disorders, and chronic physical disease than the general population. A lack of housing contributes to challenges with medication and disease/condition management and is at least one contributor to higher emergency department (ED) use and hospitalizations among this population.

Health Neighborhood, a pilot project within Heartland Alliance, intended to create a population-based approach of improving integrated care among people with experiences of homelessness, who were housed in permanent supportive housing (PSH). The program was built on through intensive partnerships between Heartland Alliance Health (HAH) and Permanent Supportive Housing (PSH) providers. The program, which is described in more detail in this report, was implemented from 2016 – 2019. This evaluation attempts to holistically explore this program by 1) describing the health policy landscape in which this program was functioning, 2) exploring participant, PSH staff, and HAH staff perspectives on program successes and challenges, 3) estimating the PSH partner cost and assessing the HAH cost of implementation, and 4) investigating the health outcomes. Based on these four components, we also provide recommendations on both implementation of similar programs and policy changes to improve the financial sustainability of physical and behavioral health programs specifically for people experiencing homelessness.

The first section of this paper will describe some of the major concepts around care coordination and integrated health and housing in Illinois. The second section will describe the Health Neighborhood program implementation, successes, and lessons learned from the perspectives of the Health Neighborhood staff and participants. The third section will outline the policy challenges that influenced the Health Neighborhood project based on interviews with key informants in the Medicaid policy field. This will help contextualize the fourth section, which provides a cost analysis of the Health Neighborhood project and assessment of health record data. Lastly, we provide a set of recommendations and conclusions.

Each of the data collection components for these sections is outlined below:

1. Participant surveys and interviews

Participants were surveyed from October, 2018 – January, 2019 about their experience with the Health Neighborhood program and their self-reported health status. The data collected was intended to be a baseline collection, but when the

iii HUD defines homelessness as Individual or family who lacks a fixed, regular, and adequate nighttime residence, meaning: (i) Has a primary nighttime residence that is a public or private place not meant for human habitation; (ii) Is living in a publicly or privately operated shelter. The HRSA definition of homelessness which is the definition that Heartland Alliance Health uses, is broader and includes people experiencing unstable housing, such as living 'doubled-up' or 'couch-surfing'

decision to end the program was made in March, 2019, the endline survey was cancelled. Therefore, the survey data is included as a point-in-time survey to understand participant perceptions of the program at the time of implementation. Only two in-depth interviews were conducted due to the program ending. The interview data should be understood as two examples of specific experiences within the program and are not able to be generalized.

2. HAH and PSH staff interviews

We conducted 11 individual and/or group interviews with HAH and PSH staff members to explore successes and challenges of the Health Neighborhood project. All interviewees underwent oral informed consent. All audio files were transcribed and stored in a locked cabinet. All transcripts and interview notes were uploaded into Atlas.ti software and analyzed for common themes.

3. Illinois Health Policy Review + Key Informant Interviews

In order to gather information for this report, Illinois policy and documents related to the 1115 waiver, the behavioral health encounter rate, and Rule 132/140 were reviewed. National best practices documents were reviewed to identify opportunities for innovation within Illinois policy. Lastly, 8 key informant interviews with Illinois health policy experts were conducted. All participants underwent oral informed consent. All audio files (for recorded interviews) were transcribed and stored in a locked cabinet. Policy specific questions were analyzed using a rigorous and accelerated data reduction (RADAR)-like approach for qualitative data analysis.[3]

4. Cost Analysis

A cost-effectiveness analysis was conducted using HAH program costs and an example of the cost from one PSH partner, North Side Housing and Supportive Services (NHSS). NHSS also estimated care coordination costs associated with the Health Neighborhood program.

5. Analysis of Electronic Health Record Data

Appointment completion data and HEDIS clinical measure data was analyzed to assess for changes over time between the Health Neighborhood cohort and a matched cohort. Frequency summary tables and a difference-in-differences statistical test was implemented to compare changes over the project period.

Integrated Care and Medicaid Policy in Illinois

One of the major sustainability challenges to the Health Neighborhood was financial sustainability. Specifically, the major state policies that influenced Health Neighborhood were:

- 1115 Waiver: An 1115 waiver is "a contract between the federal and state governments that 'waives' federal Medicaid requirements and gives the state government approval to experiment, pilot or demonstrate projects." [4]
- Behavioral Health Encounter Rate: The amount that licensed clinical social workers (LCSWs) are reimbursed per visit for Federally Qualified Health Centers (FQHCs)
- Rule 132/140: The rule used by Department of Human Services (DHS), Division of Mental Health (DMH) that governs optional mental health Medicaid benefits in Illinois[5]

Based on interviews with key staff, the policy landscape was a major contributor to the challenges around financial sustainability for Health Neighborhood. The goal of the project was to use seed grant funding to build strong partnerships between providers and PSHs to provide care coordination and behavioral health services. The intention was that care coordination services and place-based behavioral health services would be able to be reimbursed through the 1115 waiver to a degree that, by the time the grant period ended, the partnerships would be self-sustaining through leveraging PSH funding for housing and supportive services, and Medicaid reimbursements for care coordination and therapy. The delay in the 1115 waiver passage put pressure on HAH to look for funding mechanisms through other strategies, but as outlined in this report, those strategies also posed challenges to financial sustainability.

Approach for populations[iv] with complex medical needs[v]

Chronic behavioral health conditions, including serious mental illness (SMI) and substance use disorders (SUDs), may be associated with chronic, at times untreated, physical health conditions. These co-occurring behavioral and physical health conditions are often related to experiences of homelessness or housing instability. People with unstable housing may not be able to prioritize managing chronic disease such as diabetes or cardiovascular conditions due to other, more pressing issues. Additionally, people experiencing homelessness may not be able to access food, clothing, or transportation, which contribute to health conditions. The National Healthcare for the Homeless Council highlights the following additional contributors to adverse health outcomes:[6]

- Limited availability of affordable housing;
- Unsafe living conditions (exposure to violence and poor environmental condi-

iv This paper is focused specifically on the population that was part of the Health Neighborhood project which was predominantly an older (40+) population who met the requirements of living in permanent supportive housing (PSH).

v PSH programs have their own eligibility requirements, but examples include: has been diagnosed with an Axis I Serious Mental Illness (DMH), has income that is at or below 30% Area Medium Income (DMH), chronically homeless (HUD).

tions) prior to and during bouts of homelessness;

- Personal, provider, and systematic barriers to health care;
- Social isolation with limited to no social support and social inclusion in the community;
- Influence of social networks that engage in risky behaviors and a disconnect from positive home-based networks; and
- Increased likelihood of involvement with the justice system

Similarly, maintaining housing may be more challenging without addressing behavioral health conditions through therapy and/or medication. There is a greater prevalence of chronic health conditions among Medicaid and Medicare populations, since poverty and age are contributing factors to chronic health disease. In order to be able to address the complexity of health conditions, the Health Neighborhood project provided integrated care, facilitated through place-based care coordination and, to some degree, behavioral health interventions. Each of these components is further broken down below.

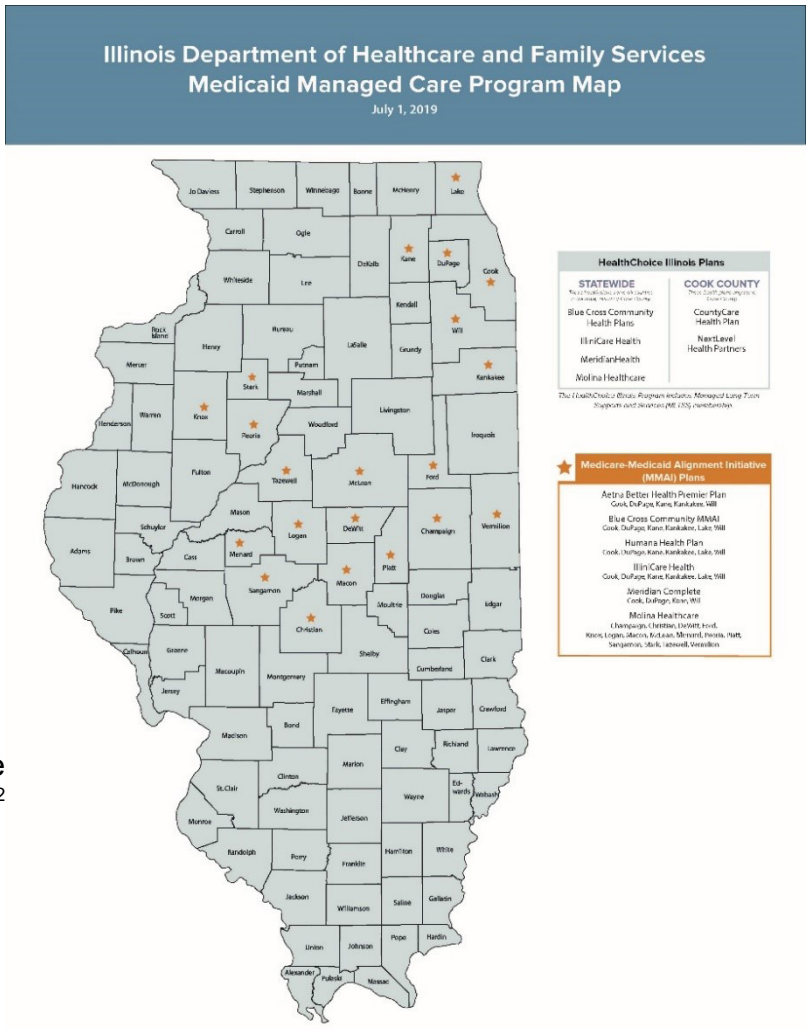
Integrated behavioral and physical health

Though not a new concept, integrating behavioral and physical health has been elevated as a critical component to care through the Affordable Care Act (ACA), which promoted patient-centered homes. As the ACA has rolled out, communities across the US began shifting models of care to better address the growing behavioral health needs of their patients. As outlined in SAMHSA's guiding document, *Leading Change 2.0: Advancing the Behavioral Health of the Nation 2015–2018,* integrated care produces optimal outcomes specifically for people with complex needs. For example, a 2014 RAND study of integrated health services among people with serious mental illness (SMI) demonstrated that integrated care improved indicators related to diabetes, dyslipidemia, and hypertension.[7] Integrated care, while requiring an upfront investment, also leads to significant cost savings. A 2018 report for the American Psychiatric Association outlined that an expected 37.6 – 67.8 billion dollars could be saved by effective integration of physical and behavioral health services.[8] Another study focused on one primary care setting found that embedding a behavioral health provider into a primary care setting led to a 10.8% reduction in health care costs.[9]

Care coordination

Care coordination is a mechanism that is intended to better integrate and tailor health services.[10] Care coordinators may have a social work, health, or nursing background, and service provision can vary across settings and populations. Care coordination can sometimes be confused with other common care terms such as ‘clinical case manager’ or ‘care manager.' In general, care coordination involves a *population-based* approach that pulls together the pieces of a fragmented health system to build a comprehensive and informed service network around participants with complex needs. Case management, or often in the healthcare setting, clinical case management, uses a *participant-based* approach to ensure that participants have the information and resources they need to access, understand, and make informed decisions about their healthcare services. In an ideal setting, the (clinical) case manager is part of their participant's care coordination team as a trusted advocate for the participant and can ensure (especially for populations experiencing homelessness) that the broader social determinants of health are taken into consideration as the team creates and discusses care plans. In reality, however,

especially in smaller community-based social service settings, case managers may be navigating the healthcare world on top of other participants' needs, without a care coordinator to work on strengthening the population-based networks of care.



Care coordination and/or case management services in a healthcare setting can be challenging to financially support. Federally Qualified Health Centers (FQHCs), like HAH, are able to bill for care management services including transitional care management, care management, behavioral health integration, and collaborative care model, but only through Medicare, not Medicaid.[11] Care management or care coordination services can also be provided and reimbursed through Assertive Community Treatment (ACT) teams, for people with Serious Mental Illness (SMI).[12] There are additional sources of funding for case management services depending on program such as HIV+ populations and/or people with substance use disorders (SUDs). Anecdotally, this fragmented system of reimbursable care depending on age and/or eligible condition contributes to the challenges organizations face in being able to sustainably provide care coordination/management services to all participants who need it, regardless of 'program eligibility.'

There have been mixed outcomes from care coordination studies. Some studies have found improved health outcomes and reduced costs.[13] Some, however, have cautioned against expecting major cost savings from care coordination models, but that improved health outcomes should outweigh a potential reduction in costs.[14] Most recently, a randomized control trial in Camden, Massachusetts demonstrated no significant difference in hospital re-admission rates among 800 patients who had 'medically or socially complex conditions' who received intensive care coordination services as compared to a matched cohort with 'usual care.'[15] Ultimately, the authors hypothesized that care coordination alone, without addressing the underlying social determinants of health (in particular homelessness and substance use) may be ineffective.

Community Nursing

Community nursing is an important component of providing place-based healthcare to people with complex needs. Community nurses might provide direct outreach services to people experiencing homelessness in camps, or places where people are staying or sleeping. Community health nurses embedded within permanent supportive housing (PSH) sites also are able to provide in-home care for people with complex or chronic diseases. Nurses can provide numerous primary care supports, while providing follow-up support from primary care/behavioral health visits as well as specialty care. They can support participants to prepare for visits with medical providers. Home-visiting programs for women and children through programs like the Nurse Family Partnership have a large evidence base behind them related to improving health outcomes and reducing infant hospitalizations[16].

Visiting Nurse Association (VNA), which provides support for community nurses for the homeless, is one option that PSH partners can use to support nursing care from private funds. However, as will be discussed further, many housing providers do not directly bill Medicaid, and a nurse's salary would still likely need to be supplemented outside of Medicaid revenue to cover the travel time/expenses associated with home visits and/or outreach care.

Medicaid Billing in Illinois

Medicaid payments typically occur through capitation or a fee-for-service (FFS) payment mode. In a FFS model, Medicaid reimburses physicians for the number of services provided. This model is quantity-based and many think that it incentivizes doctors to order a higher number of tests/procedures and leads to overall higher healthcare costs. The capitation model pays providers a per member per month (PMPM) payment to provide care for individuals enrolled in managed health. This form of value-based payment (VBP) promotes more of a performance-based payment system, incentivizing outcomes over quantity.

In Illinois, 81.4% of the Medicaid population are part of a managed care organization (MCO), and 18.6% are in a Fee-for-Service arrangement or other.[17] As of July 1, 2019, there are four statewide plans and two Cook County-only plans. There are also six Medicare-Medicaid Alignment Initiative (MMAI) plans (see map). FQHCs provide healthcare for underserved populations, typically through a mix of private funding, state Medicaid-Medicare reimbursement, federal dollars, and sliding scales. A history of Illinois Medicaid policy from the Center of Tax and Budget Accountability detailed the shift from a fully public system in 2011 to a privatized system in 2019, where over 80% of Medicaid beneficiaries are enrolled in one of the State's MCOs. As the author outlines, because the state is still recovering from a two-year budget impasse, the health-related and cost-related outcomes of privatization have yet to be seen.[18]

FQHCs are typically paid from the states' prospective payment system (PPS), a fixed rate for bundled care services. Medicaid is typically the largest payer for FQHCs. As the system has become more privatized, MCOs have begun to be responsible for direct reimbursements through a FFS model. However if the payments from the MCOs to the FQHCs are less than the PPS rate, then states are responsible for filling the gap between amounts paid to the FQHC by an MCO and the FQHC's PPS rate. These are called 'wraparound payments.'[19] During the implementation period of the Health Neighborhood project, reimbursements across the state in general (not specific to HAH), both from the MCOs and the accompanying wraparound payments, were delayed—at time 18 months[20] due to inefficiencies in a new privatized system as well as due to the statewide budget impasse.

Housing and Medicaid:

> *Why are the 5% consuming 50% of the dollars? They're not engaged. And what I mean by "engaged" is we know who they are, they trust us, and we're able to meet the one or two needs that they say are the most important [which] is never diabetes. Right? It is never schizophrenia. It's, where am I going to eat tonight? Where am I going to sleep?* (Ed Stellon, HAH Executive Director)

Housing instability is a major driver of health costs, across the US and specifically in Chicago. The 2017 – 2019 Chicago and Cook County Housing for Health plan included the following strategic priorities:[21]

- Increase the quantity and quality of services resulting in optimal health outcomes and strategic priority
- Strengthen and expand partnerships between housing and healthcare systems

In June, 2015, the Centers for Medicare and Medicaid Services (CMS) released a bulletin outlining how Medicaid could be used to support housing. For example, CMS outlined that states would be able to pay for individual housing transition services, "state-level housing services", and "individual housing and tenancy sustaining services." Other Medicaid mechanisms for linking housing included managed care plan initiatives, health homes, state innovation models, and accountable care organizations.[22] One example of direct use of Medicaid dollars for housing services was in Oregon, where the 1115 waiver permitted the state's coordinated care organizations to use Medicaid dollars for flexible services, such as housing supports like "critical repairs, ramps, and move-in expenses."[23]

Integrating healthcare with supportive housing promotes the idea of holistic, place-based care that shifts the dynamic of the provider-patient relationship by bringing health services to the patient/participant rather than the participant needing to seek them out. The Healthcare for the Homeless model supports providing services to people experiencing homelessness in non-traditional spaces, like their housing provider.[24] Examples include providing behavioral, physical, and oral/dental health services within permanent supportive housing buildings or housing service sites.

One major barrier to integrating health and housing services is the ability for a social service agency, particularly smaller and under-funded organizations, to be able to bill Medicaid for services. Billing Medicaid for health services within community settings has an inherent financial risk for a community organization to take on in order to bill. As Illinois has shifted towards Medicaid managed care, providers are concerned about building a billing infrastructure in a changing environment or, if they are already billing, how that shift may impact their revenue.[25] While there may ultimately be reimbursements that can support the service provision, costs of software and training may be too large of a hurdle. A 2017 IMPACT report highlighted the administrative and cost barriers that inhibit many social service providers from pursuing Medicaid billing.[26] In a 2019 survey with youth-serving community providers, 43% of the 130 providers surveyed were currently not billing Medicaid, and over 90% of those providers were not intending to begin billing Medicaid for services. When asked what the major barriers to implementation were, 30% of respondents stated cost. The survey also found there were more organizations that worked with predominantly

white populations that had an existing billing infrastructure as compared to organizations that work with populations of color.[27]

Implementation of Integrated Care

It's all blended and they tend to not have practitioners in the same place so it's over here for the mental health and over here for the physical health. Almost everyone we work with has an SMI and something else, SUD or primary health care issues. I think it's a vast majority of the people we serve have tri-morbidity. (Erica Ernst, Renaissance House)

The implementation of integrated care varies across states and programs and also can be defined differently. Here, we are exploring the integration of behavioral health, primary care/physical health, and housing service specifically. The RAND Corporation outlined critical components of integrated care implementation based on a large study across Substance Abuse Mental Health Services Administration (SAMHSA) sites.[28] Based on their work, which is echoed in the Health Neighborhood pilot study, critical components include:

- Co-location of services
- Shared structures and systems
- Integrated practice
- Practice culture

Applying these principles to the integration of physical and behavioral healthcare services in supportive housing service settings is complicated. A healthcare organization and a social service agency will have different data systems, funding requirements, and processes. Health and housing organization are likely to have different practice cultures, and perhaps approaches to care. Navigating and overcoming these barriers can be a challenge to sustained implementation.

Health Neighborhood is certainly not the first or the only project to try to integrate health and housing services. In a recent landscape analysis by the Alliance for Health Equity, 45 health and housing partnerships were identified across Chicago and Suburban Cook County, which included projects related to: capital and asset investment for housing; coordinated/embedded health resources and services with affordable housing; data analysis and planning to inform health and housing initiatives; coordinated policy, advocacy, and legal aid; and healthy, quality, accessible housing.[29] There have also been other pilot projects like Health Neighborhood that have integrated health services with PSH in the past in Illinois. For example, Renaissance House implemented a program that leveraged Medicaid reimbursement to support the supportive housing outreach team (SHOT) program. In a cost analysis, it was estimated that even if the program were able to be reimbursed by Medicaid, there would still be an estimated $70,000 per year loss, and therefore Medicaid revenue alone would not support an outreach team without braided funding from multiple sources. The Health Neighborhood program sought to leverage partnerships, private funding, and Medicaid reimbursement to support implementation, but ultimately faced extrinsic and intrinsic challenges too arduous to overcome.

A quest for financial sustainability through the Health Neighborhood project

"Oh, we kept getting thwarted. Like we had this brilliant idea that keeps getting thwarted by an unexpected reality." (Ed Stellon, HAH Executive Director)

The Health Neighborhood project sought to sustain itself through three main levers: the 1115 waiver, the Behavioral Health Encounter Rate, and Rule 132/140. Each of these mechanisms will be detailed in further detail below.

Illinois 1115 waiver

When Health Neighborhood was developed, it was built based on the assumption that the 1115 behavioral health waiver was going to pass and be implemented in Illinois. The 1115 waiver is a tool that states can use to create flexibility within the federal Medicaid system to test out pilots or demonstration projects [see box]. Section 1115 demonstration projects "present an opportunity for states to institute reforms that go beyond just routine medical care, and focus on evidence-based interventions that drive better health outcomes and quality of life improvements."[30] In Illinois, like other states, there were high hopes for the 1115 Behavioral Health waiver to better integrate housing and healthcare, especially for people experiencing homelessness, by providing necessary supports to supplement PSH housing and supports. Illinois HFS submitted the 1115 Behavioral Health waiver in the Fall of 2016 after several public discussions and dissemination of the plan. At the time, the intention was that the waiver would "transform Illinois's behavioral health system."[31] There were a number of outlined benefits at that time, but the one specifically related to Health Neighborhood was related to supportive housing services. It would allow for reimbursement of "services to address behavioral health through a 'whole-person' approach and support an individual's ability to prepare for and transition to housing and maintain tenancy once housing is secured."[32] It also had a specific initiative to improve behavioral and physical health integration through "investment funds for the State, MCOs and providers to promote integration of behavioral and physical health (e.g., development of team-based care partnerships between providers, workforce cross-training to ensure competence in both physical and behavioral health, etc.)."[33]

1115 Waiver Objectives

1. Improve access to high-quality, person-centered services that produce positive health outcomes for individuals;
2. Promote efficiencies that ensure Medicaid's sustainability for beneficiaries over the long term;
3. Support coordinated strategies to address certain health determinants that promote upward mobility, greater independence, and improved quality of life among individuals;
4. Strengthen beneficiary engagement in their personal healthcare plan, including incentive structures that promote responsible decision-making;
5. Enhance alignment between Medicaid policies and commercial health insurance products to facilitate smoother beneficiary transition; and
6. Advance innovative delivery system and payment models to strengthen provider network capacity and drive greater value for Medicaid.

As of 2017, Illinois's waiver also included supported employment, peer recovery coaching, and other community-based behavioral health services.[34] Despite hopes of a prompt passage, Illinois's 1115 waiver was not approved until the Spring of 2018. It is now unclear if, how, and when the 1115 waiver will be implemented. A 2017 Kaiser Family Foundation report indicated that the 1115 waiver in Illinois could be innovative;[35] however, little has been disseminated on the progress or plans for the 1115 waiver aside from a Frequently Asked Questions (FAQ) document, and now, with the impending implementation of Illinois's integrated health homes plan (described in more detail below), there may be changes in the scope of implementation of the 1115 waiver. As CMS outlines, "Demonstrations must also be 'budget neutral' to the Federal government, which means that, during the course of the project, Federal Medicaid expenditures will not be more than Federal spending without the demonstration."[36] Key experts interviewed through this project questioned whether Illinois would choose to fully implement the waiver, due to the burden of reporting requirements to demonstrate the cost-saving component of the waiver pilot.

The impact of the delay in the passage of the 1115 waiver on Health Neighborhood was critical. HAH had been planning on using private grant funding to support start-up costs and care coordination services, and then planned to be ready to leverage the 1115 waiver as soon as it passed to support the integrated care coordination and supportive housing services. As one expert said, "*In fact, to this day, even though it's approved, it's not, I don't think it's operational yet. And when it is operational, [it will] probably just be, you know, a pilot project and we don't know what that means. So, you know, five years away you can only wait so long for benefit to get turned on and then to also not know its future*." As 2017 ended and the waiver had yet to pass, the HAH team began to look elsewhere for more sustained funding.

Behavioral health encounter rate

As the 1115 waiver passage became more delayed, the HAH team looked to the behavioral health encounter rate to support the Health Neighborhood project. The HAH team hoped that, if each Health Neighborhood partner had a practicing LCSW providing services for all Health Neighborhood participants who wanted services, the reimbursement rate could potentially offset the costs of care coordination services for the same participants. However, there were two main barriers to this strategy: The first was the behavioral health encounter rate itself, and the second was the availability of LCSWs.

The behavioral health encounter rate influences the ability of FQHCs to recruit LCSWs with competitive salaries. LCSWs are specialized social workers with a Master's level degree who have passed the state licensing exam and completed extensive supervision. LCSWs provide a wide range of behavioral health and SUD therapeutic services. On average in Illinois, mental health and SUD workers are paid $46,540.[37] The average LCSW wage is $62,988.

For FQHCs like HAH, paying LCSWs adequately has an added challenge. All FQHCs are reimbursed through a different, and more complicated, system than an hourly rate reimbursement. FQHCs bill on a prospective payment system (PPS), a bundled payment that pays for all covered services and supplies in a visit. The intention behind the PPS was to "ensure predictability and stability for health centers while protecting other federal investments."[38] The rates for PPS payment

were derived in 2001, but each FQHC is able to request adjustments. The PPS rate for behavioral health encounters for Heartland Alliance Health is **$55.05,** which is $he average rate for Metro Chicago.[39] The rate is adjusted through the Medicare Economic Index (MEI). States are required to adjust payments to reflect changes in scope of services. The National Association of Community Health Centers (NACHC) has reported that "In some states the application of the PPS change of scope requirements has been a major roadblock in FQHCs being appropriately reimbursed for their services."[4041] Illinois has a definition for Medicaid Change in Scope that does NOT include all criteria provided by CMS guidance, but does has an established process for FQHCs to request change in scope services.

In Illinois, the behavioral health encounter rate was described by a key informant as "miserable." They said, *"you could have five encounters in a day [with the same person], but you just get paid once and it's [$54]."* One of the Health Neighborhood providers shared the frustration around the reimbursement structure, and that it does not allow for the fluctuation of needs that participants with complex needs have, whereby there are ebbs and flows of visits depending on the day, the week, the month.

The second major barrier related to using the behavioral health encounter rate to support the Health Neighborhood project was the availability of LCSWs. In Illinois, there are 3,570 mental health and substance use disorder workers (which includes LCSWs), which is lower than the national average (.74:1), indicating a statewide shortage.[42] The Chicago-Naperville-Elgin Metropolitan area has one of the highest employment levels in this area with 4,500 mental health and SUD workers, which is still lower than the national average (.83:1). While Chicago does not have a shortage of LCSWs, at least in comparison to the rest of Illinois, FQHCs cannot financially support LCSWs through the PPS to the same degree that an LCSW could bill individually for services. The 2019 LCSW encounter rate set by Illinois Department of Healthcare and Family Services for 60 minute psychotherapy visit is $100 dollars—twice that as an encounter rate at an FQHC.[43] While this is a simplified view of salaries and payments for therapeutic services, it can help explain why, during 2017 – 2019, only one of the PSH partners employed a full-time LCSW to provide behavioral health services. As one key informant said reflected about the Health Neighborhood project's LCSW shortage,

"*We knew that there were licensed clinicians in these settings historically and, it's the least restrictive. It's the lowest reimbursement rate, but it was the least amount of risk to the organization. At the same time, what is happening in Chicago? Medicaid expansion, health insurance expansion generally and licensed clinicians can work, work everywhere they want, often at double the price that we're paying." (Key informant)*

Another key informant said,

"But I would love for it to be easier for them [LCSWs] to bill in some sort of way because from my experience, I've seen, you know you have a clinician, they're really great. They work in the clinical field, they work in a community center and then you want to make more money and then you go to private practice … you're getting this expertise and then you're not working for the Medicaid community" (Key Informant)

Maintaining the salary of an LCSW at housing service sites, including PSH sites, is challenging due to needing to offset the low reimbursement rates, despite the fact that these spaces are increasingly more critical spaces to provide care. In FY20, Illinois HFS did increase rates for each provider type, which is a step in the right direction.[44]

Rule 132 and Rule 140

As the behavioral encounter rate was not able to bring in enough revenue, HAH turned to the last and highest risk option, Rule 132/140 billing. Title 59 of the Illinois Administrative Code (IAC), Section 132, known as Rule 132, "establishes requirements an entity must meet in order to be a community mental health center (CMHC)."[45] Title 89 IAC 140 or Part 140", "establishes the broad range of requirements all providers must meet to be eligible for reimbursement under the Illinois Medical Assistance Program."[46] Effective January 1, 2019, the 2015 version of Rule 132 was repealed in order to reduce the administrative burden and streamline certification across DHS-DMH/BALC, DCFS/IPI and HFS.

Rule 132 billing can generate substantial revenue for organizations with a large enough population of people with SMI, but there are a number of start-up barriers. To be reimbursed for services through Rule 132, eligible providers must be trained in and then implement the Illinois Medicaid Comprehensive Assessment of Needs (IM+CANS). Eligible providers are "certified staff that qualify as a mental health professional (MHP), a Qualified Mental Health Professional (QMHP) or a licensed professional of the healing arts (LPHA) in the state of Illinois and who provide services under the Illinois Medical Assistance Program."[47] Providers must complete the required one day classroom training and then complete an online certification testing within 30 days of completing the classroom course. The IM+CANS is a "lifespan tool" to assess the strengths and needs of individuals requiring mental health treatment. After completing the IM-CANS, the provider must create an Integrated Assessment and Treatment plan (IATP) which is intended to place "mental health treatment in Illinois on a new pathway built around a client-centered, data-driven approach."[48] The IATP, which replaced the previous assessment modules in August, 2018, should be revisited every 180 days with each participant. While key informants, including PSH providers, saw the benefit of the IM+CANS to developing and monitoring treatment plans, the burden of not only the assessment, but the revisiting

Community Mental Health Centers shall:

1. Comply with all requirements of a Certified Specialty Provider
2. Operate within a system of care that provides treatment, habilitation and support services
3. Provide a comprehensive strengths-based array of mental health services within an identified geographic service area
4. Provide care to individuals with or at risk for SMI/SED by using a person-centered approach to care performed by an interdisciplinary team
5. Serve individuals who have complex needs as a result of child welfare, justice or multisystem involvement, medical co-morbidity, homelessness, dual disorders, etc.
6. Ensure the connectability of services in the service area for individuals across the life span
7. Provide services in the client's natural settings.
8. Provide a safety net for individuals with SMI/SED who are indigent.
9. Provide outreach and engagement to individuals in need of mental health services.
10. Provide evidence-based and evidence-informed developmentally appropriate practices in a proficient manner
11. Provide for a screening prior to a referral to a more intensive level of care.
12. Provide education and resources to the public on mental health issues, including suicide prevention and wellness
13. Prioritize principles of recovery, system of care, trauma informed care, and culturally relevant practices
14. Provide access or linkage to psychiatric services and other health and social services

IDHS, Rule 132, Available here.

of the assessment frequently, was a barrier to participant engagement.

The Health Neighborhood manager shared, *"From what I've seen, for example through Rule 132, is that in order for us to get money ... we have to start with the IM+CANS and it's a pretty extensive assessment and needs to be done pretty regularly, it needs to then have certain follow-up goals and a treatment plan. And I think that, I agree with getting those done. I think that, that helps facilitate conversations about what are the needs. But I think it's a barrier because if we don't get those done, even if we are serving participants, all that work is not being captured and lost because we didn't get this one assessment done. So I think that that's the frustration."*

One of the PSH providers also reflected that the assessment and then the follow-up assessment could be traumatizing in itself, and challenging for their participants to complete. Also,the length of the assessment in particular was prohibitive to implementation. Especially when working with populations with an SMI, asking a lot of questions in one sitting may not be possible, and expecting multiple sittings also may not be reasonable. One key informant shared that in New York, providers voiced frustration on the length of their assessment tool similar to the IM+CANS, and the tool was shortened to adapt to the population.

For providers who are comfortable with implementing the IM+CANS and familiar with documentation for Rule 132 billing, such as those in larger organizations, Rule 132 brings in high revenue for an organization. However, as highlighted in the ICOY Medicaid Billing survey, the start-up costs, both direct and indirect, may prohibit small organizations from doing so—especially small organizations that prioritize populations of color.

Integrated Health Homes

In that context of being a patient in the health center, we get 20 minutes with them, you know, and they [the housing provider] get like three meetings a day, five days a week. And so, those relationships are deeper and richer and so that the health care, the actual healthcare was going to happen more likely inside the apartment than inside our clinic. So how do we optimize that? (Ed Stellon, HAH Executive Director)

One of the big opportunities in the current Illinois Medicaid landscape is the Illinois Integrated Health Home (IHH), which could possibly address the 3 policy barriers to Health Neighborhood sustainability highlighted above. While the roll-out of IHH will not affect the Health Neighborhood sustainability now that the program has ended, lessons learned from Health Neighborhood could influence IHH implementation. A health home is a team-based approach to providing holistic and integrated care for participants/patients. The IHH is centered on the Institute for Health Improvement's concept of the "Triple Aim": improved care for patients, improved population health, and reduced costs of care.[49] In order to achieve the Triple Aim, the authors argued that there would need to be a shift away from number of services given and shift towards quality of service and care provided. Over the past decade, Illinois, along with most other states, has been grappling with how to shift the entire Medicaid and Medicare structures to focus on improving participant health outcomes and not just increasing service output. In 2015, the Rauner administration began the implementation of the Behavioral Health Transformation, which included several state plan amendments including the IM-CANS shift and Rule 140 as described above, as well as the 1115 waiver. It also included the IHH, Illinois's first Medicaid health home model.

Patient-centered medical homes (PCMH) and Medicaid health homes both come from the concept of team-based holistic care. The practice of patient-centered medical homes arose in care settings for children with complex needs. It is “a care model in which the patient has a designated primary care provider who operates as part of a care team with responsibility for coordinating the patient’s overall health care needs.”[50] Critical to that approach is a focus on responsiveness and nimbleness depending on the patient’s needs, with a commitment to patient activation. Patient activation is a focus on increasing the degree of autonomy and engagement that a person has in their healthcare choices. Medicaid health homes, which were established in the Affordable Care Act (ACA), were built on a similar model of care but with a focus on the Medicaid population, specifically individuals with two or more chronic health conditions, one chronic condition and risk for a second, or those who have serious mental illness and require intensive care coordination. Health Homes, as they are often termed, must be explicit about the critical role of mental health, substance use, and community supports in their model of care.

Once a health home amendment is in effect, CMS will provide a 90% service match for two years across six core services: comprehensive care management, care coordination, health promotion, comprehensive transitional care/follow-up, patient and family support, and referral to community and social support services. While nationwide implementation of this model is still in its infancy stages, there is some limited evidence that this model improves patient health and satisfaction with care, reduces emergency department use, and reduces overall cost to the Medicaid program for complex patients.[51]

In 2015, Illinois released its white paper on Medicaid health homes and began building out what the Illinois model would look like. Over the past 5 years, through a disruptive budget impasse and a change in administrations, the model has undergone different iterations and has been presented at a series of town halls. The current plan in Illinois is that the IHH program will cover all three groups listed above as eligible for health homes with “an emphasis on persons with high costs, high risks and high utilization who can benefit from increased care coordination and care management.”[52] Illinois will also have a separate child and adult model. Here we discuss the adult model only, in line with the Health Neighborhood population.

While not all details are final, HFS outlined[53] that eligibility for the different IHHs will be based on targeted chronic health conditions and risk level based on risk analysis software and/or administrative utilization (i.e. Medicaid claims) data. These two criteria will inform a tiering of Medicaid members in the following (tentative) groups:

- Tier A: Individuals who have both high physical and high behavioral health needs
- Tier B: Individuals who have high behavioral health needs and low physical health needs
- Tier C: Individuals who have high physical health needs and low behavioral health needs

For those without available medical history, a provider can refer beneficiaries to the appropriate tier through an MCO, who can assign them to an IHH. Once the beneficiary has been assigned to an IHH, the MCO will notify both the individual as well as the provider of the assignment. As an example of how the shift towards IHH will prioritize quality of outcomes over quantity of outputs, sample outcomes that will be tracked include: justice system involvement, child welfare system involvement, IM-CANS improvement, housing stability, and employment. These outcomes will be tied

to incentive payments. One of the more innovative aspects of the IHH model, and an addition as the model has evolved over time, is including ‘engagement specialists’ and peer advocates. The engagement specialist needs to have a high school diploma and be a member of the community where they work. Collaboratively, the care coordinator and the engagement specialist are responsible for finding “hard to locate beneficiaries; engage them in developing a plan of care; bring together appropriate professionals needed to address beneficiary issues; encourage and assist beneficiaries to go to physical and behavioral health appointments, ensuring the appointments are available for members; coordinate information between providers to ensure all providers have required information; communicate with MCOs about the members’ service needs; identify areas of progress for members; and adjust care plan when progress is not being made.”[54]

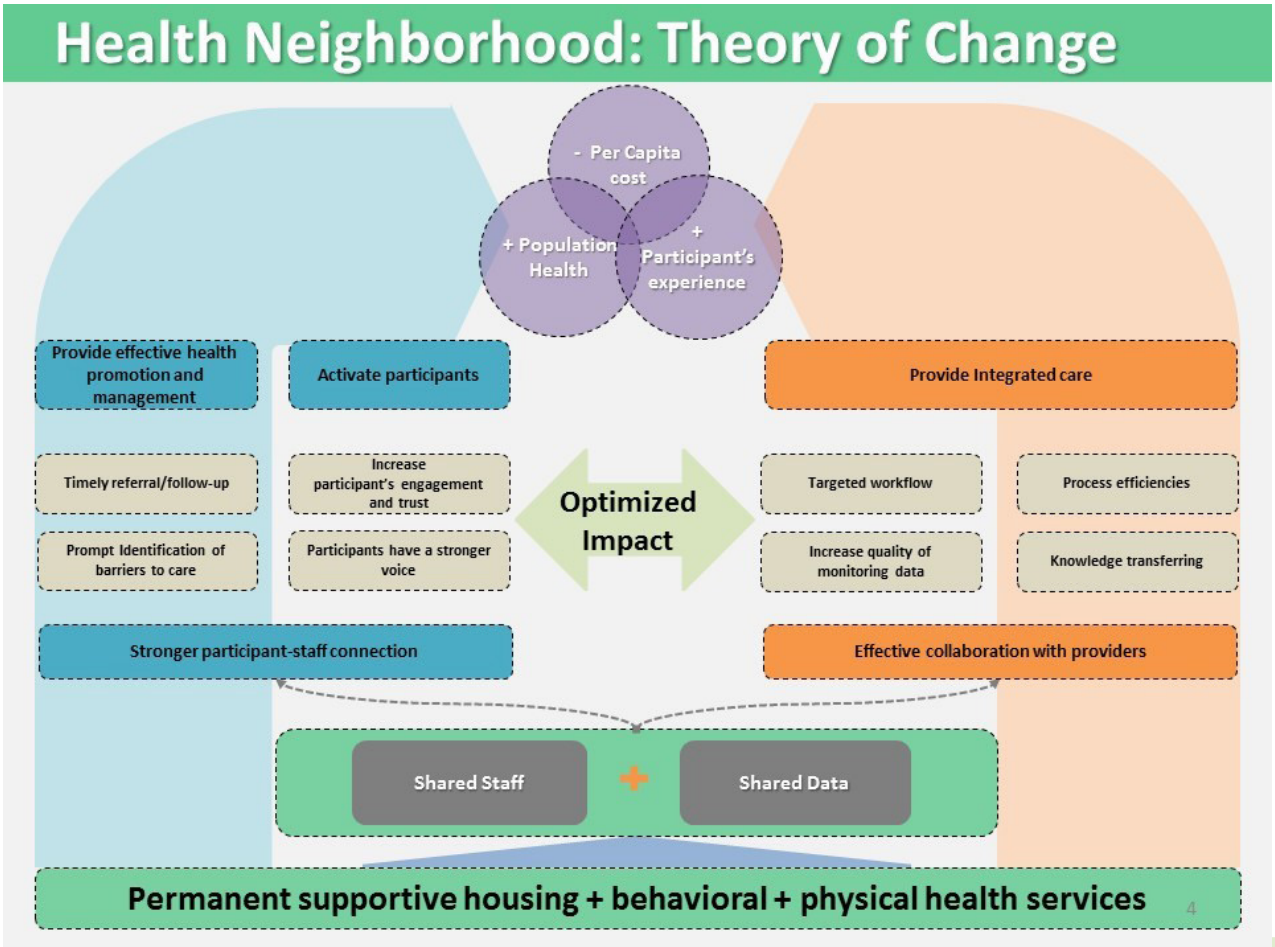
While the concept of health homes should promote better care, there are of course numerous complications that to consider. In 2014, the Urban Institute reported on a 5-year evaluation of Medicaid Health Homes in Missouri, New York, Oregon, and Rhode Island, which were the first four states to implement programs. Common challenges across the states included teamwork and communication across different disciplines and service areas, data systems and data sharing across different organizations and payment agencies, payment mechanisms, and general reporting and administrative challenges.[55]

Health Neighborhood: Participant and PSH provider perspectives

Health Neighborhood Program

The Health Neighborhood project began in 2017 and was designed to meet the Triple Aim of Health as designed by the Institute of Health Improvement: improved care for patients, improved population health, and reduced costs of care. The model was built on partnerships between Heartland Alliance Health clinics and five PSHs in Chicago over the course of the project: Chicago House, North Side Housing and Supportive Services, Deborah's Place, Housing Opportunities for Women, and Heartland Human Care Services (HHCS). At its peak, the program served 46 participants.

The model as seen below was built on **shared revenue, shared staff, and shared data**. In the visualized model, care coordinators and behavioral health therapists (shared staff) worked with participants who were *already* attending HAH and receiving housing and case management supports from the PSH to strengthen the services that they were receiving. As shared staff, they were able to access HAH's electronic health record (EHR) system, Centricity, to enter visit data and to communicate with primary care providers to better coordinate and integrate care (shared data). Lastly, care coordinators and therapists would invoice HAH for the hours spent with participants and HAH would reimburse the PSHs, and then bill Medicaid to be reimbursed for those paid hours. This circumvented the need for the PSHs to build up their own Medicaid billing structure. For more information on the Health Neighborhood program design see the report, *Permanent Supportive Housing & Medicaid Providers: A Description of the Health Neighborhood Demonstration Project.*



In reality, each PSH partnership site looked different from the other, largely due to variations in staffing structures.

PSH Sites	Total # of HN participants	# of surveyed participants	On-site therapists	How many CCs are at the site?	When did the PSH site join HN?
Northside Housing and Supportive Services (NHSS)	23	13	Yes	1 [who is also a RN]	2017
Deborah's Place	8	5	Yes	2	2017
Housing Opportunities for Women (HOW)	7	3	No	3	2018

In April, 2019, HAH made the decision to end to the Health Neighborhood partnerships because the program was not generating enough revenue to be financially sustainable past the life of the start-up grant. It is just as important to highlight challenges in implementation as well as successes, so that the social service universe can learn and grow. By understanding the challenges for small programs like Health Neighborhood to grow in either uncertain or at times unfriendly policy landscapes, critical lessons can be learned to inform innovations to make meaningful changes for participants[vi] with complex needs. As an HAH clinician said, *Health Neighborhood was just ahead of its time*. That may be true, as Illinois is now making strides towards more integrated care and therefore the potential barriers and opportunities to implementation within this changing landscape are even more urgent to understand.

Data collection

In order to gather the perspectives of participants and PSH providers on the successes and challenges of implementation of Health Neighborhood, we conducted in-person participant surveys and facilitated interviews with PSH staff.

Surveys

All 38 active participants were recruited across all three housing providers through partnerships with each PSH. Surveys were implemented by IMPACT and the PSH social work graduate students at the PSHs and one offsite location. Surveys included 63 questions and took between 25-60 minutes including consent. All participants underwent informed consent. Surveys were collected via an online tool by the administrator or via paper. All paper surveys were entered into CheckMarket, the online survey program. Raw data were exported into Excel, where basic frequencies were run**.** Data were analyzed across sites, taking into account some programmatic differences at each site, which will be further discussed below (see all data tables, Appendix 2)

As was referenced in the beginning of this report, there was intended to be both a baseline and end line survey. However, because the program ended prior to the end of the evaluation, there was only a baseline survey, not an end line. The survey data then should be understood as just a point-in-time assessment of the program.

vi We use the term participants here as people who receive services from HAH and PSHs. The term is interchangeable with members and patients.

PSH staff Interviews

Six individual or group interviews were held at Deborah's Place, North Side Housing and Supportive Services, and HOW with Health Neighborhood care coordination and therapy [if applicable] staff and management. For each location, one interview was conducted with a site manager and one interview was conducted with care coordination/therapy staff. For Deborah's Place, the latter took place as a group interview. Semi-structured interviews were used to gather information related to program roll-out, successes, and challenges. All interviewees underwent informed consent. All interviews/FGDs were audio recorded and data was transcribed. Data were analyzed with Atlas.ti for common themes.

Findings

> *"I think that when I step back and think about the program…we've realized that there is a Health Neighborhood Participant…and they're our most high need, complex medical needs, 'so much stuff going on' folks."(PSH Manager)*

Twenty-one (55.2%) participants completed the survey. Reasons for non-completion included: not feeling well, conflicting priorities,[vii] substance use, and in one case the participant was hospitalized. **To note, this is a potential bias that the participating group may be healthier and/or more engaged in the program as compared to the general Health Neighborhood population.**

Who were Health Neighborhood participants? HIGH NEED + LOW ACCESS TO CARE

The "typical Health Neighborhood participant," as described by staff, sat at the crossroads of needing intensive and humanistic health services, while also lacking access to such services. Across all sites, 90.5% of participants reported meeting with a care coordinator at least one month before taking the survey, with 57.5% of those participants reporting having met with their care coordinator at least a week prior. Of the two sites that had access to a therapist, 38.9% of participants reported seeing the therapist at least once a month, with 71.5% of those participants seeing the therapist once a week.

Both of the participants interviewed talked about how their engagement with their care coordinators, and for one of the participants, their therapist, increased their attendance at appointments, and their engagement with the HAH clinic.[viii]

How did Health Neighborhood effect participants? HIGH-QUALITY, ACCESSIBLE, AND HUMAN-CENTERED CARE

The effect of Health Neighborhood on participants was explored through participants surveys and interviews, presented here, as well as clinical appointment data and clinical measures, presented later in appointment completion and clinical measure findings. Of the Health Neighborhood participants who had been in the program for over four months, most reported overall behavioral health improvements since joining the program,

vii There were several instances where if a HN participant was able to be contacted, case managers wanted to use that time to talk about housing, pressing health needs, or other issues rather than use that time to recruit for a survey

viii Note: only participants who were part of NHSS were able to be interviewed.

compared to three months before entry. Responses from staff members indicated that the program also provided high quality, participant-centered, home-based physical and behavioral health services to participants.

Increased Primary Care Access

Care coordination teams scheduled participant appointments and followed up with clinic staff afterward, providing wrap-around care across sites. As one care coordinator described:

> *"…it's easier to get an appointment, it's easier to understand what that appointment is about because oftentimes when participants leave a primary care appointment they don't quite know 'how is that referral getting to me' or 'what was discussed today'"* (PSH Care Coordinator)

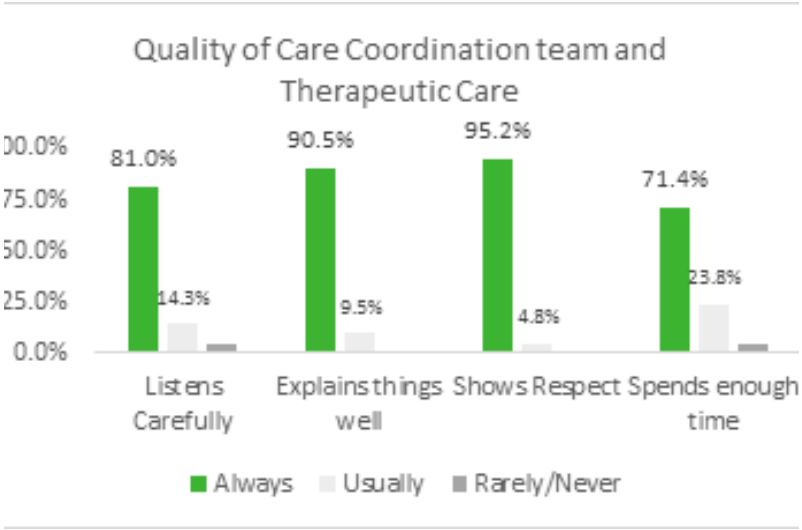
61.1% of participants surveyed reported having better physical health **now** compared to 3 months before starting Health Neighborhood.

Increased Behavioral Health Care Access

The Health Neighborhood structure was intended to provide participants access to a therapist at their PSH site, allowing them to work with a behavioral health clinician they know and trust in an accessible and familiar environment. This structure makes a clear difference for participants who do have access to an on-site therapist; in the words of one Health Neighborhood therapist:

> *"I've seen tenants hang on with…therapy I think longer than they might have…than if I were sitting in an office somewhere where they had to take a bus to and go wait."* (PSH Therapist)

77.8% of participants reported having better behavioral health now compared to 3 months before starting Health Neighborhood. However, only one of the sites had an embedded therapist, and another had a therapist contractor. Therefore, while it was recognized that having a therapist was a key component of the program, there were also gaps in the implementation. The reasons for those gaps are largely described in the previous section on policy barriers to implementation.



Improved Quality of Physical and Behavioral Health Care

Care coordination teams at both sites reported improvements in the quality, flexibility, and accessibility of care provided to participants. In interviews, care coordinators repeatedly mentioned the quality of HAH care as a key feature that was both necessary for and specific to Health Neighborhood participants.

> *"I think the more immeasurable side of it is that people who probably historically weren't receiving the highest quality of care deserve to and are able to receive a much higher quality of care through this better coordination."* (PSH Care Coordinator)

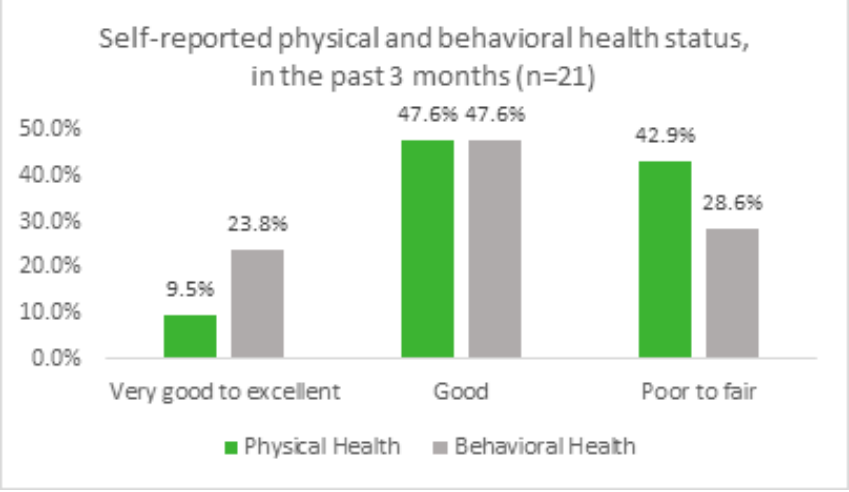
Providing home-based services reduced participants' transportation barriers and increased active participation in primary and behavioral health care services. An on-site HAH clinic at one PSH organization served as a "gateway" for participants to access care at a Heartland clinic. 40% of participants at this organization reported utilizing the on-site clinic. For another organization, the presence of a clinically-trained nurse care coordinator blended at-home clinical care with medical care at a Heartland clinic. Because Health Neighborhood is a participant-centered model, care coordinators provided participants with guidance through the sometimes difficult process of attending appointments and Heartland did not judge or punish participants for failing to show up, as can be the case at other clinics. Having access to non-judgmental health care services that don't penalize participants for inability to fully engage reduces barriers to care for individuals.

Improved Care Coordination Support

Care coordinators attended appointments with Health Neighborhood participants to provide support both at the participant's home and in clinics. This allowed care coordination teams to support participants through what can be a difficult and confusing process of communicating with specialty and primary care providers and accessing complicated medical procedures. One care coordinator recalled providing emotional support to a participant experiencing medical-related anxiety:

> *"I do remember one time we had a participant that was a part of the Health Neighborhood program that needed us to go to…* [with] *her to have a surgery done…But she just needed us there to support her cause she had a fear of having this surgery done and we just basically supported her through that process."* (PSH Care Coordinator)

In some circumstances, care coordinators translated medical advice and information about prescription drugs into accessible language. 90.5% of participants report feeling that their care coordinators always explain things in a way they can understand. This ability to communicate complex medical information to participants was expressed across sites, but the extent to which care coordinators can provide any basic clinical follow-up care of course differs depending on whether they have clinical training. Overall, participants reported a high quality of care from the care coordination and therapy staff members, including feeling that they receive respect from the staff members, which speaks to one of the overarching goals of Health Neighborhood to increase patient activation.



Improved Participant Quality of Life

As expressed by one staff respondent, *"I don't know exactly how to measure [**quality of life**], but to me that is meaningful."* Care coordination teams and managers at both sites used participant stories to express improvements in quality of life for those enrolled in Health Neighborhood.

> *"Yeah, we had one participant …He had all of these health goals and at first it was difficult to tease out exactly his priorities but once we got him into Heartland and then [the care coordinator] could see the progression and recognize like 'oh maybe it's helpful for me to go to this one appointment with him, or his case manager to do that.' Or, 'oh I see these referrals in the system for him, I can check in with him about if he needs help making that appointment' which he did, and we were able to do so much for him…we're also at the same time being able to work on this other goal related to income, where it could be difficult to follow up on all that without the collaboration of the health care providers."* (PSH Care Coordinator)

As noted by a care coordinator, progress for Health Neighborhood participants is not necessarily linear but generally includes indications of a higher quality of life: milestones like getting back to work, being considered for prosthetics, or reducing substance use.

How did Health Neighborhood impact organizations? BRIDGING ORGANIZATIONS TO BENEFIT PARTICIPANTS

The Health Neighborhood program provided unique benefits to participating PSH organizations, namely through shared revenue (building financial sustainability), shared staff (building inter-organizational communication and collaboration), and shared data (creating streamlined appointment and communication systems).

Shared Revenue

Billing Medicaid through HAH meant that organizations could maintain some flexibility in the therapy services they provide while also keeping and expanding valuable staff resources. Managers extensively acknowledged that shared funding allowed them to maintain full-time care coordinators, clinical staff, and therapist services in order to fully address participant needs and expand staff availability.

> *"It definitely helps us support our care coordinator's salary and it helps …us pay for therapy for clients down the line. We have a case manager identified who will be sitting for her LCSW and it's our hope that she can expand our therapy services for Health Neighborhood clients and so Health Neighborhood would have a direct positive impact in helping us expand that service, which is exciting."* (PSH Manager)

The challenges with shared revenue from the HAH perspective will be discussed later, when assessing the total cost of the program. The shared revenue structure increased financial support for the PSH partners, but was ultimately unsustainable for HAH.

Shared Staff

Care coordinators occupied a dual role within the Health Neighborhood system: they were considered both an employee of Heartland Alliance Health and their PSH organization. This shared staff structure allowed for care coordination teams to schedule participant appointments through Centricity, a highly-praised benefit that circumvented an otherwise complicated and stressful process for participants and staff.

> *"…it's the perk of being a Heartland employee I can easily schedule someone, all I have to do is look through Centricity. It's a way quicker process than calling or hoping that they have a same day appointment." (PSH Care Coordinator)*

Some of the benefit of being part of Heartland was also fhat providers felt like they were part of a team wider than their own organization, all working on the same issues. One provider mentioned that when she heard issues that Heartland was grappling with raised in a Heartland meeting that she attended, it validated issues that her organization was also facing. It also then allowed for a shared space for solution-building. Challenges with having a dual role will be discussed in the quality improvement section below.

Shared Data

By accessing Centricity, including health information and appointment notes, care coordinators with a clinical background were able to use shared data in order to follow up with patients about medical advice. Additionally, for all care coordinators, having shared Centricity data meant being able to "flag" providers in the system in order to alert them of urgent patient needs both before and after appointments.

"…it's a communication perk of being able to flag providers or look through that medical record and find things that maybe wouldn't be found and talk amongst ourselves with that." (PSH Care Coordinator)

While survey participants did not indicate that getting an appointment was necessarily easier since joining Health Neighborhood, participants also most frequently (35%) cited that care coordinators helped support them address barriers to missed appointments by helping them to remember them. Care coordinators spoke about the ability to directly work within Centricity as a way to better manage appointments and send reminders to participants who need that level of support.

Lessons Learned

This section details Health Neighborhood PSH staff feedback that specifically referenced areas of improvement for the program. Some of this feedback is related to issues that were resolved over the life of the project, and some related to suggestions or recommendations to improve the project, or future iterations of it.

Chaotic roll-out and implementation. PSH staff at both sites reported roll-out as "chaotic at first," some citing the stress experienced by individuals at the PSH site who oversaw the process. Per one manager, "*the structure over it wasn't quite there yet.*"

> **Lessons Learned:** The presence of an overarching Health Neighborhood manager relieved much of the uncertainty felt by PSH managers and care coordinators. Respondents repeatedly expressed that having a dedicated Health Neighborhood manager allowed for more streamlined implementation and provided a point of contact for staff concerns.

Technology challenges. Both PSH sites cited issues related to technology. In particular, not having WiFi at one organization impeded access to necessary components like email, and not being able to connect to devices like printers at another limited staff capacity to provide printed information to participants.

> **Lessons learned:** These issues were resolved incrementally at each site. WiFi, which one site was lacking, was provided through use of a hotspot, and

Health Neighborhood staff at the organization were eventually able to access email remotely. In future partnership project like Health Neighborhood, it would be helpful to develop a partner readiness checklist that would evaluate and address site-specific issues before roll-out in order to smoothly transition PSH providers into the Health Neighborhood program.

Training. Partners talked in interviews about shared staff members attending duplicative trainings through Heartland. As described by one site manager, "*I mean, we do a lot of training, we do a lot of meetings. And we have very similar models and I just feel like sometimes you're paying us and you're replicating some of the things that we're doing*."

Also, one manager suggested that the sustainability of Health Neighborhood may be compromised due high billing for program components like trainings, rather than direct service. However, there are also trainings that staff working wihtin a healthcare setting are required to take, such as HIPAA or cybersecurity. Those trainings may seem less applicable to PSH staff members, but if they are working with health record data, are required.

Lessons Learned: We recommend, where possible (acknowledging some trainings are required for all Heartland staff), re-assessing which trainings are absolutely necessary, and which trainings could be met by similar PSH-based trainings.

Therapy services. A key component of the Health Neighborhood program's ability to improve integrated physical and behavioral health outcomes for participants is providing flexible and in-home therapy. However, only one partner had a full-time staff member providing services.

Lessons Learned: Perhaps there might be innovative ways to address this issue. One idea from the interviews was that PSH sites might be able to partner with other PSH partners and all go in on a shared therapist.There are other partnerships, like Renaissance House where HAH is contracted to provide nursing services. There may be similar types of partnerships that could be pursued so that one behavioral health therapist could provide services across PSHs, while billing through an existing billing infrastructure at HAH.

Provision of services through HAH

Staff members talked about enrolling only existing HAH participants into Health Neighborhood, rather than recruiting other participants—unless participants expressed dissatisfaction with their other provider. However, it is key that if someone is recruited to seek services at HAH, then there need to available appointment slots and easy communication. For the most part, staff members reported that quality of service at HAH is very high, but appointments can be challenging especially for participants, and the waiting room can feel stressful to participants.

Lessons Learned: Because Health Neighborhood staff acted as a bridge between participants and the clinic, they may be a key resource to gather consistent feedback on services that participants are receiving at HAH—if participants do not feel comfortable sharing through existing feedback mechanisms.

Burden of dual role and administrative burden

As expressed by one dual employee,

"*I am actually a [PSH site] employee even though I have some of the benefits of being a Heartland employee, I think that there's expectations that we're supposed to do something like lickety split and I have duties here."* (PSH care coordinator)

Overall, there were pros and cons about having a Health Neighborhood staff having a dual a role. One issue that some staff raised was not feeling acknowledged that Health Neighborhood could not always take priority over their normal case load. Additionally, managers end up having to take on a larger administrative role than it seems was expected.

Lessons Learned: Given that partnerships like Health Neighborhood often cannot support a full salary of one person, before beginning the partnership, there need to be a clear walk-through of staff roles with management, ensuring that time at both sites is respected. Again, a readiness assessment may be helpful in this respect. Also, some staff suggested organizing routine check-ins across partners to share lessons learned and talk through challenging situations.

Need for in-home clinical care. Lastly, in-home basic clinical care is another key component of Health Neighborhood. With NHSS, this is done through the care coordinator, who is an RN. As the manager at that site expressed, *"the fact that she [the care coordinator] knows the intricacies of healthcare, can speak the language, can translate, just what she knows about health… It's huge that [our care coordinator is] a nurse."* At Deborah's Place, Heartland implemented an on-site clinic monthly until it closed in 2019 due to low participant load, which did not balance the cost. However, that onsite clinic acted as a 'gateway' to clinic-based care. "*So for many of our participants…having the onsite clinic has been a bridge to Heartland…having someone come into their living room, assess whatever issues they have going on, or just check in to make sure everything's okay, has been a huge support for them and their overall health*."

Lessons Learned: Home-based clinical care, whether that is at a scattered site apartment or within a PSH housing building, is a key component of improving care for participants. Community-based nursing bridges the links between the participant, the housing site, the primary care clinician, and the specialty care clinician. Based on some key informant interviews, a nursing role was a critical component of the care coordination role in the project, and critical to integrated care.

Cost Analysis and Health Outcomes

The Health Neighborhood project ended in June of 2019 due to challenges related to financial sustainability. While there were several reasons for that decision, one of the biggest issues was the lack of reimbursement for care coordination for the Health Neighborhood population. Health Neighborhood was initiated at a time of opportunity: the 1115 waiver was supposed to be implemented, and that waiver would allow for care coordination reimbursement. That waiver, however, has not, at the time of publication, been implemented, at least in the way that HAH and other partners had understood it would be. Despite trying to increase reimbursements through the behavioral health encounter rate and Rule 132 billing, the cost of the program was just too great in comparison to the reimbursement.

This section of the evaluation explores whether the level of investment from HAH and the PSH providers was worth the potential gains in appointment completions and improvements in health outcomes. It also explores the reimbursement HAH could have received if care coordination had been reimbursed, as envisioned through the 1115 waiver. The answer(s) to these questions can inform: 1) HAH's model of care coordination for complex populations in the future, 2) influence decision-making by other social service providers who are interested in implementing integrated care models, and 3) perhaps provide important considerations as Illinois rolls out IHH, specifically for the population of people with complex medical and social needs for whom HAH provides care.

Cost-effectiveness Analysis (CEA): Healthcare programs are evaluated on a variety of metrics, but decisions on program sustainability and continued investment boil down to whether a program is cost-effective. The term "cost-effective" has been used in a variety of ways, to the consternation of some scholars. There is a number of tools that can be used to estimate the cost and impact of programs or initiatives, including cost-effectiveness, cost-benefit, return on investment, and social return on investment.[56] Cost-effectiveness analyses (CEA) are particularly useful when comparing two programs or two decisions within a program. Here, we use the example of the Health Neighborhood (HN) project, an innovative project that built a formalized partnership between Heartland Alliance Health (HAH) and permanent supportive housing (PSH) providers. We compare two reimbursement models for HN: the existing reimbursement model for care coordination and a proposed reimbursement model. Cost-effectiveness analyses (CEA) have been used in a variety of contexts and settings to assess public health or healthcare programs. It is used both on a global level to prioritize health strategies[57] and with smaller program to compare strategies. The CEA takes into account the cost across a number of categories, including those that may be more difficult to categorize, and compares the cost to the health outcome achieved by the program. The benefit of a CEA in cases of health equity is that it poses the question of worth, not just in terms of cost but also in terms of health human rights.

Methods

Program cost data

IMPACT collected data on Health Neighborhood program costs from Heartland Alliance financial records as well as an invoice management spreadsheet created by the Health Neighborhood program manager. All summary financial data attributed to Health Neighborhood was shared by HAH finance team and analyzed by IMPACT.

IMPACT collected cost data from one of the PSH partners, North Side Housing and

Supportive Services (NHSS). At the time of the analysis, the Health Neighborhood program had begun to close with the other two HN partners, Deborah's Place and Housing Opportunities for Women (HOW). NHSS finished its contract with Health Neighborhood in June, 2019, and IMPACT therefore was able to collect data while they were still a partner. IMPACT used a modified tool from the Abdul Latif Jameel Poverty Action Lab (J-PAL)[58] to collect and estimate financial information from NHSS and from HAH. Importantly, because IMPACT was only able to collect financial data from NHSS but data collected from HAH was collected program-wide, the cost of NHSS was projected across the three programs, proportionate to the number of participants they contributed to the program. It should be noted, however, that each of the three programs had distinct staffing structures, which influences the cost.

The Health Neighborhood cost-effectiveness tool contained 5 main cost categories:

- Program administration
- Targeting costs
- User training
- Implementation costs
- User costs

In order to collect information for each of these categories, IMPACT created a calculator for NHSS and a calculator for HAH. We worked closely with each partner to gather financial documentation where available. Costs that were estimated are noted in the data notes below each category.

Costing category	Source	Sample costs
Program Administration	• HAH Health Neighborhood Costing Sheets (Finance Dept)	• HAH staff salaries • Equipment (computers, printers, etc) • Space rental
Targeting	• Program Manager time estimation x estimated salary	• Flyers • Outreach
Training	• HAH Health Neighborhood Costing Sheets (Finance Dept)	• Trainings for HAH staff and PSH staff; training specifics are in Training Table.
User Costs [NOTE: costs include total costs – costs averted]	• Input from NHSS CEA calculator	• Supplemental salaries • Space, transportation • Supplies for CC • Cost averted include time saved from the case manager; time saved using Centricity instead of calling
Implementation	• HAH Health Neighborhood Costing Sheets (Finance Dept)	• Gift cards • Fare cards • Medicaid reimbursement • PSH staff salaries

As part of the data collection process, NHSS documented the estimated amount of time that the care coordinator spent with participants during three visit types: an HAH or primary care/FQHC visit, a specialty visit, or a home-based care visit. A visit cost was calculated by multiplying time spent by an estimated $77,710 salary, which was the average Registered Nurse salary for 2018[ix] in the Chicago Metropolitan area.

Once each calculator was compiled separately, the costs from NHSS were input into the HAH calculator as user costs to calculate total cost of program. This proportion was used to estimate PSH cost to be included into the CEA, by taking the estimated NHSS cost and dividing by the proportion of total invoices that NHSS accounted for(.46) to estimate the total cost all programs may have invested into the overall HAH project.

The following costs and savings were calculated:

- Documented total cost of program (HAH)
- Estimated total cost of program (PSH partner)
- Estimated cost of program from all PSH partners[x]
- Documented reimbursement
- Estimated reimbursement **if** care coordination hours were reimbursed at the 2019 FQHC Care Management and Behavioral Health *visit* rate of $67[59] (which is lower than all 3 estimated visit rates from care coordination activities)

Projected reimbursements for increased therapy visits were not estimated because it was not feasible to estimate how many participants could have benefited from therapy and how many hours would have been spent/reimbursed.

Health Outcomes

The second component of the CEA is the health outcome. The health outcomes assessed here were appointment completion and compliance with HEDIS clinical measures (see Appendix 3). The health outcome component of the equation is the 'it' in the CEA's intrinsic question, "Is x dollars worth 'it'"? The analysis methods, and the outcome definitions of each outcome are further defined below.

Difference-in-Differences Design

A difference-in-differences (DiD) design[60] was selected to be able to compare changes over time in appointment completion rates and compliance to clinical measures between the Health Neighborhood cohort and a matched cohort of Heartland Alliance Health participants with similar characteristics of HN participants.

Our hypothesis was that the Health Neighborhood cohort would have improved appointment completion rates and increased compliance to clinical measures over time as compared to the matched cohort.

ix *Note that this is an average salary across RN job types and home-based care within a PSH would likely be on the lower end of the salary range.*

x *One of the major limitations was that because the Health Neighborhood program ended abruptly, costing data was only able to be gathered from NHSS, and as has been mentioned, each of the three partnerships functioned differently and had different staffing structures. While estimations were created for total partner costs based on NHSS costs, we acknowledge that there are true limitations in those estimations.*

A DiD design uses a time variable, a treatment variable, and the interaction variable to assess significance of change in the dependent variable over time:

$Y = \beta 0 + \beta 1*[Time] + \beta 2*[Treatment] + \beta 3*[Time*Treatment] + \beta 4*[Covariates] + \varepsilon$

β3 reflects the treatment effect of the intervention.

Assumption	Assumption Met?
Intervention unrelated to outcome at baseline (i.e. observational)	Met
Treatment/intervention and control groups have parallel trends in outcome	Met to some degree for appointment data [see Appendix 4 for graphs showing parallel trends]. Mental health appointment data did not meet parallel trends assumption, but the data was more normal when looking at the combined appointment trends Did not meet for clinical measures data because the data is not in a structure that allows it to assess over time. Most clinical measures, once TRUE, do not need to be measured again for a year, and so developing a trend line is not applicable.
Stable Unit Treatment Value Assumption (SUTVA) • The treatment applied to one unit did not affect the outcome for another unit • There is only a single version of each treatment level (outcomes are well-defined)	Met.

The assumptions considered included (more information included in data notes):

Inclusion criteria for Health Neighborhood and matched cohort participants

All Health Neighborhood participants who were included in the study were part of Deborah's Place, NHSS, and HOW. Participants who were part of Chicago House (a previous partnership) and Heartland Human Care Services (HHCS), which started late, were excluded. Health Neighborhood participants were recruited into the program by the PSH partner and the Health Neighborhood program manager by comparing lists of eligible participants who both attend the HAH clinic and live at a PSH site. Then the care coordinator, therapist, or clinical case manager[xi] would reach out to those participants to recruit them into the program. As described in the interviews with the PSH partners, the Health Neighborhood participants tended to have higher and more complex needs than other participants within their PSH.

All Health Neighborhood participants were tagged with a 'HN' code by the HAH program manager within Centricity, HAH's electronic health record system, during the

xi Clinical case managers were not a supported role in the HN project, but did support in recruitment and outreach efforts.

beginning of the evaluation, so that the cohort was able to be tracked.

To create a matched cohort, we first identified a list of addresses of PSHs in the City of Chicago.[61] Then, we created age, race, and gender quota from the HN cohort and requested participants from the supplied PSH list to match the total number of HN participants in each quota. The age categories were largely aligned with clinical measure categories, to ensure that there were similar proportions of eligible participants for each clinical measure category. The matched cohort had more participants who identified as male, black or African American, and were slightly older as compared to the Health Neighborhood cohort. A perfect match of demographics was not feasible given the available PSH residents who seek care at HAH [based on publically available addresses]. Also, we did not have mental health or substance use disorder diagnosis data to compare the cohorts, which may have provided more context around complexity of need and potential differential outcomes.

Health outcomes definitions

The outcomes explored included 1) change in appointment completion, 2) change in HEDIS clinical measure compliance[xii] and 3) self-reported health status.

1. Appointment completion

Appointment completion was defined within Centricity as scheduling and attending an appointment. We defined the appointment completion rate as appointment completion/ (appointment completion + no-show + 'patient cancellation' appointments). Clinic cancellation was removed from the data set as this was outside of the participants' control. Appointment types were defined based on provider type and categorized as either primary care, mental health, oral/dental health, or administrative/other. Appointment completion was compared by appointment type and across appointment types.

2. HEDIS clinical measures

The HEDIS clinical measures definitions for the measures included in the study are in Appendix 2. These measures were identified as priority clinical measures for the Health Neighborhood population by the HAH Health Neighborhood team. Compliance to clinical measures are coded by the HAH Data Analytics Team on a routine basis based on information included in participant files. The clinical measures for which someone is eligible can be coded as TRUE (if a participant met the definition for the clinical measure) or FALSE (if the participant did not meet the definition of the clinical measure). **In this context, 'eligible' refers to the possibility that someone could have a TRUE/FALSE for that category based on their demographics and disease status. For example, an anatomically male person would not be eligible for cervical cancer screening, and someone who does not have a diabetes diagnosis would not be eligible for the diabetes measures.**

This meant that, within a time period, a participant might have multiple compliance codes for the same measure if they visited the clinic frequently (i.e. within a short

Code	Definition
TRUE	The participant is compliant with the clinical measure (ie. has met treatment or screening requirements)
FALSE	The participant is not compliant with the clinical measure (ie. has not met treatment or screening requirements)
NA	The participant has a documented reason why they are not taking the test. The participant is not eligible either due to demographics or 1) has already tested positive for the screened disease or 2) does not have the disease/condition that the test treats

xii Clinical measure, HEDIS, Available here.

period of time, someone with multiple visits might have a TRUE for each visit). Therefore, calculating total TRUE over FALSE+TRUE to create a 'TRUE' compliance rate could be misleading because it is dependent on visit frequency. To address this issue, we analyzed the data in two ways. First, we counted each TRUE as 1 and each FALSE as 1 within the pre/post time period for each clinical period. We also examined the data using the last clinical measure documented within the 'pre' time period as the compliance measure to compare to the last clinical measure documented with the 'post' time period. **The data presented in this report is reflective of the first method, where each TRUE and FALSE are counted as 1**.

If a participant had a 'blank' instead of a clinical measure, this might be because they were not eligible due to their age or gender (i.e. breast cancer screening would be blank for a male); they might have the disease the test screens for (i.e. breast cancer), so screening is not necessary; for treatment measures, they might not have the disease that the treatment is for (i.e. diabetes care); or they may have a documented reason why that screening was unable to be given that day. Given the small sample size, a DiD could not be run for each individual clinical measure. Therefore, a proportion of TRUE/(TRUE + FALSE) for each participant was used as the dependent variable in the clinical measure regression models.

The TRUE, FALSE, and BLANK categories were further refined to create two categories with an embedded time component: Shifting towards compliance and shifting away from compliance. Staying at or shifting towards compliance included staying TRUE from pre-post, shifting from FALSE-TRUE, shifting from NA-TRUE. Shifting away from compliance included staying FALSE in both time periods, shifting from TRUE-FALSE, and shifting from NA-FALSE.

Time period

The DiD analysis requires defined pre and post periods. Defining these periods was challenging because 1) of the flow of appointments over time and 2) the lack of clear entry date into the Health Neighborhood project for each participant. Creating too small of a window would exclude people whose appointments fell just outside of a narrow range in time. However, creating too wide of a window might mask the difference between pre and post as the end of the pre and the beginning of the post were closer together. After trying several models, we prioritized sample size and so opted for larger windows of pre and post. Examining the data over time, it does not appear that wider windows masked differences.

While we did have start dates for some of the participants, we did not have start dates for all. Therefore, we treated the start date of the PSH partner as when all participants started, since that was the time when the organization started to strengthen their partnership with HAH and strengthen their care coordination model. We included a measure in the regression model that controlled for site which would address the issue of the start date.

The 'pre' time period was defined as April 1, 2017 – December 1, 2017 and the 'post' time period was defined as July 1, 2018 – March 31, 2019.

For the appointment data, the appointment rate was captured as the (# of appointments completed)/(# of appointments completed, missed, or canceled by participant) within the set time period.

Data Analysis

All data for outcomes (1) and (2) were cleaned and managed in Excel. They were imported into R x64 3.4.4 for further cleaning and analysis. Frequency tables were run on participant demographics. For the appointment completion rates, raw numbers and proportions were analyzed for 2 cohorts: 1) participants with an appointment made (by type) in either the

pre or post period and 2) participants with an appointment made (by type) in both the pre or post period ('all-stars'). Raw numbers were important to contextualize the proportions because the denominator was not uniform: the number of participants contributing to the total number of appointments made AND the total number of appointments completed might differ across time periods and cohort.

For the clinical measures, raw numbers of shifts, or lack of shifts, to and from compliance (TRUE/FALSE) over time were calculated for each measure within each group. The average proportion of total number of measures for which a participant was compliant over the number of measures eligible for that participant was calculated by cohort.

In preparation for the DiD, trend lines were run for appointments made and completions between groups to assess whether they met the parallel trends assumptions. Density plots were created and Shapiro-Wilks tests of normality were run for both appointment completion and clinical measure data.

The only covariate included in the DiD regression models was PSH site, which differentiated by NHSS (1), DP (2), HOW (3), and Matched (4). To include this variable in the regression model, 3 different dummy variables were created [site (1), all others (0)]. The intention behind including the site was to account for different timing of joining Health Neighborhood, not to compare sites. Each dummy variable was included in the regression model, and the overall model statistics reflect that inclusion but each dummy variable is not presented here. Demographics were not included as covariates because they were matched in the selection of the comparison group.

The DiD regression model equations for appointment completion was:

Y (appt. completion rate) = Pre/Post variable + HN/Matched variable + Pre/Post*HN/Matched variable

As will be discussed, after analysis of the normality of the clinical measure data, it was no longer appropriate to run a DiD regression model on the clinical measures.

Results

1. *Costing of the Health Neighborhood Project*

From FY18 – FY19[xiii] (up until April), Heartland spent **$301,166** (including shared Heartland Alliance business costs) on the Health Neighborhood project. Most of that cost (66%) was program administration. HAH staff included a Program Manager position as well as part-time support positions related to billing and Centricity support. Because of challenges in hiring therapists at the PSH partner sites, the majority of the hours submitted by the PSHs to HAH to be reimbursed back to the PSHs were care coordination hours.

	HAH	NHSS estimated costs	Estimated Program Costs for 3 programs
Program Costs			
Administrative	$206,713		
Implementation	$94,453		
Total	**$301,166**	$43,554	$94,681
Program Returns			
Returns to Program	Patient Reimbursement $12,686	$2,165	$4,707
Returns to participant		$14,942	$32,484
Total program cost*	$391,140		
Total net program cost**	$358,657		
Projected returns if care coordination was reimbursed**	$112,139		
Projected total program cost	$233,723		

*Using the estimated costs of 3 PSH partners and subtracting returns to HAH, PSH, and participant
**Subtracting project costs averted for 3 PSH partners and 38 participants, and Medicaid/Medicare Reimbursement
**Estimated using the total care coordination hours submitted over two years, and a $67 care coordination rate
***Estimated costs if care coordination AND therapy had been reimbursemed based on hour submitted. *Note: Total hours submitted included training and adminsitrative hours, and those have also been included here under the assumption that those hours should be reimbursed to maintain high-quality of care and coordination.*

Table 1: Estimated costs of HAH and NHSS over a two year period to implement the Health Neighborhood project

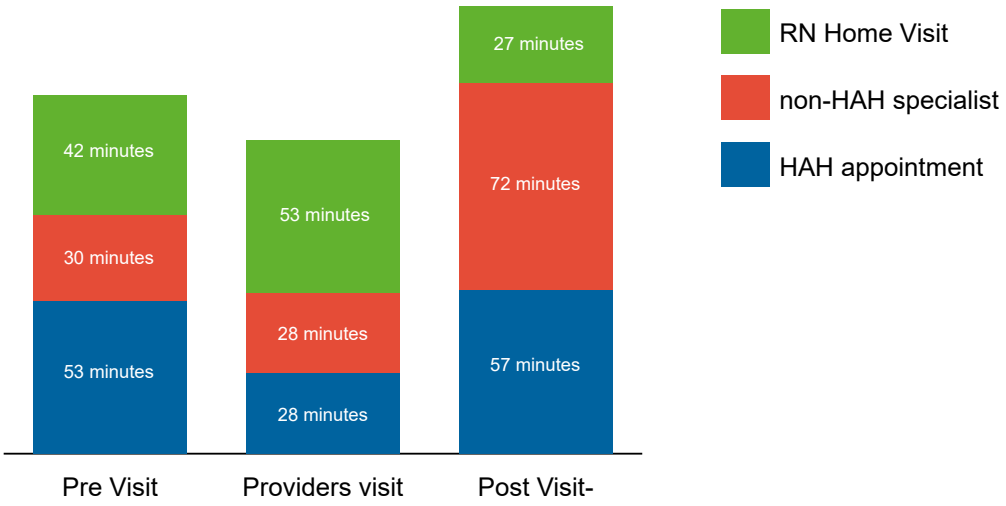
xiii July 2017 – April 2019

In FY18, 66% of total amount paid to PSHs was for care coordination services, all of which were not reimbursable through Medicaid. In FY19, the proportion had risen to 86% with the onboarding of a new PSH partner, which provided care coordination services but throughout the project was unable to provide therapy services. The estimated cost of the program from both HAH and the partners is **$345,862** over a two year period, including the reimbursements received and the costs averted. If the care coordination costs had been reimbursed, the estimated costs would have been **$233,723.**

Care Coordination Costing

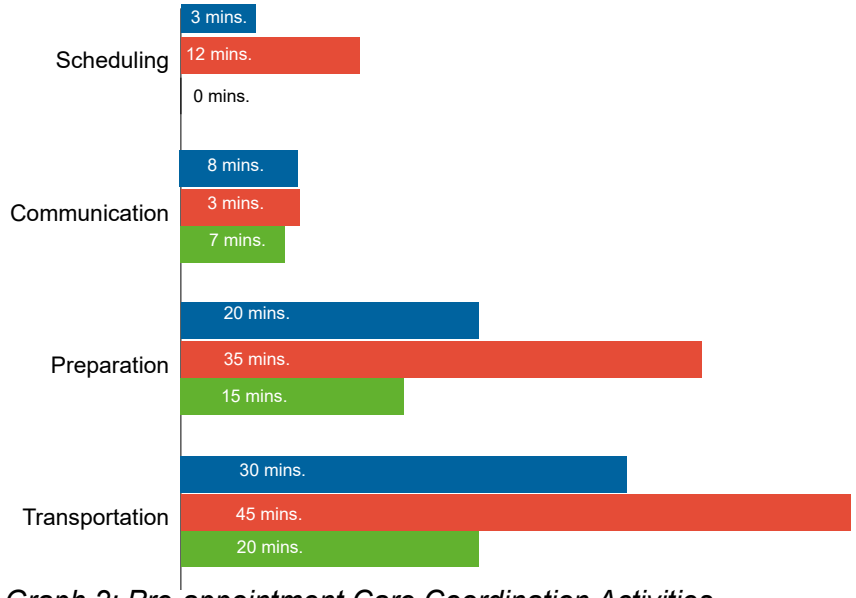
The cost of providing care coordination services at NHSS, as estimated by their care coordinator, was broken down by type of visit (HAH, non-HAH specialty visit, and RN visit), and by chronological activities (pre-visit, visit, post-visit). An estimated total cost was developed by creating an hourly rate from a $77,710/yr salary and then applying that rate to the time spent. To note, $77,710 is the average in the Chicago metropolitan area[xiv] and does not include benefits. A further breakdown of time by activities is provided in below.

Overall, the most time-intensive and therefore expensive visit is a specialist appointment, especially due to the typical post-visit documentation time required. While an HAH appointment took a moderate amount of time, transportation was a major contributor to total time, which may be something to consider as different models an reimbursement structures of care coordination—internal models vs. external models—are considered both for IHH roll-out and as health clinics grapple with providing care for complex populations in which transportation is a key component.

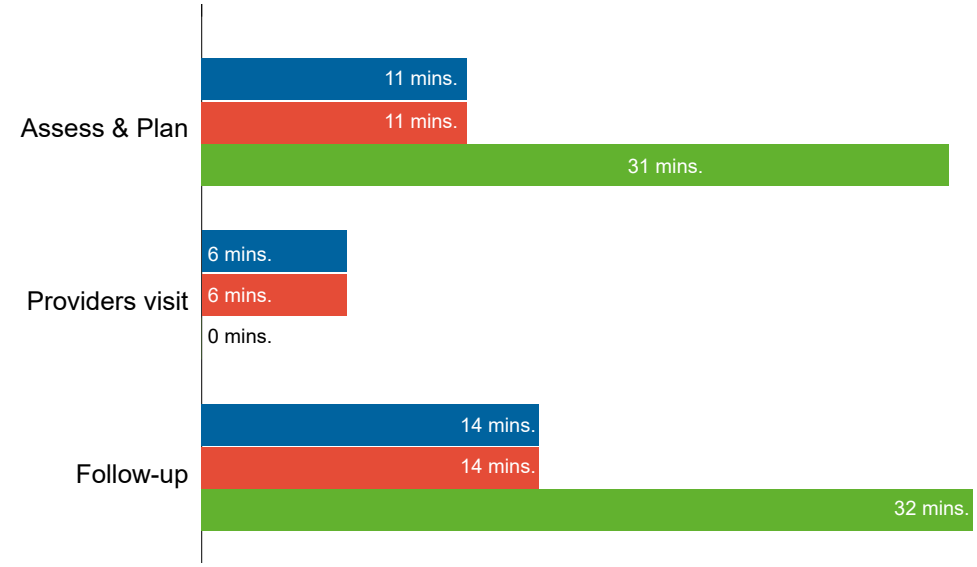


Graph 1: Total Appointment Care Coordination Activities

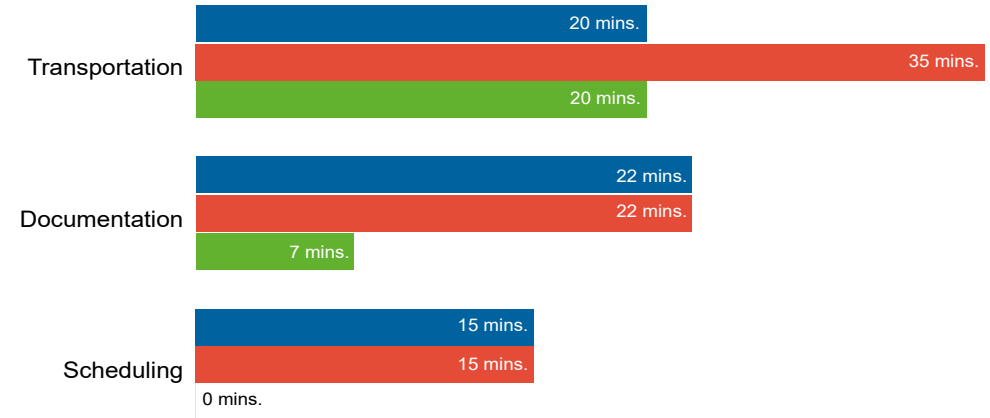
xiv Salary for registered nurses in Chicago, Bureau of Occupation and Labor statistics. Available here.



Graph 2: Pre-appointment Care Coordination Activities



Graph 3: Appointment Care Coordination Activities



Graph 4: Post-appointment Care Coordination Activities

Transportation times are high because the care coordinator goes to pick up the participant and then drives them to the appointment.

2. Appointment Completion and Clinical Measures

There were 38 Health Neighborhood and 38 matched participants included in the outcome analysis. Health Neighborhood participants were predominantly male-identifying (71%) and had an average age of 56 years old. Participants were 55% black or African American and 32% white. Less than 1% of participants identified

	Gender Identity		Median Age	Race/Ethnicity				Ethnicity*		
	Male	Female		Black	White	American Indian/ Alaska Native	Undisclosed	Latino/ Hispanic	Not Latino/ Hispanic	Undisclosed
All Participants										
Health Neighborhoods	70.3% (n=26)	29.7% (n=11)	58	56.8% (n=21)	32.4% (n=12)	2.7% (n=1)	8.1% (n=3)	2.7% (n=1)	29.7% (n=11)	67.6% (n=26)
Matched	68.4% (n=26)	31.6% (n=12)	58	65.8% (n=25)	23.7% (n=9)	0.0% (n=0)	10.5% (n=4)	10.5% (n=4)	89.5% (n=34)	0.0% (n=0)
Participants with appointments in the pre and post periods										
Health Neighborhoods	60.0% (n=15)	40.0% (n=10)	59	56.0% (n=14)	40.0% (n=10)	0.0% (n=0)	4.0% (n=1)	3.9% (n=1)	38.5% (n=10)	57.7% (n=15)
Matched	84.2% (n=16)	15.8% (n=3)	58	63.2% (n=12)	26.3% (n=5)	0.0% (n=0)	10.5% (n=2)	15.0% (n=3)	85.0% (n=17)	0.0% (n=0)

Table 2: Participant Demographics by cohort and availability of pre/post data

as Hispanic or Latino. The matched cohort was 68% male-identifying and had an average age of 56 years old. 66% of the matched cohort identified as black or African American and 24% as white and 10% of the cohort identified as Hispanic or Latino.

Appointment completion rates

Looking across all appointment types, while there were promising trends in improving appointment completion rates among Health Neighborhood participants as compared to the matched cohort over time, there was no

	Matched		Health Neighborhoods	
	Pre	Post	Pre	Post
All (967appts.)	66.8% (n= 211)	63.8% (n=210)	71.6% (n=268)	68.3% (n=278)
Primary Care (502 appts.)	72.7% (n=99)	61.6% (n=138)	65.0% (n=143)	59.0% (n=122)
Mental Health (241appts.)	43.3% (n=30)	64.3% (n=42)	77.0% n=(61)	77.8% (n=108)

Table 3: Appointments completed over time by participants with an appointment in either pre/post periods, by cohort and appointment type

	Matched		Health Neighborhoods	
	Pre	Post	Pre	Post
All (657 appts)	141 (by 26 participants)	134 (by 24)	192 (by 26)	190 (by 30)
Primary Care (322 appts.)	72 (by 22)	85 (by 21)	93 (by 22)	73 (by 26)
Mental Health (171 appts.)	13 (by 8)	27 (by 8)	47 (by 6)	84 (by 14)

Table 4: Total # of appointments over time by participants with an appointment in either pre/post periods, by cohort and appointment type

	Matched		Health Neighborhoods	
	Pre	Post	Pre	Post
All (762 appts)	70.1% (n= 154)	65.6% (n= 123)	73% (n= 256)	73.4% (n= 229)
Primary Care (361 appts.)	78.7% (n=75)	63.9% (n= 72)	70.8% (n= 120)	63.8% (n= 94)
Mental Health (190 appts.)	45.5% (n=22)	71% (n=31)	79.7% (n=59)	83.3% (n=78)

Table 5: Appointment completion over time by participants with an appointment in **both** *pre/post periods, by cohort and appointment type*

	Matched		Health Neighborhoods	
	Pre	Post	Pre	Post
All (762 appts)	108 completed (by 18 participants)	81 (by 18)	187 (by 24)	168 (by 23)
Primary Care (361 appts.)	59 (by 14)	46 (by 15)	85 (by 19)	60 (by 19)
Mental Health (190 appts.)	10 (by 5)	22 (by 6)	47 (by 6)	65 (by 6)

Table 6: Total # of appointments over time by participants with an appointment in **both** *pre/post periods, by cohort and appointment type*

significant difference between groups over time. To compare appointment completion rates, we looked at both appointment completion across the cohort, and tried to better factor in individual-level change by including only participants with an appointment in both time periods. Table 3 and Table 4 show the raw numbers and proportions of appointment changes across participants and the matched cohort for anyone who made at least 1 appointment in **either** the pre or the post period. Table 5 shows the appointment completion rates across participants who had at least 1 appointment of the specified type Primary Care (PC) or Mental Health (MH) made in **both** the pre and post period. The 'all' appointment category included PC, MH, and oral health/dental appointments.[xv] The percentages in Tables 3 and 5 are reflective of the average participant-level completion rate for each group.[xvi] Here, the n refers to the total number of appointments made by all participants. The percentage is an average of completion rates across participants. In Table 4, the number of participants that are representative of the total appointments made is also presented.

Table 3 shows completion rates across the HN and matched cohorts. With the exception of primary care appointments alone, the HN cohort had higher completion rates as compared to the matched cohort in the pre period. Looking across the time periods, completion rates in the 'All' appointment type decreased by 4 percentage points from the pre to post period across both the matched and HN groups. Only in mental health appointments did the matched cohort (+21%) see a much greater increase in completion as compared to the Health Neighborhood cohort. However, examining the raw data in Table 4 shows that the number of people in the Health Neighborhood who were making both primary care and mental health appointments actually increased to a greater extent than the matched cohort, and the number of mental health appointments completed by the Health Neighborhood increased by a lesser proportion than the matched cohort; there were 37 more appointments made and completed among Health Neighborhood participants as compared to 14 more appointments made and completed among the matched cohort.

Looking across participants who had at least one appointment of any type ("all appointments") booked in the pre and the post period, Health Neighborhood participants had a slightly increased appointment completion rate, while the matched cohort's completion rate slightly declined. Table 5 shows appointment completion rates of participants who had at least one appointment made in **both** the pre and the post. Health Neighborhood participants overall had more appointments made in both the pre and the post period. The only category where Health Neighborhood participants had a higher completion rate as compared to the matched cohort was in the 'all' category, where the appointment completion rate slightly increased (+1%), while matched cohort's completion rate (-3%) slightly decreased. Table 6 shows the raw numbers of appointment completions by number of participants, for participants with appointments made in both the pre and the post. The total number of appointments made by Health Neighborhood is higher as compared to the matched cohort, even though the number declined over time.

Trend graphs that were created to test the Parallel Trends Assumption are included in Appendix 4. There was largely stability and similar directionality in the number of appointments made and completed over time among the two groups, with the exception of mental health appointments, which are much more sporadic. That is

xv We grouped them differently because based on interviews, care coordinators were not directly booking oral health/dental appointments in Centricity, unlike PC and MH appointments. We therefore wanted to look at appointment data with and without the oral health data, because there was less of a direct program link to potential observed changes in oral health/dental health

xvi While the denominator of the percentage in Tables 3 and Tables 5 is actually the number of completion rates used to calculate the average (i.e. the number of participant), the n reflected is the total number of appointments, because that is the total denominator that each average was ultimately calculated from.

	Health Neighborhood Net Gain/Loss from Pre- Post	Matched Cohort Net Gain/Loss from Pre- Post	Comparison of HN against MC (+, -, =)
Breast Cancer Screening			-
Cervical Cancer Screening			-
Colorectal Cancer Screening			+
Comprehensive Diabetes Care: Blood Pressure Control (<140/90 mm Hg)			-
Comprehensive Diabetes Care: Eye Exam (retinal) performed			+
Comprehensive Diabetes Care: Hemoglobin A1c (HbA1c) Control (<8.0%)			=
Comprehensive Diabetes Care: Hemoglobin A1c (HbA1c) testing			-
Comprehensive Diabetes Care: Medical Attention for Nephropathy			-
Controlling High Blood Pressure			-
Diabetes: Foot Exam			=
Diabetes: Hemoglobin A1c Poor Control*			-
Diabetes: Low Density Lipoprotein (LDL) Management			+
Preventive Care and Screening: Body Mass Index Screening and Follow-Up			-
Preventive Care and Screening: Screening for Clinical Depression and Follow-Up Plan			-

Represents 1 person who either stayed compliant or shifted from non-compliant to compliant over the course of the study period

Represents 1 person who either stayed non-compliant or shifted from compliant to non-compliant over the course of the study period

Graphic 1: Change in TRUE - FALSE HEDIS compliance over pre-post period between cohorts, by clinical measure and representation of overall net positive or negative change of HN as compared to the match cohort.

likely due to the fact that there were just fewer participants who were seeking mental health services.

The appointment completion data were disaggregated by gender, race, and age but not presented here because the size of the group was so small. There were no major differences in appointment completion rates among different demographic groups.

Density plots and results from the Shapiro-Wilks test of normality for appointment completion rates are included in Appendix 4. The Shapiro-Wilks test was significant across all groups ($p<.05$), and density plots appeared normal especially when examining the density plots only for participants who had data in **both** the pre and the post time periods. The DiD regression model was run only for the group with appointments in **both** the pre and post periods.

The interaction variable of the DiD test (time*intervention) was positive (.029) but non-significant (p=.687).[xvii] The difference between appointment completion rates among Health Neighborhood participants over the two year period was .029 percentage points higher as compared to the difference in appointment completion rates among the matched cohort over the same period of time. **In other words, there was no statistical difference between groups in appointment completion over the two year period.**

	Estimate	Std. error	t value	P-value
Intercept	0.679	0.067	10.134	0.000
pre_post	-0.001	0.094	0.013	0.990
HN_Matched	-0.024	0.096	-0.249	0.804
Interaction	-0.026	0.128	-0.207	0.836

Table 7: Difference-in Difference Regression Model for Appointment Completion Rates, controlling for site

Clinical measures

For analysis purposes, clinical measure compliance in a given time period was defined as a participant's compliance to the measure at least once within that time period.[xviii] Therefore, if a participant had received both a TRUE and a FALSE compliance measure with a pre or post period, then both would be counted within their calculation of proportion TRUE.

Unlike with appointment data, all participants who had any record of a clinical measure in the pre OR post period were included. Clinical measures with fewer than five participants with data were excluded.

xvii The interaction variable reflects that the model controls for site, but is not reported here due to the number of dummy variables included.

xviii There were also no changes from F-T, T-F within a time period, so taking the compliance at the last appointment was also reflective of the compliance across the time period.

Matched		Health Neighborhoods	
Pre	Post	Pre	Post
62.4% (n=24)	62.4% (n=25)	64.5% (n=21)	60.9% (n=24)

Table 8: Proportion of HEDIS clinical measures TRUE, by cohort, time period

Overall, the average proportion of clinical measures met among Health Neighborhood decreased by 3.6 percentage points from the pre period to the post period, while the average proportion of clinical measures among the matched cohort remained the same. The matched cohort had more participants with diagnosed diabetes, based on the clinical measures for which they were eligible. Therefore, the overall denominator of the matched cohort (i.e. total number of measures for which a participant could have a TRUE or a FALSE) when calculating the averages of the clinical measures proportions is larger as compared to the Health Neighborhood cohort within each time period.

The shift towards or away from compliance from the pre to the post period are presented in Graphic 1. The last column shows the net 'person' gain or loss for each clinical measure for the Health Neighborhood cohort as compared to the matched cohort. **Overall, among most of the clinical measures, the HN group had fewer individual people gains in compliance from the pre to post period, as compared to the matched cohort.** One notable exception was in Colorectal Cancer screening where the HN group had more person gains in compliance as compared to the matched cohort from the pre to the post period. Similar positive trends were seen among three of the five comprehensive diabetes care measures (BP control, A1C Control, and AIC testing), BP control (general population), Diabetes LDL management, both IVD measures (BP Control, Use of Aspirin or other Antithrombotic), and Screening for Clinical Depression and Follow-up.

A trend line did not fit with the structure of the clinical measure data. We constructed a density plot and ran a Shapiro-Wilks (S-W) test. The density plot and S-W test suggested that the data was not normally distributed ($p > .05$) for either cohort (see Appendix 4). While we considered alternate statistical tests, in assessing the difference between cohorts over time in % TRUE, due to the % difference presented in Table 8 and the sample size, we decided that any statistical finding would not carry strong biological relevance and so did not pursue further statistical tests. There are a number of reasons why these results may have been less positive than expected, which are discussed in the next session.

Discussion

"Oh, we kept getting thwarted. Like we had this brilliant idea that keeps getting thwarted by an unexpected reality" (HAH Executive Director)

The CEA was chosen to assess this project because it allows a program or stakeholder group to consider if a particular dollar amount is worth a certain outcome. In this case, **the total HAH-PSH partner cost, including the estimated amount of the 3 partners, was $345,862 and there was no statistically significant difference between the HN and matched cohorts in appointment completion rates and no biologically relevant difference in overall clinical measure compliance**. There were, however, descriptive trends suggesting that the HN cohort may have had improved appointment completion rates, but this finding did not achieve statistical significance within the truncated program time period. Also, there were a few person gains in specific clinical measures for the Health Neighborhood cohort as compared to the matched cohort, but there were fewer gains than expected.

However, there were also benefits to trying a model to address a gap in a disjointed health and social service system for a population with complex needs. There were lessons learned from the Health Neighborhood project related to program design and implementation that can be applied to future HAH projects, as well as to projects by other community partners. Additionally, there are lessons learned from health care-social service partnerships that may inform design and roll-out of the Integrated Health Homes.

There are four main explanations for why the cost was high: 1) policy barriers impacting reimbursement 2) high administrative costs for the PSH partners 3) high administrative costs for Heartland Alliance Health and 4) lack of available data on potential reductions in emergency department use/hospitalizations There are also three main explanations for why the health outcomes may not have been as meaningful as the program design had hypothesized, including: 1) available health metrics 2) the shift in program design during implementation and 3) the defined study period. Each of these takeaways is further discussed below:

Why was the cost high?

1. **Policy barriers (1115 Waiver, reimbursement rates, and Rule 132 billing) inhibited the full potential of the HN project.**

As outlined above, there were three main policy-related barriers to financially sustainable implementation of the Health Neighborhood project. The project initially intended to leverage the 1115 behavioral health waiver to support care coordination services for supportive housing residents, but the implementation of that waiver has been significantly delayed and may now be rolled out through a different mechanism.

The project then hoped to support financial sustainability through the behavioral health encounter rate. However, a combination of a shortage of LCSWs and a low behavioral health encounter rate hindered the amount of reimbursement that was received from the PSH partners. Across the three partner sites, only Deborah's Place had a full-time therapist. NHSS had a part-time therapist who took a leave midway through the project. The HN program manager, who is an LCSW, stepped in to provide therapy services. This brought in some revenue, but some participants did not want to re-start therapy services and form a new relationship with a provider. At HOW, a therapist was not able to be hired throughout the course of the project. One of the challenges that HOW faced in hiring for a new position was that HN would only be able to support a portion of that position, and HOW would need to support the

rest of the salary. The full-time support of a behavioral health provider within supportive housing sites is a major challenge that potentially cannot be achieved through Medicaid reimbursement alone under the current reimbursement structure.

> *"I stepped into that role because we were told at the minimum we needed to be doing certain assessments quarterly… with the hope at some point we would be able to fully fund someone to come on in and do counseling and therapy with clients. We didn't have the funding to have a standalone position and with us only allocating about 20% of a staff person to it and being reimbursed for that amount from Heartland, we just couldn't have a full position and justify only being reimbursed at 20% essentially of that position."* (PSH Manager)

This was a similar issue across PSHs. One suggestion from a PSH partner was that one full-time therapist should be hired whose only role was to provide place-based therapy services across HN sites, in collaboration with each PSH-specific care coordinator. This might be feasible in future health clinic-PSH partnerships. **The Health Neighborhood project was built on the theory that integration of care coordination and therapy services at a housing site would improve health outcomes. Without the therapy services, not only was reimbursement lower than anticipated but the program itself was not able to be implemented as it was intended.**

As a last attempt to save the project, Rule 132 was identified as a potential mechanism to increase reimbursement and HOW was selected as the first Health Neighborhood site for implementation. However, while HOW does serve participants with SMI, there were still challenges in recruiting those participants to enroll in the Health Neighborhood project. Rule 132 requires that all participants have a diagnosed serious mental illness (SMI), the provider is a Rule 132 qualified provider, and that the participant has completed the IM+CANS assessment. Reflecting back, choosing an established Health Neighborhood partner with a high number of already-enrolled participants who also serve participants with an SMI to begin implementing Rule 132 billing may have been more effective. Based on interviews with PSH providers, the initial roll-out of Health Neighborhood was challenging for a new partner and required learning new systems, new protocols, and new organizational practices. This may have not been the best time to recruit only participants with SMI, and pair recruitment to a new program with IM+CANS implementation. IM+CANS can itself act as a barrier to participation given the length of the assessment and the intensiveness of the questions. Participants who have an existing trusting relationship with a care coordinator or therapist may be more willing to participate in the IM+CANS, especially if they understand the rationale.

2. **HAH allowed PSH partners to be reimbursed for non-Medicaid reimbursable activities, such as external administrative costs**

One of the big benefits is that our folks can go to the trainings. We have a zero budget for staff training so being able to send them to the Harm Reduction conference was great and it was mandatory for them, so they have to bill for it… you're [Heartland] paying us for them to go to the conference, I'm just saying. And I don't know how sustainable that's going to be in the long run. (PSH Manager)

Heartland Alliance is committed to providing high-quality, trauma-informed care, which often requires training of staff providers. However, especially as it became clear that the Health Neighborhood program was reimbursing PSH partners to a much higher degree than they (HAH) were being reimbursed through Medicaid, one of the first changes that was made was reducing the number of trainings that PSH partners were required to attend. Some partners shared that their staff had already previously attended some of the trainings, but they still were required to attend the trainings. Other

administrative activities that partners participated in included meetings, calls, and the Health Neighborhood evaluation. Perhaps one cost-saving measure should have been assessing 'need-to-have' and 'nice-to-have' trainings for each HN staff role, and staggering them over time. Also, staff who had already completed a required training should not have necessarily needed to retake the training.

However, this is not to say that all administrative time, or time not spent on direct time with participants, should not be reimbursed. For example, one of the tenets of the HN project was integration of program staff among HAH clinical staff to better provide coordinated, integrated care. PSH staff reported feeling integrated with HAH clinical staff to varying degrees, but generally felt that there was a lack of awareness of Health Neighborhood among clinic staff. A team-based approach can only happen when the care coordinator is able to attend meetings and work with clinical staff, and care coordinators and/or behavioral health providers' reimbursements should allow for the administrative work that strengthens their direct care. **The importance of team-based engagement and the time required to partner meaningfully with external partners who are providing a component of participant care should be considered when thinking through care models and reimbursement of partners through internal-external partnerships such as Integrated Health Homes.**

Administrative costs are always the first to be reduced because they are not seen as directly benefiting participants. However, adequate administrative time is necessary for high-quality care and receiving reimbursement for that care. Care coordinators also spend time doing administrative coordination work outside of time spent with a participant that needs to be accounted for. This was highlighted in the NHSS cost breakdown that showed the time that one care coordinator spent on different appointment types.

> *I think there's a certain amount of it that's sitting at a computer making sure that the care coordination part of it is happening. Sometimes I'm digging through their charts to find missed information, since I think a lot of our participants have cardiology referrals and pulmonology referrals and different imaging and all this stuff that I think in a 20 minute appointment at the clinic, one thing is talked about and so I'm trying to pull together sometimes information that maybe is forgotten or when they go and they see a different doctor or a nurse practitioner each time.* (PSH Care Coordinator)

3. **While HAH administrative costs were high, investing in a central program manager was critical**

In her [HN program manager] role, I think that she has the capacity and time to respond to our concerns and questions and assist with any challenges we may have. Overall, there's a better understanding now of what we can do as an agency versus in the beginning ... I think things are a lot smoother [now]. (PSH Manager)

The biggest cost of the HN program were HAH administrative costs – and of those costs, HAH staff salaries was the largest category (87%). While this was a high cost, in every interview with PSH staff and with other HAH staff, the program manager position was cited as critical to the program's coordination and implementation. While fewer administrative costs were incurred prior to the hiring of the program manager by tasks being spread across multiple HAH staff members, PSH partners reported feeling that there was confusion and challenging communication, and that the hiring of one centralized person was key. **Especially for programs that use an external partnership model, investing in one person devoted to managing that program and managing those partnerships is key to a successful program.**

4. **The potential reduction in cost due to ED visits was not able to be assessed.**

One of the major limitations of this cost assessment was a lack of data around

hospital admissions. Hospital admissions and emergency department visits are one of the major drivers of healthcare costs and studies have shown that people experiencing homelessness have higher rates of ED usage.[62] [63] Factoring in the costs averted from avoiding hospital admissions and ED visits among HN participants, if visits and hospital re-admissions went down, could have influenced the overall returns and therefore net cost of the program. Self-reported data indicate that hospital admissions and ED visits likely went down. However, at the time of the HN implementation, given the numerous hospitals that a participant might attend and the data sharing agreements needed from hospital systems for only a few participants, analyzing this data would not have been feasible. Therefore, the other option was relying on care coordinator documentation of ED visits, but this plan also presented challenges. For participants living in scattered site PSHs, a care coordinator or case manager may not know if a participant goes to an ED. Also, there was no uniform ED/hospitalization tracking document put in place from the beginning of the project, and so changes over time would have been difficult to capture. It is possible that if there had been an end line, there could have been a retrospective review of case files, but the program ended too soon to allow for that review.

In the future, HAH internal care coordination programs will be able to track hospitalizations through HAH's Illinois Health Practice Association (IHPA) care coordination. With IHPA, care coordinators receive an alert when one of the patients in the care is going to be released from the hospital so that they can follow up with coordination services and hopefully lower re-admission. Future evaluations of HAH care coordination delivery can include evaluations of hospital and ED admission and re-admission rates and potentially include a cost-savings component.

Why were the health outcomes not statistically significant?

Some of the factors which may have influenced the significance of the results include:

1. **Health metrics do not always reflect meaningful changes.**

> *It's kind of the perfect trajectory of a lot of the interactions that we have with participants. This is someone who had no primary care, no health insurance, and now is regularly seeing a counselor, seeing a doctor, attending specialist appointments, working clearly toward his goals, but it hasn't been this perfect upward trajectory. I think sometimes we like those stories but it's not really reality. It has been bumpy and I'm sure it will continue to be, but he's come an incredible way and I think it's our job to figure out how to support him on that journey. (PSH partner)*

One of the first questions PSH partners asked when beginning this evaluation was whether IMPACT would include broader outcomes in the evaluation beyond clinical measures, which might be too limited. The intention was to do so to some degree through the pre/post surveys and more so in-depth interviews that would allow for richer information on health outcomes that spoke to changes related to patient activation or quality of life. However, without those data sources, we are reliant on the clinical data included here, two participant perspectives, and provider perspectives.

While there were only two clinical measures that showed an increased person gain in compliance over time among HN participants as compared to the matched cohort, there were smaller success stories shared by all PSH providers as well as the two participants who were interviewed. For example, one participant shared that Liz, the NHSS care coordinator, helped him attend his routine specialty appointments by creating a clear and laminated map to show where he gets on the bus and where he gets off. Due to a stroke, this participant had daily challenges remembering the route. These 'small' acts can change health care trajectories. For example, organizing and teaching about medications so they are taken appropriately:

> *Liz from Northside Housing she got me a pill bottle thing, all the names and what pill this is, what pill this is. I got 'em in order. She did that, I couldn't do it. I didn't*

know how to do it. Now I'm taking my, I'm taking [them] in order. (HN Participant)

While the clinical measures are important to monitor and assess, less tangible positive changes determined by participants should be validated as well, such as having a consistent person on their healthcare team that validates, respects, and listens to them. This idea is especially critical as Illinois shifts to value-based arrangements within Integrated Health Homes. **The outcomes that measure 'success' must be informed by the reality of the complex needs of participants like those in the Health Neighborhood project, and not reflect outcomes of a more general Medicaid population.**

2. **The bulk of program implementation was care coordination, which has mixed results and is not consistent with the intended integrated care model.**

As mentioned above, only one of three partners were able to provide consistent behavioral health services, which meant that the integration of behavioral and physical health services did not fully roll out as intended. Even for the one PSH where there was both consistent therapy and care coordination services, there were only a few participants that received both services (care coordination and therapy), rather than the program being implemented as an integrated package. **Not only did a gap in behavioral health services in the Health Neighborhood roll-out mean lower reimbursements than envisioned, but the program did not increase access to place-based behavioral health as envisioned.**

As discussed in the background section, there have been mixed outcomes from care coordination studies. Some studies have found improved health outcomes and reduced costs.[64] Some, however, have cautioned against expecting major cost savings from care coordination models, but that improved health outcomes should outweigh a potential reduction in costs.[65] Most recently, a randomized-control trial in Camden, Massachusetts demonstrated no significant difference in hospital readmission rates among 800 patients who had 'medically or socially complex conditions' who received intensive care coordination services as compared to a matched cohort with 'usual care.'[66] Ultimately, care coordination alone, without addressing the underlying social determinants of health, in particular homelessness and substance use, may be ineffective. In the Health Neighborhood project, though, the most critical factor, housing, was already accounted for as every participant was part of a PSH program.

Multiple studies have documented the co-morbidity of chronic disease and behavioral health issues.[67] While only some of the clinical measures are related to chronic disease, it is possible that mental health issues such as anxiety or depression could impact someone's health-seeking behavior. Care coordination alone may not be enough to support someone with extreme anxiety to see a provider for colorectal screening, for example. As another example, survivors of sexual trauma may need ongoing behavioral health support to be able to manage symptoms of PTSD that may arise during a breast cancer or cervical cancer screening, for example, not only care coordination support. **It is possible that if participants were able to access place-based behavioral health services, integrated with care coordination services, that their health care-seeking could have increased and health-related outcomes could have improved.**

3. **Health-seeking behavior and health outcomes take a long time to change and are influenced by behavioral health symptoms and substance use disorders.**

Perhaps the largest challenge with the Health Neighborhood evaluation was timing. This was an observational study that ended abruptly. While it was possible to pull health data retrospectively, some of the participants did not join the program until what was defined as the 'post period.' Not all enrollment dates of participants were

documented and so rather than controlling for program entry, we controlled for site enrollment date, which was also quite staggered, especially for HOW. While everyone included in the study was enrolled in Health Neighborhood by the post-period, there was large fluctuation in how long they had been enrolled, even within a site. If the program had continued, and an extra 6-12 months allowed to assess outcomes, that could have made a difference in seeing slight changes, at least in the appointment completion data.

The appointment completion frequency data suggested that there may have been some slight initial improvements in appointment completion among Health Neighborhood participants as compared to the matched cohort. While the differences were slight and non-significant, it could suggest that, had the program had more time to generate an effect, intensive care coordination services are needed to support individuals with complex needs to see providers and that effort in itself may take a couple years to see a change health outcomes. Only once a participant is consistently attending health services can the clinical measure metrics begin to shift. **Change does not happen immediately, and small changes in the number of people making and completing appointments may have just started to shift as the program ended.**

For this population in particular, the intensity of services required to make change takes time, which might also speak to why there was minimal changes among most clinical measures. However, it is also a notable finding that, among Health Neighborhood participants, 5 more people became compliant for their colorectal cancer screening as compared to the matched cohort. This is important to note, because it was an explicit intention of at least one of the care coordinators to focus on this clinical measure in particular, and it appears as if that effort led to documented improved outcomes:

> *I've taken this year to focus on ensuring that participants are getting age-appropriate screenings and I can track those referrals and that information in Centricity and know when someone has been referred to a colonoscopy… So right now I'm working with a participant who had a history of a stroke who needs a colonoscopy, which his primary Heartland provider sent a GI referral. And I know that he will have a very difficult time understanding how to follow the pre-operative instructions and very likely without intensive support wouldn't be able to do that. And I've had other Heartland participants who have had intellectual barriers and halfway through started eating, or ate in the morning after they drank that whole solution and were turned away by providers. So I'm starting to have conversations with their care coordinators and Thorek Hospital, where a lot of our participants are referred, to see if they can have an inpatient stay the night before, where some medical provider is making sure that they're drinking that solution the right way, that they're not eating, and that they're not going to be turned away in the morning when they need the test. So that's the current level of intense services that sometimes people need to get the screenings that they need done, done. (NHSS Care Coordinator)*

This level of intense services is needed to support particularly high-needs participants to get the care that they need, but the quantification of that success can be misleading without understanding the effort needed to hand-hold people through care.

A major contributor to health-seeking behavior and health outcomes are behavioral health conditions and substance use disorders. Due to privacy protections, we were not able to use mental health or substance use referral or diagnosis data for this project, which may have provided context around behavioral health needs and outcomes of the Health Neighborhood cohort and the matched cohort. Anecdotally, PSH providers shared that the Health Neighborhood participants had more complex health needs as compared to other PSH participants. The matched cohort was matched solely on living at any PSH (except the Health Neighborhood PSHs) and

demographics, and not on mental health diagnosis or substance use disorder. **Therefore, it is possible that the Health Neighborhood participants are just a harder to reach population, and so small successes should be celebrated, even those that are not statistically significant.**

Recommendations

This whole idea of Health Neighborhood and all that is a symptom of not having enough money to pay people who are doing case management. A failure to recognize the model as a whole, poor communication and underfunding of social services as a whole. More street outreach, if we had more case management staff, if we had funding to provide services and didn't have a caseload of 50 people. How can you provide good services when you have a case load that is high you really don't get the chance to develop that relationship with someone. We have to think about it like counseling than just connecting people to Social Security. Its much more like counseling than just connecting people to public aid. (Key Informant)

Based on the literature, the evaluation of the Health Neighborhood project, and interviews with key policy informants in Illinois, several recommendations for the State of Illinois are outlined below to strengthen Medicaid support of integrated care specifically for populations with complex needs.

1. **Submit a state plan amendment to establish a new Medicaid benefit that funds services in supportive housing in lieu of the stalled 1115 waiver pilot**

Housing instability is a key social determinant of health.[68] Illinois has a long history of investing in supportive housing. A 2009 study conducted by the Heartland Alliance Mid-America institute on Poverty reported that supportive housing led to a 39% reduction in public costs linked to Medicaid, county jails, and other public systems, as well as health improvements among other positive outcomes.[69] While there was a lack of clarity about what services exactly the 1115 waiver would have covered related to housing, it now seems that those pilots may be fairly limited. The 1115 waiver should be transferred into a state amendment plan to establish a new Medicaid benefit to fund homelessness prevention and supportive services for adults and families as a means to improve health outcomes. These services could include case management services and/or community nursing services, which are historically underfunded. The big advantage of the state plan amendment is that it is a statewide program rather than a pilot. The role and value of services in supportive housing are well established and a pilot is unnecessary to understand them.

There are some states that Illinois can look to for guidance as well. Hawaii, for example, received approval in August, 2019 to begin providing some level of supportive housing services through an amendment to their 1115 waiver.[70] In a 2014 white paper, the Corporation for Supportive Housing (CSH) outlined considerations for Washington State and others to create a Medicaid supportive housing benefit.[71] Based on their model, which included costs of 14,285 individuals with 'any housing need,' the return on investment would be 18%. Investment in building out a financial model to provide more specific system recommendations, which could be updated from the 2009 study on Supportive Housing in Illinois, would be highly informative in building a sound and financially sustainable plan. Modeling costs savings would be an important step, but gathering the health and costing data managed and protected across different data systems is a barrier to accurately estimate cost savings of investing in supportive housing.

As a recent paper by the Center on Budget and Policy Priorities outlined, and as was supported through the key informant interviews, Medicaid alone cannot fully support housing-related services, and 'Medicaid investment into health-related activities shouldn't be jeopardized by over-expanding into other areas.'[72] The housing crisis cannot be solved by Medicaid, but rather, there needs to be a more intensive focus on partnerships across health and housing, building on the existing 45 partnerships

in the Chicago Area identified by the Alliance for Health Equity. **Medicaid cannot be an answer for the affordable housing crisis or a historically underfunded social service system. However, Medicaid could be leveraged to provide necessary supportive services in partnership with other housing supports.**

1. **Provide additional subsidized housing resources to expand the Flexible Housing Pool**

One example of a mechanism for health outcomes through housing is the Better Health through Housing Program, which has transitioned into the Flexible Housing Pool (FHP) rolling out in Cook County. The FHP provides housing to individuals who are frequent users of the emergency department (ED) through a public-private partnership. The FHP model was piloted in Los Angeles, through a public-private partnership led by the LA County Department of Health Services, community-based partners, property owners, and case managers. To date, the FHP in LA has housed nearly 7,000 people.

The program in Cook County was built off of University of Illinois (UI) Health's Better Health through Housing program, which provides permanent housing and supportive services to patients who are chronically homeless and frequent ED users. Among participants in the Better Health through Housing Program, there has been a 48% reduction in hospital and emergency room utilization since initiating the program in 2015. The FHP, created in 2018, will continue to provide supportive housing to chronically homeless patients with poorly managed health conditions who are seen frequently in UI's ED. The vision of the FHP is to expand and be sustained through both private and public funding (including Medicaid). While the evaluation of the Cook County FHP has not been completed yet, one key informant reflected that despite small challenges with any new program roll-out, it is overall and exciting and very promising program.

2. **Increase Medicaid reimbursement rates**

> *So I feel like, the reimbursement rates have to shift and yes, crisis intervention is very specific and, you need someone that's skilled to do that work and yeah should be reimbursed. … but a lot of that work of case management of people's basic needs and medication monitoring and things like that for which we don't necessarily get reimbursed as highly and what we're doing the most of, yeah. Sort of frustrating.* (Olivia Masini, Health Neighborhood Manager)

One of the challenges in sustaining the Health Neighborhood program was the low behavioral health encounter rate, which influenced the ability to hire and retain therapists, as described above. Low Medicaid reimbursement rates are problematic across services in Illinois. In 2016 Illinois ranked 43rd, and below the US average, in the Kaiser Family Foundation's Medicaid to Medicare Fee Index, with Medicaid fees for all services falling at around 61%. While there may have been slight increases in the rates in the past 4 years, the rates are still low. A 2016 paper by Illinois Partners for Human Services demonstrated that mental health service rates have not been adjusted in a meaningful way since 2006[73]. While Illinois HFS did raise the mental health service reimbursement rates in FY20[74], Illinois Partners for Human Services estimated that to keep up with costs of living, the rate would need a median additional increase of 16% from the 2016 rate. Understandably, one positive increase in reimbursement rates cannot rectify years of stagnancy.

And that's my worry with health home and care coordination too. If the rates are too low, then you're going to have to have these huge caseloads and they're not going to provide as great as care as we know that they can.

As Illinois considers shifting towards an IHH model, which may include FQHC care coordination for Medicaid populations, rates must be high enough to recruit and retain professionals, both care coordinators and behavioral health therapists, to work

with the Medicaid population.

Along with ensuring that care coordinators and therapists are paid appropriately, another consideration is the qualification requirement for care coordinators, which also informs the rate of reimbursement. Care coordinators can play a variety of roles within an integrated care model, and so level of experience and educational background can vary depending on that role. Care coordinators in the Health Neighborhood project had different educational backgrounds including public health, social work, and nursing, and therefore the roll-out of services looked a little different across partners. One benefit of a nurse care coordinator, especially for people with complex needs, is the ease of integration into a clinical team. A care coordinator with a nursing background might be more comfortable translating medical information into friendly language, writing and reviewing clinical records, and conducting clinical home visits to follow up on primary care or specialty care recommendations. To be able to recruit and retain a home visiting nurse to provide care coordination services within a community organization that serves high-need populations, the reimbursement rate must reflect their experience and background and the competitive salaries offered by hospitals and larger players.[75]

> *[you need] Sufficient staff to take people to these appointments too. Like if someone has multiple appointments in a week and you have 100 participants and 6 staff … and someone is dealing with a lot of internal stimuli you want to prep them for the visit so they're not anxious or paranoid and they have the questions they want to ask and the complaints they had been telling you about, so they don't get in there, deer in the headlights (Erica Ernst, Renaissance House)*

One of the key informants suggested exploring ways in which population-based care coordination could be better standardized; there could be credentialing programs or a more in-depth assessment of necessary experience, qualifications, or skills to be able to provide care coordination under IHH. Some certifications exist within the Illinois Department of Aging, but working with people experiencing homelessness and/or people with complex social and medical needs requires a specialized skillset. While not specific to that population, the Social Work Leadership Institute and the New York Academy of Medicine released recommendations to the Department of Health and the New York State Office for the Aging which includes educational and training requirements and care coordinator competencies.[76]

3. **Launch Integrated Health Homes and prioritize patient engagement**

> *Care in the community is better than care in institution. So, even when caring the community costs as much as an institution, it should still be the preferred way to spend. (Ed Stellon, HAH Executive Director)*

The integrated health homes, as described in Section 2, of this report is an exciting opportunity to provide more holistic and patient-centered care. Much hinges on the details of implementation, but based on the Health Neighborhood project, two major areas are highlighted here. T**he first is the importance of developing appropriate value-based payment rates for complex populations. The second is leveraging existing relationships and community-based structures to prioritize patient engagement.** The reimbursements rates for IHH, at time of writing, had not yet been publically disseminated. Illinois now has a chance to invest at the front end for high-quality preventive care, as opposed to cutting costs and ending up with a higher treatment bill and poorer health outcomes at the end. Value-based arrangements stand to change the way in which billing structures support health outcomes as opposed to treatment outputs. However, it is critical that representatives from populations with the most complex needs are at the table when designing those structures to ensure that the outcomes are appropriate and feasible, and the reimbursements are reflective of the effort it can take to provide intensive

services. The National Academy for State Health Policy created a Toolkit to help state policymakers implement Medicaid value-based payment methodologies for FQHCs.

Secondly, based on interviews with PSH staff and Health Neighborhood participants, one of the highlighted strategies for increasing appointment completion was deep and meaningful relationships between PSH staff and participants. The current iteration of the IHH model includes reimbursements for participant engagement, which is a positive first step. **It is critical, however, to build on existing community partners' roles and staff, and remain flexible as to how that participant engagement is provided.** Each new relationship that a participant is asked to build (with a case manager, care coordinator, provider, peer specialist, etc.) takes time and may be challenging given that those roles are often have high turnover, leaving participants consistently being asked to forge new relationships. Increasing appointment adherence is likely to be more effective by leveraging existing peer engagement relationships for participants, such as through community nurses or clinical case managers, rather than adding on another new relationship. Patient/participant engagement is key, but it would be strategic to better explore with community-based organizations how to provide that engagement in an ongoing and sustainable way.

One example of a program that lifts up the importance of referrals and relationships is the IDHS State Opioid Response Warm Handoff program. This program connects hospital-based screening, brief intervention, and referral to treatment (SBIRT) with warm handoff referral services for people with opioid use disorders and/or other SUDs. This model shows the effectiveness of the human relationship and connection with participants to support the linkage between facility and community services.

4. **Support innovative service delivery models such as the Illinois Health Practice Alliance**

> *You know, you have to look backwards and say, well, we've created this mess and we need to, to change how we look at it to reinvest in the care that's available, using technology that's available and care models that are available.*

In order to achieve better health outcomes among populations with complex medical and social needs, it is important to shift towards a model that rewards outcomes (quality) rather than number of visits or services (quantity). There are homegrown programs and service delivery models that Illinois can look to, and invest in, to improve care. One example of a value-based service delivery model is the **Illinois Health Practice Association (IHPA)**, "an Independent Practice Association created to improve the integration of behavioral and physical health care in the state of Illinois."[77] The IHPA is already in a value-based arrangement with one MCO, IlliniCare. IHPA controls the network for behavioral health services for IlliniCare statewide. When there are costs savings across the IHPA network, those cost savings are able to go into addressing social determinants of health like housing.

> *"You can see in that business model [IHPA] that the social determinants of health are highly correlated with our capacity to reduce the total cost of care… So if we've got a homeless person in Peoria who's going into the emergency room every night, that it's under 30 degrees because she's cold or scared or whatever our total cost of care is going up. And if we were able to like have a recuperative care center for homeless people in Peoria, right…as an alternate alternative to emergency department... do you see where I'm going with this?"* [Ed Stellon, HAH Executive Director]

As the state transitions to value-based arrangements, systems like IHPA should serve as homegrown implementation models. There also have been successful pilot, projects, or pieces of pilots or projects that can be examined, built upon, and invested in. For years, Illinois has had challenges in sustaining investment in a comprehensive healthcare system, which leads to disjointed care, focused on treatment rather than

investing in prevention. **Illinois has a lot of innovation—it just needs adequate investment to be sustained.**

5. **Streamline and standardize administrative and billing requirements**

The shift to MCOs, many of which have their own billing protocols, has been hugely challenging for providers who may need to submit payments to multiple payers. **The administrative and billing requirements are major barriers to billing for smaller organizations with deep, meaningful ties to high-need participants.**[78] Even for large hospitals like Sinai or University of Illinois Hospitals and Clinics, for example, the administrative burdens such as claims denials is a huge cost, and requires hiring entirely new staff teams.[79] As one key informant shared, sometimes reimbursements are majorly delayed or denied, which can put a small organization, especially one just building their billing structure, under water. Another challenge cited by another key informant is that behavioral health will inherently have a lot of denials in the current system because the totality of services may not be captured in one day for a single person, and so the latter services will be denied.

> *And you think about an agency that has been doing it* [Medicaid billing] *for 10, 15, 20 years. They have the protocols, the processes, the policies in place to help structure that billing aspect for their employees. And that may look different from one agency to the next, but they all have policies in place on how to submit claims. And then you factor in Medicaid managed care or managed care in general. And that's a whole other level of claim processing that most providers struggle with. Even great, even very very savvy providers are gonna miss out on a large chunk of, of claims because of, for whatever error or time frame or something else*. (Key Informant Interview)

Also, for Rule 132 specifically, the requirement to complete the IM+CANS prior to receiving reimbursement for services is also a barrier. This requirement is particularly challenging, because to bill for services under Rule 132, the participant must have an SMI. This population can be extremely challenging to identify and follow, and also may struggle completing the IM+CANS. If, however, there were flexibility in who was eligible to receive billable services beyond SMI, that might take pressure off of programs who are hoping to use the Rule 132 billing system.

In February of 2019, the Illinois Association of Medicaid Health Plans (IAMHP) released the IAMHP Comprehensive Billing Guide which is intended to better assist providers in billing.

6. **Allocate state funding for training and support of smaller community organizations to bill Medicaid for care coordination and behavioral health services**

> *"You, the permanent supportive housing provider, have more access to my patient than I will ever have. And you have a better relationship, more trust with her than I will ever have… so why don't I then move the balance of her healthcare experience to you and then enlist you and push resources to support you to do this so that we're working together toward population health management goals?"* (Ed Stellon, HAH Executive Director)

The Health Neighborhood project attempted to address the gap in capacity and infrastructure of PSHs to bill Medicaid directly through the existing HAH Medicaid billing structure. This model created an apparatus that enabled community-based organizations to provide services while HAH dealt with the bill. **Another approach, which was supported by many key informants, is for the state to invest in building the capacity and data/documentation infrastructure with community organizations to directly bill for Medicaid, or create a more feasible apparatus for the community providers to be supported.** In New York, for example, a 2-year

grant was implemented to support community-based organizations to work together to identify a shared IT vendor, implement claims testing, and give smaller organizations time and space to work out some of the inherent challenges in building up a new system.[80]

> *There has to be some level of provider technical assistance as it relates to Medicaid billing. I don't think the state's ever put out a training on how to effectively bill Medicaid or, or help providers improve their Medicaid capture or managed care capture for that rep, for that matter. So provider support, provider technical assistance.* (Key Informant Interview)

One opportunity in Illinois is the development of the Medicaid Technical Assistance Center through the Illinois Coalition on Youth (ICOY). The MTAC will support advocacy efforts to create capacity-building resources for community organizations to bill Medicaid. Just having a singular space to find information about Medicaid billing would also be helpful. For example, as organizations under the Department of Child and Family Services (DCFS) begin billing Medicaid for the first time, there is a big need for the state to invest in billing capacity-building.

As one expert said, *"everybody's on an individual scavenger hunt to figure out this information and it's wasting a lot of people's time and energy and resources and the networks are therefore suffering."*

As the state shifts towards value-based payment arrangements, there is an urgency to financially support organizations that are most directly connected to folks with complex needs to be able to access Medicaid dollars.

> *"I think a lot of the changes and move towards like value based payment, which I think is awesome. I'd love to be able to show the incredible outcomes that these providers can do. But they are geared a lot of times towards larger organizations that have the infrastructure, like the Heartlands and the Thresholds. And they're great organizations. But we want those, we want these smaller providers too"* (Key informant interview)

As illustrated through ICOY's report on Medicaid billing readiness, organizations that predominantly serve communities of color may be left behind if the state does not take intentional steps to ensure that there is funding to build the necessary infrastructure and capacity.

7. **Invest in technology to better support data entry and management across providers to support integrated care.**

One of the lessons learned from Health Neighborhood was the importance of data sharing and clinical teams across programs having access to appropriate levels of participant data. Because care coordinators were able to flag issues in the EHR, primary care providers (PCPs) knew important developments from specialty care providers or were alerted of social determinants of health that could influence care. Conversely, care coordinators were better able to provide medical translation if needed or follow up on alerts from the PCPs.

> *We're kind of coming back to Centricity, that being our point of communication. I think that, offering that was a very, very big plus of, you know, they're serving somebody, they [the PCP] just, gives them [the participant] a discharge summary. They go to their permanent supportive housing unit, but then they [the care coordinator] might not know what's happening. This was a way for them [the care coordinator] to be engaged in their [the participant's] care.* (Key Informant Interview)

One challenge, however, as noted by a key informant, is that the state does not have a IM+CANS portal that can be integrated into electronic health records operated by the providers. Therefore, providers have to enter the info twice, which often means less time with patients. Too many unnecessary administrative tasks can also lead to overburdening of staff, which leads to burnout and turnover. This duplicative data entry can act as a barrier, especially for smaller organizations who are often short on time and human resources. It can also lead to data entry errors.

Currently, the state is "in the process of modernizing" the Illinois Medicaid Program Advanced Cloud Technology (IMPACT), which is a Medicaid Management Information System (MMIS). The system "standardizes, expedites and simplifies process for providers serving Medicaid beneficiaries" across 5 key agencies: Illinois Department of Healthcare & Family Services (HFS), Illinois Department on Aging (IDoA), Illinois Department of Children & Family Services (DCFS), Illinois Department of Human Services (DHS) (certain divisions), and UIC Department of Specialized Care for Children (DSCC). As IHH rolls out, IMPACT will become a critical centralized point for data. IHH is likely going to have an admissions, discharge and transfer (ADT) feed that will notify care coordination partners about patients who are admitted to the hospital so that they can reach out prior to or post discharge. This data is also key for evaluations of care coordination models and MCO-specific IHH outcomes. Key informants at HAH who work with IHPA referenced how critical the ADT feed is in quickly connecting with participants to reduce repeat hospitalizations and ED visits. It is critical to invest in the administrative side of program, not just the direct care, to ensure that operations run smoothly and there is useful data available for decision-making.

Another technology gap raised by one key informant is the importance of telehealth, and that telehealth could be a potential way to provide clinical consultation to people who may be challenged to get to a health facility. For example, people who live in supportive housing could be visited by a community health nurse or a clinical case manager and consult with a primary care or specialty clinician via telehealth.

8. **Invest in developing a sustained community input channel**

Systems are stronger when they have input from the communities/and or beneficiaries that they serve. HFS has held public town halls to gather public input, which certainly may have included people with lived expertise with the Medicaid system. However, a more robust and sustained Medicaid beneficiary group that could be consulted during design and implementation could strengthen the system and circumvent potential issues during roll-out. For example, one key informant shared an experience of working with a Medicaid beneficiary group to support design and dissemination of community information about integrated health homes in New York:

> *A beneficiary steering group, which I loved. So it was actual recipients of Medicaid… we did a lot of like, does this brochure make sense to you? Does this image make sense to you? That sort of thing. Which I thought was really interesting ... because I got to hear real time what the issues were and start to understand, you know, was going on.*(Key Informant Interview)

Some degree of consumer or beneficiary engagement is typically a component of most major social system changes, but the degree to which this is meaningful and sustained may vary. New Jersey, for example, gathered input from advocates and consumers during feedback forums for managed long term services and supports to gather thoughts about roll-out. New Jersey also implemented consumer surveys for select initiatives to get direct feedback from consumers. The challenge is continued funding to compensate people with lived expertise for their consultation and time, as well as for groups to continue to thrive and have a meaningful and respected role in implementation.[81]

As IHH rolls out, along with other new initiatives and pilot programs, anchoring those programs in the experiences of the people who are part of them is critical to their success.

9. **Support a Federal Single-Payer System and Universal Health Coverage**

I do believe in single-payer… I'll fight for people to keep their Medicaid because it's better than not having anything. But, Medicaid doesn't work. No. We have to get rid of insurance. We cannot have managed care companies. We cannot have investors who make money managing care because it will always mean a reduction in care, and it means that off the top, the overall [profits], some of that is going out of the system. We need every one of those dollars to stay in the system. (Key Informant Interview)

Each of the key informants were asked, if they could make one major policy change to improve integrated and holistic care to participants with complex health and social needs, what would they do? The most common answer was to implement a single payer health care system.

The United States is the only industrialized nation that does not have universal health coverage, and consistently ranks lower than the 33 other industrialized nations with universal coverage in indicators such as infant mortality, maternal mortality, chronic disease prevalence, and life expectancy.[82] One of the adverse effects of the lack of a federal comprehensive single-payer system is that each state's health system lookd slightly different. As compared to other states, Illinois ranked 27th in the 2017 Commonwealth Fund's State Health System Performance, which looks at 40 measures among health care access, quality, avoidable hospital use and costs, health outcomes, and health care equity. While Illinois, which has a 7% uninsured rate, expanded Medicaid coverage after ACA, there are clearly still gaps both in coverage and in care.[83] As one key informant said, they believe in real 'socialized medicine, not affluent medicine'; based on seeing the urgent health needs of the population with whom they work.

Massachusetts stands out as an example of a state that led major health policy reform that then the federal government replicated. The Massachusetts system is similar to the current health insurance landscape in the US, which includes a mix of private and public insurers. Ten years after passing Chapter 58, Massachusetts has the highest insured rate in the US and the coverage gap across racial groups has narrowed; however, health care is still unaffordable for many.[84] Policy experts interviewed about Chapter 58 for a recent study highlighted the inefficiencies and ineffectiveness of the public/private system at the expense of the patients.[85]

While Chapter 58 in Massachusetts and ACA were important first steps to expand healthcare *coverage*, there is a difference between health insurance and health care. There are still gaps in care, even with diminishing gaps in coverage in Massachusetts, or in Illinois post-ACA. This is because healthcare costs are high, provider networks may be limited, and even with coverage in the ACA marketplace, plans may be limited or restrictive and are often still cost-prohibitive, especially for those earning just above the Medicaid cutoff. From 2010 - 2019, 20 states, including Illinois, have put forth 59 different state bills to try to legislate versions of state-based single-payer systems, with little success.[86] There are numerous legal and financial barriers against these bills largely because they necessitate going up against a federal system and legal framework that is largely not supportive of a single-payer system.[87] However, based on key informant interviews, **in order to truly provide not just coverage but holistic and quality care to all Illinoisans, we must commit to healthcare as a human right that everyone deserves regardless of income or complexity of need.**

Conclusion

"You know our Health Neighborhood folks are people that it's a struggle to get them to sit down for two minutes, for most of them. There's the ones that meet with [therapist], they will and they do and that's why they're in the program. And then our other people in the program have a lot of health related needs and a lot of other priorities right now and so being able to, in the moment, when they come and say 'I'm ready to see a doctor', to be like 'okay, tomorrow morning', that has been really powerful." (PSH Manager)

Health Neighborhood was an innovative program that faced funding, staffing, partnership, and policy-related challenges. It also served a highly-complex population, representative of the population of high hospital/ED users, which is the focus of city and statewide efforts to reduce overall healthcare costs. It is this group as well who would be included as participants within HAH's IHPA overall care coordination program and within the new Integrated Health Homes roll-out, and so the lessons learned can be applied beyond the life of this project.

Ultimately, the challenge that Health Neighborhood faced was one of timing. Health Neighborhood was an example of a project that was just implemented before its time, in a structure that did not allow for enough flexibility to allow for innovation. But the rush to implement the 1115 waiver meant that timelines were not clear, and there was miscommunication about what the waiver would entail.

> *If I had known at the beginning that we would be in 20, we're going to finish 2019, we're going to enter 2020, without the 1115 waiver benefit turned on, I, the wind would have been so knocked out of myself. Sure. I don't think we would have started this to be honest. And so I'm glad I didn't know that. Yeah. Because I think this was successful. It was successful in proving how complicated this is. And from this I think we could actually design a more sustainable project. (Ed Stellon, HAH Director)*

Most importantly, though, at a systems level, Illinois must prioritize improving integration of physical and behavioral healthcare for populations with complex medical needs. From both a human rights perspective and cost-saving perspective, the current system of practice must change. Pilot programs like Health Neighborhood can serve as an example of what care could look like, if and when value-based arrangements and integrated health homes begin to be implemented.

Illinois is on the precipice of change as the Integrated Health Home model is set to roll out in 2020 [at time of publication]. Illinois began conceptualizing the IHH model in the previous administration, but with a new administration, the plan has been reimagined and there has been some public engagement. The implications of such a major shift are certainly not lost on the new administration and there have been changing implementation roll-out dates. To ensure a successful roll-out, however, the recommendations detailed here should be heard to ensure that IHH implementation is sustainable and capable of achieving the intended outcomes. By focusing on the populations with the highest needs, everyone benefits. By ensuring that, as a State, Illinois is responsive to populations with the *most* complex health and social needs, we can build better, stronger, and more creative systems that are inclusive to a spectrum of needs across Illinois.

Perhaps the most important lesson is the time and cost of services required to make what may appear on a macro-level to be small shifts in population health but have a great impact for an individual. Importantly, however, while overall costs could have been reduced, and reimbursements could have been higher, it is also

important to ask ourselves, what does success look like for populations with complex social and medical needs?

> *"I think my improved outcome, my favorite outcome is always some improved quality of life, how would they see their life? You know, one of the residents that's meeting with [her therapist], I think meeting with [her therapist] has made a profound impact on her life, I really do. I don't know exactly how to measure that, but to me that is meaningful. It's a person I've known for 10 years and I've never seen her in therapy, she comes to meet with [her therapist] faithfully. That's really powerful … Those are the outcomes that I see out of it. They're not ones that are easy to pull out of a database, though, but that's what I think is a good outcome."* (PSH Manager)

Health Neighborhood did support positive changes for some of the program participants, either through their physical health or behavioral health. It did also create partnerships that had some benefits, though were not without challenges and drawbacks.[88] Ultimately, though, there were some noted flaws within the program design that impacted its cost and outcomes. Health Neighborhood was not financially sustainable. However, the ideas, the innovations, the creativity, and the lessons learned from the project can be carried forward to continue to create programs and systems that provide high-quality, integrated behavioral and physical health services built on strong partnerships to improve population-based healthcare.

Appendix 1: Data Limitations

1. Costing
    a. Cost data for each PSH was extrapolated from the documented costs of one PSH partner to the estimated costs of the other two PSH partners, then all three PSH costs were totaled in the CEA calculator. Each PSH program was different, so the amount that each program contributed (i.e. by supplementing staff time, for example) did not align proportionately to the hours invoiced to HAH from HN shared staff members.
    b. We did not analyze each individual cost, but rather the summaries of costs by pre-determined finance categories. This meant that a more granular cost analysis could not be completed. For example, training costs, which were cited as a potential drain on resources, could not be easily separated out from the bulk costs paid to PSHs.
    c. We had initially wanted to look at changes in cost over the program implementation period by cost type (administrative, reimbursement, etc.), but there were a few issues. The first is that the program was very dynamic in terms of gaining new partners and new staff as well as losing staff members. Also, reimbursements are often delayed and so the reimbursements provided in the time period may not be the full amount that HAH would eventually expect to see (although the total reimbursement largely aligned with the estimation of reimbursement based on total hours invoiced). But for that reason as well, assessing reimbursements tied to cost would have required a more complex analysis.
    d. We estimated the February – April cost paid to the PSHs because we didn't have that data beyond February as the program began to be shut down. We took the 3 month prior average and applied it to each month.
    e. To develop sample care coordination rates, we used one example of visits with one care coordinator. In the future, it would be useful to assess multiple care coordination visits and calculate an average to better develop estimates.
2. Health Outcomes
    a. The participant sample size was very small (38). Within that group, most of the participants were part of the NHSS-HAH partnership (23), but there were also participants from Deborah's Place and HOW. The data was not disaggregated by partnership because the sample size was so small but there may have been outcome differences by program because of implementation differences, the population differences (HOW focused on Rule 132 populations), the geographic differences (NHSS is closest to the Uptown clinic), and date of joining (NHSS joined first, then Deborah's Place, then HOW).
    b. Time periods were fairly arbitrary given the phased implementation dates and unexpected end to the program. We tried out different time pre and post time periods and settled on the 9 month period to allow for enough of the participants to have an appointment in both the pre and post period.
    c. The clinical measures, due to the short study period, might be biased towards staying TRUE because of the inherent timing within the measures. For example, a measure like breast cancer screening, in which the screening is required every two years, compliance would be less likely to shift from TRUE to FALSE within the allotted time. A 5-year

Appendix 2: Health Neighborhood Participant Survey Data

Table 1: Demographic Information	
Race (N=19)	
Black or African American	52.6%
Unspecified	10.5%
White	36.8%
Ethnicity	
Hispanic or Latino	5.26%
Sex (N=19)	
Female	26.3%
Male	73.7%
Gender Identity	
Identifies as Female	21%
Identifies as Male	63.2%
Additional Gender Category	5.26%
Decline	10.5%
Age (N=19)	
35-44	11%
45-54	11%
55-64	63%
65+	16%
Highest level of education completed (N=21)	
GED (high school equivalency)	23.8%
High school diploma	23.8%
No degree or certificate or diploma	23.8%
Technical certificate (no high school diploma or GED)	4.8%
Technical certificate (post high school)	9.5%
Two-year college degree (AA, AS, AAS)	9.5%
Other: Completed 3 years of college	4.8%
Employment, past 3 months (N=21)	
I had one or more other jobs for all or part of those 3 months	4.8%
I was unemployed	95.2%
Employment, prior to HN (N=21)	
I had one or more other jobs for all or part of that time	9.5%
I was unemployed	61.9%
Decline or N/A	28.6%

Table 2: Health Neighborhood Engagement	
Most recent care coordinator visit (N=21)	
1 week ago	57.1%
1 month ago	33.3%
1-3 months ago, or Never	9.5%
Most recent therapist visit (N=18)	
1 week ago	27.8%
1 month ago	11.1%
More than 3 months ago, or Don't Meet	55.6%
Decline	5.6%
Therapist appointment, prior to HN? (N=21)	
Consistently (once a week - once a month) for a period of time	47.6%
Once or twice but not consistently	14.3%
Never	38.1%
Frequency of care coordinator appointments, past 3 months (N=21)	
Once a week or more	19.0%
About twice per month	14.3%
About once a month	33.3%
Have met once	14.3%
As needed	9.5%
Not applicable: just started program	9.5%
Frequency of therapy appointments, past 3 months (N=18)	
Once a week or more	33.3%
About once a month	11.1%
Have met once	16.7%
Met for enrollment, but haven't met since, and have no appointments scheduled	16.7%
Just started program	16.7%
Decline	5.6%

Table 2: Health Neighborhood Engagement	
Most recent care coordinator visit (N=21)	
1 week ago	57.1%
1 month ago	33.3%
1-3 months ago, or Never	9.5%
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About once a month	33.3%
Have met once	14.3%
As needed	9.5%
Not applicable: just started program	9.5%
Frequency of therapy appointments, past 3 months (N=18)	
Once a week or more	33.3%
About once a month	11.1%
Have met once	16.7%
Met for enrollment, but haven't met since, and have no appointments scheduled	16.7%
Just started program	16.7%
Decline	5.6%

Table 3: Self-Reported Health and Health Care Utilization	
Overall self-reported health status (N=21)	
Very good+	9.5%
Good	47.6%
Poor to fair	42.9%
Overall self-reported physical health status in past 3 months (N=18)	
Better	11.1%
Same	11.1%
Worse	61.1%
Decline or N/A	16.7%
Overall self-reported behavioral health status in past 3 months (N=21)	
Very good+	23.8%
Good	47.6%
Poor to fair	28.6%
Overall self-reported behavioral health status prior to HN (N=18)	
Same	5.6%
Worse	77.8%
Decline or N/A	16.7%
Frequency of outpatient clinic for physical health illness, past 3 months (N=21)	
Frequently	14.3%
Regularly/Occasionally	42.9%
Once or not at all	42.9%
Frequency of outpatient clinic for physical health issue, prior to HN (N=18)	
Less often	22.2%
Same	38.9%
More often	22.2%
Decline or N/A	16.7%
Frequency of outpatient clinic for behavioral health issues, past 3 months? (N=21)	
Frequently	9.5%
Occasionally	28.6%
Once or not at all	57.1%
Decline	4.8%
Frequency of outpatient clinic for behavioral health issues, pre-HN? (N=18)	
Less often	16.7%
More often	11.1%
Same	55.6%
Decline or N/A	16.7%
Frequency of clinic visits for preventative care, past 3 months? (N=21)	
Frequently	4.8%
Regularly/Occasionally	61.9%
Once or not at all	28.6%

aThe most common response for why a participant went to the emergency room in the past three months was for physical health
bNHSS and Deborah's Place only
cThis question allowed multiple responses

Table 5: Support from Care Coordination Team	
Care coordination team listening carefully to health concerns (N=21)	
Always	81.0%
Usually (more often than not they will listen carefully to your health concerns)	14.3%
Never	4.8%
Care coordination team explaining things well (N=21)	
Always	90.5%
Usually (more often than not they will explain things to you in a way you understand)	9.5%
Care coordination team showing respect (N=21)	
Always	95.2%
Usually (more often than not they will show respect for what you have to say)	4.8%
Care coordination team spending enough time (N=21)	
Always	71.4%
Sometimes/Usually	23.8%
Rarely	4.8%

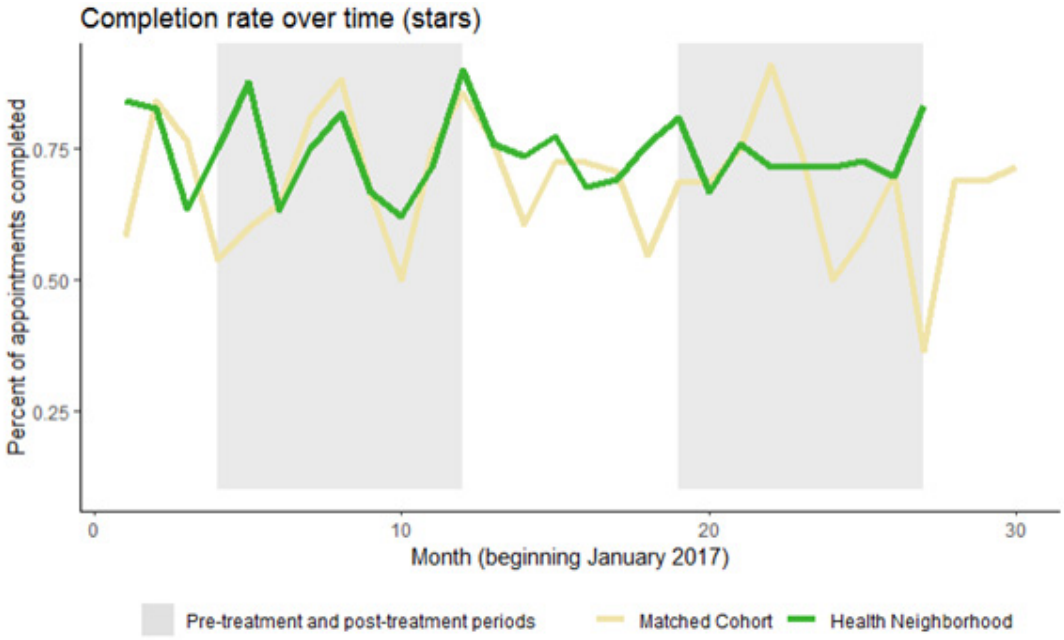
Table 6: Health and Housing/Relationships/Employment	
Health status impacting housing (N=21)	
It has been hard to find or stay in housing, or have enough money to pay rent	9.5%
My health does not impact my housing	85.7%
I don't know	4.8%
Health status impacted ability to maintain healthy/positive relationships, past 3 months? (N=21)	
Yes	23.8%
No	66.7%
I don't know	9.5%
Health status impacted ability to maintain employment, past 3 months? (N=21)	
Yes	42.9%
No	19.0%
Not applicable	38.1%

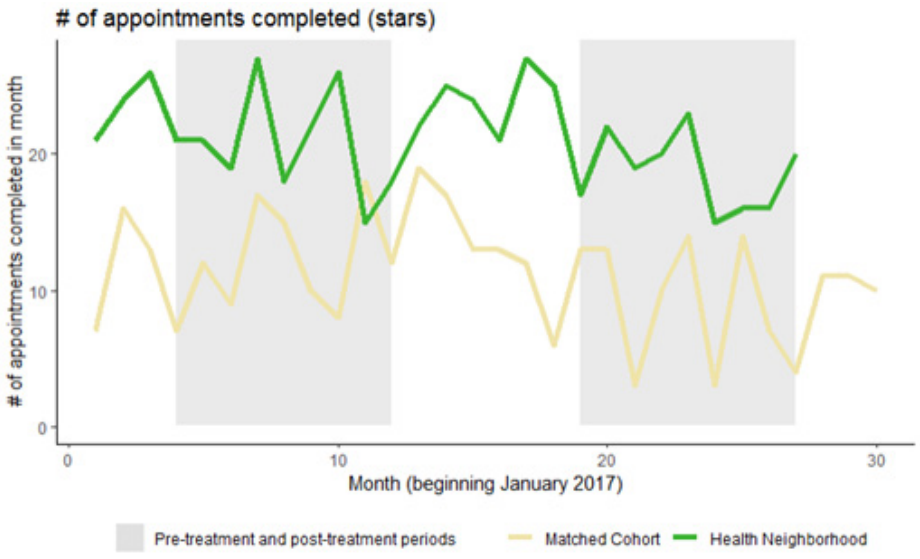
Appendix 3: HEDIS Measures Definitions

	HEDIS Cliinical Measures, 2019
Breast Cancer Screening	Assesses women 50–74 years of age who had at least one mammogram to screen for breast cancer in the past two years
Cervical Cancer Screening	Assesses women 21–64 years of age who were screened for cervical cancer using either of the following criteria: 1) Women age 21–64 who had cervical cytology performed every 3 years OR 2) Women age 30–64 who had cervical cytology/human papillomavirus (HPV) co-testing performed every 5 years
Colorectal Cancer Screening	Assesses adults 50–75 who had appropriate screening for colorectal cancer with any of the following tests: annual fecal occult blood test, flexible sigmoidoscopy every 5 years, colonoscopy every 10 years, computed tomography colonography every 5 years, stool DNA test every 3 years.
Comprehensive Diabetes Care: Blood Pressure Control (<140/90 mm Hg)	Assesses adults 18–75 years of age with diabetes (type 1 and type 2) who had Blood Pressure Control (<140/90 mm Hg)
Comprehensive Diabetes Care: Eye Exam (retinal) performed	Assesses adults 18–75 years of age with diabetes (type 1 and type 2) who had an eye exam (retinal) performed
Comprehensive Diabetes Care: Hemoglobin A1c (HbA1c) Control (<8.0%)	Assesses adults 18–75 years of age with diabetes (type 1 and type 2) who had Hemoglobin A1c (HbA1c) Control (<8.0%)
Comprehensive Diabetes Care: Hemoglobin A1c (HbA1c) testing	Assesses adults 18–75 years of age with diabetes (type 1 and type 2) who had Hemoglobin A1c (HbA1c) testing
Comprehensive Diabetes Care: Medical Attention for Nephropathy	Assesses adults 18–75 years of age with diabetes (type 1 and type 2) who had medical attention for nephropathy
Controlling High Blood Pressure	Assesses adults 18–85 years of age who had a diagnosis of hypertension and whose blood pressure was adequately controlled (<140/90 mm Hg).
Diabetes: Foot Exam (NCQA)	Assesses the percentage of patients 18-75 years of age with diabetes (type 1 and type 2) who received a foot exam (visual inspection and sensory exam with mono filament and a pulse exam) during the mea-surement year
Diabetes: Hemoglobin A1c Poor Control*	Assesses adults 18–75 years of age with diabetes (type 1 and type 2) who had poor Hemoglobin A1c control (>9%)
Diabetes: Low Density Lipoprotein (LDL) Management	Assesses adults 18–75 years of age with diabetes (type 1 and type 2) who hadlow density lipoprotiein (LDL) management
Preventive Care and Screening: Body Mass Index Screening and Follow-Up	Assesses the percentage of members 18–74 years of age who had an outpatient visit and whose body mass index (BMI) was documented during the measurement year or the year prior to the measurement
Preventive Care and Screening: Screening for Clinical Depression and Follow-Up Plan	The percentage of members 12 years of age and older who were screening for clinical depression using a standardized tool and, if screened positive, who received follow-up care.

Appendix 4: Parallel Assumption Trends Graphs and Shapiro-Wilks Test

There was a largely stable trend over time between cohorts in # and % of appointments completed over time, for participants who have an appointment in both the pre and post period. The matched cohort data looks less stable. This fluctuation is largely driven by the mental health appointment completion (not shown). 'Stars' are participants who have an appointment in both the pre and the post periods.





The completion rate among participants with appointments in the pre and post period in the matched cohort does not follow a trend at all. This is because of the low number of appointments overall among this groups and the few people that those appointments are attributed to (6). But, in contrast, it might suggest a stability of appointment completion among the Health Neighborhood group that is an important outcome.

Density Plot and Shapiro-Wilks Test

Appointment completion data

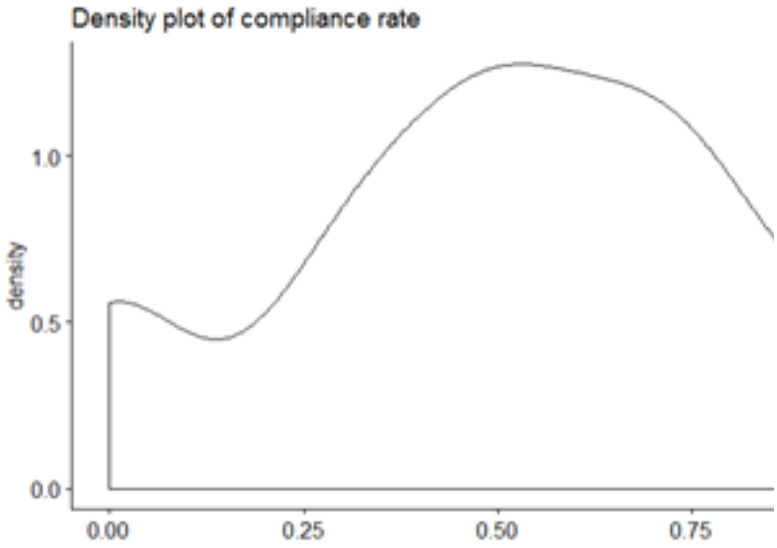
The Shapiro-Wilks test confirmed that the appointment data was normal (sig. p>.05) for the combined cohort (.077), Health Neigbhorhood (.099) and matched cohort (.1818).

	Combined	Health Neighborhood	Matched Cohort
W	.95388	.93254	.93114
p-value	.07681	.09951	.1818

Clinical Measures

The density plots and the Shapiro-Wilks test confirmed that the clinical measures data was not normally distributed at (sig. p<.05), and therefore did not meet the assumptions for a difference-in-differences test.

	Combined	Health Neighborhood	Matched Cohort
W	.94324	.93722	.9436
p-value	.00052	.01702	.02237



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